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Panduan dan
Profil Penghargaan

Nurtanio

Award dan

Nurtanio

Pringgoadisuryo

Memorial Lecture

Tahun 2024

Panduan dan
Profil Penghargaan

**Nurtanio
Award dan
Nurtanio
Pringgoadisuryo
Memorial Lecture**

Tahun 2024

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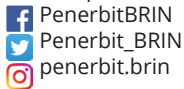
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KATA PENGANTAR

Badan Riset dan Inovasi Nasional bekerja sama dengan Lembaga Pengelola Dana Pendidikan (LPDP) merasa perlu untuk memberikan penghargaan tertinggi secara berkelanjutan kepada perorangan yang berasal dari internal ataupun eksternal BRIN. Nurtanio Award merupakan salah satu bentuk apresiasi kepada insan, tokoh, ilmuwan, dan pakar (perusahaan, industri, akademisi, dan profesional) yang sudah menghasilkan berbagai prestasi dan inovasi yang luar biasa serta menaruh perhatian khusus dalam dunia penerbangan dan antariksa di Indonesia. Nurtanio Pringgoadisuryo Memorial Lecture adalah kegiatan keilmuan dalam bentuk orasi ilmiah pada bidang penerbangan dan antariksa yang disampaikan oleh insan, tokoh, ilmuwan, dan pakar (perusahaan, industri, akademisi, profesional) yang menaruh perhatian khusus serta telah banyak memberikan inspirasi dan pemikirannya dalam pengembangan ilmu pengetahuan (iptek) dan teknologi, khususnya pada bidang penerbangan dan antariksa di Indonesia. Kami mengucapkan terima kasih kepada seluruh pihak yang telah mendukung terselenggaranya kegiatan Nurtanio Award dan Nurtanio Pringgoadisuryo Memorial Lecture Tahun 2024

Jakarta, November 2024

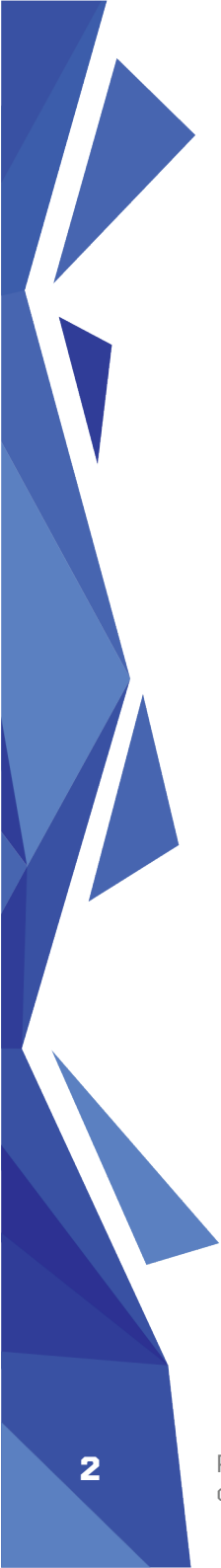
Panitia



PENDAHULUAN

Menurut Kamus Besar Bahasa Indonesia (KBBI), ilmuwan adalah orang yang ahli atau memiliki banyak pengetahuan mengenai suatu ilmu. Dalam arti yang lain, ilmuwan adalah orang yang berkecimpung dalam ilmu pengetahuan. Para ilmuwan ini dalam pekerjaan menghasilkan suatu karya yang dapat digunakan dan diterapkan kepada masyarakat luas. Sumbangsih para ilmuwan ini dalam memberikan kontribusi kepada negara dan bangsa layak untuk diberikan suatu penghargaan. Dalam rangka meningkatkan ekosistem riset di Indonesia, perlu diberikan penghargaan kepada individu yang sangat berjasa, baik dalam penemuan, pengembangan, maupun penyebarluasan berbagai kegiatan iptek dan inovasi, serta berkontribusi bagi masyarakat dan bangsa yang dapat diikuti oleh periset khususnya pada bidang ilmu penerbangan dan antariksa.

Nurtanio Award merupakan salah satu bentuk apresiasi kepada insan, tokoh, ilmuwan, dan pakar (perusahaan, industri, akademisi, profesional) yang sudah menghasilkan berbagai prestasi dan inovasi yang luar biasa serta menaruh perhatian khusus dalam dunia penerbangan dan antariksa di Indonesia. Nurtanio Pringgoadisuryo Memorial Lecture adalah kegiatan keilmuan dalam bentuk orasi Ilmiah pada bidang penerbangan dan antariksa yang disampaikan oleh insan, tokoh, ilmuwan dan pakar (perusahaan, industri, akademisi, profesional) yang menaruh perhatian khusus serta telah banyak memberikan inspirasi dan pemikirannya dalam pengembangan ilmu pengetahuan dan teknologi khususnya pada bidang penerbangan dan antariksa di Indonesia.



Penggunaan nama Nurtanio dimaksudkan untuk mengenang jasa pengabdian Laksamana Muda Anumerta Nurtanio Pringgoadisuryo sebagai perintis industri kedirgantaraan Indonesia yang juga merupakan sosok pembuat pesawat pertama *all metal* dan *fighter* Indonesia bernama Sikumbang dan membuat pesawat lain bernama Kunang-kunang, Belalang, dan Gelatik. Nurtanio Award dan Nurtanio Pringgoadisuryo Memorial Lecture dilaksanakan atas pertimbangan bahwa BRIN sebagai lembaga keilmuan terbesar sudah seharusnya menyelenggarakan kegiatan dalam bidang penerbangan dan antariksa. Kegiatan Nurtanio Pringgoadisuryo Memorial Lecture adalah sebuah orasi ilmiah dari seorang insan, tokoh, ilmuwan, dan pakar yang telah memberikan sumbangsih nyata dan bermanfaat bagi ilmu pengetahuan dan kemanusiaan. Nurtanio Pringgoadisuryo Memorial Lecture pertama kali dilaksanakan oleh BRIN pada tahun 2022. Adapun nama pemberi orasi ilmiah Nurtanio Pringgoadisuryo Memorial Lecture sebelumnya, yaitu Dr. Orbita Roswintiarti, M.Sc. menyampaikan orasi ilmiah Nurtanio Pringgoadisuryo Memorial Lecture Tahun 2022 dengan judul “Pemanfaatan Penginderaan Jauh Untuk Pemantauan Sumber Daya Alam dan Lingkungan.”

Acara Nurtanio Award dan Nurtanio Pringgoadisuryo Memorial Lecture dilaksanakan setiap tahun, dan pada 2024 ini, Nurtanio Award dan Nurtanio Pringgoadisuryo Memorial Lecture merupakan yang ke-3. Adapun nama penerima penghargaan Nurtanio Award dan pemberi kuliah Nurtanio Pringgoadisuryo Memorial Lecture sebelumnya adalah sebagai berikut:

Pemberi Nurtanio Pringgoadisuryo Memorial Lecture:

- 1) Dr. Orbita Roswintiarti, M.Sc. menyampaikan orasi ilmiah Nurtanio Pringgoadisuryo Memorial Lecture Tahun 2022 dengan judul “Pemanfaatan Penginderaan Jauh untuk Pemantauan Sumber Daya Alam dan Lingkungan” Tahun 2022
- 2) Adi Rahman Adiwoso, M.Sc. menyampaikan orasi ilmiah Nurtanio Pringgoadisuryo Memorial Lecture Tahun 2023 dengan judul “Satelit, Tonggak Penting dalam Memperkuat dan Memperkokoh NKRI” Tahun 2023

Penerima Nurtanio Award:

- 1) Prof. Harijono Djojodihardjo, Sc.D., S.T., MSME, Mech.E., SM Nav.Arch., & Mar.Eng, Penerima Penghargaan Nurtanio Award Tahun 2023

Tujuan

Tujuan diselenggarakannya kegiatan penganugerahan Nurtanio Award dan Nurtanio Pringgoadisuryo Memorial Lecture, yaitu:

- 1) memberikan tempat terhormat bagi para tokoh, ilmuwan, atau pakar Indonesia yang telah banyak memberikan inspirasi dan pemikirannya dalam pengembangan ilmu pengetahuan dan teknologi (iptek) baik di tingkat nasional maupun internasional pada bidang penerbangan dan antariksa,
- 2) mewujudkan sumber daya manusia Indonesia unggul yang mampu menguasai, mengembangkan, dan menyebarluaskan ilmu pengetahuan dan teknologi pada bidang penerbangan dan antariksa untuk kesejahteraan bangsa Indonesia, dan

- 3) mendorong masyarakat turut serta mengembangkan ilmu pengetahuan dan teknologi (iptek) pada bidang penerbangan dan antariksa.

Penerima Manfaat

Penerima manfaat Nurtanio Award adalah periset, insan, tokoh, ilmuwan, ataupun pakar yang berjasa, baik dalam penemuan, pengembangan, penyebarluasan ilmu pengetahuan, maupun teknologi pada bidang penerbangan dan antariksa, serta memiliki dampak dan kontribusi bagi masyarakat serta bangsa Indonesia. Penerima manfaat Nurtanio Pringgoadisuryo Memorial Lecture adalah tokoh atau individu yang memberikan inspirasi dalam penyebarluasan ilmu pengetahuan serta memiliki kontribusi bagi masyarakat dan bangsa Indonesia pada bidang ilmu penerbangan dan antariksa.

Waktu dan Tempat

Kegiatan Nurtanio Award dan Nurtanio Pringgoadisuryo Memorial Lecture Tahun 2023 diselenggarakan pada:

Hari/Tanggal : 26 November 2024

Waktu : 09.00–12.00 WIB

Bertempat : Auditorium Sumitro Djohadikusumo
Gedung B.J. Habibie, Lantai 3
Jalan M.H. Thamrin No. 8, Jakarta Pusat

Kriteria Pemilihan

Kriteria Pemilihan Nurtanio Award dan Nurtanio Pringgoadisuryo Memorial Lecture, sebagai berikut:

- 1) Memiliki integritas yang tinggi kepada Negara Kesatuan Republik Indonesia;
- 2) Memberikan kontribusi yang berpengaruh terhadap perkembangan ilmu pengetahuan dan teknologi;
- 3) Aktif memberikan sosialisasi dan motivasi yang tinggi kepada masyarakat untuk menekuni bidang ilmu pengetahuan dan teknologi yang dikembangkannya;
- 4) Tokoh yang memberikan inspirasi dalam penyebarluasan ilmu pengetahuan dan teknologi, serta memiliki kontribusi bagi masyarakat dan bangsa Indonesia.

**SUSUNAN ACARA
PENYELENGGARAAN “NURTANIO AWARD DAN
NURTANIO PRINGGOADISURYO
MEMORIAL LECTURE TAHUN 2024
JAKARTA, 26 NOVEMBER 2024**

Waktu	Agenda
08.30-09.30	Registrasi
09.30-09.50	Pembukaan Acara
09.50-09.55	Pemutaran Video Profile Nurtanio Award dan Nurtanio Pringgoadisuryo Memorial Lecture
09.55-10.00	Pembacaan dan Penayangan Rekam Jejak Riset Pemberi Kuliah Ilmiah Nurtanio Pringgoadisuryo Memorial Lecture Tahun 2024
10.00-10.15	Kuliah Ilmiah Nurtanio Pringgoadisuryo Memorial Lecture Tahun 2024
10.15-10.25	Pembacaan dan Penayangan Rekam Jejak Riset Penerima Nurtanio Award Tahun 2024
10.25-10.30	Penyerahan Medali dan Foto Bersama kepada Penerima Nurtanio Award dan Pemberi Kuliah Ilmiah Nurtanio Pringgoadisuryo Memorial Lecture Tahun 2024
10.30-10.35	Sambutan Kepala BRIN
10.35-11.50	Bincang Ekosistem Riset Inovasi Dirgantara Nasional
11.50-12.00	Penutup



**PROFIL PENGHARGAAN NURTANIO AWARD
DAN NURTANIO PRINGGOADISURYO
MEMORIAL LECTURE TAHUN 2024**





PROFIL PENERIMA
NURTANIO AWARD TAHUN 2024
LAVI RIZKI ZUHAL

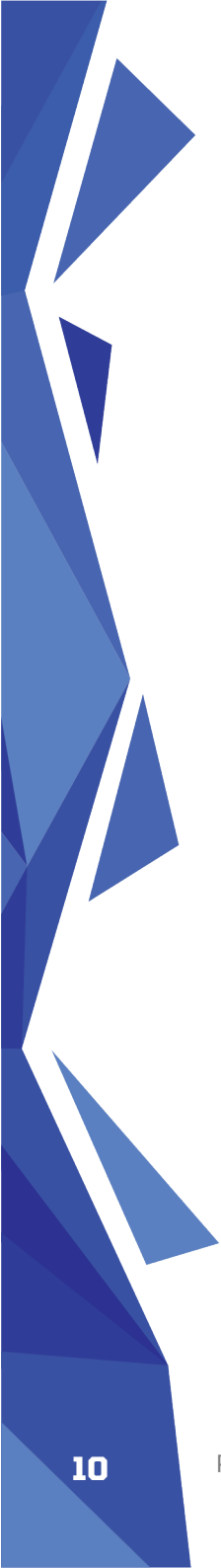


ALIRAN KOMPLEKS YANG TERINSPIRASI DARI ALAM

Lavi Rizki Zuhul

Tantangan utama dalam aplikasi ilmu aerodinamika dan mekanika fluida pada bidang rekayasa dirgantara saat ini bukan lagi terfokus pada desain wahana yang dapat bergerak lebih cepat. Fokus utama telah bergeser kepada bagaimana merancang wahana yang lebih efisien dan ramah lingkungan. Masalah efisiensi ini berkaitan erat dengan pengurangan gaya hambat, yang meskipun merupakan permasalahan klasik, tetap menjadi tantangan besar dalam aerodinamika hingga saat ini. Pemahaman tentang bagaimana mengurangi gaya hambat akibat gesekan fluida akan berdampak pada penghematan penggunaan bahan bakar dari berbagai wahana transportasi, termasuk pesawat terbang. Dampak ekonominya akan sangat signifikan, karena wahana transportasi menggunakan triliunan galon bahan bakar per tahunnya.

Tantangan berikutnya adalah terkait dengan usaha pencarian suatu sistem propulsi baru untuk



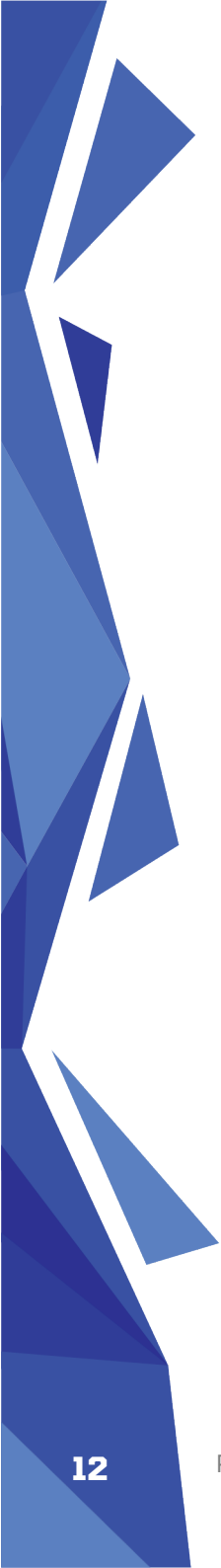
wahana tanpa awak berukuran kecil, baik untuk wahana tanpa awak udara *micro unmanned aerial vehicle (micro UAV)*, maupun wahana bawah air *autonomous underwater vehicle (AUV)*. Wahana otonom ini dirancang untuk melakukan suatu fungsi pekerjaan yang sangat berbeda dengan UAV/*drone* yang ada saat ini. Misalnya, kebutuhan untuk merancang *micro-UAV* yang mampu terbang melayang (*hover*) agar dapat melakukan berbagai pekerjaan sambil terbang, seperti seekor serangga yang dapat melayang sambil bekerja/makan. Contoh lain adalah kebutuhan akan wahana AUV yang senyap dan mampu bermanuver dengan lincah di air, layaknya seekor ikan. Wahana-wahana otonom seperti ini diprediksi akan banyak diperlukan di masa yang akan datang, untuk berbagai keperluan, mulai dari inspeksi dan perbaikan, pencarian dan penyelamatan, medis, intelijen, hingga militer. Sistem propulsi yang ada saat ini belum dapat memenuhi keperluan tersebut. Oleh karena itu, diperlukan suatu sistem propulsi baru untuk wahana semacam ini.

Salah satu alternatif untuk menjawab berbagai tantangan di atas adalah dengan mengambil inspirasi dari aliran yang dijumpai di alam semesta. Sebagai contoh untuk mengurangi gaya hambat, kita dapat mempelajari bagaimana aliran di sekitar sisik ikan hiu yang relatif kasar malah dapat menghasilkan gaya gesek yang rendah. Contoh lainnya adalah bagaimana pembangkitan gaya dan momen yang dihasilkan oleh kepakan sayap burung atau serangga memungkinkan hewan-hewan tersebut dapat bermanuver dengan lincah dan stabil. Pemahaman fenomena aliran yang terinspirasi dari alam ini berpotensi untuk dimanfaatkan dalam pengembangan teknologi masa depan yang lebih maju dan ramah lingkungan.

Mayoritas aliran fluida yang dijumpai di alam adalah aliran fluida tak-tunak yang didominasi oleh pembangkitan dan interaksi vorteks, yang jauh lebih

kompleks dari pada aliran di sekitar wahana buatan manusia saat ini. Sayap pesawat terbang dirancang agar aliran udara yang bergerak di sekitarnya menempel pada permukaan sayap (*attached flows*). Aliran yang menempel ini diatur sedemikian rupa agar menghasilkan distribusi tekanan, yang akan membangkitkan gaya dan momen aerodinamika, termasuk gaya angkat. Sementara itu, aliran fluida yang dijumpai pada hewan adalah aliran di sekitar permukaan benda yang bergerak dan mengalami perubahan bentuk. Aliran yang dihasilkan adalah aliran fluida tak-tunak (*unsteady flow*) yang lepas dari permukaan (*separated flows*) pada bagian belakang benda. Lapisan geser (*shear layer*) dari aliran lepas ini kemudian menggulung dan membentuk vorteks (pusaran), sehingga aliran seperti ini cenderung akan didominasi oleh vorteks (*vortex dominated flows*). Berbagai vorteks yang terbentuk akan berinteraksi satu sama lain dan juga dengan permukaan benda dalam suatu proses pembangkitan gaya dan momen pada aliran tipe ini. Diperlukan pemahaman fenomena fisik yang cukup dalam agar interaksi vorteks dapat dimanipulasi sedemikian rupa guna menghasilkan gaya dan momen yang diinginkan. Pemahaman ini dimiliki secara natural oleh hewan yang terbang di udara dan yang berenang di air. Namun, cara memanipulasi aliran fluida tak-tunak yang didominasi oleh pembangkitan dan interaksi vorteks masih belum terlalu dipahami oleh manusia hingga saat ini.

Berbagai permasalahan terkait aliran fluida yang dibahas pada beberapa paragraf sebelumnya telah menjadi topik-topik riset dari penelitian yang penulis lakukan selama lebih dari 20 tahun terakhir di Fakultas Teknik Mesin dan Dirgantara (FTMD) ITB, bersama-sama dengan para kolega dan puluhan mahasiswa bimbingan. Mayoritas dari penelitian yang dilakukan adalah untuk aliran berkecepatan rendah (dengan



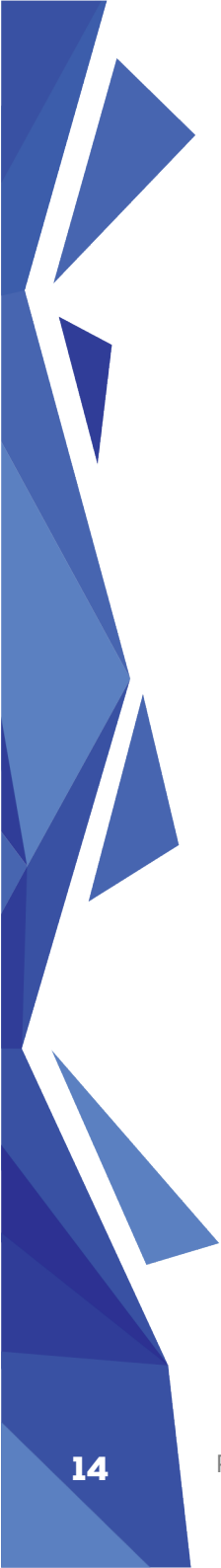
bilangan Reynolds yang rendah). Juga, aliran yang pelajari sebagian besar adalah aliran di sekitar benda (*external flows*). Namun, permukaan benda yang dipelajari mengalami perubahan terhadap waktu. Perubahan pada permukaan dapat berupa pergerakan permukaan sebagai benda kaku (*rigid body*), ataupun benda yang mengalami deformasi pada permukaan. Pada beberapa kasus, perubahan permukaan benda yang dikaji mengalami deformasi yang diakibatkan oleh interaksi permukaan dengan fluida (*fluid structure interaction/FSI*). Kompleksitas aliran dari kasus yang dikaji adalah sedemikian rupa sehingga memerlukan berbagai pengembangan metodologi analisis aliran yang baru untuk mempelajari fisika dari aliran tersebut.

Salah satu topik penelitian terkait hal ini adalah pengembangan metodologi eksperimental dengan memanfaatkan teknologi machine learning untuk mempelajari mekanisme pembangkitan gaya akibat adanya pergerakan dari permukaan benda. Setup eksperimen ini dikembangkan untuk memodelkan aliran yang dihasilkan oleh kepak sayap serangga maupun aliran yang dihasilkan oleh gerakan ikan ketika berenang di dalam air (Fathurrohim et al., 2022). Metode optimasi berbasis machine learning yang dikembangkan kemudian diperintahkan untuk mencari sendiri kinematika/gerak yang menghasilkan gaya yang paling optimal. Aliran yang dihasilkan oleh gerakan optimal tersebut kemudian dipelajari lebih lanjut untuk memahami proses fisika pembangkitan gaya tak tunak tersebut. Pemahaman aliran tipe ini akan membantu pengembangan sistem propulsi wahana masa depan, seperti *micro* UAV maupun AUV.

Penelitian lain adalah pengembangan metode komputasional fluida atau *computational fluid dynamics* (CFD) tanpa kisi-kisi (*meshless* CFD) berbasis partikel, yang dikembangkan agar dapat digunakan

untuk keperluan simulasi aliran di sekitar benda yang bergerak/berdeformasi. Salah satu metode CFD berbasis partikel yang pernah dikembangkan, adalah metode vortex particle method (VPM). VPM adalah metode CFD yang menyelesaikan persamaan *Navier-Stokes* dalam bentuk khusus, yang disebut bentuk Lagrangian. Sebagaimana metode berbasis partikel lainnya, algoritma VPM memiliki tingkat kompleksitas yang jauh lebih tinggi daripada algoritma CFD konvensional berbasis kisi-kisi, yang saat ini digunakan secara luas. Namun, apabila berhasil dikembangkan, VPM akan lebih mudah digunakan oleh pengguna dibandingkan CFD konvensional karena tidak memerlukan pembentukan kisi-kisi. Penelitian dengan topik VPM difokuskan ke pemodelan kondisi batas dengan menggunakan metode penalisasi, yang dikembangkan untuk memastikan bahwa kondisi ini akan selalu terpenuhi dalam simulasi aliran kompleks. Metode VPM untuk keperluan tersebut sudah berhasil dikembangkan dan diaplikasikan untuk mempelajari berbagai kasus aliran kompleks (Duong, et al., 2021; Duong & Zuhail, 2022; Firdaus et al., 2023).

Selain CFD, metode komputasional untuk mekanika padatan atau *computational solid mechanics* (CSM) berbasis partikel juga telah dikembangkan oleh penulis dan tim peneliti FTMD. Metode CSM berbasis partikel yang dikembangkan menggunakan model diskritisasi *smoothed-particle hydrodynamics* (SPH). SPH awalnya dikembangkan untuk keperluan simulasi aliran fluida. Namun, kami melihat bahwa SPH sangat cocok untuk digunakan sebagai metode CSM berbasis partikel, yang akan digabungkan dengan VPM (yang juga berbasis partikel), untuk keperluan simulasi interaksi fluida-struktur. Kemampuan untuk dapat melakukan simulasi interaksi fluida-struktur dengan defleksi struktur yang besar, secara akurat adalah salah satu alasan utama kenapa penulis memilih

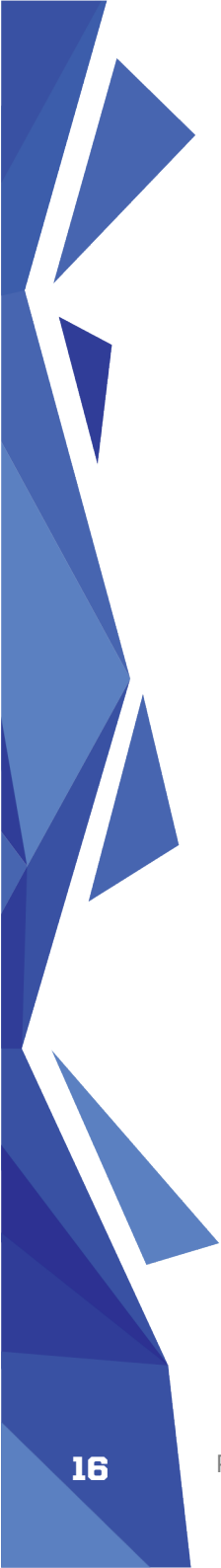


mengembangkan metode komputasional berbasis partikel. Fenomena yang seringkali dijumpai pada aliran di alam semesta ini sangat kompleks, baik dari sisi mekanika fluida maupun mekanika struktur, sehingga sangat sulit untuk mengendalikan parameter uji apabila dilakukan dengan menggunakan pendekatan eksperimental. Beberapa hasil riset pengembangan metode SPH untuk mekanika padatan telah diterbitkan dalam bentuk tulisan ilmiah di beberapa jurnal terkemuka di bidang terkait (Wiragunarsa et al., 2024a,b; Wiragunarsa et al., 2021).

Permasalahan kompleks yang dijumpai dalam bidang rekayasa dirantara seringkali melibatkan beberapa fenomena fisika yang berbeda secara bersamaan. Oleh karena itu, kami mengembangkan metode komputasional lain yang dikenal dengan sebutan *Lattice Boltzmann Method* (LBM), yang menyelesaikan persamaan Boltzmann. Secara umum, persamaan Boltzmann merupakan persamaan yang penting untuk memahami fenomena multifisika, yang melibatkan interaksi kompleks dalam berbagai sistem fisika seperti seperti dalam kasus interaksi fluida-struktur. LBM terkenal karena kemampuannya untuk menangani geometri kompleks dan fenomena multifisika dengan efisien. Keunggulan LBM meliputi kesederhanaan implementasi untuk geometri yang tidak teratur dan kemudahan dalam mensimulasikan masalah dengan batasan yang kompleks. Ini menjadikannya sangat berguna dalam aplikasi teknik, termasuk teknik dirantara. Hasil dari pengembangan LBM juga sudah kami manfaatkan untuk mempelajari fenomena aliran kompleks. Dalam tulisan Duong et al. (2024a), LBM digunakan untuk menangkap interaksi kompleks ulakan dari tiga benda yang diletakkan secara berurutan. Ini merupakan pemodelan dari aliran yang dihasilkan oleh beberapa *drones* yang bergerak di dekat suatu permukaan. Sementara itu,

dalam tulisan Duong et al. (2024b), LBM digunakan untuk mempelajari fenomena interaksi struktur koheren dari sistem vorteks yang dilepaskan oleh sebuah benda.

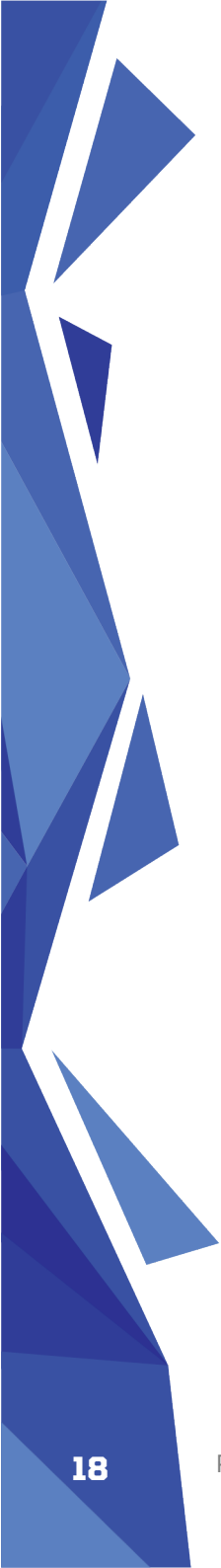
Selain untuk melakukan analisis dan mempelajari fenomena fisis, metode komputasional juga dapat dimanfaatkan untuk keperluan perancangan suatu sistem kompleks. Permasalahan utama dalam suatu proses perancangan dengan geometri kompleks menggunakan metode komputasi konvensional adalah mahalanya ongkos numerik yang diperlukan dalam mempersiapkan geometri dan kisi-kisi, yang pada proses perancangan perlu dilakukan secara berulang-ulang. Untuk mengatasi permasalahan ini, kami terlibat dalam pengembangan suatu metode numerik tanpa kisi-kisi baru yang disebut dengan metode kolokasi titik dengan menggunakan *mollified piecewise polynomial* (Alfarisy et al., 2024). Metode numerik baru ini digunakan untuk menyelesaikan persamaan diferensial parsial, yang merupakan model matematis dari suatu permasalahan teknik. Teknik ini melibatkan aproksimasi suatu fungsi menggunakan polinomial *piecewise* yang terhubung mulus pada batasnya sehingga menghindari diskontinuitas. Istilah *mollified* mengacu pada proses memperhalus fungsi-fungsi ini untuk memastikan bahwa fungsi-fungsi tersebut dapat terdiferensiasi pada titik-titik pertemuan segmen polinomial. Kontinuitas yang diberikan oleh molifikasi meningkatkan stabilitas dan konvergensi solusi numerik, yang menjadikannya sangat bermanfaat dalam menghadapi permasalahan dengan diskontinuitas atau ketidakstabilan yang banyak dijumpai di dalam permasalahan rekayasa. Metode numerik yang dikembangkan bersama-sama dengan mitra internasional ini berpotensi untuk mempermudah proses perancangan kompleks dari wahana dirgantara di masa depan.



Selama beberapa tahun terakhir, penulis dan tim peneliti di FTMD juga mengembangkan metode analisis fluida berbasis data yang memanfaatkan teknologi *machine learning*. Beberapa metode *machine learning* telah dikembangkan hingga dapat digunakan untuk mengolah data mekanika fluida untuk berbagai keperluan, seperti untuk perancangan maupun pemodelan. Salah satu contoh penelitian dengan topik ini adalah pengembangan metodologi optimasi perancangan aerodinamika berbasis *machine learning*. Dengan menggunakan metodologi optimasi perancangan yang kami kembangkan, proses perancangan dapat dilakukan secara otomatis dengan menggunakan model komputasional yang jauh lebih akurat daripada model yang digunakan dalam metode perancangan konvensional. Metode perancangan yang dikembangkan ini akan bermanfaat untuk menghasilkan rancangan yang jauh lebih baik dalam waktu yang lebih singkat, yang tentunya sangat diperlukan oleh berbagai industri rekayasa, termasuk industri dirgantara. Selain itu, hasil dari proses ini tidak hanya berupa satu titik desain optimum, tetapi juga memberikan informasi tentang seluruh ruang desain (*design space*). Informasi ini dapat dimanfaatkan untuk melakukan proses eksplorasi perancangan, seperti yang dipaparkan dalam tulisan Palar et al. (2023a). Beberapa metode yang kami kembangkan untuk keperluan ini, diantaranya adalah metode yang berbasis *Gaussian process regression* dan *polynomial chaos expansion* (Palar et al., 2018; Palar et al., 2020; Zuhail et al., 2021; Zuhail et al., 2023).

Topik penelitian lain adalah pemodelan aliran fluida berbasis data dengan menggunakan *machine learning*. Berbeda dengan optimasi perancangan, yang sebenarnya juga pemodelan namun dengan dimensi yang jauh lebih rendah, yang ingin diprediksi dari penelitian ini adalah medan aliran, yang memiliki harga

properti (seperti p, T, v) di setiap titik dalam domain aliran. Oleh karena itu, metode *machine learning* yang dikembangkan untuk keperluan ini adalah metode *deep learning*. *Deep learning* memiliki kemampuan untuk memodelkan kasus dengan tingkat non-linearitas serta dimensi yang tinggi. Namun demikian, metode *deep learning* standar menghasilkan hubungan yang bersifat kotak-hitam. Walaupun hubungan kotak-hitam ini cukup akurat, tidak terdapat penjelasan keterkaitan antara masukan (input) dan luaran (output). Walaupun bermanfaat, penggunaan metode ini untuk keperluan analisis aliran fluida akan sulit untuk dapat diterima apabila tidak bisa memberikan penjelasan fisis dari keterkaitan antara masukan-keluaran yang dihasilkan. Untuk itu, kami mengembangkan metode *explainable deep learning* yang, tidak hanya memberikan hubungan masukan-keluaran semata, tetapi juga dapat memberikan penjelasan keterkaitan antara masukan-keluaran (Palar, Zuhar, et al., 2023b). Metode yang kami kembangkan untuk memprediksi medan aliran ini telah menunjukkan hasil yang cukup menjanjikan (Palar, Stevenseon, et al., 2023). Pada makalah Putra et al. (2022), prediksi medan aliran bahkan dilakukan tanpa data, melainkan dengan menggunakan persamaan *Navier-Stokes*, yang diselesaikan dengan menggunakan metode *physics informed neural network* (PINN). Baru-baru ini, metode *explainable deep learning* yang kami kembangkan berhasil digunakan untuk memprediksi tegangan *Reynolds* secara akurat, yang dihasilkan oleh suatu kasus aliran turbulen. Dengan prediksi ini, gaya gesek yang dihasilkan oleh aliran turbulen dapat diprediksi dengan lebih akurat. Kemampuan prediksi gaya gesek dengan akurat secara cepat pada kasus aliran turbulen akan sangat membantu dalam proses perancangan wahana dengan gaya hambat minimal, yang merupakan salah satu tantangan utama dalam bidang rekayasa dirgantara saat ini.



Sebagai kesimpulan, pergeseran fokus pada aspek keberlanjutan (*sustainability*) dan efisiensi energi akan mendorong penelitian di bidang teknik dirgantara ke arah pengembangan solusi yang lebih ramah lingkungan. Hal ini mencakup perancangan wahana dan sistem propulsi masa depan yang lebih efisien dengan kemampuan yang lebih tinggi. Dengan mengaplikasikan pengetahuan tentang aliran fluida kompleks yang terinspirasi alam dalam pengembangan teknologi inovatif yang memperhatikan aspek keberlanjutan, para peneliti bidang teknik dirgantara akan memainkan peran penting dalam membentuk masa depan yang lebih berkelanjutan bagi planet kita.

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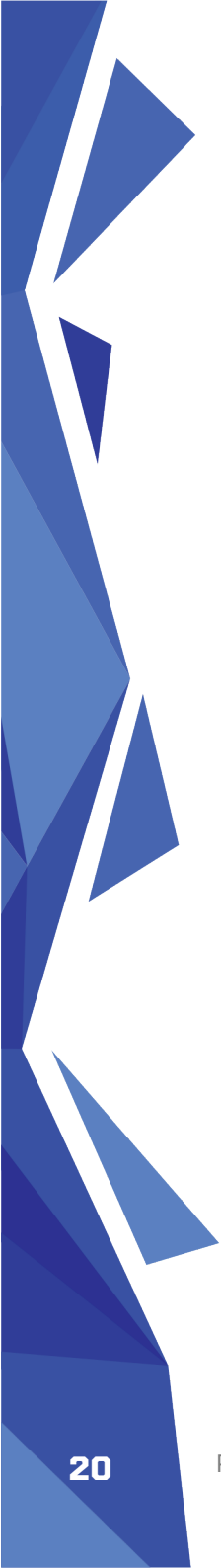
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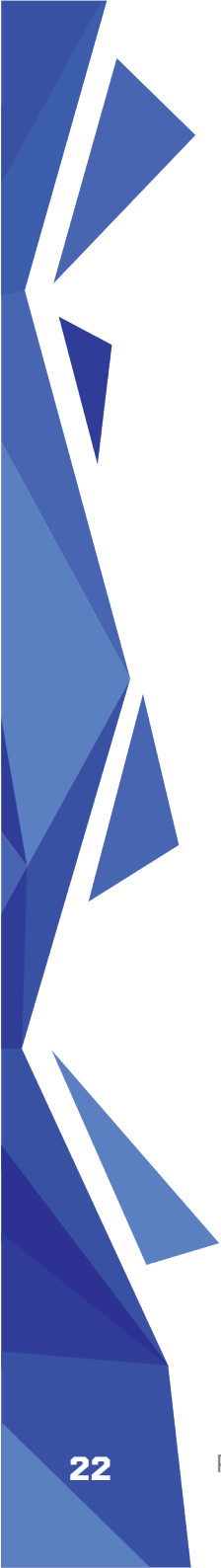
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Lavi Rizki Zuhul, Ph.D., adalah Profesor bidang Aerodinamika di Fakultas Teknik Mesin dan Dirgantara Institut Teknologi Bandung (FTMD ITB). Saat ini, beliau menjabat sebagai Wakil Dekan Bidang Akademik di FTMD ITB. Selain itu, beliau juga menjabat sebagai Ketua Kelompok Keahlian Dinamika Fluida dan Propulsi di FTMD ITB. Sebelumnya, beliau juga pernah menjabat sebagai Ketua Program Studi Sarjana Teknik Dirgantara ITB.

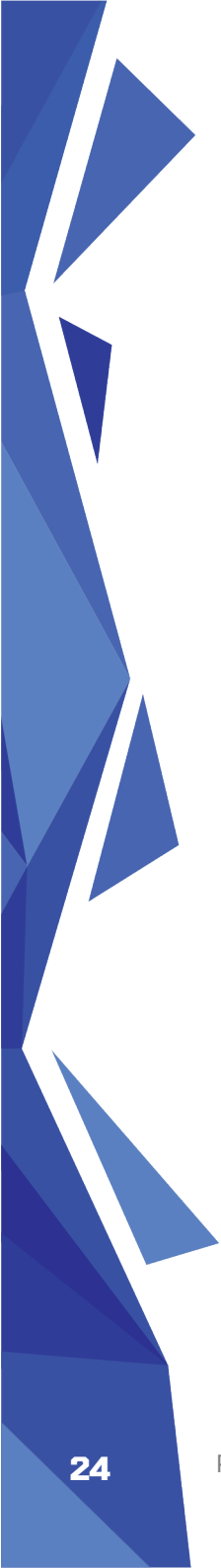
Beliau memperoleh gelar Sarjana (1996) dalam bidang Teknik Dirgantara dari University of Maryland, serta gelar Magister (1997) dan Doktor (2001) dalam bidang Aeronautika dari California Institute of Technology (CALTECH). Setelah beberapa saat menjalani pascadoktoral di Graduate Aeronautical Laboratories di CALTECH, beliau bergabung menjadi dosen di Institut Teknologi Bandung, di mana saat ini beliau menjabat sebagai Guru Besar. Dari tahun 2010 hingga 2013, beliau pernah menjadi penasihat strategi kebijakan riset di Komite Inovasi Nasional Republik Indonesia. Beliau adalah penerima Anugrah Penghargaan ITB tahun 2016 untuk bidang Penelitian.

Minat penelitian Prof. Lavi Rizki Zuhul terletak pada pertemuan antara mekanika fluida, mekanika padat, dan ilmu komputasional, dengan aplikasi khusus pada bidang teknik dirgantara. Tema luas dari karya beliau adalah untuk memperoleh model matematis untuk sistem kompleks, mengolah dan menginterpretasikan data dari hasil simulasi atau eksperimen. Beliau telah menggunakan model-model ini untuk memahami berbagai fenomena fisika dan menemukan solusi optimum untuk berbagai permasalahan ilmu dan rekayasa, khususnya rekayasa dirgantara. Secara khusus, beliau dan kelompoknya telah mengembangkan sistem diagnostik aliran canggih menggunakan jaringan saraf konvolusional untuk memproses untuk melakukan pengukuran

medan kecepatan fluida. Selain itu, beliau dan kelompoknya juga telah mengembangkan metode komputasi berbasis partikel yang dapat melakukan simulasi permasalahan mekanika fluida dan padat yang kompleks. Penelitian beliau juga berfokus pada pengembangan model pembelajaran mesin dan algoritma evolusi canggih untuk masalah Optimasi Desain Multidisiplin, yang dapat diterapkan pada berbagai masalah dunia nyata yang kompleks mulai dari rekayasa hingga optimasi portofolio saham.

Sebagai pendidik di FTMD ITB, beliau telah berkontribusi dalam menghasilkan generasi baru peneliti dan insinyur di bidang rekayasa, khususnya rekayasa dirgantara. Prof. Lavi Zuhail telah meluluskan dan membimbing lebih dari 80 mahasiswa S1, lebih dari 60 mahasiswa S2, dan 13 mahasiswa S3. Di antara mereka, terdapat 19 orang alumni internasional yang berasal dari Vietnam, Kamboja, Sudan, dan Jepang. Empat mantan mahasiswa bimbingannya saat ini menjadi dosen di FTMD ITB. Beberapa mantan bimbingannya juga telah menjadi peneliti senior di Badan Riset dan Inovasi Nasional (BRIN). Selain itu, banyak alumni ITB bimbingan beliau yang kini menjadi dosen atau peneliti di luar negeri, seperti di Inggris, Amerika Serikat, Uni Eropa, Jepang, Singapura, dan Vietnam.

Prof. Lavi Rizki Zuhail telah memperoleh lebih dari 35 hibah penelitian sebagai peneliti utama dari berbagai instansi di dalam dan luar negeri. Beliau secara rutin mendapatkan hibah dana penelitian dari ITB serta dari berbagai instansi pemerintah, seperti Balitbang Kementerian Pertahanan dan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. Selain itu, beliau juga menerima hibah penelitian dari berbagai institusi luar negeri, seperti Japan International Cooperation Agency (JICA) dan Tohoku University di Jepang, serta Australia Indonesia



Center. Topik-topik penelitian yang telah dilaksanakan sangat beragam, mulai dari penelitian dasar, seperti pengembangan metodologi eksperimental dan komputasional, hingga pengembangan teknologi baru, seperti sistem pelacakan target untuk persenjataan.

Dalam melakukan penelitian, beliau bermitra dengan para peneliti dari berbagai institusi dan perguruan tinggi terkemuka di mancanegara, seperti CALTECH, University of Cambridge, University of Tokyo, Tohoku University, SUPAERO, University of Melbourne, Hongkong University of Science and Technology, dan University of Glasgow. Hasil penelitian yang dilakukan bersama para mahasiswa dan kolega, baik lokal maupun internasional, telah diterbitkan di berbagai jurnal terkemuka di bidang terkait, yang menunjukkan tingginya kualitas dan relevansi kegiatan riset yang dilakukan oleh kelompok penelitian di bawah pimpinannya.

Beberapa penelitian di bidang teknik dirgantara, khususnya yang terkait dengan pengembangan metodologi optimasi desain multidisiplin dan eksplorasi perancangan berbasis data, telah menghasilkan tulisan yang dipublikasikan di jurnal-jurnal terbaik untuk bidang tersebut, seperti AIAA Journal, Acta Astronautica, dan Aerospace Science and Technology. Penelitian di bidang mekanika fluida dan aerodinamika dengan topik fisika aliran kompleks telah menghasilkan banyak makalah yang diterbitkan di jurnal-jurnal terkemuka, seperti Journal of Fluid Mechanics, Physics of Fluids, dan Ocean Engineering. Beberapa tulisan di bidang pengembangan metodologi komputasional berbasis partikel telah terbit di jurnal yang sangat bereputasi, seperti Journal of Computational Physics dan International Journal of Numerical Methods in Engineering. Selain itu, terdapat cukup banyak hasil penelitian beliau yang terbit di jurnal bereputasi di bidang rekayasa lainnya, seperti Structural and

Multidisciplinary Optimization, International Journal of fracture, Reliability Engineering and System Safety. Selain dalam bentuk tulisan, hasil penelitian beliau juga telah menghasilkan luaran berupa paten. Karena keilmuannya, beliau juga rutin diminta sebagai reviewer dari jurnal internasional bereputasi tinggi di bidang teknik dirgantara maupun bidang teknik lain, seperti AIAA Journal (AIAA), Energy (Elsevier), Reliability and System Safety (Elsevier), Proceedings of Royal Society A (Royal Society Publishing), Expert System with Applications (Elsevier).

Selain aktivitas penelitian dan pendidikan, beliau juga terlibat dalam berbagai kegiatan kemitraan dengan industri dan lembaga pemerintahan, termasuk dalam penyusunan beberapa kebijakan nasional. Salah satunya adalah Program Inovasi 1-747, yang dirancang oleh Komite Inovasi Nasional (KIN) untuk meningkatkan daya saing Indonesia melalui penguatan riset dan inovasi. Beliau juga terlibat dalam penyusunan Peta Jalan Pengembangan Ekosistem Industri Kedirgantaraan Indonesia 2022-2045, yang diluncurkan oleh Badan Perencanaan Pembangunan Nasional (Bappenas). Kebijakan ini diharapkan menjadi panduan dalam merancang kebijakan di bidang kedirgantaraan oleh berbagai pemangku kepentingan, untuk meningkatkan daya saing industri dirgantara nasional.

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- 16) (2017-2018) *Optimization and Data Mining of Transonic Compressor Blade via Active Subspace Method for an Energy- efficient Turbomachinery Design* (Funder: Institute of Fluid Science, Tohoku University, Japan) – ITB (Principal Investigator).
- 17) (2017) *Coupling Vortex Method and Surrogate Assisted Genetic Algorithm for Designing Efficient Turbomachinery Blade* (Funder: Riset dan Inovasi KK-ITB) – ITB (Principal Investigator).
- 18) (2016) *Development of Polynomial Chaos Expansion Method for Uncertainty Quantification in Fluid Structure Interaction Simulation* (Funder: Riset dan Inovasi KK-ITB) – ITB (Principal Investigator).
- 19) (2015) *Optimization of Flapping Kinematics for Micro Aerial Vehicle Design* (Funder: Riset dan Inovasi KK-ITB) – ITB (Principal Investigator).
- 20) (2014-2015) *Enhancement of Energy Sustainability in Naval and Aerospace System through Improved Understanding and Management of Wall-bounded Turbulence* (Funder: Australia-Indonesia Center Research Program) – ITB (Co-Investigator).
- 21) (2014) *Development of Vortex-In-Cell (VIC) Method with Brinkmann Penalization for Fluid-structure Interaction Simulations* (Funder: Riset dan Inovasi KK-ITB) – ITB (Principal Investigator).
- 22) (2013-2016) *Development of Vortex Element Method with Penalization for Simulating Unsteady Wall-bounded Flows* (Funder: Japan International Cooperation Agency-AUN/SEED-NET) – ITB (Principal Investigator).
- 23) (2013) *Development of Low Cost Particle Image Velocimetry for Complex Flow Measurement* (Funder: Riset dan Inovasi KK-ITB) – ITB (Principal Investigator).

- 24) (2011-2014) *Particle Based Computational Fluid Dynamics for Unsteady Flow Simulations* (Funder: Japan International Cooperation Agency-AUN/SEED-NET) – ITB (Principal Investigator).
- 25) (2012) *Development of Genetic Algorithm for Optimization of Micro Aerial Vehicle (MAV) Flapping Wing* (Funder: Riset dan Inovasi KK-ITB) – ITB (Principal Investigator).
- 26) (2010-2014) *Development of Fast Lagrangian Vortex Method for Unsteady Flow Simulations* (Funder: Japan International Cooperation Agency-AUN/SEED-NET) – ITB (Co-Investigator).
- 27) (2011) *Development of Vortex Element Method for Simulating Flow around Long-Span Bridge by Implementing Graphics Processing Unit (GPU) Computing* (Funder: Hibah Alumni ITB) – ITB (Principal Investigator).
- 28) (2009-2010) *Development of Cruise Missile Technology* (Funder: Hibah Unggulan Strategist Nasional- Ministry of Education RI) – ITB (Funder: Co-Investigator).
- 29) (2010) *Development of Fluid-Structure Simulation Software Using Parallel Computing System* (Funder: Riset KK-ITB) – ITB (Principal Investigator).
- 30) (2008-2010) *Evolution of Vortical Structures Produced by a Flapping Wing* (Funder: Japan International Cooperation Agency-AUN/SEED-NET) – ITB (Principal Investigator).
- 31) (2009) *Development of 3D Object Tracking Software Based on Image Correlation* (Funder: Riset KK-ITB) – ITB (Principal Investigator).
- 32) (2007-2009) *Computational and Experimental Investigation of Three Dimensional Flow Separation Phenomena* (Funder: Japan International

Cooperation Agency-AUN/SEED-NET) - ITB (Principal Investigator).

- 33) (2007) *Development of Object Tracking Method Based on Image Correlation (Funder: Riset KK-ITB) - ITB (Principal Investigator).*
- 34) (2005-2007) *Computational Study of Three Dimensional Flow Separation Phenomena Using Vortex Method (Funder: Japan International Cooperation Agency-AUN/SEED-NET) - ITB (Principal Investigator).*
- 35) (2004-2006) *Experimental Investigation of Three Dimensional Flow Separation Using PIV (Funder: Japan International Cooperation Agency-AUN/SEED-NET) - ITB (Principal Investigator).*
- 36) (1997-2001) *Near-field Dynamics of Wing Tip Vortices- California Institute of Technology (Researcher).*
- 37) (1996-1997) *Effect of Shock Loading on Thin-Walled Tubes- California Institute of Technology (Researcher).*

Proyek Inovasi

- (2023) Sistem Klasifikasi Tingkat Kematangan Kelapa Sawit menggunakan Machine Learning. Sistem ini dikembangkan atas permintaan perusahaan kelapa sawit nasional yang ingin meningkatkan efisiensi dan produktifitas panen kelapa sawit. Untuk itu dirasa perlu untuk menggantikan pengamatan manual (ribuan hektar) dari tingkat kematangan yang saat ini digunakan, dengan pengamatan menggunakan drone. Sistem yang kami kembangkan mengolah citra yang ditangkap oleh drone, untuk secara otomatis mendapatkan informasi lokasi dan tingkat kematangan dari buah. Dengan demikian, proses panen menjadi jauh lebih efisien dan efektif.

- (2016-2017) Kipas Radiator dengan Torsi Rendah. Merancang dan mengembangkan kipas radiator otomotif salah satu kendaraan terpopuler di Indonesia. Kipas ini dirancang untuk menggantikan kipas produk impor guna meningkatkan TKDN dari produk tersebut. Kipas radiator ini dirancang agar penggunaan dayanya lebih rendah dari produk sebelumnya.
- (2009) Sistem Pencitraan untuk Rudal Jelajah. Mengembangkan sistem pencitraan untuk rudal jelajah yang dikembangkan oleh Balibang Kemhan pada saat itu. Sistem ini adalah bagian utama dari sistem navigasi rudal jelajah tersebut.
- (2008) Sistem Target Tracking dengan menggunakan korelasi pencitraan. Sistem yang dapat mengikuti target secara otomatis. Luaran berupa model gun turret yang dapat bergerak 2-axis dan bergerak secara otomatis mengikuti target yang ditentukan oleh user.

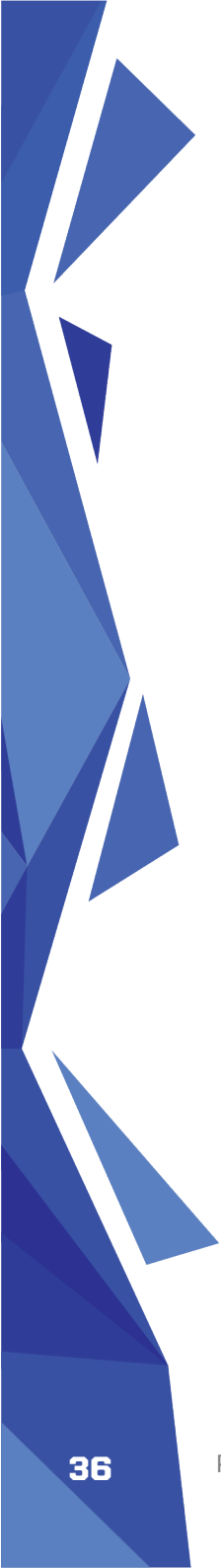
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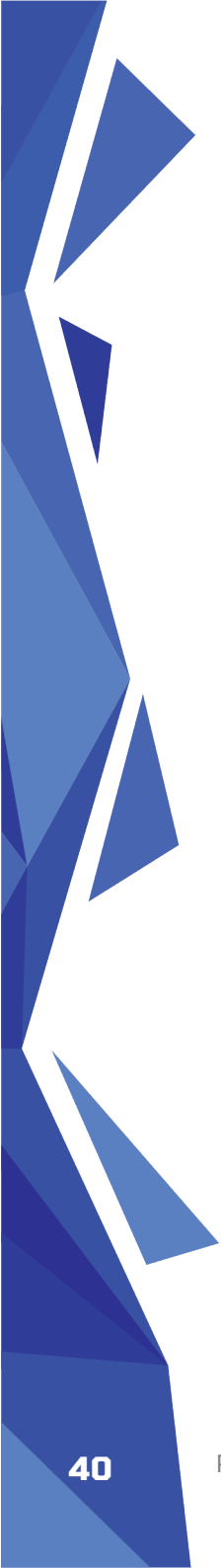
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- 23) Fathurrohman, L., Zuhail, L.R., Palar, P.S., Dwianto, Y.B., *Maximizing the thrust performance of flexible caudal fin panels via experimental optimization*. *Ocean Engineering*, 2022, 266, 112969

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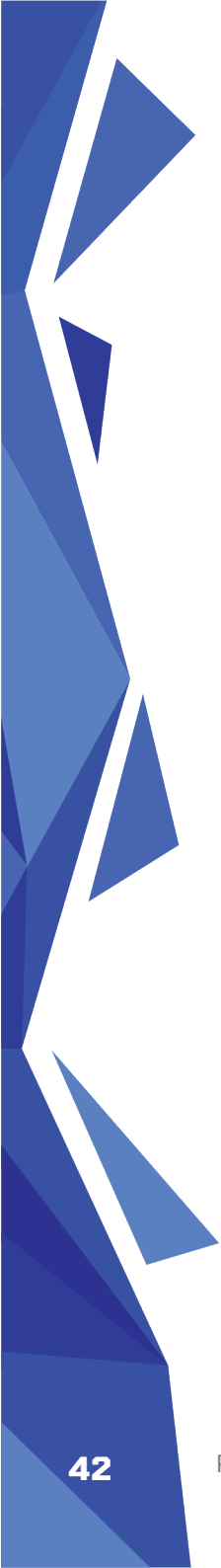
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Kekayaan Intelektual

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Kebijakan Nasional

- 2012. *National Innovation Council of the Republic of Indonesia*
1-747 Innovation Program: Recommendation to the President of the Republic of Indonesia on the strategy to build a national innovation ecosystem to elevate national competitiveness through research and innovation.
- 2022. *Ministry of National Development Planning (Bappenas)*
Roadmap on the Development of National Aerospace Industry Ecosystem: National roadmap and action plan for the development of competitive aerospace industry

Journal Peer Reviewer

- 1) *AIAA Journal-AIAA (Reviewer)*
- 2) *Aerospace Science and Technology-Elsevier (Reviewer)*
- 3) *Energy-Elsevier (Reviewer)*
- 4) *Expert System with Applications-Elsevier (Reviewer)*
- 5) *Proceedings of Royal Society A-Royal Society Publishing (Reviewer)*
- 6) *Experiments in Fluids-Springer-Springer (Reviewer)*
- 7) *Journal of Aerospace Engineering-ASCE (Reviewer)*
- 8) *Journal of Engineering and Technological Sciences-ITB (Reviewer)*
- 9) *ASEAN Engineering Journal (Manuscript Editor)*
- 10) *Majalah Mesin (Board of Editor)*

International Networks

No	Kegiatan	Nama Mitra (institusi/ individu)	Tahun	Keterangan
1.	Penelitian Internasional & <i>Visiting Professor (2007 & 2014)</i>	Keio University (Japan)/Prof. Shinnosuke Obi	2004 - 2019	Sponsor: Aunseed Net (Kegiatan yg membimbing dan meneliti Bersama utk mahasiswa S2 dan S3 dari negara ASEAN). Mendapatkan hibah peralatan penelitian
2.	Penelitian Internasional	University of Melbourne (Australia)/ Prof. Nicholas Hutchins	2014	Sponsor: Australia Indonesia Center (pemerintah Australia dan Indonesia). Mendapatkan hibah peralatan penelitian
3.	Penelitian Internasional & <i>Visiting Professor (2018 & 2019)</i>	Institute for Fluid Science, Tohoku University/ Dr.Koji Shimoyama	2017-2020 2024-Now	Sponsor: Tohoku University, Japan Menghasilkan beberapa publikasi bersama
4.	Penelitian Internasional	ISAE/SUPAERO (France)/ Prof. J. Morlier	2020 - sekarang	Menghasilkan beberapa publikasi bersama
5.	Penelitian Internasional	Hongkong University of Science and Technology (PRC)/ Dr. Rhea Liem	2019-sekarang	Menghasilkan beberapa publikasi bersama

No	Kegiatan	Nama Mitra (institusi/ individu)	Tahun	Keterangan
6.	Penelitian Internasional	Cambridge University (UK)/ Prof. Fehmi Cirak	2022-sekarang	Menghasilkan beberapa publikasi bersama
7.	Penelitian Internasional	California Institute of Technology (USA)/ Prof. Michael Ortiz	2022-sekarang	Menghasilkan beberapa publikasi bersama

Award

- Penghargaan Satyalancana Karya Satya X Tahun, Presiden Republik Indonesia, 2019
- Anugrah Penghargaan ITB Bidang Penelitian, Rektor ITB, 2016



PROFIL PEMBERI KULIAH ILMIAH
NURTANIO PRINGGOADISURYO
MEMORIAL LECTURE TAHUN 2024
JOSAPHAT TETUKO SRI SUMANTYO



REMOTE SENSING TECHNOLOGY INNOVATION, KEY TO INDONESIA TO LEAD THE WORLD

Josaphat Tetuko Sri Sumantyo

Background and Objective

Landslides, earthquakes, subsidence, and other disasters frequently happen on Earth's surface that affect human activities. Therefore, all-weather and night-daytime available accurate sensor is needed. Hence, the Josaphat Microwave Remote Sensing Laboratory (JMRS�, n.d) of the Center for Environmental Remote Sensing (CEReS) of Chiba University, Japan is promoting research and education on the system and application of circularly polarized synthetic aperture radar (CP-SAR). JMRS� collaborates with domestic and international institutions to develop multiband CP-SAR onboard unmanned aerial vehicles (UAV), aircraft, high altitude platform systems (HAPS), and microsatellites. Artificial intelligence (AI) was also implemented in the application development of CP-SAR images. This paper will introduce the development of advanced microwave sensors in Section II, AI image processing and its application in Section III, and education activities in Section IV.

Development of Advanced Microwave Remote Sensors

A. Roadmap and Facilities

Fig.1 shows the roadmap of JMRSI to develop advanced microwave remote sensors for disaster and environmental monitoring since 2005. JMRSI has been developed for the L, C, X, and K bands of CP-SAR with various payloads (1 to 80 kg) for UAVs, aircraft, HAPS, and microsattellites. JMRSI also has developing facilities including an anechoic chamber (1 to 40 GHz), a clean room, and manufacturing rooms, including some software for designing and testing the circuit, antenna, and material. The ground station was built for microsatellite control with the S-band for command and telemetry, and the X-band for data transfer. We also develop an original method to calibrate and validate the CP-SAR system in the anechoic chamber and flight mission.

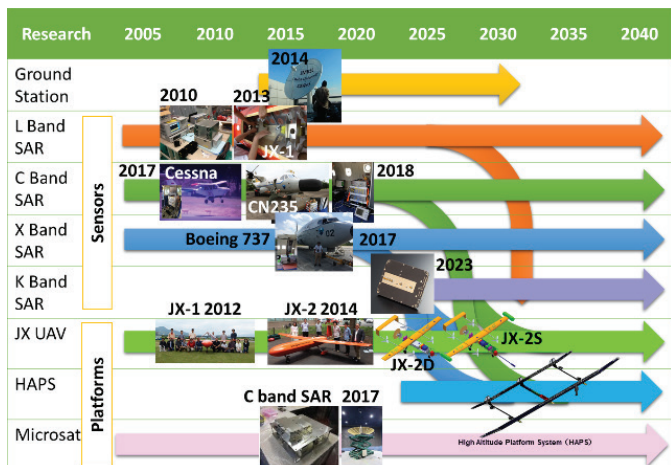
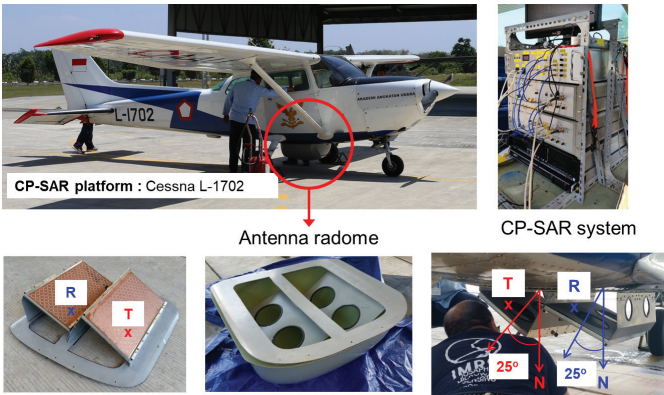


Fig. 1. Roadmap

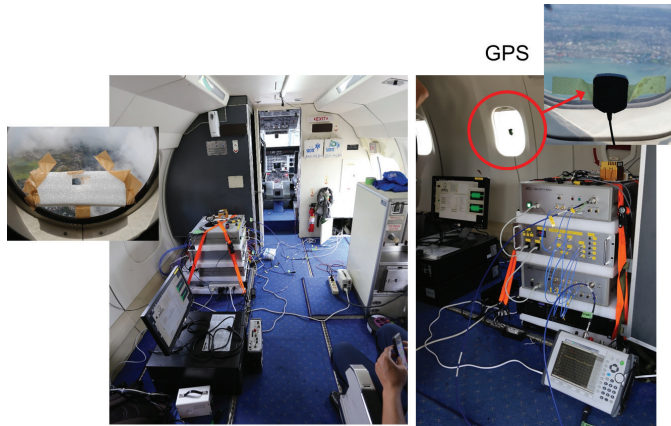


Fig. 2. L band CP-SAR onboard JX-1 UAV (Nonami et al., 2013)



(a) Cessna 172 aircraft

Fig. 3. Airborne C band CP-SAR



(b) CN235MPA aircraft

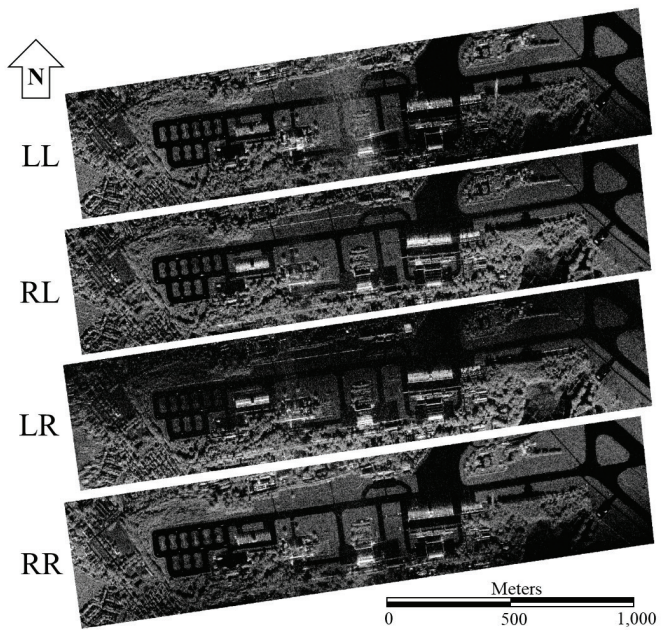


Fig. 4. Full polarimetric of airborne CP-SAR



Fig. 5. L band CP-SAR onboard microsatellite

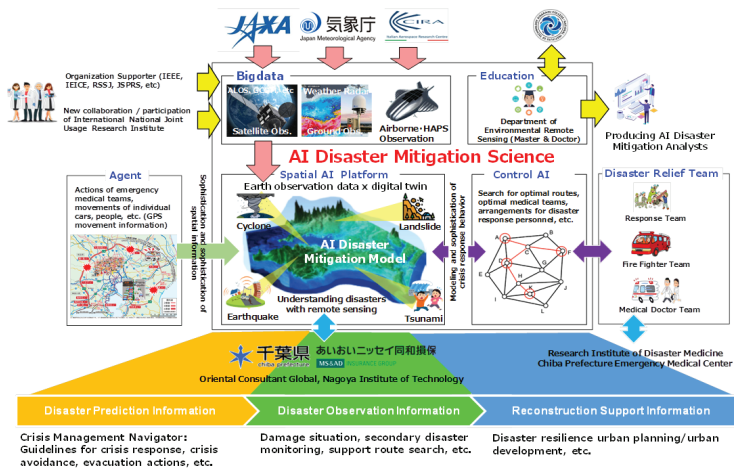


Fig. 6. AI disaster mitigation science

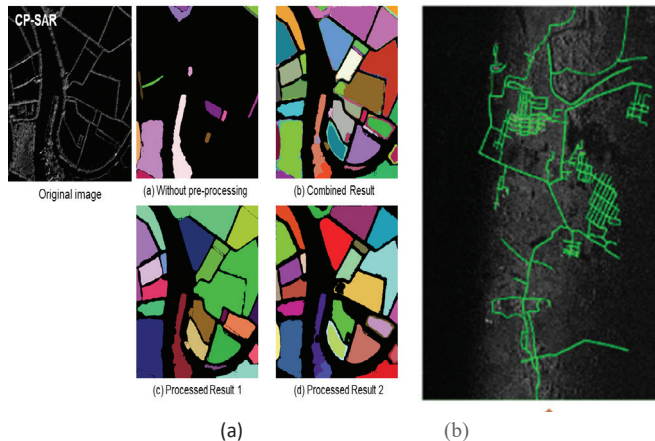


Fig. 7. (a) Land parcel for ownership and (b) road network mapping

B. Circularly Polarized Synthetic Aperture Radar (CP-SAR)

The original hardware and software of CP-SAR and antennas were developed in JMRS. Fig.1 shows the Josaphat Laboratory Unmanned Aerial Vehicle (JX series) for the flight mission of CP-SAR. The L band (center frequency of 1.275 GHz) CP-SAR system was developed and had the first flight test in 2012 (Nonami et al., 2013).

JMRS also developed the C and X bands CP-SAR and had flight missions on the aircraft of Cessna 172, CN235MPA, and Boeing 737-200 from 2017 to 2018 (Sri Sumantyo, Yam, et al., 2021; Sri Sumatyo, Chua, et al., 2023). Fig.4 shows the example of full polarimetric images of CP-SAR that were recorded in our flight mission in May 2018 at Makassar, Indonesia (Sri Sumantyo, Yam, et al., 2021; Sri Sumatyo, Chua, et al., 2023).

JMRSL also developed an L-band CP-SAR onboard microsatellite with a total payload of 150 kg as shown in Fig.5 (Urata et al., 2018, 2019). This microsatellite was developed for engineering test of CP-SAR for future global disaster and environmental monitoring.

AI Image Processing and Its Applications

Through collaboration with remote sensing, data science, disaster prevention science, emergency medical science, and sociology, JMRSL aims to develop the field of AI disaster mitigation science centered on satellite big data and spatial AI and strengthen disaster prediction and disaster prevention functions. We aim to establish an AI interdisciplinary hub for disaster mitigation science as shown in Fig.6, and thereby support emergency medical activities by quickly grasping the local situation after a disaster occurs.

Fig.7 shows an example of the AI analysis result of CP-SAR images of land parcels for ownership and road network mapping in Makassar, Indonesia to real-time generating of disaster-affected areas to support the local disaster emergency reaction institutions within 24 hours to 72 hours to rescue the people.

Education Activities

Department of Environmental Remote Sensing promotes the double degree program (DDP) with sister universities of Chiba University (n.d). The DDP conducts research and education for graduate students in the master's and doctorate courses in the field of remote sensing. We also support the students for overseas activities under the ENGINE program of Chiba University where all of our students must go abroad for study and research.

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Santosa, G.F. Panggabean, T. Watanabe, B. Setiadi, F.D. Sri Sumantyo, K. Tsushima, K. Sasmita, A. Mardiyanto, E. Supartono, E.T. Rahardjo, G. Wibisono, M.A. Marfai, R. H. Jatmiko, Sudaryatno, T. H. Purwanto, B. S. Widartono, M. Kamal, D. Perissin, S. Gao, and K. Ito, "Airborne Circularly Polarized Synthetic Aperture Radar," IEEE Select. Topics in Appl. Earth Obs. and Rem. Sens. (JSTARS), Vol.14, pp.1676-1692, Jan 2021.

Urata, K. N., Sri Sumantyo, J. T., Santosa, C. E., & Viscor, T. (2018). Development of an L-Band SAR microsatellite antenna for Earth observation. *Aerospace*, 5(4), 128.K.N.Urata, J.T.Sri Sumantyo, C.E.Santosa, and T.Viscor, "Development of an L-Band SAR Microsatellite Antenna for Earth Observation," *Aerospace*, Vol.5, No.4, 128, 17 Dec. 2018, MDPI.

Urata, K. N., Sri Sumantyo, J. T., Santosa, C. E., & Viscor, T. (2019). A compact C-band SAR microsatellite antenna for Earth observation. *Acta Astronautica*, 159, 517-526.K.N. Urata, J.T. Sri Sumantyo, C.E. Santosa, and T.Viscor, "A Compact C-band SAR Microsatellite Antenna for Earth Observation," *Acta Astronautica*, Vol.159, pp.517-526, Jun. 2019, Elsevier.



PERSONAL DATA

Name : Prof. Josaphat Tetuko Sri Sumantyo, Ph.D

Place/date of birth: : Bandung/ 25 Juni 1970

Sex : Male

Main Position : Full Professor (Permanent)

Other Positions : Head Disaster Data Analysis Analysis, Research Institute of Disaster Medicine, Chiba University.

Member, The Indonesian Academy of Sciences

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ORCID : 0000-0002-4036-6854

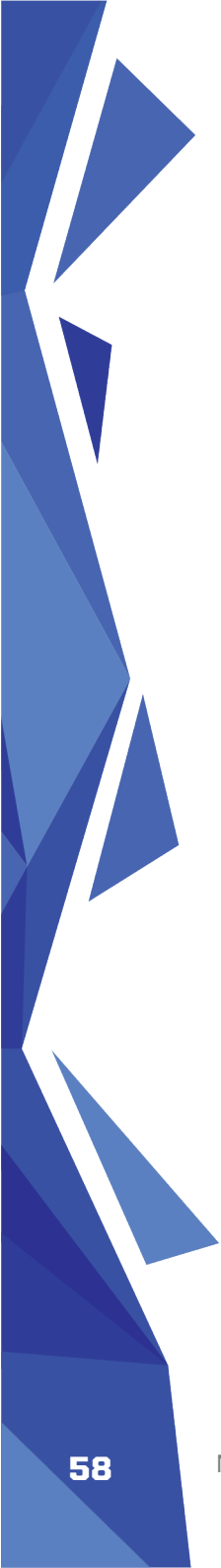
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Google Scholar ID : <https://scholar.google.co.id/citations?user=mHBpxUsAAAAJ>

ResearchGate : <https://www.researchgate.net/profile/Josaphat-Sri-Sumantyo>

SINTA : <https://sinta.kemdikbud.go.id/authors/profile/6751686>

Researchmap : <https://researchmap.jp/jtetukoss>



Josaphat Tetuko Sri Sumantyo (IEEE Senior Member) born in Bandung, Indonesia on 25 June 1970. He received a Bachelor of Engineering (B.Eng) and Master of Engineering (M.Eng) degrees in Electrical and Computer Engineering from Kanazawa University, Japan in 1995 and 1997, respectively (Subsurface Radar Systems), and the Doctor of Philosophy (Ph.D.) degree in Artificial System Sciences (Applied Radio Wave and Radar Systems) from Chiba University, Japan in 2002.

From 1990 to 1999, he was a Researcher with the Agency for Assessment and Application of Technology (BPPT), Jakarta. He was with the Center for Frontier Electronics and Photonics (Venture Business Laboratory), Chiba University, Japan as a Lecturer (Post Doctoral Fellowship Researcher) from 2002 to 2005. He was an Associate Professor (permanent staff) at the Center for Environmental Remote Sensing (CEReS), Chiba University from 2005 to 2013, then a Full Professor (permanent staff) at the same center from 2013 to now. He has also been an academic staff at the Department of Electrical Engineering, Faculty of Engineering, Universitas Sebelas Maret, Indonesia since 2020.

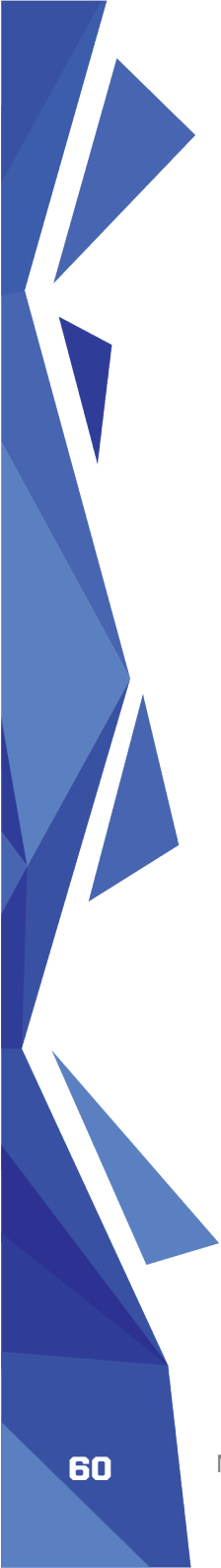
He is a member of international and domestic organizations, and a reviewer of journals, and organizations. He promoted many students from around the world and as a Visiting Lecturer/Professor in many Universities etc. He was Head of the Department of Environmental Remote Sensing and Head of the Division of Earth Environmental Sciences, Graduate School of Science and Engineering, Chiba University from 1 April 2019 to 31 March 2020. and 1 April 2022 to March 2023.

His main interests are large-scale unmanned aerial vehicle (UAV) and stratosphere platform / high altitude

platform system (HAPS) for remote sensing, theoretically scattering microwave analysis and its applications in the microwave (radar) remote sensing, especially synthetic aperture radar (SAR) and subsurface radar (VLF) including InSAR, DInSAR, PS-InSAR, and Polarimetric SAR, analysis and design of antennas for mobile satellite communications and microwave sensors, development of microwave sensors including various polarized SAR sensor for Unmanned Aerial Vehicle (UAV, drone), aircraft, stratosphere platform, and microsatellite development; and weather modification using sound and electromagnetic waves.

He has managed Josaphat Microwave Remote Sensing Laboratory (JMRS�, <https://www.jmrsl.jp>), Center for Environmental Remote Sensing (CEReS), Chiba University, Japan since 2005. His laboratory promotes education and research to develop international technologies and sciences. He always encourages undergraduate and postgraduate students to know the microwave phenomenons and to be familiar with the interaction between microwave and natural matters (i.e. vegetation, artificial materials, earth surface, snow), therefore they could develop original methods or sensors during studying in the courses.

He manages several student and research staff exchanges between Japan and overseas institutions, i.e. Short Stay Program, Long Stay Program, TWINCLE, Double Degree Program, JST Sakura Science Program, etc, i.e. Indonesia, Malaysia, Korea, Egypt, Canada, Germany, Austria, China, etc. He is also a Visiting Professor and Adjunct Professor at the University of Indonesia, Universitas Sebelas Maret, Institut Teknologi Bandung, Ajou University Korea, etc, Honorary Professor



of Institut Teknologi Bandung, and a Councilor of Satoh Yo International Scholarship Foundation (SISF) and Atsumi International Foundation (AIF), Japan, etc to promote exchange students between Japan and South East Asia and South Asia, advisor of SMA Pradhita Dirgantara (high school) Surakarta for excellent student program and exchange program with Japan academic institutions, and Osaka Tennoji High School for Super Science High School Program.

Prof. Sri Sumantyo is a Senior Member of the IEEE, and a Member of IEICE, JSPRS, and RSSJ. He is the recipient of many awards and research grants related to his study and research, and he published 17 books and more than 1000 papers in journals, conferences, invited talks, and reports. He established the Symposium on Microsatellite for Remote Sensing, Indonesia Japan Joint Scientific Symposium, and a Workshop on Synthetic Aperture Radar Image Processing, etc to promote the IEEE activities on Microwave Remote Sensing in Asian countries. He is the General Chair of IEEE GRSS supported by The 7th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2021) and the 8th APSAR 2023 at Bali, Indonesia, and more than 330 Invited Talks and Lectures related to synthetic aperture radar and its applications. He is co-leader of the Working Group on Remote Sensing Instrumentation and Technologies for Unmanned Aerial Vehicles of IEEE GRSS, Technical Committee on Instrumentation and Future Technologies (IFT-TC). He has been an Associate Editor of IEEE Geoscience and Remote Sensing Letters (GRSL) since March 2021 and Associate Editor of IEEE Antennas, Wireless and Propagation Letters (AWPL) from January 2023 to December 2023, and IEEE Journal on Miniaturization for Air and Space Systems (MASS) since 1 September 2024.

Education

- 1 April 1999 – 31 March 2002 Graduate School of Science and Technology, Chiba University, Japan (*Doctor of Philosophy - Ph.D.*)
Thesis title: *Tropical Forest Monitoring using Synthetic Aperture Radar (SAR) - Theories and Applications*
- 1 April 1995 – 31 March 1997 Graduate School of Electrical and Computer Engineering, Kanazawa University, Japan (*Master of Engineering - M.Eng*)
Thesis title: *Simulation Study on Deep Sub-surface Radar by FDTD Method*
- 1 April 1991 – 31 March 1995 Department of Electrical and Computer Engineering, Kanazawa University, Japan (*Bachelor of Engineering - B.Eng*)
Thesis title: *Design and Development of High Current Deep Ground Penetrating Radar (GPR)*

Career (Permanent Position)

- 1 April 2013 – present **Full Professor**, Center for Environmental Remote Sensing, Chiba University, Japan.
- 1 November 2021 – present **Lektor**, Department of Electrical Engineering, Universitas Sebelas Maret, Indonesia
- 1 April 2005 – 31 March 2013 **Associate Professor**, Center for Environmental Remote Sensing, Chiba University, Japan.
- 1989 – 1999 **Researcher**, Electrical and Information Directorate, The Agency for Assessment and Application Technology, Indonesian Government.

Career (Other Position)

- 1 October 2023 – present Member, Health and Disease Omics Center (HADOC), Chiba University
- 1 October 2022 – 1 October 2024 Honorary Professor, Fakultas Ilmu dan Teknologi Kebumian, Keputusan Rektor ITB No.938E/IT1.A/SK-KP/2022
- 1 April 2022 – 31 March 2023 Head, Department of Environmental Remote Sensing, Graduate School of Science and Engineering, Chiba University
- 1 April 2022 – 31 March 2023 Head, Division of Earth Environmental Sciences, Graduate School of Science and Engineering, Chiba University
- 1 April 2021 – Present Head, Division of Disaster Data Analysis, Research Institute of Disaster Medicine, Faculty of Medicine, Chiba University
- 2021 – Present Councilor, Atsumi International Foundation, Tokyo, Japan
- 27 September 2021 Reference (Narasumber), Penyusunan Kurikulum Program Studi Pendidikan Geografi, Department of Geography, Program Studi Pendidikan Geografi, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Veteran Bangun Nusantara, Indonesia.
- 13 October 2020 – Present Member, The Indonesian Academy of Sciences, No. 12/KP/K-AIPI/X/2020, 13 October 2020.
- 1 April 2018 – 31 March 2019 Head, Department of Environmental Remote Sensing, Graduate School of Science and Engineering, Chiba University.
- 1 April 2018 – 31 March 2019 Head, Division of Earth Environmental Sciences, Graduate School of Science and Engineering, Chiba University.
- 2018 – 2020 Adjunct Professor, Universitas Sebelas Maret Surakarta, No. 488/UN27/HK/2018.

- 19 October 2017 External Assessor, Universiti Tunku Abdul Rahman's staff promotion exercise, Accessor of Associate Professor promotion, Dr. Lee Kim Yee.
- 2015 – 2016 Dosen Pembina / Dosen Pakar, Fakultas Teknik, Universitas Islam Riau, T.A. 2015-2016 (Keputusan Rektor Universitas Islam Riau No. 087/UIR/KPTS/2016)
- 20 March 2015 – Present Visiting Professor, Indonesian Air Force Academy (AAU), Yogyakarta, Indonesia.
- 2014 – Present Expert, Center for Food Availability for Sustainable Improvement (CFASI), Udayana University, Indonesia.
- 1 December 2014 – 31 December 2015 Member, Advisory Board for European Commission "DIFFERENT", Consortium Project focusing on the Development of Future Digital Beamforming Space-Borne Synthetic Aperture Radars.
- 1 April 2013 – 31 March 2014 Visiting Professor, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan, Research topic: Development of Synthetic Aperture Radar onboard Small Satellite.
- 1 April 2012 – 31 March 2013 Visiting Associate Professor, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan, Research topic: Development of Synthetic Aperture Radar onboard Small Satellite.
- 2011 – Present Member, European Consortium on Space-borne SAR – Surrey University, International Partner (Prof Shinchang Steven Gao)
- 1 April 2011 – Present Staff member, Chiba University Headquarters, International Strategy & Exchange Office.

- 2011 – Present Outside Examiner, School of Graduate Studies, Universiti Putra Malaysia (UPM) (Universiti Putra Malaysia No. UPM/SPS/GS19814)
- 1 April 2010 – Present Committee Member, Technical Group on Space, Aeronautical and Navigational Electronics (SANE) of the Institute of Electronics, Information, and Communication Engineers (IEICE), Tokyo, Japan.
- 2009 – Present Evaluator, Belgian Earth Observation Programme - Belgian Science Policy Office (BELSPO)
- 2008 – Present Adjunct Professor, Department of Electrical Engineering, Faculty of Engineering, University of Indonesia, Jakarta, Indonesia (Certificate No. 618/PT02.H/TU/U/2008) Microwave Remote Sensing field.
- 1 April 2007 – 31 March 2013 Associate Professor, Graduate School of Advanced Integration Science (Doctor Course), Chiba University, 1-33, Yayoi, Inage, Chiba 263-8522 Japan, Lecture: Microwave Remote Sensing.
- 1 April 2007 – 31 March 2013 Associate Professor, Graduate School of Advanced Integration Science (Master Course), Chiba University, 1-33, Yayoi, Inage, Chiba 263-8522 Japan, Lecture: Microwave Remote Sensing.
- 1 April 2007 – 31 March 2013 Associate Professor, Department of Informatics and Imaging Systems, Chiba University (Undergraduate Course), 1-33, Yayoi, Inage, Chiba 263-8522 Japan, Lecture: Remote Sensing Technology
- 2006 – Present Visiting Professor, Center for Remote Sensing and Ocean Sciences (CReSOS), University of Udayana, Bukit Jimbaran campus, Bali, Indonesia (SK Rektor Universitas Udayana: J14/HK.01.23/2006), Lecture: Microwave Remote Sensing

- 2006 – present Adjunct Professor, Department of Electrical Engineering, Faculty of Engineering, University of Indonesia, Indonesia (SK Rektor Universitas Indonesia: 1392/PT.02/KKI/II TU/2006, 6 December 2006), Lecture: Microwave Remote Sensing.
- 2006 – present Outside Examiner, Faculty of Engineering and Technology, Multimedia University, Selangor, Malaysia (Outside Examiner: Master Program) (Contact person: Prof. Koo Voon Chet)
- 2005 – 2010 Head of Data Archiving and Analysis Division, Center for Remote Sensing, Institute of Technology, Bandung, West Java, Indonesia (2005 - present)(SK Kepala Pusat Penginderaan Jauh, Institut Teknologi Bandung (CRS-ITB): 001/SK/K01.03.17/INT/2005.
- 2005 – Present Councilor, Satoh Yoh International Scholarship Foundation.
- 1 April 2005 – 31 March 2007 Associate Professor, Image Science, and Technology Division (Master Program), Graduate School of Science and Technology, Chiba University, 1-33, Yayoi, Inage, Chiba 263-8522 Japan, Lecture: Microwave Remote Sensing.
- 1 April 2005 – 31 March 2007 Associate Professor, Artificial System Sciences Division (Doctoral Program), Graduate School of Science and Technology, Chiba University, 1-33, Yayoi, Inage, Chiba 263-8522 Japan, Lecture: Microwave Remote Sensing.
- 1 April 2003 – Present Visiting Lecturer, Department of Geophysics Engineering, Institute of Technology Bandung, Bandung, West Java, Indonesia, Lecture: Microwave Remote Sensing.

- 2002 – present Visiting Lecturer, Department of Geodetics, Institute of Technology Bandung, Bandung, West Java, Indonesia, Lecture: Microwave Remote Sensing.
- 1 April 2002 – 31 March 2005 Lecturer (Postdoctoral Fellowship Researcher), Center for Frontier Electronics and Photonics, Chiba University, Japan.
- 2001 – Present Director, Remote Sensing Research Center, Pandhito Panji Foundation, Bandung, West Java, Indonesia.
- 1 April 2000 – 31 March 2001 Research Assistant, Center for Environmental Remote Sensing, Chiba University, Japan.
- 1 January 1997 – 31 December 1999 Researcher, Education and Training Commando, Indonesian National Army (Kodiklat TNI-AD), Bandung, Indonesia. Research on Warfare Training and Education.
- 1 January 1997 – 31 December 1999 Visiting lecturer, Department of Electrical, Institute of Technology Bandung, Indonesia, Lecture: Microwave Remote Sensing.

Award

- 22 Feb 2003 **Nanohana Venture Competition 2003 Award**, “Development of Dual Band Patch Array Antenna for Electronically Mobile Satellite Communication - Venture Intelligent Satellite Tracking Antenna (VISTA)”, Venture Business Laboratory, Center for Frontier Electronics and Photonics, Chiba University - Chiba Bank - Futaba Corporation (Nominee Award)
- 3 Dec 2004 **Chiba University Open Research 2004 - Chiba University President Award**, “Antennas development for the ground station of next-generation mobile satellite communications.”

- 19 Apr 2004 **Nanohana Competition 2004 Award**,
 “Venture Antenna System for Mobile Satellite
 Communication Applications”, Venture
 Business Laboratory, Center for Frontier
 Electronics and Photonics, Chiba University
 - Chiba Bank (The First Winner Awards from
 President of Chiba University)
- 19 Apr 2004 **Nanohana Competition 2004 Award**,
 “Venture Antenna System for Mobile Satellite
 Communication Applications”, Venture
 Business Laboratory, Chiba University (The
 First Winner Award from President of Chiba
 University)
- 16 April
 2007 **Nanohana Competition 2007 Award**,
 “University Venture’s Circularly Polarized
 Synthetic Aperture Radar to Generate
 High Precision Image”, Venture Business
 Laboratory, Chiba University, President of
 Chiba University Award
- 1 Mar 2010 **The Society of Instrument and Control
 Engineers (SICE) Remote Sensing Division
 Award**, “Long-term continuously DInSAR
 technique for volume change estimation of
 subsidence” (Best Paper Award)
- 19 Oct 2011 **Best Support Award**: The Institute of
 Electronics, Information and Communication
 Engineers (IEICE), The International
 Conference on Space, Aeronautical and
 Navigational Electronics 2011 (ICSANE 2011),
 Bali, Indonesia
- 19 Oct 2011 **Best Paper Award**: “DInSAR Technique
 for Retrieving Volume Change of Volcanic
 Materials on Slope Area”, The Institute of
 Electronics, Information and Communication
 Engineers (IEICE) & IEEE GRSS, The
 International Conference on Space,
 Aeronautical and Navigational Electronics
 2011 (ICSANE 2011), Bali, Indonesia

- 10 Mar 2013 **Best paper Prize**, Ratih Fitria Putri, Josaphat Tetuko Sri Sumantyo, and Hiroaki Kuze, "Detecting sand dune zone based on tsunami inundation hazard impact as monitoring and conservation assessment in Parangtrisits coastal area, Indonesia" Asia Future Conference (AFC 2013), March 8-10, Bangkok, Thailand
- 25 Nov 2013 **Chiba University Open Research 2013 – Chiba University President Award**, Josaphat Tetuko Sri Sumantyo, "Development of Advance Technology on Microsatellite and Large Scale Unmanned Aerial Vehicle in Chiba Prefecture," Chiba University, 25 November 2013.
- 16 Feb 2014 **Outstanding Paper Award:** Heein Yang, Dal-Guen Lee, Tu-Hwan Kim, Josaphat Tetuko Sri Sumantyo, and Jae-Hyun Kim, "Semi-automatic coastline extraction method using synthetic aperture radar images" IEEE The 16th International Conference on Advanced Communication Technology (ICTACT 2014), Paper ID 20140473, Phoenix Park, Republic of Korea.
- 26 Nov 2014 **Best Paper Award:** Zafri Baharuddin, Kyohei Suto, Josaphat Tetuko Sri Sumantyo, Hiroaki Kuze, Tien Sze Lim, Kuo Shen Jason, Wen Guey Cheaw, and Koo Voon Chet, "Development of a Semi-Automated SAR Test Bed", IEEE The 2nd International Symposium on Telecommunication Technologies (ISTT 2014), Session 3-3: Special Track on Disaster Management 2, Langkawi, Malaysia.
- 15 December 2015 **Lembaga Prestasi Indonesia – Dunia (LEPRID) No.105:** PENEMU RADAR SATELIT PENGAMATAN BUMI BERBASIS MICROWAVE REMOTE SENSING DAN MOBILE SATELLITE COMMUNICATIONS, DAN PEMILIK PATEN DI 118 NEGARA, Jakarta.

- 15
December
2015
- Lembaga Prestasi Indonesia – Dunia (LEPRID) No.106:** PENEMU CIRCULARLY POLARIZED SYNTHETIC APERTURE RADAR UNTUK PESAWAT TANPA AWAK, PESAWAT BERAWAK DAN MICRO SATELLITE, Jakarta.
- 22 April
2016
- Award of Excellent Contestant – Student Award Paper Competition:** Heein Yang, Agus Hendra Wahyudi, Yuta Izumi, and Josaphat Tetuko Sri Sumantyo, “Signal-to-Noise Ratio Estimation for Unmanned Aerial Vehicle on-board Synthetic Aperture Radar,” International Symposium on Remote Sensing 2016, International Convention Center Jeju, 20-22 April 2016.
- 24
November
2016
- Best Poster Award:** Min-Wook Heo and Heein Yang, “Implementation On Reduction Lut Memory Size In Chirp Signal Generation For Satellite On-board SAR,” The 7th Indonesia Japan Joint Scientific Symposium, The 24th CEReS International Symposium, the 1st Symposium on Innovative Microwave Remote Sensing, The 4th Symposium on Microsatellites for Remote Sensing, 21-24 November 2016
- 24
November
2016
- Best Student Awards:** Yuta Izumi, “Polarimetric Analysis Of Long Term Paddy Rice Observation Using Ground-based Sar (GB-SAR) System,” The 7th Indonesia Japan Joint Scientific Symposium, The 24th CEReS International Symposium, the 1st Symposium on Innovative Microwave Remote Sensing, The 4th Symposium on Microsatellites for Remote Sensing, 21-24 November 2016

- 24 November 2016 **Best Paper Award:** Chua Ming Yam, "Phase Coded Stepped Frequency Linear Frequency Modulated Waveform Synthesis Technique for Ultra-Wideband Synthetic Aperture Radar," The 7th Indonesia Japan Joint Scientific Symposium, The 24th CERE S International Symposium, the 1st Symposium on Innovative Microwave Remote Sensing, The 4th Symposium on Microsatellites for Remote Sensing, 21-24 November 2016
- 19 May 2017 **ISRS 2017 Student Paper Award:** Yuta Izumi, Sevket Demirci, Mohd Zafrî Baharuddin, T. Watanabe, and Josaphat Tetuko Sri Sumantyo, "Ground-Based Circularly Polarized SAR Capability to a Rice Phenology Monitoring," D1 – SAR Application, International Symposium on Remote Sensing (ISRS 2017), 17-19 May 2017, Toyoda Auditorium / Symposium, Noyori Conference Hall, Nagoya University, Japan.
- 7 November 2017 **Best Presenter Award:** Ayaka Takahashi, "Development of Microsatellite onboard Mesh Parabolic Antenna for Synthetic Aperture Radar," Chiba University Global Prominent Research Symposium, 7 November 2017
- 27 March 2018 **President Award : Outstanding Excellence Award,** Izumi Yuta (Supervisor: Josaphat Tetuko Sri Sumantyo)
- 27 March 2018 **Dean Award: The Dean's Award for Academic Achievement 2017:** Izumi Yuta (Supervisor: Josaphat Tetuko Sri Sumantyo)

- 13-17 April 2018 **Best Conference Paper Award:** Lestari Margatama, Silvia Salmi Al-Hikmah, Indra Riyanto, Dwi Pebrianti, Luhur Bayuaji, Dodi Sudiana, Josaphat Tetuko Sri Sumantyo, "J180115 Increasing Disaster Awareness of the Community by Flood Potential Mapping of Densely-Populated Urban River Watershed in South and West Jakarta with LIDAR Data Segmentation", 2018 IEEE International Conference on Applied System Innovation, Tokyo, Japan.
- 26 March 2019 **Dean Award : Outstanding Excellence Award :** Cahya Edi Santosa (Supervisor: Josaphat Tetuko Sri Sumantyo)
- 19 August 2019 **Ikon Prestasi Pancasila 2019**, Badan Pembinaan Ideologi Pancasila (BPIP), Jakarta.
- 30 September 2021 **The Best Presenter Award:** Fathoni Usman, Nanda, Rita Nasmirayanti, and Josaphat Tetuko Sri Sumantyo, "Comparative Analysis on Digital Surface Model of Urban Area from Sentinel-1 SAR Interferometry and Aerial Photogrammetry for Disaster Mitigation Plan," The International Conference on Disaster Mitigation and Management 2021 (ICDMM 2021).
- 20 May 2023 **DRIN Innovator Award:** Josaphat Tetuko Sri Sumantyo, Daya Riset dan Inovasi Nasional (DRIN) and Akademi Ilmu Pengetahuan Indonesia (AIPI)
- 26 October 2023 **Best Student Paper Award:** Subuh Pramono, Josaphat Tetuko Sri Sumantyo, Muhammad Hamka Ibrahim, Steven Shichang Gao, Koichi Ito, Yuki Yoshimoto, Hisato Kashihara, Cahya Edi Santosa, and Ayaka Takahashi, "Circularly Polarized Lunar Regolith Simulant Antenna for Future Lunar Communication," The 8th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2023).

- 8 December 2023 **Young Scientist Award (YSA):** Yuki Yoshimoto, Motoyuki Naito, and Josaphat Tetuko Sri Sumantyo, "Multiple Scattering Effect Analysis of Circularly Polarized Radar for Volcanic Lava Observation," IEICE Technical Report SANE2023-80(2023-12), IEICE The 18th International Conference on Space, Aeronautical and Navigational Electronics (ICSANE 2023).
- 8 December 2023 **Young Scientist Award (YSA):** Hayyan Yusuf, Sutrisno Ibrahim, Josaphat Tetuko Sri Sumantyo, Subuh Pramono, Muhammad Hamka Ibrahim, "Design and Manufacturing a Helical Antenna for UAV Monitoring," IEICE Technical Report SANE2023-89(2023-12), IEICE The 18th International Conference on Space, Aeronautical and Navigational Electronics (ICSANE 2023).
- 3 February 2024 **Graduation Thesis Encouragement Award:** Taisei Kawanami, "Optimization of Speckle Noise Eliminated Filter for High-Resolution Synthetic Aperture Radar Image," Department of Urban Environment Systems, Chiba University.

Patents

1. Mobile Satellite Communication Antenna. Japan patent No. 2003-014301, 23 January 2003. Related News: Nikkan Kogyo Newspaper (14 March 2003), Mainichi Newspaper (13 March 2003), and Chiba Nippou Newspaper (31 March 2003).
2. Mobile Satellite Communication Antenna. International patent (118 countries), No. PCT/JP03/05162, 23 April 2003. Australian patent: AU-A-2003227356
3. Antennas for Communications, Japan patent No. 2006-023701, 31 January 2006

4. Antennas for Communications, International patent, No. PCT/JP2007/51351, 29 January 2007 others
5. Elliptical and Circular Polarized Synthetic Aperture Radar, Aerial Vehicle and Satellite), No. 2014-214905, 21 October 2014
6. Patent Pending 2016–38485: Real-time photosynthesis Measurement System, 29 February 2016
7. Radar and Radar onboard Satellite (Antenna for Small Synthetic Aperture Radar) Patent certificate Patent No. 7028437, 21 February 2022.
8. Synthetic Aperture Radar Device, Synthetic Aperture Radar Signal Processing Device, and Synthetic Aperture Radar Signal Processing Program, Patent No. 7160268, 17 October 2022.
9. Tree-dimensional observation technology in high temperature closed chamber, Patent Pending 2021-196068, December 2021.
10. Microstrip Antenna and manufacturing technique, Patent Pending No.2023-174164, 6 October 2023.

Editors

- | | |
|-----------------------------------|---|
| 1 March 2021 – Present | Associate Editor , IEEE Geoscience and Remote Sensing Letters (GRSL) |
| 1 January 2023 – present | Associate Editor , IEEE Antenna Wireless Propagation Letters (AWPL) |
| 1 September 2024 - present | Associate Editor , IEEE Journal on Miniaturization for Air and Space Systems (MASS) |
| 1 January 2024 – 31 December 2024 | Associate Editor , IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS), APSAR 2023 Special Issue |

7 December
2023 - 1 April
2025

Associate Editor, IEICE Special Section
on Space, Aeronautical, and Navigation
Electronics in conjunction with the Main
Topics of ICSANE2023

Journal Reviewers and Associate Editors

1. IEEE Transactions on Geoscience and Remote Sensing (TGRS)
2. IEEE Geoscience and Remote Sensing Letter (GRSL)
3. IEEE Sensors
4. IEEE Geoscience and Remote Sensing Magazine
5. International Journal of Remote Sensing
6. IET Microwave, Antenna, and Propagation (IET MAP) or former IEE MAP
7. Progress In Electromagnetics Research (PIER) & Journal of Electromagnetic Waves and Applications (JEMWA)
8. Canadian Journal of Remote Sensing (CJRS)
9. The Institute of Electronics, Information and Communications (IEICE) - Transaction B
10. Asian Journal of Geoinformatics
11. Journal of Environmental Informatics, International Journal of Remote Sensing and Earth Science (IJReSES)
12. Journal Regional Environmental Change (REC)
13. Remote Sensing Society Japan Journal
14. Associate Editor, IEEE Geoscience and Remote Sensing Letters (GRSL), 1 April 2021 – present
15. Associate Editor of IEEE Antennas and Wireless Propagation Letters (AWPL) since January 2023.

Activities in Domestic and International Symposiums

1. Technical Program Committee, International Workshop on Antenna Technology 2006 (IWAT2006), pp. 192-195, 6-8 March 2006, New York, USA.

2. General Chairman, International Workshop on Synthetic Aperture Radar (IWSAR2009), 16 February 2009, Chiba, Japan.
3. Member of Steering Committee, International Conference on Space, Aeronautical and Navigational Electronics 2011, 17-19 October 2011, Bali, Indonesia.
4. International Advisory Committee, the 2nd Makassar International Conference on Electrical Engineering and Informatics (MICEEI) 2010, 27-29 October 2010, Makassar, Indonesia.
5. Session Chair TUP.B InSAR II July 26, 2011, 17:00-18:30, The 2011 IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2011), 24-29 July 2011, Vancouver, Canada.
6. General Chairman, The 17th CERE S International Symposium - Microwave Remote Sensing for Environmental Diagnosis, Chiba University, Japan, 1 March 2012.
7. Technical Program Committee Member, The 1st Advanced Electromagnetics Symposium (AES 2012), Paris, France, 19-22 April 2012 (Telecom Paris Tech, Paris, France).
8. Co-chair: Session C.4. Implementation of Multi-modal SAR Technology in Agriculture, Forestry & Aquaculture plus Natural Disaster Assessment in South, East & Pacific Asia, The 9th European.
9. Conference on Synthetic Aperture Radar (EUSAR 2012), 23-26 April 2012.
10. Session Chair, The 1st Asia Future Conference (AFC), N-009 Asian Environmental Observation and Advanced Technology Development, Centara Grand Ladprao Mezzanine Level, Room A (Horvang 1), 8-10 March 2013.

11. Steering Committee Chair, The 5th Indonesia Japan Joint Scientific Symposium (IJSS2012), 25-26 October 2012, Chiba, Japan.
12. International Liaison Chair, The 4th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2013), September 23-27, 2013, Tsukuba, Japan.
13. Technical Program Committee Member, The 2nd Advanced Electromagnetics Symposium (AES 2013), Sharjah, United Arab Emirates (UAE), 19-22 March 2013.
14. Technical Program Committee (TPC), The 4th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2013), September 23-27, 2013, Tsukuba, Japan.
15. Session Chair, WE3.R1: Spaceborne and Airborne SAR Systems and Mission II, The 4th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2013), September 23-27, 2013, Tsukuba, Japan.
16. Editorial Board Member, Journal of Unmanned System Technology, The International Society of Intelligent Unmanned Systems, 2013 to Present.
17. Technical Program Committee & Reviewer, IEEE International Conference on Communication, Network, and Satellite (COMNETSAT-2013), December 2013, Yogyakarta.
18. Technical Program Committee, The 2013 Loughborough Antenna & Propagation Conference (LAPC), 11-12 November 2013, Burleigh Court International Conference Center, Loughborough, UK.
19. Reviewer, The 2013 Loughborough Antenna & Propagation Conference (LAPC), 11-12 November 2013, Burleigh Court International Conference Center, Loughborough, UK.

20. Technical Program Committee, International Conference on Space, Aeronautical and Navigational Electronics 2013 (ICSANE 2013), VAST/NVSC & Melia Hotel, Hanoi, Vietnam, December 2-3, 2013.
21. Programme Committee members, The ASEANUNET Academic Network and the Eurasian-Pacific University Network (EPU) – International Federation for Information Processing (IFIP) – ICT-EURASIA Conference 2014, Bali, Indonesia.
22. Session Chairman, International Symposium on Remote Sensing (ISRS 2014), B5 Microwave Session, Busan, Korea, 17 April 2014 9:00-10:20.
23. Reviewer, The 35th IEEE/GRSS International Geoscience and Remote Sensing (IGARSS) and the 35th Canadian Symposium on Remote Sensing, Quebec, 13-18 July 2014.
24. Co-Chairman, Session on Airborne SAR TU1.04, The 35th IEEE/GRSS International Geoscience and Remote Sensing (IGARSS) and the 35th Canadian Symposium on Remote Sensing, Quebec, 15 July 2014.
25. Co-Chairman, AFC Forum C1: Environmental Remote Sensing, Baris Room, Inna Grand Bali Beach Hotel, The 2nd Asia Future Conference (AFC 2014), The 2nd Symposium on Microsatellites for Remote Sensing (SOMIRES 2014), and The 21st CEReS International Symposium, 22 August 2014 (Bali: AFC 2014).
26. Co-Chairman, AFC Forum C2: Environmental Remote Sensing, Baris Room, Inna Grand Bali Beach Hotel, The 2nd Asia Future Conference (AFC 2014), The 2nd Symposium on Microsatellites for Remote Sensing (SOMIRES 2014), and The 21st CEReS International Symposium, 22 August 2014 (Bali: AFC 2014).

27. Co-Chairman, Session B05: Environment (2), Udayana University, Room 2.05, The 2nd Asia Future Conference (AFC 2014), The 2nd Symposium on Microsatellites for Remote Sensing (SOMIRES 2014), and The 21st CERES International Symposium, 23 August 2014 (Bali: AFC 2014).
28. TPC Member, The International Conference on Space, Aeronautical and Navigational Electronics 2014 (ICSANE 2014) at Melaka, Malaysia on 22-24 October 2014.
29. Session Chair, [Workshop 3] Wireless & Satellite Communications Session in International Conference on ICT Convergence (ICTC 2014) (<http://ictc2014.org/main/>) on 24 October 2014 09:00-10:40, Paradise Hotel, Busan, Korea.
30. TPC Member, The Indonesian Conference on Aerospace Electronics and Remote Sensing Technology 2014 (ICAREs 2014), IEEE AES-GRSS Indonesia Joint Chapter, Yogyakarta 13-14 November 2014.
31. TPC Member, The 2nd International Workshop on Geoscience and Remote Sensing (IWGRS), Selangor, Malaysia, 19-20 November 2014 (IEEE GRSS).
32. TPC Member, The 2013 Loughborough Antenna & Propagation Conference (LAPC), 10-11 November 2014, Burleigh Court International Conference Center, Loughborough, UK (IEEE APS).
33. Reviewer, The 2013 Loughborough Antenna & Propagation Conference (LAPC), 10-11 November 2014, Burleigh Court International Conference Center, Loughborough, UK (IEEE APS).

34. TPC Member, the 5th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2015), 1 – 4 September 2015, Singapore (IEEE GRSS).
35. Session Chair, the 5th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2015), 1 – 4 September 2015, Singapore (IEEE GRSS).
36. Reviewer, The 36th IEEE/GRSS International Geoscience and Remote Sensing (IGARSS), Milan, Italy, 26-31 July 2015 (IEEE GRSS).
37. Program Committee Member, ICT-EURASIA 2015, 4-7 October 2015, Daejeon Korea.
38. Member of Technical Program Committee, IEEE Workshop on Geoscience and Remote Sensing 2015 (IWGRS 2015), Kuala Lumpur, 16-17 November 2015 (IEEE GRSS).
39. Reviewer of IEEE International Conference on Aerospace Electronics and Remote Sensing Technology 2015 (ICARES 2015), Bali (IEEE GRSS/AES)
40. Chairman, Polarimetric Session, The 10th Advanced Synthetic Aperture Radar Workshop (ASAR 2015), John H. Chapman Space Centre 6767 route de l'Aéroport Saint-Hubert, Quebec J3Y 8Y9 Canada, 21 October 2015.
41. TPC / Reviewer, The 2016 / The 13th Loughborough Antenna & Propagation Conference (LAPC), 14-15 November 2016, Burleigh Court International Conference Center, Loughborough, UK.
42. International Advisory Member, The 15th International Conference on Quality in Research (QiR 2017), Nusa Dua, Indonesia, 24-27 July 2017 (IEEE APS).
43. Session Chair, CEOS SAR Calibration and Validation Workshop 2016, Innovative SAR Concept, 9 September 2016.

44. Session Chair, The 19th Environmental Remote Sensing Symposium, Chiba University 16 February 2017.
45. Scientific Committee member and Reviewer, the 39th IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2018), Valencia, Spain, 23-27 July 2018 (IEEE GRSS).
46. Session Chair, TU1.R11: Small Satellite Technology, The 39th IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2018), Valencia, Spain, 24 July 2018 08:30-10:10 (IEEE GRSS)
47. Session Chair, Innovative Microwave Remote Sensing Session 2P1, Progress In Electromagnetics Research Symposium (PIERS 2018), Toyama, Japan, 1-4 August 2018.
48. TPC Member, IEEE 2018 International Conference on Radar, Antenna, Microwave, Electronics and Telecommunications (2018 ICRAMET) at Jakarta, 1-2 November 2018 (IEEE GRSS/AES/APS).
49. TPC Member, IEEE International Conference on Aerospace Electronics and Remote Sensing Technology 2018 (ICARES 2018), Bali, 20-22 September 2018 (IEEE GRSS/AES).
50. TPC / Reviewer, The 2018 / The 15th Loughborough Antenna & Propagation Conference (LAPC) Burleigh Court International Conference Center, Loughborough, UK, 12-13 November 2018.
51. General Chair: The 7th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2021), Bali, Indonesia, 1-5 November 2021 (IEEE GRSS/AES)

52. Co-leader of Working Group on Remote Sensing Instrumentation and Technologies for Unmanned Aerial Vehicles of IEEE GRSS, Technical Committee on Instrumentation and Future Technologies (IFT-TC), 2020 – present (IEEE GRSS).
53. Scientific Committee Member, the 9th International Seminar on Aerospace Science and Technology (ISAST 2021), 1 November 2021 (IEEE GRSS/AES).
54. TPC Member, The 2nd International Conference on Information Technology, Advanced Mechanical and Electrical Engineering (ICITAMEE 2021), 25-26 August 2021, Universitas Muhammadiyah Yogyakarta, Indonesia.
55. Leader: IEEE Geoscience and Remote Sensing Society (GRSS) Technical Committee on Instrumentation and Future Technology (TC IFT) UAV Instrumentation and Data Processing Trophy 2021, 1 July 2021-5 November 2021 (IEEE GRSS).
56. Technical Program Committee (TPC), the 12th International Conference on Information and Communications Technology Convergence (ICTC 2021). The conference will be held in Jeju Island, Korea, from October 20 to 22, 2021 (IEEE).
57. Reviewer: The 24th International Conference on Advanced Communications Technology (ICACT 2021, www.ICACT.org), 13-16 February 2022, Phoenix Pyeongchang, Korea (IEEE).
58. IEEE IGARSS 2022 Scientific Committee (Invited Session Organizer and Reviewer), 17-22 July 2022. Session Chair : MO5.V19: Advanced Methods for Polarimetric SAR Information Extraction: Session 2 (Invited Session), 18 July 2022. Session Chair : MO7.V17: UAV Future Technology and Applications (Invited Session), 18 July 2022.

59. TPC Member, 2022 2nd International Conference on Electronic and Electrical Engineering and Intelligent System (ICE3IS), Universitas Muhammadiyah Yogyakarta, 4-5 November 2022.
60. TPC Member, International Symposium on Satellite Communication Systems & Services 2022 (SCSS 2022), in conjunction with APCC 2022, Jeju Island, Republic of Korea, October, 19-21, 2022.
61. TPC Member & Reviewer, The 13th International Conference on ICT Convergence 2022, 19-21 October 2022, Jeju, Korea.
62. Editor-in-Chief, Proceedings of The 3rd International Conference on Smart and Innovative Agriculture (ICoSIA 2022), 22-23 November 2022.
63. TPC Member, The 2nd International Conference on Electrical and Electronic Engineering Intelligent System, 2-5 November 2022, Universitas Muhammadiyah Yogyakarta.
64. General Chair, the 2023 IEEE Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2023), <https://apsar2023.org/>, 23-27 October 2023, Bali, Indonesia.
65. TPC, the 2023 IEEE Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2023), <https://apsar2023.org/>, 23-27 October 2023, Bali, Indonesia.
66. TPC, The 14th International Conference on ICT Convergence (ICTC) <https://ictc.org/>, 11-14 October 2023, Jeju Island, Korea.
67. TPC, The 1st International Conference on Applied Mechatronics, Manufacturing and Electrical System (AMMES 2023) <https://ammes.unimap.edu.my/>, 1-2 December 2023, Yogyakarta, Indonesia.

68. Session Chair, IEICE SANE, IEEE AES Society Japan Chapter, The 6th Seminar on Microwave Remote Sensing (SeMIREs 2023), 13 November 2023, Chiba, Japan.
69. Committee Member, IEICE International Conference on Space, Aeronautical and Navigational Electronics 2023 (ICSANE 2023), 7-9 December 2023, Solo, Indonesia.
70. TPC Member, the 2024 IEEE International Conference on Consumer Electronics (ICCE): <http://www.icce.org/>, 6-8 January 2024, Las Vegas, NV, USA.

Book

1. **Josaphat Tetuko Sri Sumantyo** and Koichi Ito, Method of Moment for Antenna Analysis, Penerbit ITB, Mei 2004, ISBN 979-3507-23-3.
2. **Josaphat Tetuko Sri Sumantyo**, Koichi Ito, Eko Tjipto Rahardjo, and Kazuyuki Saito, Finite Difference Time Domain (FDTD), Penerbit ITB, August 2004, ISBN:979-3507-28-4.
3. Shigeru Kobayashi Editor, Modern Japanese Maps Production and Asia Pacific Region – Japanese Army Maps Approach, Chapter 4. **Josaphat Tetuko Sri Sumantyo**, Innes Indreswari Soekanto, and Ryutaro Tateishi, Urban Monitoring using Former Japanese Military Maps and Remote Sensing, pp.471-476, Osaka University Press, March 2009, ISBN:978-87259-266-5
4. Darko Matovic Editor, Biomass - Detection, Production and Usage, ISBN 978-953-307-492-4, Chapter 3. Jalal Amini and **Josaphat Tetuko Sri Sumantyo**, SAR and Optical Images for Forest Biomass Estimation, pp.53-74, InTech Publisher, September 2011.

5. Nasimuddin Nasimuddin Editor, Microstrip Antennas, Antennas and Propagation, Chapter 13. Merna Baharuddin and **Josaphat Tetuko Sri Sumantyo**, Circularly Polarized Microstrip Antennas with Proximity Coupled Feed for Circularly Polarized Synthetic Aperture Radar, pp.317-340, InTech Publisher, April 2011, ISBN 978-953-307-247-0.
6. **Josaphat Tetuko Sri Sumantyo** and Luhur Bayuaji, Differential SAR Interferometry using ROI_PAC Software: Tutorial and Implementation, 2013.
7. Steven (Shichang) Gao, Qi Luo, Fuguo Zhu Editors, Circularly Polarized Antennas, Chapter 5. **Josaphat Tetuko Sri Sumantyo**, Circularly Polarized Array, November 2013, Wiley-IEEE Press, ISBN: 978-1-118-37441-2.
8. Kenzo Nonami, Muljowidodo Kartidjo, Kwang Joon Yoon, and Agus Budiyo Editors, Autonomous Control Systems and Vehicles: Intelligent Unmanned System UAV Books, Chapter 12. **Josaphat Tetuko Sri Sumantyo**, Circularly Polarized Synthetic Aperture Radar onboard Unmanned Aerial Vehicle, Series: Intelligent Systems, Control, and Automation: Science and Engineering, Vol.65, 2013, ISBN 978-4-431-54275-9.
9. Muhammad Assad Editor, 25 Kisah Ilmuwan Indonesia Yang Mendunia, Prof. **Josaphat Tetuko Sri Sumantyo**, Ph.D, pp.114-127, Elex Media Komputindo Publisher, Januari 2017, ISBN 9786020296722.
10. Kyohei Fujimoto and Ito Koichi Editors, Chapter 9. **Josaphat Tetuko Sri Sumantyo**, Unmanned Aerial Vehicle, Kyoritsu Publisher, May 2017, ISBN 978-4-320-08647-0.

11. Kyohei Fujimoto and Ito Koichi editor, *Antennas for Small Mobile Terminals*, Chapter 9. **Josaphat Tetuko Sri Sumantyo**, Unmanned Aerial Vehicle, Artech House, 2018, ISBN: 9781630810955.
12. Bimo Joga Sasongko, Agung Setiyo Wibowo, and Totok Siswantara Editors, *Mengabdi Sampai Akhir: Kisah Sukses “Anak-Anak Intelektual Habibie”*, **Josaphat Tetuko Sri Sumantyo**, “Radar untuk Ayah”, Pena Nusantara Publisher, July 2019
13. Prashant Srivastava, Dileep Kumar Gupta, Tanvir Islam, Dawei Han, and Rajendra Prasad Editors, *Radar Remote Sensing: Applications and Challenges*. Chapter 15. **Josaphat Tetuko Sri Sumantyo**, Advanced Method for Radar Remote Sensing: Circularly Polarized Synthetic Aperture Radar, pp. Pages 287-307, Elsevier, March 2020. DOI: 10.1016/B978-0-12-823457-0.00016-1, ISBN 978-0-12-823457-0
14. Jay Guo and Richard Ziolkinski Editors, *Antenna and Array Technologies for Future Wireless Ecosystems*, Qi Luo, Steven Gao, **Josaphat Tetuko Sri Sumantyo**, and Yang Xi, Chapter 3. Low-Cost Beam Reconfigurable Directional Antennas for Advanced Communications, IEEE Press and John Wiley & Sons, ISBN 978-1119813880 (16 August 2022)
15. *Ikatan Alumni Program Habibie, Mengabdi Sampai Akhir, Vol.2, Kisah Sukses Anak-Anak Intelektual Habibie*, **Josaphat Tetuko Sri Sumantyo**, Mencipta Benua Indonesia – Merajut Nusantara, Pena Nusantara Publisher, pp.257-260, October 2021.
16. **Josaphat Tetuko Sri Sumantyo**, Ming Yam Chua, Cahya Edi Santosa, and Yuta Izumi, *Circularly Polarized Synthetic Aperture Radar*, CRC Publisher, 25 April 2023. ISBN 9781032250038.

17. Muhammad Adhimas Prasetyo, *Meraih Cita-Cita Setinggi Angkasa – Kisah Professor Radar Indonesia yang Mendunia – Biografi Prof. Josaphat Tetuko Sri Sumantyo, Ph.D*, Penerbit Bukunesia, 23 August 2024. ISBN : 978-623-8350-78-0
18. **Josaphat Tetuko Sri Sumantyo** and Pakhrur Razi Editors, *Advances in Geoscience and Remote Sensing Technology*, Springer Singapore, 12 September 2024. ISBN: 978-981-97-5745-9, DOI: 10.1007/978-981-97-5746-6.

Peer-Reviewed Papers

1. **Josaphat Tetuko Sri Sumantyo**, Firman Siregar, and Ian Yosef Matheus Edward, "Scattered Pulse Analysis Using Finite Difference Time Domain (FDTD) Method," *Journal of Electrical Engineering - Majalah Ilmu Teknik Elektro (MITE)*, Vol.4, No.1, pp.12-23, 1998 (Bandung: MITE) Print ISSN 0853-7186.
2. **Josaphat Tetuko Sri Sumantyo** and Anak Agung Gde Peter Karang, "Design and Implementation of Scanning Device in Subsurface Radar Instrument," *Journal of Bina Nusantara University*, Vol.7, No.1, pp.15-22, April 1999 (Jakarta: Binus) Print ISSN: 0853-2311.
3. **Josaphat Tetuko Sri Sumantyo** and Ketut Wikantika, "Simulation of Scattered Electromagnetics Wave on Trunk of Rasamala (Altingia Exelsa)," *Journal of Electrical Engineering - Majalah Ilmu Teknik Elektro*, Vol.6, No.1, pp.12-20, 2000 (Bandung: MITE) Print ISSN: 0853-7186
4. **Josaphat Tetuko Sri Sumantyo** and Anak Agung Gde Peter Karang, "Mt. Gede Pangrango National Park monitoring using L band Synthetic Aperture Radar (SAR) image," *Journal of Bina Nusantara University*, Vol.8, No.1, pp.1-7, April 2000 (Jakarta: Binus) Print ISSN: 0853-2311.

5. **Josaphat Tetuko Sri Sumantyo** and Ryutaro Tateishi, "Simulation of Scattered Waves from Tropical Tree Trunks and Its Application," *Journal of Japan Society of Photogrammetry and Remote Sensing*, Vol.40, No.6, pp.4-14, 2001 (Tokyo: JSPRS) Online ISSN: 1883-9061 Print ISSN: 0285-5844.
6. **Josaphat Tetuko Sri Sumantyo**, Ryutaro Tateishi, and Ketut Wikantika, "A Method to Estimate Tree Trunk Diameter and Its Application to Discriminate Indonesian Tropical Forest Characteristics," *International Journal of Remote Sensing (IJRS)*, Vol.22, No.1, pp.177-183, January 2001 (London: Taylor and Francis) Online ISSN 1366-5901 Print ISSN 0143-1161, DOI:10.1080/01431601750038910.
7. Tzolmon Renchin, Ryutaro Tateishi, and **Josaphat Tetuko Sri Sumantyo**, "A Method to Estimate Forest Biomass and Its Application to Monitor Mongolian Taiga using JERS-1 SAR Data," *International Journal of Remote Sensing (IJRS)*, Vol.23, No.22, pp.4971-4978, November 2002 (London: Taylor and Francis) Online ISSN 1366-5901 Print ISSN 0143-1161, DOI:10.1109/IGARSS.2002.1026818.
8. **Josaphat Tetuko Sri Sumantyo**, Ryutaro Tateishi, and Nobuo Takeuchi, "Estimation of Burnt Coal Seam Thickness in Central Borneo using a JERS-1 SAR Image," *International Journal of Remote Sensing (IJRS)*, Vol.24, No.4, pp.879-884, February 2003 (London: Taylor and Francis) Online ISSN 1366-5901 Print ISSN 0143-1161, DOI:10.1080/01431160110069854.
9. **Josaphat Tetuko Sri Sumantyo**, Ryutaro Tateishi, and Nobuo Takeuchi, "A Physical Method to Analyse Scattered Waves from Burnt Coal Seam and Its Application to Estimate Thick-

ness of Fire Scars in Central Borneo using JERS-1 SAR Data, "International Journal of Remote Sensing (IJRS), Vol.24, No.15, pp.3119 -3136, August 2003 (London: Taylor and Francis) Online ISSN 1366-5901 Print ISSN 0143-1161, DOI: 10.1080/0143116021000021215.

10. David Delaune, Toshimitsu Tanaka, Teruo Onishi, **Josaphat Tetuko Sri Sumantyo**, and Koichi Ito, "A Simple Satellite-Tracking Stacked Patch Array Antenna for Mobile Communications Experiments Aiming at ETS-VIII Applications," IEE Microwave. Antennas Propagation, Vol.151, No.2, pp.173-179, April 2004 (London: IEE) ISSN 1751-8733 Print ISSN 1751-8725, DOI:10.1049/ip-map:20040148.
11. Hussam Al-Bilbisi, Tateishi Ryutaro, and **Josaphat Tetuko Sri Sumantyo**, "A Technique to Estimate Topsoil Thickness in Arid and Semi-arid Area of North Eastern Jordan using Synthetic Aperture Radar Data," International Journal of Remote Sensing (IJRS), Vol.25, No.19, pp.3873-3882, October 2004 (London: Taylor and Francis) Online ISSN 1366-5901 Print ISSN 0143-1161, DOI: 10.1080/01431160410001697628.
12. **Josaphat Tetuko Sri Sumantyo** and Ryutaro Tateishi, "A technique to Analyse Scattered Waves from Rough Burnt Coal Seam and Its Application to Estimate Thickness of Fire Scars in Central Borneo using L-Band SAR Data," Journal of Japan Society of Photogrammetry and Remote Sensing (JSPRS), Vol.43, No.6, pp.48-61, January 2005 (Tokyo: JSPRS) Online ISSN: 1883-9061 Print ISSN: 0285-5844.
13. **Josaphat Tetuko Sri Sumantyo**, Koichi Ito, David Delaune, Toshimitsu Tanaka, Teruo Onishi, and Hiroyuki Yoshimura, "Numerical Analysis of Ground Plane Size Effects on Patch Array anten-

- na Characteristics for Mobile Satellite Communications,” International Journal of Numerical Modelling (IJNM), Vol.18, No.2, pp.95-106, March 2005 (London: Wiley) Online ISSN: 1099-1204, DOI:10.1002/jnm.563.
14. **Josaphat Tetuko Sri Sumantyo** and Koichi Ito, “Simple Satellite-Tracking Dual-band Triangular-patch Array Antenna for ETS-VIII Applications,” Radiomatics - Journal on Communications Engineering, Vol.2, No.1, May 2005 (Bandung: Radiomatics) Print ISSN 1693-5152.
 15. Ronald Budiman, Ketut Wikantika and **Josaphat Tetuko Sri Sumantyo**, “Burnt Coal Seam Thickness Monitoring using JERS-1 SAR,” Indonesian Journal of Remote Sensing (IJRS), Vol.2, No.1, pp.37-46, August 2005 (Jakarta: IJRS).
 16. Toshimitsu Tanaka, **Josaphat Tetuko Sri Sumantyo**, Daisuke Ishide, K. Kaneko, Masaharu Takahashi, and Koichi Ito, “Pseudo Satellite Communications Experiments using a Simple Satellite Tracking Dual-band Triangular-patch Array Antenna,” Journal of The Communication Society - The Institute of Electronics, Information and Communication Engineers (IEICE), Vol. J88-B, No.9, pp.1760-1771, September 2005 (Tokyo: IEICE).
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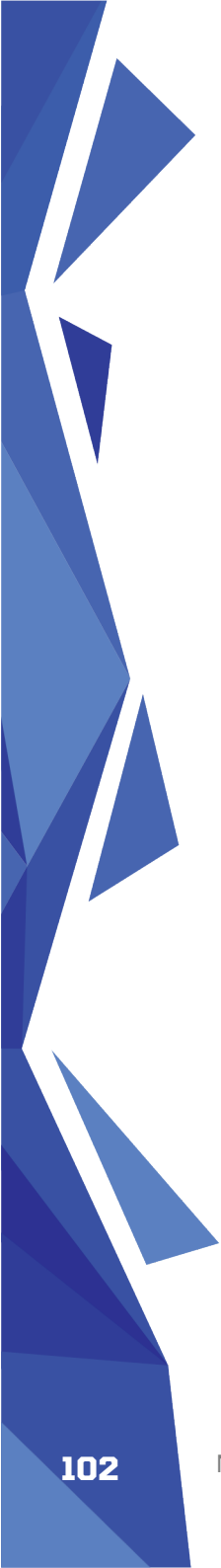
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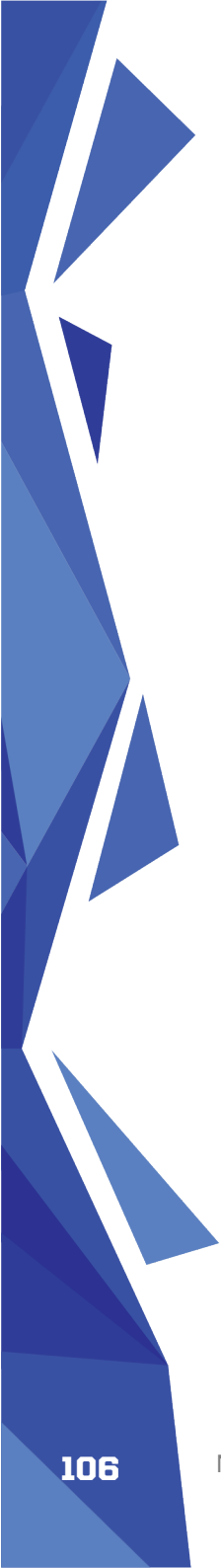
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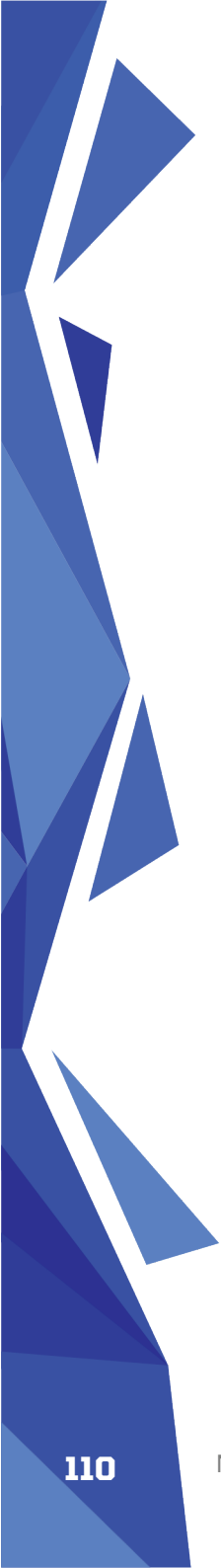
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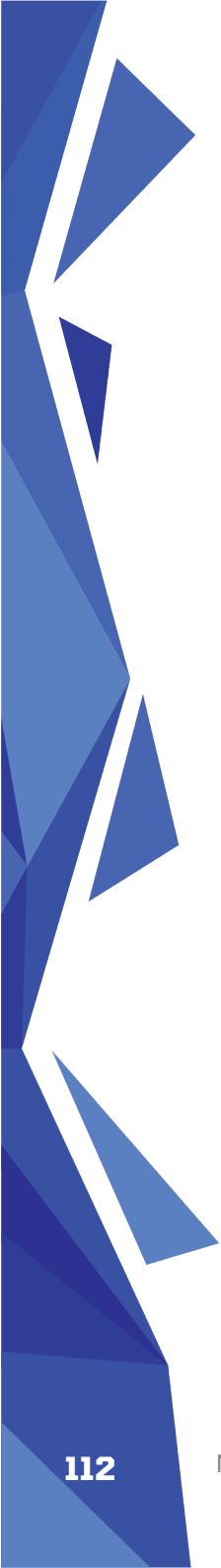
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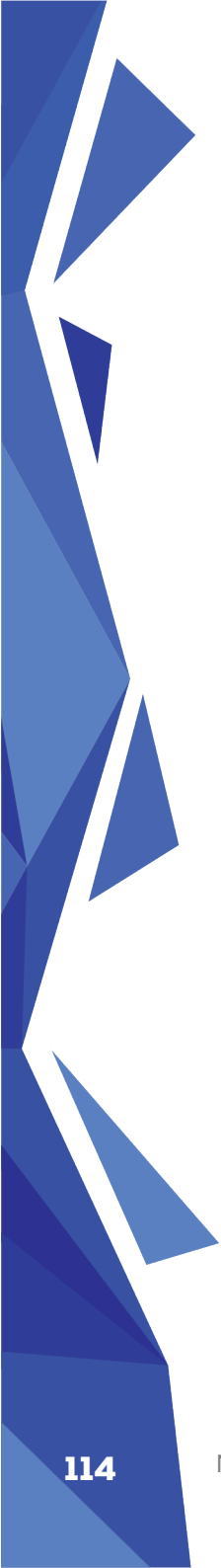
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 152. Dodi Sudiana, Jamilatun Nisa, Mia Rizkinia, Ratih Dewanti Dimiyati, Nanin Anggraini, Indra Riyanto, Anton Satria Prabuwono, and **Josaphat Tetuko Sri Sumantyo**, "Monitoring the Distribution of Mangrove Area using Synthetic Aperture Radar (SAR) and Optic Remote Sensing Data Fusion based on Deep Learning in Kotabaru Regency, Indonesia", Evergreen, Vol.11, No.1, pp.536-546, March 2024. DOI: 10.5109/7172320
 153. Muhammad Hamka Ibrahim, Subuh Pramono, Jing-Yuan Wang, Yu-Fan Cai, Feri Adriyanto, and **Josaphat Tetuko Sri Sumantyo**, "Speckle Correction Filter Based on Spatial Polarimetric Coherence for Full Polarimetric Synthetic Aperture Radar Image," IEICE Communication Express, Vol.13, No.10, 24 July 2024 Accepted.

154. Rika Hernawati, Ketut Wikantika, Soni Darmawan, Agung Budi Harto, **Josaphat Tetuko Sri Sumantyo**, and Sitarani Safitri, "Phenology Model of Oil Palm Plantation Based on Biophysical Parameter on Sentinel-1A Using Multiple Linear Regression (MLR)," *Journal of the Indian Society of Remote Sensing*, 19 August 2024, DOI: 10.1007/s12524-024-01973-4, Springer.
155. Sudaryatno, **Josaphat Tetuko Sri Sumantyo**, Taufik Hery Purwanto, Muhammad Falakh Al Akbar, Amelia Rizki Gita, and Osmar Shalih, "Analysis and Geovisualization of Tsunami Hazard and Evacuation Routes in the Opak-Progo Coastal Area," *Forum Geografi*, Vol.32, No.2, pp.257-265, 27 August 2024, DOI: 10.23917/forgeo.v38i2.5436.
156. Husnul Kausarian, **Josaphat Tetuko Sri Sumantyo**, Batara, Adi Suryadi, and Thio Pangestu, "SAR Sentinel Data Analysis: Hydrological Dynamics and Rainfall Patterns in the Kampar River Basin (2018-2023)," *Evergreen*, Accepted.
157. Fathin Nurzaman, Yuta izumi, Motoyuki Sato, Koki Urano, Shima Kawamura, **Josaphat Tetuko Sri Sumantyo**, Kaoru Ota, Mianxiong Dong, and Dudy D. Wijaya, "A Robust APS Trend Estimation Technique for Ground-Based InSAR Measurements of Urban Landslide," *IEEE Geoscience and Remote Sensing Letters*, DOI: 10.1109/LGRS.2024.3463797, 12 September 2024 Accepted.

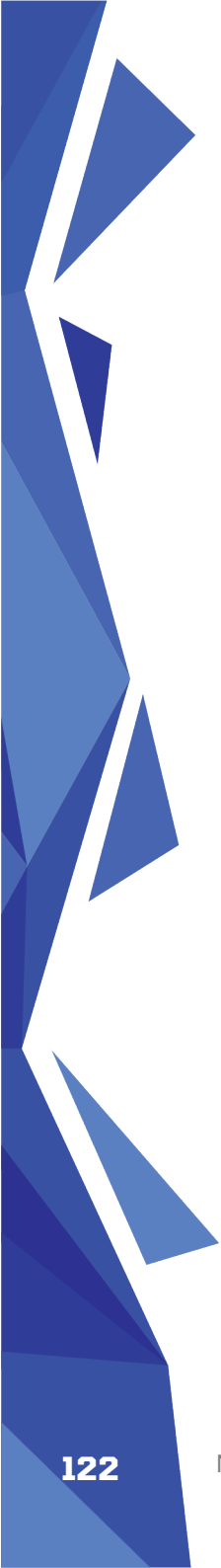
Invited Talks (Based on Japanese Fiscal Year)

1. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Antenna Design using Moment Method," Department of Electrical Engineering, University of Indonesia, 21 May 2004.
2. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, Antenna Workshop 2004: "Antenna Design using Moment Method," Department of Electrical Engineering, Brawijaya University, Indonesia, 24 May 2004.
3. Keynote speaker: **Josaphat Tetuko Sri Sumantyo**, "Antennas Development", Electrical, Control, Communication and Information Seminar 2004 (ECCIS 2004), Brawijaya University, Indonesia, 25 May 2004.
4. Keynote speaker: **Josaphat Tetuko Sri Sumantyo**, "Innovation and Challenge: Antennas Development", 13th Indonesian Scientific Conference 2004, Tokyo Institute of Technology, 5 September 2004.

(Total in FY 2004: 4)

5. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Finite Difference Time Domain Method (FDTD)," Department of Electrical Engineering, University of Indonesia, 9 March 2005
6. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Patent and Intellectual Properties in Japan Universities," Department of Electrical Engineering, University of Indonesia, Indonesia 9 March 2005.
7. Lecturer: **Josaphat Tetuko Sri Sumantyo**, Workshop on Finite Difference Time Domain Method (FDTD), Faculty of Industrial Technology, University of Budi Luhur, Indonesia, 10 March 2005.

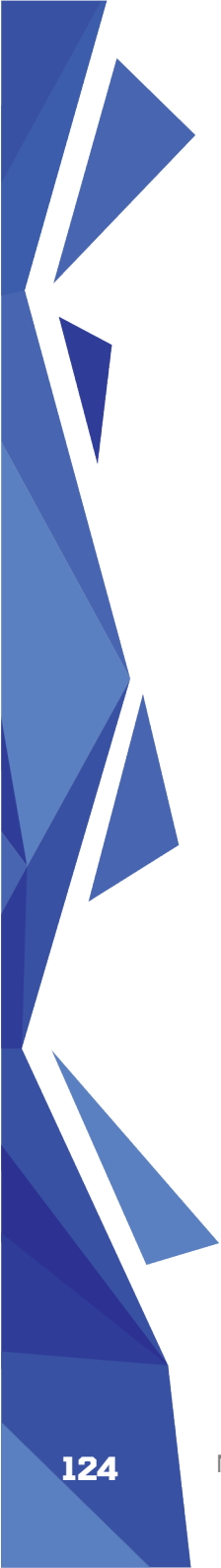
8. Lecturer: **Josaphat Tetuko Sri Sumantyo**, Workshop on Finite Difference Time Domain Method (FDTD), Department of Electrical Engineering, STT Telkom, Indonesia, 21 March 2005.
9. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, Seminar on Antennas Technology in Engineering and Medical Applications, Department of Electrical Engineering, Christian University Maranatha, 22 March 2005.
10. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Microwave Remote Sensing and Mobile Satellite Communications Technologies," Center for Environmental Studies, Hasanudin University, Indonesia, 5-6 September 2005.
11. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Microwave Remote Sensing and Mobile Satellite Communications," Mabes TNI-AU, Indonesia, 7 September 2005.
12. Invited Lecture, **Josaphat Tetuko Sri Sumantyo**, "Tutorial on Finite Difference Time Domain Method, Microwave and Radar Laboratory," Department of Electrical Engineering, Institute of Technology Bandung (ITB), Indonesia, 8 September 2005.
13. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Microwave Remote Sensing, Mobile Satellite Communications Technologies and Optical Sensor Development," LIPI Geoteknologi, Indonesia, 9 September 2005.
14. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Former Japanese Army Maps and Satellite Images for Urban Changing Monitoring in Asian Cities: One Hundred Years of Jakarta City Monitoring, Indonesia," Former Japanese Army Maps Society, Risho University, Japan 23 December 2005.

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15. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Advance Technology in Microwave Remote Sensing and Mobile Satellite Communications," Universitas Negeri Surabaya, 2 January 2006.
 16. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Advance Technology in Microwave Remote Sensing and Mobile Satellite Communications," Universitas Widya Mandala, Surabaya, 3 January 2006.
 17. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Geologic Information Retrieving using Synthetic Aperture Radar," HyARC-CEReS Joint Data Fusion – Tokai University Remote Sensing Conference – SELIS Conference, Nagoya University, Japan, 21 February 2006.
 18. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Geologic Information Retrieving using Synthetic Aperture Radar," Center for Remote Sensing, Institute of Technology Bandung (ITB), Indonesia, 21 March 2006.
 19. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar and Its Application, Department of Geophysics Engineering," Faculty of Earth Science and Mineral Technology, Institute of Technology Bandung (ITB), Indonesia, 22 March 2006.

(Total in FY 2005: 15)

20. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar – Sensor Development and Applications," Dinas Survey & Pemotretan Udara Angkatan Udara (Dissurpotrudau), Mabes TNI-AU, Indonesia, 10 June 2006.
21. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar & Mobile Satellite Communications," University of Udayana (Unud), 2 September 2006.

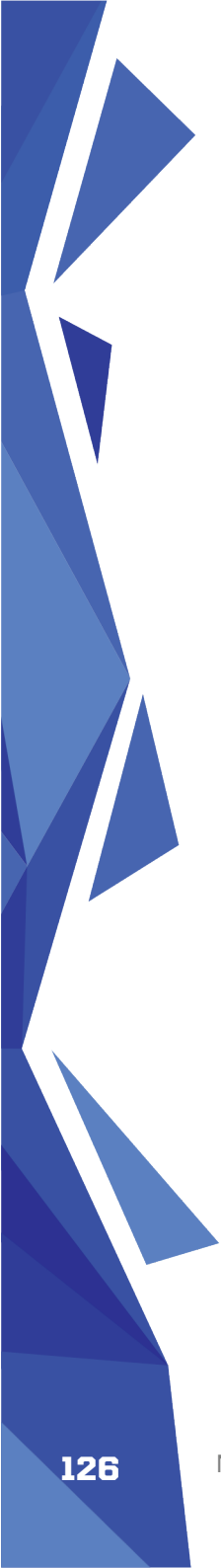
22. Short Course Lecturer: **Josaphat Tetuko Sri Sumantyo**, "Signal Processing Synthetic Aperture Radar," Indonesian - Japan Joint Scientific Symposium 2006 (IJSS 2006), University of Indonesia (UI), 8 September 2006.
23. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Remote Sensing," Semi Palar Kindergarten & Elementary School, Bandung, 13 September 2006.
24. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Asian Geospatial Information Database," Dinas Survey & Pemotretan Udara Angkatan Udara (Dissurpotrudau), Mabes TNI-AU, Indonesia, 2 November 2006.
25. Short Course Lecture: **Josaphat Tetuko Sri Sumantyo**, "Signal Processing Synthetic Aperture Radar," STT Telkom, 4 November 2006.
26. Invited Lecturer: **Josaphat Tetuko Sri Sumantyo**, "City," Semi Palar Kindergarten & Elementary School, Bandung, 7 November 2006.
27. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Advanced Technology in Microwave Remote Sensing & Mobile Satellite Communications," Industrial Electronics Seminar 2006, EEPIS-ITS, Institute of Technology Sepuluh Nopember (ITS), Surabaya, Indonesia, 9 November 2006.
28. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar for Air Search and Rescue (SAR)," Agency for Survey and Aerial Photography (Dissurpotrudau), TNI Angkatan Udara, Halim Perdana Kusumah, 18 December 2006.
29. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar for Air Search and Rescue (SAR)," Mabes TNI-AU, Cilangkap, 18 December 2006.

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30. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar and Its Applications," Department of Electrical Engineering, University of Indonesia, 19 December 2006.
 31. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar (CP-SAR)," Department of Geodesy, Institute of Technology Bandung (ITB), 28 February 2007.
 32. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar (CP-SAR)," Department of Sciences, University of Udayana (Unud), 2 March 2007.

(Total in FY 2006: 12)

33. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar and Its Application," University of Hasannudin (Unhas), 11 June 2007.
34. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar and Its Application," Institute of Technology Bandung (ITB), 14 June 2007.
35. Lecture: **Josaphat Tetuko Sri Sumantyo**, Workshop on Synthetic Aperture Radar Signal Processing, Department of Geodetic, Institute of Technology Bandung (ITB), 18 June 2007.
36. Lecture: **Josaphat Tetuko Sri Sumantyo**, Workshop on Synthetic Aperture Radar Signal Processing, Department of Geodesy, University of Gadjah Mada (UGM), 6 September 2007.
37. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Advance Synthetic Aperture Radar Technology," Department of Geodesy, University of Gadjah Mada (UGM), 7 September 2007.

38. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Antennas Technology for Mobile Satellite Communications," University of Atma Jaya Yogyakarta (UAJY), 7 September 2007.
39. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar and Its Application," Institute of Technology Bandung (ITB), 14 September 2007.
40. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Advance Synthetic Aperture Radar onboard Microsatellite," Space Development Forum 2007, JAXA Office, 23-24 September 2007.
41. Panelist: **Josaphat Tetuko Sri Sumantyo**, "Space International Cooperation," Space Development Forum, Japan Aerospace Exploration Agency (JAXA) Tokyo Office, 24 September 2007.
42. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Advance Synthetic Aperture Radar onboard Microsatellite," Faculty of Social and Humanities, University of Jordan, Jordan, 14 November 2007.
43. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, H. Wakabayashi, A. Iwasaki, F. Takahashi, H. Ohmae, H. Watanabe, R. Tateishi, F. Nishio, M. Baharuddin, and P. R. Akbar, "Development of circularly polarized synthetic aperture radar onboard microsatellite," International Symposium/Workshop on Practical Applications of Smart Materials, Chiba University, pp.37-40, 1 December 2007.
44. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of circularly polarized synthetic aperture radar onboard microsatellite," 2007 Industrial, University and Government Technical Exchange Fair – New Energy and Industrial Technology Development Organization (NEDO) booth, Tokyo Big Site, 29 November 2007.

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45. Distinguished Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Mobile Satellite Communications Antennas and Circularly Polarized Synthetic Aperture Radar onboard Microsatellite," Institute of Electronics, Information and Communication Engineers (IEICE) Hokuriku Region, University of Kanazawa, Japan, 16 January 2008.

(Total in FY 2007: 13)

46. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of the Next Generation Microsatellite for Earth Monitoring," Chiba University Symposiums on Earth Environmental Problems, Keyaki Kaikan, Chiba University, Japan, 8 May 2008.
47. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of the Next Generation Microsatellite for Earth Monitoring," One Day Workshop on Unmanned Mapping Technology: Development and Applications (UnMapTech2008), Aula Timur Institute of Technology Bandung (ITB), 9 June 2008.
48. Guest Lecture: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar Technology," University of Diponegoro (Undip), Indonesia, 31 Oktober 2008.
49. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard Small Satellite," International Workshop on Synthetic Aperture Radar (IWSAR2009), Chiba, Japan, 16 February 2009.
50. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar - Development on Circularly Polarized Synthetic Aperture Radar onboard Microsatellite," Space Land Plan Task

Force 2009, Kashiwa Techno Plaza, 19 March 2009 (Space Land Plan Task Force Committee).

(Total in FY 2008: 5)

51. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Long Term Continuously DInSAR for Volume Change Estimation of Land Deformation: Volumetric Synthetic Aperture Radar," Dipati Ukur Campus, University of Padjajaran (Unpad), 29 July 2009.
52. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard Small Satellite," Fakultas Teknologi Industri Pertanian, Jatinangor Campus, University of Padjajaran (Unpad), 30 July 2009.
53. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard Small Satellite – Long Term Continuous DInSAR to Estimate Volume Change of Land Deformation," Open Seminar Research Institute for Sustainable Humanosphere, Uji Campus, Kyoto University, 21 October 2009.

(Total in FY 2009 : 3)

54. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard UAV and Small Satellite, Center for Atmospheric Science and Climate Application," National Institute of Aeronautics and Space (LAPAN), Bandung, Indonesia, 7 April 2010.
55. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard Small Satellite," the 48th (2010) Spring Conference, The Remote Sensing Society of Japan, 27-28 May 2010 (Tsukuba: AIST Tsukuba Center)

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56. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Synthetic Aperture Radar onboard Small Satellite and UAV," University of Udayana (Unud), Sudirman Campus, Indonesia, 1 October 2010.
 57. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard Small Satellite and Unmanned Aerial Vehicle," The 3rd International Remote Sensing and GIS Workshop Series on Demography, Land Use-Land Cover and Disaster, Campus Center, Institute Teknologi Bandung (ITB) Institute of Technology Bandung, Indonesia, 4 October 2010.
 58. Invited Speak : **Josaphat Tetuko Sri Sumantyo**, "Strategi Penyusunan Proposal Penelitian Internasional dan Center of Excellent (COE)," University of Padjajaran (Unpad), Dipatiukur Campus, 4 October 2010.
 59. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard Microsatellite for Next Generation of Earth Diagnosis," The 17th Asian Symposium on Ecotechnology, O-23, pp.33, 11-13 November 2010, Unazuki International Hall "Selene", Kurobe, Toyama, Japan.
 60. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard Microsatellite for Next Generation of Earth Diagnosis," ODA JST-JICA Project Joint Meeting, Universiti Tenaga Nasional (Uniten), Putrajaya, Malaysia, 26 November 2010.
 61. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar Signal Processing," Toyama National College of Technology, 17-18 January 2011, Toyama, Japan.

62. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Synthetic Aperture Radar onboard Microsatellite for Earth Diagnosis," Department of Electrical Engineering – Department of Geography, University of Indonesia (UI), 1 January 2011.
63. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Synthetic Aperture Radar onboard Microsatellite for Earth Diagnosis," National Institute of Aeronautics and Space (Lapan) – Pekayon Office, 1 January 2011.

(Total in FY 2010: 10)

64. Panelist: **Josaphat Tetuko Sri Sumantyo**, The 15 Anniversary of Satoh Yo International Scholarship Foundation, "Study Aboard and Exchange", National Olympics Memorial Youth Center, August 2, 2011.
65. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar Image Signal Processing and Advanced Applications for Earth Diagnosis," Asian Institute of Technology (AIT), Pathumthani, Thailand, August 25-26, 2011.
66. Stadium Generale: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard Microsatellite for Earth Diagnosis", Indonesia Aerospace Agency (Lapan) – Rancabungur, Indonesia, October 15, 2011
67. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar Image Signal Processing and Advanced Applications for Earth Diagnosis," Akademi Angkatan Udara (AAU), Yogyakarta, Indonesia, 20 October 2011.
68. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar Image

Signal Processing and Advanced Applications for Earth Diagnosis,” Faculty of Geography, University of Gadjah Mada (UGM), Yogyakarta, Indonesia, 24 October 2011.

69. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, “Synthetic Aperture Radar Image Signal Processing and Advanced Applications for Earth Diagnosis,” Faculty of Forestry, Institute of Agricultural Bogor (IPB), 26 January 2012.
70. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, “Development of Circularly Polarized Synthetic Aperture Radar onboard Microsatellite for Earth Diagnosis,” The 17th CEReS International Symposium, Chiba University, Japan, March 1, 2012.
71. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, “Development of Circularly Polarized Synthetic Aperture Radar onboard Microsatellite,” Department of Space Electronics Engineering and Department of Electronics Engineering, Ajou University, Suwon, Korea, 28 March 2012.
72. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, Workshop on spaceborne synthetic aperture radar image processing, Department of Space Electronics Engineering and Department of Electronics Engineering, Ajou University, Suwon, Korea, 29 March 2012.

(Total in FY 2011: 9)


73. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar onboard Microsatellite and Unmanned Aerial Vehicle”, Agency for Assessment and Application of Technology (BPPT), Jakarta, Indonesia, 9 August 2012.
74. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar

- onboard Unmanned Aerial Vehicle," The 3rd International Polarimetric SAR Workshop in Niigata 2012, 23-26 August 2012 (Niigata: Japan).
75. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Construction of analysis system for temporal change and real-time condition of surface environment by using RS/GIS technologies," JCC JICA-JST Project, Universiti Tenaga Nasional, 23 November 2012 (Putrajaya: Malaysia).
 76. Invited Speak□ **Josaphat Tetuko Sri Sumantyo** and Koo Voon Chet, "Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehcile," Tohoku University Communication Research Center - Joint Project Research Center 2012, Development of Civilian Synthetic Aperture Radar System and Applications, Communication Research Center, Tohoku University, 5 February 2013, IEEE-GRSS.
 77. Invited Speak□ **Josaphat Tetuko Sri Sumantyo**, and Koo Voon Chet, "Development of Unmanned Aerial Vehicle for Synthetic Aperture Radar Sensor," IEICE Symposium 2013, BI-2 Application of Unmanned Aeril System (UAS) and UAS Communication Technology, BI-2-11, Gifu University, 25 February 2013.
 78. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Remote Sensing Sensors onboard Microsatellite-UAV for Earth Observation and Its Applications," University of Padjadjaran (Unpad), Jatinangor, 25 March 2013.
 79. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Remote Sensing Sensors onboard Microsatellite-UAV for Earth Observation and Its Applications," Department of Geomatics, Institute of Technology Sepuluh Nopember (ITS), Surabaya, 27 March 2013.

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80. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Remote Sensing Sensors onboard Microsatellite-UAV for Earth Observation and Its Applications," The 7th National Radar Seminar – The 2nd International Conference on Radar, Antenna, Microwave, Electronics and Telecommunications (ICRAMET 2013), Indonesian Institute of Sciences (LIPI), JW Marriot Hotel, Surabaya 28 March 2013.

(Total in FY 2012: 8)

81. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Remote Sensing Sensors onboard Microsatellite-UAV for Earth Observation and Its Applications," Environmental Studies Program, Postgraduate Program Office, University of Udayana, Denpasar, 2 April 2013.
82. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard Microsatellite-UAV and Its Applications," School of Electrical and Computer Engineering, Ajou University, Suwon, Korea, 4 May 2013.
83. Invited Speak **Josaphat Tetuko Sri Sumantyo**, Chiba Prefecture Manufacturing Technology Seminar – Special Lecture: Development of Advanced Microwave Sensor onboard Microsatellite and Unmanned Aerial Vehicle," Chiba Prefecture Industrial Support Technology Research Center – Tendai Building, 14 June 2013.
84. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard Unmanned Aerial Vehicle," WE1.T04.1: SAR Polarimetry: Theory and Application I Session, Wednesday, July 24, 2013: 08:20-10:00, International Geoscience and Remote Sensing Symposium (IGARSS 2013), 21-26 July 2013, Melbourne, Australia (Invited Oral Session)

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85. Guest Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Sensors onboard Unmanned Aerial Vehicle and Microsatellites", Faculty of Information Technology, Clayton School of Information, Monash University, Australia on 25 July 2013.
 86. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, Koo Voon Chet, and Robertus Heru Triharjanto, "Development of UAV and Microsatellites for Remote Sensing," Symposium on Microsatellites for Remote Sensing (SOMIRES 2013), 8 – 9 August 2013.
 87. Invited Talk: Steven Gao, Yohandri and **Josaphat Tetuko Sri Sumantyo**, "SAR Antenna Development in the UK," Symposium on Microsatellites for Remote Sensing (SOMIRES 2013), 8 – 9 August 2013.
 88. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Remote Sensing Technology and Applications – Observation of Ionosphere and Global Land Deformation using Chiba University Microsatellites Constellation", Japan Scientist and Technologist Forum 2013, 6 September 2013 14:00-16:50.
 89. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, Koo Voon Chet and Robertus Heru Triharjanto, "Development of Circularly Polarized Synthetic Aperture Radar Onboard Unmanned Aerial Vehicle and Microsatellite", Polarimetry Session, The 9th ASAR Workshop, John H. Chapman Space Centre, (the Canadian Space Agency - CSA), 15-18 October 2013
 90. Invited Talk: Kohei Osa and Josaphat Tetuko Sri Sumantyo, "Remote Sensing Technique on Dengue Surveillance," International Dengue Symposium 2013 – Integrating Research and Action on Dengue, 29 November 2013 (Yogyakarta: University of Gadjah Mada)

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91. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Monitoring of Indonesia Environmental Change using Synthetic Aperture Radar," Workshop on Food Availability for Sustainable Improvement 2014, Rector's Conference Room 3rd Floor, Udayana University – Jimbaran Campus, Bali, Indonesia, 3 March 2014.
 92. Lecturer: **Josaphat Tetuko Sri Sumantyo**, One Day Workshop on Advance SAR Image Processing – The 10th SAR Workshop, Program Studi Magister Ilmu Lingkungan Program Pascasarjana Universitas Udayana, 4 March 2014, Denpasar, Bali.
 93. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Group 1. Construction of Analysis System for Temporal Change and Real-Time Condition of Surface Environment by Using RS/GIS Technologies," JICA-JST Program SATREPS JCC Meeting, Multimedia University, Cyberjaya, Kuala Lumpur, 6 March 2014.

(Total in FY 2013: 13)

94. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Kontribusi Teknologi microwave sensor pada unmanned aerial vehicle (UAV) dan microsatellite remote sensing 'Tanah Air'", Indonesian Students Association (PPI) Forum of Innovation, Tokyo University, Japan, 25 May 2014
95. Lecturer: **Josaphat Tetuko Sri Sumantyo**, "Workshop on Seeding and Growing the Idea to be World Class Research and Laboratory – Experience on Development of Microwave Sensors onboard Unmanned Aerial Vehicle and Microsatellites 'Tanah Air' for Ionospheric and Earth Surface Observation", Department of Electrical Engineering, University of Brawijaya, 9 June 2014.

96. Lecturer: **Josaphat Tetuko Sri Sumantyo**, "Workshop on Establishment of International Level Laboratory – Experience of Josaphat Laboratory Microwave Remote Sensing Laboratory, Chiba University", Department of Electrical Engineering, University of Brawijaya, 9 June 2014.
97. Lecturer: **Josaphat Tetuko Sri Sumantyo**, "The 11th SAR Workshop – Synthetic Aperture Radar Image Signal Processing and Applications for High Precision Land Deformation Monitoring", Department of Electrical Engineering, University of Brawijaya, 10 June 2014.
98. General Studium: **Josaphat Tetuko Sri Sumantyo**, "Generale Studium on Development of Microwave Sensors onboard UAV and Microsatellites 'Tanah Air' for Earth Observation", Department of Electrical Engineering, University of Brawijaya, Malang, 11 June 2014.
99. Lecturer: **Josaphat Tetuko Sri Sumantyo**, "Workshop on Proposal for International Research Grant and Intellectual Properties", Department of Electrical Engineering, University of Brawijaya, 12 June 2014.
100. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Sensors onboard UAV and Microsatellites – International Research Collaboration between Chiba University & Ajou University in Aerospace Technology", Ajou University, Korea, 14 June 2014 11:00-13:00.
101. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar Image Signal Processing and Applications," Ajou University, Korea, 14 June 2014 14:00-16:00.
102. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Sensors onboard

UAV and Microsatellites – International Research Collaboration between Chiba University & Ajou University in Aerospace Technology”, Korea Aerospace Research Institute (KARI), 17 June 2014.

103. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, “Microsatellite GAIA Projects and Earthquake Observation”, Kick-off Meeting of Kakenhi Kiban (A), CEReS, 28 June 2014.
104. General Studium: **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar onboard Microsatellite and UAV,” Surya University, 14 August 2014
105. General Studium (Adjunct Professor Invited Lecture): **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar onboard Microsatellite and UAV,” Faculty of Engineering, University of Indonesia, 14 August 2014
106. General Studium: **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar onboard Microsatellite and UAV,” TNI-AD Dittopad, 15 August 2014.
107. General Studium: **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar onboard Microsatellite and UAV,” TNI-AU Dissurpotrudau, 15 August 2014.
108. General Studium: **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar onboard Microsatellite and UAV,” Faculty of Engineering, Universitas Sebelas Maret (UNS), 18 August 2014.
109. General Studium: **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar onboard Microsatellite and UAV,” Satuan Radar TNI-AU Lanud Adisumarmo, Surakarta, 19 August 2014.

110. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, "Microwave Remote Sensing for Environmental Monitoring," AFC Forum C1: Environmental Remote Sensing, Asia Future Conference (AFC 2014), the 2nd Symposium on Microsatellites for Remote Sensing (SOMIRES 2014), and The 21st CEReS International Symposium, 22 August 2014 (Bali: AFC 2014)
111. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard UAV and Microsatellites," Taiwanese National Space Organization (NSPO), 3 September 2014 (Hsinchu: NSPO)
112. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard UAV," Taiwanese National Space Organization (NSPO), 4 September 2014 (Hsinchu: NSPO)
113. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Disaster Monitoring Sensors onboard Unmanned Aerial Vehicle and Applications, The 6th G-SPASE Monthly Tutorial, Seminar Room 4, 2nd floor, Etchujima Hall, Tokyo University of Marine Science and Technology, 19 October 2014
114. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Sensors onboard Unmanned Aerial Vehicle and Microsatellites," Akademi Angkatan Udara (AAU), Yogyakarta, 28 October 2014.
115. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Satellite Technology for Geological Research □ Pengembangan Teknologi Satelit untuk Penelitian Geology □," Seminar Nasional Kebumian ke 7 (The 7th National Symposium on Geology), Eastparc Hotel, Yogyakarta, 30 October 2014.

116. Studium Generale (KU 4078): **Josaphat Tetuko Sri Sumantyo**, "How To Be World Class Researcher: Research and Academic Activities on Development of Spaceborne Sensors, UAV and Microsatellites," Aula Barat Institute of Technology Bandung (ITB), Jalan Ganesha No 10, Bandung, Indonesia, 5 November 2014 09:00-11:00
117. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Sensors onboard UAV and Microsatellites for Earth Observation", International Seminar on Aerospace Science and Technology (ISAST 2014/II), Graha Widya Bakti, Dewan Riset Nasional (DRN), PUSPITEK Serpong, Tangerang, Banten, Indonesia, 11 November 2014.
118. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Sensors onboard Unmanned Aerial Vehicle and Microsatellites," Coffee Morning, Mabes TNI-AU Cilangkap, 12 November 2014.
119. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Sensors onboard Unmanned Aerial Vehicle and Microsatellites," Seminar Metode CFD BMKG Kembangkan Teknologi Deteksi Cuaca, BMKG, Kemayoran, 12 November 2014.
120. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Sensors onboard Unmanned Aerial Vehicle and Microsatellites," FMIPA Universitas Negeri Padang, Sumatera Barat, 13 November 2014.
121. Special Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Sensors onboard UAV and Microsatellites for Earth Environmental

- Monitoring," IEICE SANE - IEEE GRSS Japan Chapter Seminar, Chiba University, IEICE Technical Report, Vol. 114, No. 322, SANE2014-101, 21 November 2014 ISSN 0913-5685
122. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Sensors onboard UAV and Microsatellites for Earth Environmental Monitoring," The 2nd IEEE International Symposium on Telecommunication Technologies (ISTT2014), 25 November 2014, Langkawi Island, Malaysia
 123. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "International Collaboration on Development of Microwave Sensors onboard UAV and Microsatellites," Space Technology Working Group, Small Satellite - 1, The 21st Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-21), National Museum of Emerging Science and Innovation (Miraikan), 2 December 2014.
 124. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Developing of Microwave Sensors onboard UAV and Microsatellites" Fudan University, Shanghai, 3 December 2014.
 125. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "SAR Image Processing and Applications," Fudan University, Shanghai, 3 December 2014.
 126. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Developing of Microwave Sensors onboard UAV and Microsatellites for Earth Environmental Monitoring", Joint Usage Research Centers of Japan, Kyoto University Tokyo Office, 19 December 2014.
 127. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Sensors, UAV and Microsatellites", Mabes TNI-AU, 12 March 2015, Cilangkap, Indonesia.

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128. Workshop: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar Image Processing & Applications", Indonesian Air Force Academy, 20 March 2015, Yogyakarta, Indonesia.
 129. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Development of Advance Microwave Remote Sensing Technology for Earth and Planetary Missions", FMIPA, Universitas Mulawarman, East Kalimantan, Indonesia, 23 March 2015
 130. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, "Implementation of Microsatellite for Research on Environment Sciences," RIHN-CEReS Joint Workshop, RIHN, Kyoto, 27 March 2015.

(Total in FY 2014: 37)

131. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, "Advance Remote Sensing Technology", Command and Staff College (SESKO AU), Lembang, 5 May 2015.
132. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "The 14th Workshop on SAR Image Signal Processing", Taiwanese National Space Organization (NSPO), Hsinchu, Taiwan, 21 May 2015.
133. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Application of Synthetic Aperture Radar Image Processing", Taiwanese National Space Organization (NSPO), Hsinchu, Taiwan, 22 May 2015.
134. Invited Talk: **Josaphat Tetuko Sri Sumantyo** and Zafri Baharuddin, "Earth observation using the GAIA-1 and GAIA-2 satellite platforms," MIS02-04, Interdisciplinary studies on pre-EQ, Japan Geoscience Union Meeting 2015 (JpGU 2015), Makuhari, Japan, 26 May 2015.

135. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of GNSS-RO and EDTP Sensors onboard Microsatellite for Ionosphere Monitoring," International Workshop on Earthquake Preparation Process 2015 (IWEP 2015) – Observation, Validation, Modelling and Forecasting, Chiba, Japan, 30 May 2015.
136. Plenary Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Sensors onboard UAV and Microsatellites for Visualization of Earth Environmental and Its Applications," Main Symposium: Symposium and Workshop on Muon-Optics-Geoneutrino-Radar and Photonics for Earth Studies (MUOGRAPHERS 2015), Tokyo Prince Hotel, 9 June 2015 (Tokyo University).
137. Keynote Speech: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard UAV, Aircraft and Microsatellite," IEEE Workshop on Geoscience and Remote Sensing 2015 (IWGRS 2015), Universiti Teknologi Malaysia, Kuala Lumpur, July 6-7, 2015.
138. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of GNSS-RO and EDTP Sensors onboard Microsatellite for Ionosphere Monitoring," Department of Geodesy and Geomatics, Politecnico di Milano, Leonardo da Vinci Campus, Milan, Italy, 29 July 2015.
139. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Microsatellites for Profiling Lithosphere & Atmosphere Characteristics to Support Human Life and Sustainable Environment," the 14th International Conference on QIR (Quality in Research), Mataram, Lombok, Indonesia, 11 August 2015.
140. General Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced

- Microwave Sensors onboard UAV, Aircraft and Microsatellite for Earth Monitoring – Experience How to Build Laboratory and to be Researcher –”, Mataram University, Lombok, Indonesia, 11 August 2015.
141. Keynote Speech: **Josaphat Tetuko Sri Sumantyo**, “Development on Synthetic Aperture Radar onboard Unmanned Aerial Vehicle, Aircraft, and Microsatellites,” the 11th International Conference on Intelligent Unmanned Systems (ICIUS 2015), Bali, Indonesia, 26 August 2015.
 142. Invited Paper: **Josaphat Tetuko Sri Sumantyo**, “Analysis of Land Deformation Velocity using PSI ALOS PALSAR: Impact of Coastal Sedimentation to Future Jakarta Giant Sea Wall and Waterfront City,” The 5th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2015), Singapore,” 1-4 September 2015.
 143. Keynote Speech: **Josaphat Tetuko Sri Sumantyo**, “Development of Advanced Microwave Sensors onboard UAV, Aircraft and Microsatellite for Earth Monitoring – Experience How to Build Laboratory and to be Researcher –”, The 8th Conference of Indonesian Student Association in Korea (CISAK 2015), Daejeon, Korea, 5-6 September 2015.
 144. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar onboard Microsatellite: Application for Oceanography,” Japan Oceanography Society Night Session B “How Oceanography uses the microsatellite?,” Ehime University, 29 September 2015.
 145. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, “Geostationary Satellite for Indonesia,” Litbang Kemhan, Pondok Labu, Jakarta, 10 October 2015

146. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard UAV, Aircraft and Microsatellite," The 10th Advanced Synthetic Aperture Radar Workshop (ASAR 2015), John H. Chapman Space Centre 6767 route de l'Aéroport Saint-Hubert, Quebec J3Y 8Y9, Canada, 20-22 October 2015
147. Guest Speaker: **Josaphat Tetuko Sri Sumantyo**, "Potentiality of Aerospace and Aeronautics Smart Technology Development for Maritime Support in Indonesia," International Seminar on Aerospace Science and Technology (ISAST 2015), Kuta, Bali, Indonesia, 27-28 October 2015
148. Invited Presenter: **Josaphat Tetuko Sri Sumantyo**, "Industry and University Cooperation in Innovation on Remote Sensing Technology between Indonesia and Japan," The 3rd Japan Indonesia Rector's Conference, 5 November 2015, Sapporo, Hokkaido
149. Plenary Speaker: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard UAV, Aircraft and Microsatellite," The 23 CEReS International Symposium, 1 December 2015 (CEReS: Chiba)
150. General Studium: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Remote Sensing Technologies and Its Applications for Earth Observation," Universitas Sebelas Maret (UNS), 23 February 2016, Surakarta, Indonesia.
151. Generale Studium : **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Remote Sensed for Earth and Planetary Observation," Teknik Geologi, Fakultas Teknik, Universitas Islam Riau (UIR), 25 February 2016, Pekanbaru, Indonesia.

152. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard Aircraft and Microsatellite," Konkuk University and Korean Aerospace Research Institute (KARI), 29 March 2016, Seoul, Korea. (Total in FY 2015: 22)
153. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of CN-235 MPA LP/CP-SAR," Research Center Balitbang, Indonesian Ministry of Maritime and Fishery – Kementerian Kelautan dan Perikanan (KKP), Ancol, 4 April 2016
154. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Microsatellite SAR," PT LEN Bandung, 7 April 2016
155. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Advanced Microwave Remote Sensing Technologies for Global Maritime Axis," OISAA Asia – Oceania Symposium 2016, University of Hongkong, 9 April 2016
156. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, Nobuyoshi Imura, and Robertus Heru Trihardjanto, "CP-SAR onboard Microsatellite for Global Land Deformation Observation," Monitoring and Prediction of Disasters, H-DS07-07, 101B, Japan Geoscience Union (JpGU) Meeting 2016, Makuhari Messe, Japan 24 May 2016, Japan Geoscience Union
157. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, Universtiy Research Exchange Salon (30th) FY2016 "University Development on Synthetic Aperture Radar onboard Unmanned Aerial Vehicle and Aircraft," Tokatsu Techno Plaza, 28 July 2016.
158. Guest Lecturer: **Josaphat Tetuko Sri Sumantyo**, "Progress Research on Microsatellite CP-SAR Lapan-Chibasat for Earth Observation", The 4th

- International Seminar on Aerospace Science and Technology (ISAST 2016), 20 September 2016, The Santosa Hotel, Senggigi, Lombok, Indonesia (LAPAN)
159. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Synthetic Aperture Radar for UAV, Aircraft, and Microsatellite," AAU, Yogyakarta, Indonesia, 13 October 2016
 160. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, Nobuyoshi Imura, Kazuteru Namba, Fumio Yamazaki, Akira Kato, Katsumi Hattori, and Chiharu Hongo, "Innovative Microwave Remote Sensing," Institute for Global Prominent Research, Kickoff Symposium, Incubator Project Presentation-3, p.21, 14 November 2016 (Chiba: Chiba University)
 161. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar and Its Applications: Contributions for Disaster Prevention at Japan and ASEAN," JRC Office, 7 December 2016 (Nakano: JRC)
 162. General Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Synthetic Aperture Radar onboard UAV, Aircraft, and Microsatellite for Earth Surveillance," Indonesian Civil Aviation Institute (STPI), Curug Indonesia, 17 January 2017
 163. General Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microsatellite SAR onboard for Global Environmental Remote Sensing", Faculty of Engineering, National University of Sebelas Maret (UNS), Ketingan, Solo, 20 January 2017
 164. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Remote Sensing Technologies for Peatland Monitoring,"

Workshop on SAR Application for Tropical Peatland, BPPT, Jakarta Indonesian 20 March 2017

165. Generale Lecture : **Josaphat Tetuko Sri Sumantyo**, "Teori Electromagnetic and Aplikasinya untuk Desain Antena Hingga Radar (Electromagnetic Theory and Applications for Antenna to Radar)," Department of Electrical Engineering, Universitas Sebelas Maret (UNS), 24 March 2017.
166. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Establishment of the research center in Universitas Islam Riau collaboration with Pemko Pekanbaru," Universitas Islam Riau (UIR), 27 March 2017

(Total in FY 2016: 14)

167. Studium Generale: **Josaphat Tetuko Sri Sumantyo**, " Advanced Microwave Remote Sensing Technology for Disaster Monitoring," Universitas Negeri Padang, 17 April 2017
168. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar onboard Aircraft for Disaster Monitoring at Indonesian Area," Indonesian Air Force Headquarters, 18 April 2017.
169. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Diaspora Contribution on International Academic and Research Activities," Pusat Studi Jepang, Universitas Indonesia. Collaboration between Indonesian Embassy Tokyo, Consulate General Osaka, and Universitas Indonesia, 20 April 2017
170. Adjunct Professor Lecture: **Josaphat Tetuko Sri Sumantyo**, "Innovative Microwave Remote Sensing: Development of Advanced Microsatellite SAR," Department of Electrical

- Engineering, Universitas Indonesia, 20 April 2017
171. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Synthetic Aperture Radar onboard Aircraft and Microsatellite for Disaster Monitoring", International Conference on Multidisciplinary Academic (ICMA 2017), Kuala Lumpur, 13 May 2017 – ICMA 2017
 172. General Studium (Kuliah Umum): **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Synthetic Aperture Radar onboard Aircraft and Microsatellite for Disaster Monitoring," Faculty of Geography, Gadjah Mada University (UGM) 15 May 2017 08:30-11:00
 173. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Establish the Standard Quality of Vocational School Graduate to Face the ASEAN Qualification Skill Competencies," Indonesia National Skill Competition 2017 International Seminar, 16 May 2017 13:40 – 15:30, Aula FKIP, Universitas Sebelas Maret, Solo
 174. Invited Paper: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard UAV, Aircraft and Microsatellite," JpGU-AGU Joint Meeting 2017, STT57-02, 24 May 2017, Makuhari Messe, Japan.
 175. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "L Band Circularly Polarized Synthetic Aperture Radar onboard Microsatellite: Research Model," Advanced Polarimetric Methods Session (21 June 2017 11:00-12:20), Earth Observation Summit 2017, 20-22 June 2017 (Montreal: Canadian Space Agency).
 176. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Sensor

for Maritime Surveillance”, Kongres Infrastruktur Maritim, 9 August, 2017 14:00-16:00, Bidang Infrastruktur Pelayaran, Perikanan, and Pariwisata, Kementerian Koordinator Bidang Kemaritiman, Republik Indonesia, Rinra Hotel, Makassar, Indonesia.

177. Stadium Generale : **Josaphat Tetuko Sri Sumantyo**, “Sensor Technology, Material and Application of Synthetic Aperture Radar to Monitor Indonesian Natural Resources (Teknologi Sensor, Material, dan Aplikasi Synthetic Aperture Radar untuk Monitoring Sumber Daya Alam Indonesia),” Institut Teknologi Sepuluh Surabaya (ITS) Gedung Pasca Sarjana ITS, Teknik Geomatika, 4 September 2017 (ITS : Surabaya).
178. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, “Development of Circularly Polarized Synthetic Aperture Radar onboard Microsatellite,”FGD Perkembangan Teknologi Satelit di Indonesia (Lapan A1-A5), Gedung Pasca Sarjana, Institut Teknologi Sepuluh Nopember (ITS), Surabaya, 6 September 2017.
179. Generale Lecture : **Josaphat Tetuko Sri Sumantyo**, “Pengembangan Teknologi Synthetic Aperture Radar untuk Pertahanan Indonesia”, Department of Electrical Engineering, Universitas Sebelas Maret (UNS), 8 September 2017.
180. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, “Development of Advanced Synthetic Aperture Radar onboard Microsatellite for Global Environment and Land Deformation”, Section of Collaboration with High School, Chiba University, 30 September 2017 (Chiba: Chiba University).
181. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Advanced Microwave Remote Sensing

- Technology for Global Disaster Monitoring," The 2nd International Conference on Mathematics, Science, Education, and Engineering (ICOMSET2017), 5 October 2017, Padang, Indonesia.
182. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard Aircraft and Microsatellite," Badan Pengkajian dan Penelitian Teknologi (BPPT), 9 October 2017, Jakarta Indonesia.
 183. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar onboard Aircraft and Microsatellite," Ministry of Internal Affairs, JICA, and JETRO, 27 October 2017.
 184. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Peluang dan Tantangan sebagai Akademisi di Jepang," Seminar Motivasi dan Workshop, Memilih yang Terbaik, KMKI & Kedutaan Besar Indonesia Tokyo, Sekolah Republik Indonesia Tokyo, 28 October 2017.
 185. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Beyond the Strategy of Improving the Economic Growth by Human Resource Management", The 7 International Symposium on Universal Networking Empowerment Organization Students (UNEOS), Ito International Research Center, Tokyo University, 7 November 2017.
 186. Nobuyoshi Imura and **Josaphat Tetuko Sri Sumantyo**, "Chiba University small SAR satellite," The 2nd International Convention on Geosciences and Remote Sensing, 8 November 2017 (Las Vegas, USA)
 187. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Synthetic Aperture Radar on Board Aircraft and Microsatellite for

Disaster Monitoring,” Remote Sensing Satellite Technology Workshop (RSSTW 2017), National Space Organization (NSPO), Hsinchu, Taiwan, 5 December 2017.

188. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, “Application of Synthetic Aperture Radar onboard Aircraft and Microsatellite on Disaster Monitoring,” National Chiao Tung University, Taiwan (Prof Tian Yuan Shih), Department of Civil Engineering, 5 December 2017.
189. Invited Lecture : Josaphat Tetuko Sri Sumantyo, “Exciting Technology Lecture for People: the 2nd Sky of Chiba : How to observe disaster precisely: Development of Microwave Remote Sensors,” Chiba City Science Museum, 27 January 2018.
190. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, Defence Technology Forum “Advanced Microwave Remote Sensing Technology,” AKMIL Magelang, 8 March 2018

(Total in FY 2017: 24)

191. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, “Development of Synthetic Aperture Radar onboard Aircraft and Microsatellite for Disaster Monitoring,” JST Sakura Science Program, Chiba University, 11 April 2018.
192. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, “World Smallest Satellite and New Material,” The 127th Research Seminar, The Central Policy Research Institute, Japan Cabinet Office Building B103, 23 May 2018.
193. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “ Satellite Technology to Support Disaster Relief Management: Development of Airborne and Spaceborne Circularly Polarized Synthetic Aperture Radar (CP-SAR)”, Indonesia International Defence Science Seminar

- (IIDSS 2018), 11-12 July 2018, Grand Mercure Kemayoran, Indonesia.
194. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Airborne and Spaceborne Circularly Polarized Synthetic Aperture Radar (CP-SAR)", 11 July 2018, PT Dirgantara Indonesia (DI), Bandung, Indonesia
 195. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Airborne and Spaceborne Circularly Polarized Synthetic Aperture Radar (CP-SAR)", Technology Outlook of Agency for Assessment and Application of Technology (BPPT), 12 July 2018, Premier Santika ICE, Serpong, 12 July 2018
 196. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Airborne and Spaceborne Circularly Polarized Synthetic Aperture Radar (CP-SAR)", SMA Pradita Dirgantara, 16 July 2018, Solo, Indonesia.
 197. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard CN235MPA for Mapping," Geospatial Information Agency (Badan Informasi Geospasial - BIG), Indonesia, 11 October 2018.
 198. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar onboard CN235MPA for Disaster Monitoring," Sekolah Tinggi Penerbangan Indonesia (STPI) - Indonesian Aviation College, Curug, Indonesia, 11 October 2018.
 199. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Sensors for Better Community," Temu Darat I-4 and ForMIND, 27 October 2018, Suntory Memorial Hall, Osaka University, Japan

- 200. Plenary Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Circularly Polarized Synthetic Aperture Radar (CP-SAR) for Lapan-Chibasat (Lapan A5)", The 5th International Symposium on LAPAN-IPB Satellite Programme, 6 November 2018.
- 201. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Kedirgantaraan dan Kelautan (Aerospace and Oceanography Technologies)," Kick Andy Talk Show, SMA Pradhita Dirgantara, 23 November 2018, Solo.
- 202. Invited Lecture: Josaphat Tetuko Sri Sumantyo, "ISAS-JAXA Winter School – Synthetic Aperture Radar," Ho Chi Minh City International University, 14 December 2018, Hanoi, Vietnam

(Total in FY 2018:12)

- 203. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, Kick Andy Show, "Anak Kolong Menggapai Dunia", Metro TV, 9 May 2019.
- 204. Invited Paper: **Josaphat Tetuko Sri Sumantyo**, "Monitoring of Subsidence Area of Jakarta City using PS-InSAR," HGG01-01, Human & Nature, and Environmental Solutions, Japan Geoscience Union Meeting 2019, 26 May 2019, Makuhari, Japan.
- 205. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, University Venture Support Program (NEDO TCP□JST START etc), " Earth on Your Finger", Chiba University Academic Link, 23 July 2019.
- 206. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Airborne and Spaceborne Circularly Polarized Synthetic Aperture Radar", The Fifth International Conferences of Indonesian Society for Remote Sensing (ICOIRS) and Indonesian Society for Remote Sensing Congress, Institute Technology National

- (ITENAS), Bandung, Indonesia, 18 September 2019
207. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Spatial Planning in the Digital Age to Achieve Sustainable Development," CITIES 2019, Department of Urban and Regional Planning, Institute of Technology Sepuluh Nopember, Surabaya, Indonesia, 16 October 2019
 208. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Application of Remote Sensing and GIS Technology to Support Sustainable Development in 4.0 Industrial Era: Development of Advanced Microwave Remote Sensing Technology and Its Applications for Disaster Monitoring, Universitas Amikom Yogyakarta, 11 November 2019.
 209. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Remote Sensing Technology and Its Applications for Disaster Monitoring," Faculty of Geography, Universitas Gadjah Mada (UGM), 11 November 2019.
 210. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Remote Sensing Technology and Its Applications for Disaster Monitoring," Faculty of Agriculture, Universitas Sebelas Maret (UNS), 12 November 2019
 211. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Hinotori-C2 Mission: CN235MPA Aircraft onboard Circularly Polarized Synthetic Aperture Radar (CP-SAR)," the 9th Indonesia Japan Joint Scientific Symposium (IJSS 2019), Bali, Indonesia, 14 November 2019.
 212. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Advanced Microwave Remote Sensing Technology and Applications for Disaster

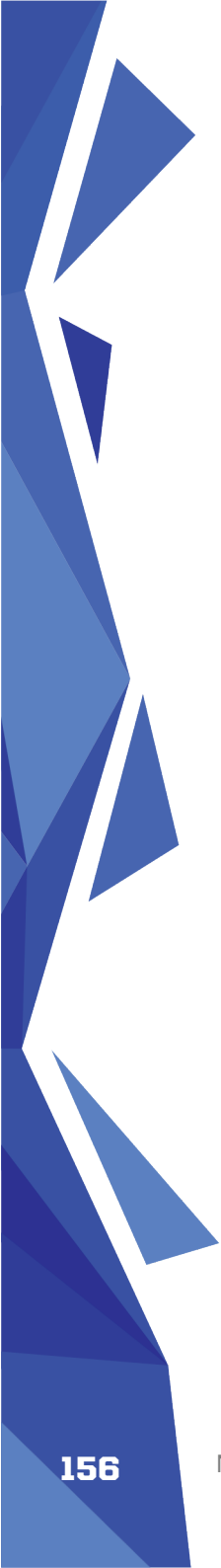
- Monitoring,” University of Electronics Science and Technology of China, Chengdu, China, 25 November 2019
213. Tutorial: **Josaphat Tetuko Sri Sumantyo**, Advanced Microwave Remote Sensing Technology, and Applications for Disaster Monitoring, Tu.T1: Airborne and Spaceborne Synthetic Aperture Radar, 2019 6th Asia-Pacific Conference on Synthetic Aperture Radar, Xiamen, China, 26 November 2019
 214. Invited Talk□**Josaphat Tetuko Sri Sumantyo**, “High-Resolution Disaster Monitoring using Circularly Polarized Synthetic Aperture Radar”, 2019 Microwave Workshops & Exhibition (MWE 2019), Yokohama, Pacifico, 29 November 2019.
 215. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, “Advance Microwave Remote Sensing Technology and Its Applications,” Binus University, 17 December 2019.
 216. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, “Advance Microwave Remote Sensing Technology and Its Applications,” Bakrie University, 18 December 2019.
 217. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Development of Advanced Microwave Remote Sensing Technology and Its Applications for Disaster Monitoring,” Universitas Marsekal Surya Darma, 8 February 2020.
 218. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, “Synthetic Aperture Radar Image Processing and Its Applications,” JAXA Winter School, Faculty of Geography, University of Gadjah Mada, 11 February 2020.
 219. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Development of Advanced Microwave Remote Sensing Technology and Its Applications for

Disaster Monitoring,” AAU Yogyakarta, 12 February 2020.

220. Lecturer: **Josaphat Tetuko Sri Sumantyo**, “Synthetic Aperture Radar Image Processing and Its Applications,” JAXA Winter School, Center for Remote Sensing and Oceanography Study (CReSOS), University of Udayana, 13 February 2020.

(Total in FY 2019:18)

221. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Pengamanan Wilayah Perbatasan dengan Teknologi Informasi : Synthetic Aperture Radar (SAR) untuk Pengawasan Perbatasan”, Sinergitas Pengamanan Perbatasan Terhadap Potensi Pelanggaran Wilayah dengan Pemanfaatan Teknologi Informasi, Seminar International 2020 Sesko AU, 14 April 2020.
222. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, IABIE Bersama Pancasila, IABIE Seminar, 31 May 2020
223. Lecturer: **Josaphat Tetuko Sri Sumantyo**, “Circularly Polarized Synthetic Aperture Radar (CP-SAR) Untuk Informasi Geospasial”, Drone-Based Circular Polarized Synthetic Aperture Radar (CP-SAR) Technology Buatan Indonesia Untuk Informasi Geospatial, Webinar Indonesia Remote Sensing Society (MAPIN) #Seri 10, 27 June 2020
224. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Pengamanan Kekayaan Laut dengan Teknologi Informasi : Synthetic Aperture Radar (SAR) untuk Pengawasan Laut Indonesia”, Seminar Online Global Information System and Kekayaan SDA Kelautan Indonesia, Universitas Diponegoro and Kopertip, 6 July 2020.

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225. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Perlindungan dan Pengawasan Sumber Daya Alam Kelautan Indonesia menggunakan Teknologi Microwave Remote Sensing”, Seminar Online : Perlindungan dan Pemanfaatan Sumber Daya Alam Kelautan Indonesia, Universitas Diponegoro and Kopertip, 9 July 2020.
 226. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, Geography 2020 for A Sustainable Future, UGMtalks, Fakultas Geografi, Universitas Gadjah Mada, 11 July 2020
 227. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Pengawasan Perbatasan Negara menggunakan Teknologi Satelit Mikro”, Pemahaman Demarkasi NKRI dan Peran Mikro Satelit, Universitas Diponegoro and Kopertip, 25 Jul7 2020.
 228. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, Synthetic Aperture Radar for Land Deformation Monitoring”, Plate Tectonic and The Ring of Fire,Pusat Penelitian Mitigasi Kebencanaan dan Perubahan Iklim, Institut Teknologi Sepuluh Nopember (ITS), 17 July 2020.
 229. Lecture: **Josaphat Tetuko Sri Sumantyo**, “Remote Sensing for Topographical Mapping,” Indonesian Geospatial Agency, 29 July 2020.
 230. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, “Indonesian Continental”, Ikatan Alumni Beasiswa Habibie (IABIE), 17 August 2020
 231. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, “Klaster Disaster Monitoring”, Ikatan Ilmuwan Indonesia International (I4), 19 August 2020
 232. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Geospatial and Remote Sensing Technologies for Planning of Future Indonesian Continent,” GEOICON 2020, Institut Teknologi Sepuluh Nopember, Indonesia, 26 August 2020.

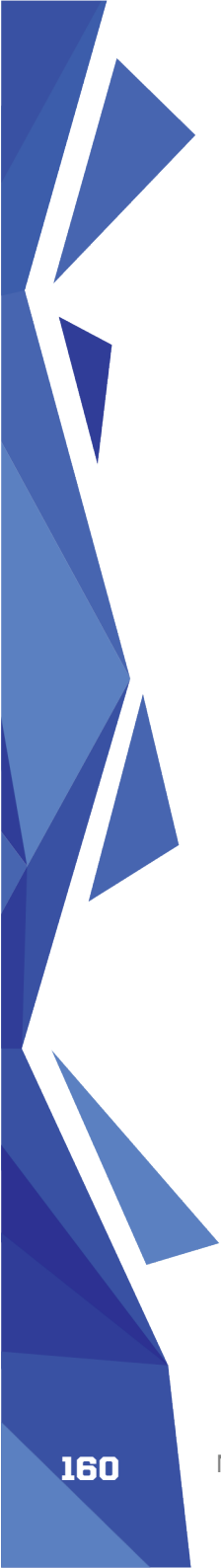
233. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Innovation on Microwave Remote Sensing Technology for Environmental and Disaster Monitoring," The 2nd International Conference on Engineering, Technology and Innovative Researches (ICETIR 2020), Universitas Soedirman, Banjarnegara, Indonesia, 2 September 2020.
234. Plenary Talk: **Josaphat Tetuko Sri Sumantyo**, "Disaster Monitoring using Spaceborne Synthetic Aperture Radar," The 6th International Conference on Science and Technology Universitas Gadjah Mada (UGM), 8 September 2020, 8:00-8:35, 122 participants.
235. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Innovations for World Competition on Space Technology," Satellite for Better Life, Lapan Space Festival 2020 (Festival Sains Antariksa 2020), World Space Week, 7 October 2020 (588 participants).
236. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Innovation on Geospatial Data Acquisition using Synthetic Aperture Radar (SAR)," Seminar Nasional Geomatika 2020, Innovation of Geospatial Technology Session, Badan Informasi Geospasial (BIG), Aceh Room, IPB International Convention Center, Bogor, 15 October 2020 (1276 Participants).
237. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Digital Transformation Masterclass," Telkom Indonesia, 12 November 2020
238. Plenary Speech: **Josaphat Tetuko Sri Sumantyo**, "Innovation on Microwave Remote Sensing and Applications for Disaster Monitoring," The 2020 IEEE Asia-Pacific Conference on Geosciences, Electronics and Remote Sensing (AGERS), 7 December 2020 (276 participants)

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239. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Creating Research and Innovation to Contribute to International Community," Universitas Ahmad Dahlan, Indonesia, 17 December 2020 (52 participants)
 240. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Remote Sensing Technology and Applications for Disaster Monitoring", Webinar Seminar Online dan Prosiding – PJ dan SIG Pengelolaan SDA Berbasis DAS (PSPDAS#1), Gadjah Mada University, 3 January 2021.
 241. Invited Talk : **Josaphat Tetuko Sri Sumantyo**, "Pemanfaatan Teknologi Remote Sensing untuk Energi, Pangan, dan Kebencanaan di Provinsi Jawa Tengah," Central Java Province Governor Meeting, 6 January 2021.
 242. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Creating Research and Innovation on Remote Sensing to Contribute to International Community," Super Science High School – Osaka Tenjo High School, 19 January 2021.
 243. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Opportunity and Threat for Universitas Islam Riau (UIR) on Supporting Culture and Education," FGD Universitas Islam Riau, 28 January 2021.
 244. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Penerapan Teknologi Remote Sensing untuk Pertanian dan Kepentingan Ground Data," Embassy of Republic of Indonesian Tokyo – Central Java Province Office, 10 February 2021.
 245. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Advance Microwave Remote Sensing and Applications to Monitor Urban Disaster in ASEAN," TWINCLE, 12 February 2021.

246. Lecturer: **Josaphat Tetuko Sri Sumantyo**, "SAR Image Processing and Applications", Pre Conference of Asia Pacific Conference on Synthetic Aperture Radar (APSAR 2021) Online Tutorial Series, 11 March 2021
247. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Remote Sensing Sensor and Its Performance," Nanosat Design Workshop, IEEE GRS/AES Indonesia Chapter, Jakarta, Indonesia, 20 March 2021.
248. Keynote Speech: Josaphat Tetuko Sri Sumantyo, "Microwave Remote Sensing Technology to Support Geospatial Information," The 7th International Conference on Geomatics and Geospatial Technology (GGT 2021), Geospatial Technology for Sustainable Development, Kuala Lumpur, Malaysia, 24 March 2021.

(Total in FY 2020:26)

249. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Microwave Remote Sensing Technology for Land Surface Monitoring," The 33rd National Geoscience Conference – Urban Geoscience and IR 4.0, 5 April 2021.
250. Lecturer: **Josaphat Tetuko Sri Sumantyo**, "Workshop on Geotechnology and Remote Sensing Application for Geoscience," Geological Society of Malaysia, the 33rd National Geoscience Conference (NGC) 2020/2021, Kuala Lumpur, Malaysia, 8 April 2021.
251. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Building Mental and Spiritual Immunity in Facing the Covid-19 Pandemic Based on Javanese Custom," Building Mental and Spiritual Immunity in Facing the Covid-19 Pandemic, Pusat Unggulan IPTEKS Javanologi, Universitas Sebelas Maret, Indonesia, 8 April 2021.

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252. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Microwave Remote Sensing Technology for Disaster Prediction,” Badan Meteorologi, Klimatologi, and Geofisika (BMKG), Jakarta, Indonesia, 14 April 2021.
 253. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Managing Large Scale Research Projects: Experiences & Tips,” Research Management Center (RMC), Multimedia University, Malaka, Malaysia, 17 May 2021.
 254. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, “Synergy of IoT Innovation for Pandemic Recovery in Sustainable Society 5.0,” Internasional Sebelas Maret International IoT Challenge 2021 – IoT Innovation for Covid-19 Pandemic Recovery, 20 May 2021, Universitas Sebelas Maret, Indonesia.
 255. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, “Development of Advanced Microwave Remote Sensor for Urban Disaster Monitoring,” The 40th European Remote Sensing – New Solutions for Science and Practice (EARSeL Symposium 2021) – 2nd EARSeL UAS Workshop, 9th EARSeL Workshop on Remote Sensing of Coastal Zone and EO Education Workshop, 10 June 2021, Faculty of Geography and Regional Studies, University of Warsaw, Warsaw, Poland.
 256. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, “Microwave Remote Sensing and the Applications for Environmental Monitoring,” The 10th IEEE International Conference on Communications, Network, and Satellite (COMNETSAT 2021), 18 July 2021, Purwokerto, Indonesia.
 257. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, “New Technological Trends for 2021 related Remote Sensing in Perspective of Science,

- Technology, and Business,” Workshop on AI and its Applications in Remote Sensing, 31 July 2021, Telkom Univesity, Indonesia.
258. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, “Post Covid-19: A Stronger Indonesia with Diaspora”, The 6th Congress of Indonesian Diaspora (CID 6), Seminar-3 Education, 14 August 2021.
 259. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, “Recent Trend and Future of SAR: The Importance of Green Environmental Remote Sensing Post Covid 19,” The Sixth Annual Applied Science and Engineering Conference (AASEC 2021), 18 August 2021, Bandung, Indonesia.
 260. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, “Development of Microwave Remote Sensing and the Applications for Environmental and Disaster Monitoring,” Forum Cendekia Kelas Dunia (FCKD 2021), Membangun resiliensi dan ketahanan nasional untuk pangan, ekonomi, kebencanaan dan infrastruktur, Ikatan Ilmuwan Indonesia Internasional (I-4) dan Akademi Ilmuwan Muda Indonesia (ALMI), 21 August 2021.
 261. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Kemandirian Bidang Kedirgantaraan : Mimpi dan Realita”, Podcast : Kebangkitan Kembali Sains & Teknologi Anak Bangsa Menuju Indonesia Emas 2045, Live Marathon Bersama Para Tokoh Sains & Teknologi Indonesia, Ikatan Alumni Beasiswa Habibie (IABIE), 22 August 2021 16.00 – 17.00 WIB.
 262. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, “Menjadi Peneliti Kelas Dunia: Belajar dari Sistem Pembelajaran & Riset Negeri Sakura,” Program Studi Pendidikan Teknologi dan Kejuruan,

- Universitas Pendidikan Indonesia, 2 September 2021 9:00-11:00.
263. Main (Invited) Speaker: **Josaphat Tetuko Sri Sumantyo**, "GIS for Disaster Management," International Conference on Disaster Management and Climate Change (ICoDMC), Disaster Research Center - Sebelas Maret University, 4 September 2021 9:00-11:00.
264. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Study and Research to Become World Class Researcher," Kuliah Tamu Diaspora Indonesia Seri Ke-5, Fakultas Teknik Universitas Hasanuddin, Indonesia, 8 September 2021.
265. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Remote Sensors for Agricultural Monitoring," International Workshop on Smart Farming: Implementation of Smart Farming Innovation Technologies in the 4.0 Era to Strengthen the Food Crop Production for Sustainable Food Security, Universitas Hasanuddin, IRRI, and ICDF, 8 September 2021.
266. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Environmental Remote Sensing: Synthetic Aperture Radar Image Signal Processing and Applications," International Virtual Course Geophysical Engineering Department, Faculty of Mining and Petroleum Engineering, Bandung Institute of Technology, 9 September 2021 13:00-15:00 WIB.
267. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "World Class Professor - Application of Microwave Radar for Coastal Geo-Dynamic And Marine Palaentology," Department of Aquatic Resources, Faculty of Fisheries and Marine Science, Universitas Diponegoro, 14-16 September 2021 9:00-13:00 WIB.

268. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Study and Research to Become World Class Researcher", Pengenalan Kehidupan Kampus bagi Mahasiswa Baru (PKKMB), Institut Teknologi Indonesia, 18 September 2021.
269. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Berdamai dan Bahagia dengan Kanker," Yayasan Kanker Anak Indonesia, Jakarta, Indonesia, 25 October 2021.
270. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Microwave Sensor Development for Aircraft," International Conference on Aviation Industry Education, and Regulation, Jakarta, Indonesia, 14 October 2021.
271. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Study and Research to Become World Class Researcher: Microwave Remote Sensing Technology and Applications", Universitas Bangka Belitung, Indonesia, 18 October 2021.
272. Plenary Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Airborne Circularly Polarized Synthetic Aperture Radar," The 7th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2021), Bali, Indonesia, 1 November 2021 (Online).
273. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Advanced Microwave Remote Sensing Technology for Environmental Resources and Disaster Monitoring," The 2nd International Conference on Science and Mathematics (ICSM 2021), Universitas Haluoleo, Kendari, Indonesia, 6 November 2021 (Online).
274. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, " Current status of remote sensing technology to overcome the pandemic situations: Advanced Microwave Remote Sensing

- Technology for Environmental Resources and Disaster Monitoring,” The 3rd International Symposium on Materials and Electrical Engineering (ISMEE 2021), 10 November 2021 (online).
275. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Development of Airborne Circularly Polarized Synthetic Aperture Radar: Systems and Its Applications,” IEICE International Conference on Space, Aeronautical and Navigational Electronics (ICSANE2021)/Workshop on subsurface electromagnetic measurement, 11 November 2021 (Online).
 276. Lecturer: **Josaphat Tetuko Sri Sumantyo**, “How To Manage Research,” Establishment of Research Center and Research Group in Universitas Negeri Padang, 19 November 2021(Online).
 277. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, “Geography and Disaster Management,” The 1st International Conference on Geography and Disaster Management, Universitas Negeri Semarang, 24 November 2021 (Online).
 278. Invited Lecturer: **Josaphat Tetuko Sri Sumantyo**, “SAR Technology Concept for Disaster Applications,” Center for Disaster Risk Reduction Technology, National Research and Innovation Agency (BRIN), 30 November 2021 (Online).
 279. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, “Trend and Future Synthetic Aperture Radar,” Pemanfaatan Teknologi GPS dan Synthetic Aperture Radar, Institut Teknologi Nasional, 8 December 2021.
 280. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Database of Remote Sensed Satellite Images and AI Analysis using High-Performance Engine”,

- Ministry of Education, Culture, Research, and Technology, Indonesia, 8 December 2021 (Online).
281. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, "Microwave Remote Sensing Technology to Observe Land Deformation in Indonesia", The 1st International Seminar on Earth Science and Technology (ISEST), Institute of Technology Bandung, 8 December 2021 (Online).
 282. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar for Disaster Observation," Indonesia International Disaster Expo and Conference 2021 (IIDEC 2021), 14 December 2021 (Online).
 283. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Innovation and Technology Seeding", International Conference on Innovation in Science Technology (ICIST 2021), Politeknik Negeri Semarang, 17 December 2021 (Online).
 284. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, "Synthetic Aperture Radar and Its Applications," Online Group Discussion Series #5: Pemanfaatan Penginderaan Jarak Jauh dan Sistem Informasi Geografis untuk Peningkatan Layanan Meteorologi, Klimatologi, dan Geofisika, Badan Meteorologi, Klimatologi, dan Geofisika (BMKG), Indonesia, 29 December 2021.
 285. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "How to be The World Class Scientist - Innovation and Technology Seeding -", The 58th Dies Natalis "Science Innovation in Industrial Era 4.0 toward Society 5.0", Faculty of Mathematics and Natural Sciences, Universitas Negeri Makassar, Indonesia, 5 January 2022.
 286. General Lecture: **Josaphat Tetuko Sri Sumantyo**, "How to be World Class Researcher

and Professor”, “Webinar of Advanced Image Processing and Remote Sensing Technology, Milad 41 Universitas Muhammadiyah Yogyakarta, 22 February 2022.

287. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Development of emergency medical support information network resilient to disasters using remote sensing technology”, The 1st Symposium on Disaster Medicine Research Center, 2 March 2022.
288. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Pengembangan Manajemen Talenta Nasional melalui Peran Diaspora Riset dan Inovasi pada Kerangka Kebijakan Iptek Indonesia”, BRIN, 22 March 2022.
289. Keynote Talk: **Josaphat Tetuko Sri Sumantyo**, “Rencana Bangun Satelit Operasional Penginderaan Jauh untuk Kebencanaan di Indonesia,” BMKG Kuliah Umum / Generale Lecture “Rancang Bangun Satelit Operasional Penginderaan Jauh dalam Rangka Peringatan Dini dan Aksi Dini Bencana Hidrometeorologi dan Gempabumi, 22 March 2022.

(Total in FY 2021:40)

290. Studium Generale, **Josaphat Tetuko Sri Sumantyo**, “SAR Image Processing and Applications for Disaster Monitoring,” Summer School - Kuliah Umum Penginderaan Jarak Jauh untuk Hidrologi dan Pengelolaan Daerah Aliran Sungai (DAS), Departemen Sains Informasi Geografi, Fakultas Geografi, Universitas Gadjah Mada, Indonesia, 18 April 2022.
291. Lecturer: **Josaphat Tetuko Sri Sumantyo**, “How to Research and Study Abroad to be World Class Researcher,” Osaka Tennoji High School, Super Science High School Program, Japan Science and Technology (JST), 27 April 2022.

292. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Aplikasi Penginderaan Jauh SAR dan Optic Resolusi Menengah untuk Deteksi Serangan Ganoderma Pada Penyakit Kelapa Sawit Menggunakan Metode Machine Learning," Pusat Riset Penginderaan Jauh (PRPJ), Organisasi Riset Penerbangan dan Antariksa (ORPA), BRIN, 18 May 2022.
293. Scientific Oration: **Josaphat Tetuko Sri Sumantyo**, "Melangkah Maju Membangun Negeri di Era Normal Baru," Institut Teknologi Telkom Purwokerto (ITTP), 31 May 2022.
294. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Altering The Better World with Innovative Technology and Science," Technology & Science in Life (TSL), Faculty of Engineering, President University, 12 June 2022.
295. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Estimasi dan Klasifikasi Umur/Fase Pertumbuhan Padi dan Non Padi di Lahan Sawah menggunakan Data Radar," Focus Group Discussion (FGD), Pusat Riset Penginderaan Jauh (PRPJ), Organisasi Riset Penerbangan dan Antariksa (ORPA), BRIN 15 June 2022.
296. Lecturer: **Josaphat Tetuko Sri Sumantyo**, "The Hardware, Software and Software Designed Components of the SAR Payload and Satellite," Summer School on Planning and Designing a SAR Remote Sensing Satellite, IEEE AESS/GRSS Chapter, Indonesia Section, 17 June 2022.
297. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Intern Networking and Career Building," Telkom Manager Workshop, 20 June 2022.
298. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Outer Networking and Career Building," Batch #2 Telkom Manager Workshop, 22 June 2022.

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299. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Outer Networking and Career Building,” Batch #3 Telkom Manager Workshop, 23 June 2022.
 300. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Teknologi Akuisisi Data Penginderaan Jauh,” Pusat Riset Penginderaan Jauh, Badan Riset dan Inovasi Nasional (BRIN), 24 June 2022.
 301. Scientific Oration: **Josaphat Tetuko Sri Sumanto**, “Teknologi Penginderaan Jauh, Kunci Indonesia untuk Memimpin Dunia”, Institut Technology Bandung (ITB), 4 July 2022.
 302. Invited presenter: **Josaphat Tetuko Sri Sumantyo**, “Development of Radome for Circularly Polarized Synthetic Aperture Radar,” MO7.V17: UAV Future Technology and Applications (Invited Session), IEEE The International Geoscience and Remote Sensing Symposium (IGARSS 2022), 18 July 2022, Kuala Lumpur, Malaysia.
 303. Invited presenter: Hisato Kashihara and **Josaphat Tetuko Sri Sumantyo**, “X Band Microstrip Sub-Array Antenna for Circularly Polarized Synthetic Aperture Radar onboard UAV,” MO7.V17: UAV Future Technology and Applications (Invited Session), IEEE The International Geoscience and Remote Sensing Symposium (IGARSS 2022), 18 July 2022, Kualalumpur, Malaysia.
 304. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, “Reviewing Process of Peer-Reviewed-Paper and Patent”, Institut Teknologi Telkom Jakarta, 23 July 2022.
 305. Tutorial: **Josaphat Tetuko Sri Sumantyo**, “From A to Z on Development of UAV and Aircraft onboard Circularly Polarized Synthetic Aperture Radar”, IEEE Geoscience and Remote Sensing, Instrumentation and Future Technology Technical Committee, 4 August 2022.

306. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Being a Leader in International Stage," Lead The Fest, Pemimpin.id, 12 August 2022.
307. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Smart and Precision Agriculture for Global Climate Change and Industrial Era 4.0", Lokakarya Pertanian, Universitas Gunadarma, 19 August 2022.
308. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Pengembangan Roadmap Penelitian Kelompok Kajian," Program Studi Pendidikan Geografi Fakultas Keguruan dan Ilmu Pendidikan Universitas Veteran Bangun Nusantara Sukoharjo, 19 August 2022.
309. Lecturer: **Josaphat Tetuko Sri Sumantyo**, "Image Processing of Spaceborne Synthetic Aperture Radar: From Basic to Applications," Forum Cendikia Dunia 2022, 28 August 2022.
310. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Advanced Microwave Remote Sensing for Disaster Monitoring," Vocational School, Diponegoro University, 5 September 2022.
311. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Advanced Microwave Remote Sensing and Applications", Department of Geomatics, World Class Professor Program, Institut Teknologi Sepuluh Nopember, 14 September 2022.
312. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Advance Technology of Remote Sensing and Its Applications for Humanity," Postgraduate of Environment, Universitas Udayana, 19 September 2022.
313. Tutorial: **Josaphat Tetuko Sri Sumantyo**, "Polarimetric Synthetic Aperture Radar (PoSAR) and Applications," Department of Geomatics, Institut Teknologi Sepuluh Nopember (ITS), 20 September 2022.

314. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Teknologi Penginderaan Jauh, Kunci Indonesia untuk Memimpin Dunia," Madrasah Aliyah Negeri 2 Kota Malang, 21 September 2022.
315. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Innovative on Green and Digital Technology : Microwave Remote Sensing for Disaster and Environmental Observation," Universitas Dian Nusantara Dies Natalis, 21 September 2022.
316. Invited Speak: **Josaphat Tetuko Sri Sumantyo**, "Advanced Microwave Remote Sensing and Applications," Indonesian Scholar Scientific Summit 2022 (ICONSEE 2022), Taipei, Taiwan, 25 September 2022.
317. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Building Excellent, Creative, Innovative Scientists with an International Reputation," Dies Natalis 26 FMIPA Universitas Sebelas Maret, 3 October 2022.
318. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, "Development of Airborne Microwave Remoted Sensor and The Applications," International Conference on Informatics Electrical and Electronics (ICIEE 2022), 5 October 2022, Universitas Sultan Ageng Tirtayasa.
319. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, "Monitoring of Coastal Region using Airborne and Spaceborne Synthetic Aperture Radar," The 2nd International Workshop on Oceanography of the Indonesian Seas (IWOIS 2022), 8 October 2022, Universitas Mulawarman.
320. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Polarimetric Synthetic Aperture Radar and Application," SEMINAR SENIN DEPARTEMEN FISIKA FSAD ITS SEMESTER GASAL 2022/2023, Institut Teknologi Sepuluh Nopember (ITS), 10 Oktober 2022.

321. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, "Menjadi Ilmuwan Berintegritas, Kreatif, Inovatif, dan Bereputasi International dalam Mengembangkan Teknologi Radar untuk Drone Airborne dan Satelit", Kuliah Pakar #4, FTM Unhan RI, 11 Oktober 2022, Universitas Pertahanan.
322. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Multi-Platform Microwave Remoted Sensors and The Applications," Environmental Remote Sensing, Urban and Regional Scientific Forum: International Lectures Series 2022, 7 November 2022, Universitas Diponegoro.
323. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Kemandirian Teknologi Elektronik Avionik Nasional: Multi-Platform Circularly Polarized Synthetic Aperture Radar," Seminar Nasional TNI-AU, 8 November 2022, TNI-AU Jakarta.
324. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Pengembangan Teknologi Microwave untuk Keamanan Lingkungan Penerbangan berbasis Drone, Pesawat, dan Satelit," Seminar Nasional Vokasi Penerbangan (SNVP 2022), Politeknik Penerbangan Indonesia, Tangerang, 10 November 2022.
325. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Image Processing of Spaceborne Synthetic Aperture Radar: From Basic to Applications," Universitas Sultan Ageng Tirtawangsa, PKKM program Visiting Lecturer practitioner and industry, 14 November 2022, Cilegon, Indonesia.
326. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Multi-Platform Circularly Polarized Synthetic Aperture Radar: Kemandirian Teknologi Penginderaan Jauh Nasional,"

The 10th Applied Business and Engineering Conference (ABEC 2022), 17 November 2022, Padang, Indonesia.

327. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Innovation in Drone, Airborne, and Spaceborne Synthetic Aperture Radar for Smart Agriculture," The 3rd International Conference on Smart and Innovative Agriculture (ICoSIA 2022), 22 November 2022, Yogyakarta, Indonesia.
328. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Geospatial Technology Improvement for Post-covid Recovery Acceleration: Innovation in Remote Sensed Technology for Environmental and Disaster Observation," 8th International Summit on Science, Engineering, and Humanity (the 8th ISETH), Universitas Muhammadiyah Surakarta, 5 December 2022.
329. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Remote Sensors to Support Digital Markets: Innovation in Drone, Airborne, and Spaceborne Synthetic Aperture Radar for Environmental and Disaster Observation," ITDRI Conference Festival (ITDRI ConFes), 7 December 2022.
330. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, Unleash Your Potential "Be The Game Changer for 2023" Ideas Consulting, 7 January 2023.

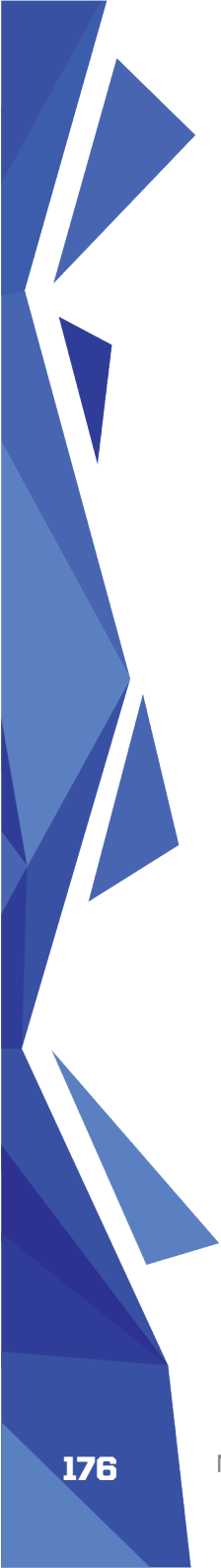
(Total in FY 2022: 47)

331. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Becoming A World Class Researcher", Webinar Series Top Scientist World Class University, Universitas Negeri Padang, 12 May 2023.
332. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Kebangkitan Geospatial untuk Pembangunan IKN", Dewan Geospatial Indonesia, 15 May 2023.

333. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Inovasi Teknologi Penginderaan Jauh, Kunci Indonesia untuk Memimpin Dunia," Hari Kreatifitas dan Inovasi Dunia, Daya Riset dan Inovasi Nasional (DRIN), 17 June 2023.
334. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Pengalaman Mengelola Laboratorium di Jepang untuk Kontribusi Dunia Building Excellent, Creative, Innovative Scientists with an International Reputation: Research experience, strategy to be top world scientists, and tips," Tea Time Talk (T3) I-4 Japan, Obtaining Research Funding in Japan, 17 June 2023.
335. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Harnessing the Power of Cyber-Economy: Safeguarding Against Modern Warfare Threats in the XXI Century," Overseas Field Study, Universitas Pertahanan, 26 June 2023, Jakarta.
336. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "From the Sky to Space and Beyond," Education Division, Tokyo Metropolitan, FY 2023 Education to develop talents (science and mathematics), Tokyo, 9 July 2013.
337. Keynote Speech and Reviewer: **Josaphat Tetuko Sri Sumantyo**, "Harnessing the Power of Cyber-Economy: Safeguarding Against Modern Warfare Threats in the 21st Century," Universitas Pertahanan Nasional, Jakarta, 20 July 2023.
338. Talk Show: **Josaphat Tetuko Sri Sumantyo**, Talk Show "Talenta Riset dan Inovasi untuk Indonesia Emas 2045," Badan Riset dan Inovasi Nasional (BRIN), Jakarta, Indonesia, 10 August 2023.
339. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Teknologi Penginderaan Jauh, Kunci Indonesia untuk Memimpin Dunia Monitoring Kelautan

- Indonesia,” Fakultas Ilmu Kelautan, Institut Pertanian Bogor, 8 September 2023.
340. Lecture: **Josaphat Tetuko Sri Sumantyo**, “Synthetic Aperture Radar Image Processing,” Fakultas Ilmu Kelautan, Institut Pertanian Bogor, 9 September 2023.
341. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, “Scientific Writing,” Fakultas Ilmu Kelautan, Institut Pertanian Bogor, 8 September 2023.
342. Keynote Speech: **Josaphat Tetuko Sri Sumantyo**, “Pengalaman Mengelola Laboratorium di Jepang untuk Kontribusi Dunia Building Excellent, Creative, Innovative Scientists with an International Reputation: Research experience, strategy to be top world scientists, and tips,” PPI Malaysia - Belajar Mendunia, Kuala Lumpur, Malaysia, 17 October 2023.
343. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Publication in International Journal: Penulisan Artikel Ilmiah Untuk Publikasi di Jurnal International Bereputasi,” PWK Universitas Diponegoro, Semarang, Indonesia, 19 September 2023.
344. Keynote Speech: **Josaphat Tetuko Sri Sumantyo**, “Acceleration of IKN and Land Parcel Mapping with Aerial Circularly Polarized Synthetic Aperture Radar (CP-SAR) and Photograph - Digitalization of Land Parcels and Certificates throughout Indonesia until 2024 -,” The 5th International Conference of Geomatics and Planning, Solo Paragon Hotel, Indonesia, 20 September 2023.
345. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “FGD Kerjasama Internasional dalam Bidang Pendidikan dan Penelitian: Prospek, Tantangan, dan Hambatan.” Senat Akademik, Universitas Sebelas Maret, 3 October 2023.

346. Reviewer: **Josaphat Tetuko Sri Sumantyo**, "MALE UAV", PT. Dirgantara Indonesia, 10 October 2023.
347. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Scientific Writing," Faculty of Vocational, Universitas Gadjah Mada, 13 October 2023.
348. Keynote Speech: **Josaphat Tetuko Sri Sumantyo**, "Microsatellite Technology" Sesko TNI-AU, Lembang, Bandung, 18 October 2023.
349. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, The 2nd International Conference of Geography, Environment, and Sustainability 2023 (ICoGES 2023), Department of Geography and Environment, Faculty of Human Sciences, Universiti Pendidikan Sultan Idris, Malaysia, 24-25 October 2023.
350. Keynote Speech: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Remote Sensing Technology," The Second International Conference on Converging Technology in Electrical and Information Engineering 2023 (The 2nd ICCTEIE 2023), Bandar Lampung, Indonesia, 25 October 2023.
351. Keynote Speech: **Josaphat Tetuko Sri Sumantyo**, "Remote Sensing Technology for Water Monitoring Applications and Aquaculture," The 5th International Conference on Marine Science (ICMS), SEAMEO BIOTROP, Bogor, Indonesia, 25 - 26 October 2023.
352. Invited Speaker: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Remote Sensing Technology," The 8th International Conference on Industrial, Mechanical, Electrical, and Chemical Engineering (ICIMECE 2023), Lombok, Indonesia, 30 October 2023.

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353. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Microwave Remote Sensing Technology," The 2023 International Conference on Radar, Antenna, Microwave, Electronics, and Telecommunications (ICRAMET 2023), National Research and Innovation Agency (BRIN), Indonesia, 15-16 November 2023.
354. Keynote Speak: **Josaphat Tetuko Sri Sumantyo**, "Development of Innovative Microwave Remote Sensors for Green Solution," Astratech International Conference 2023 - Politeknik Astra Thema: "The role of IoT and AI for Green Solution in Industry Transformation: Challenges and Opportunities", 16 November 2023.
355. Lecturer: **Josaphat Tetuko Sri Sumantyo**, Workshop on Synthetic Aperture Radar Image Signal Processing, ITS Teknik Elektro, 20 November 2023.
356. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Devices for Earth Observation," Technological Transformation by Implementing Machine Learning in Industry 4.0" Bachelor of Applied Science of Automation Engineering Technology Study Program The Vocational College of Universitas Diponegoro, 27 November 2023.
357. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Remote Sensing Applications in The Energy Field," Geography Seminar Series 1st Prodi Geografi FTIK Institut Teknologi PLN, 28 November 2023.
358. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Strategi Penyusunan Roadmap Penelitian Dosen Pengalaman Mengelola Laboratorium di Jepang untuk Kontribusi Dunia," Workshop Series Penelitian dengan Tema Strategi

Penyusunan Roadmap Penelitian Dosen, Lembaga Penelitian dan Pengabdian Kepada Masyarakat, Universitas Ahmad Dahlan, 29 November 2023.

359. Generale Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Innovative Microwave Remote Sensors for Disaster and Environmental Monitoring," Teknik Elektro, Fakultas Teknik, Universitas Indonesia, 4 Desember 2023.
360. Keynote Speaker: **Josaphat Tetuko Sri Sumantyo**, "Development of Innovative Microwave Remote Sensors for Transportation Infrastructure Monitoring," Aviation Technology Revolution Through Multimodal Integration Innovation, ICANEAT 2023, Indonesia Civil Pilot Academy, 5 December 2023.
361. Special Talk: **Josaphat Tetuko Sri Sumantyo**, "International Research and Education Collaboration on Microwave Remote Sensing," IEICE International Conference on Space, Aeronautical, Navigational Electronics (ICSANE 2023), 7 December 2023, Solo, Indonesia.
362. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Remote Sensors and The Applications for the Disaster and Environmental Monitoring," SMA Pradita Dirgantara, 7 December 2023, Solo, Indonesia.
363. Generale Lecture: **Josaphat Tetuko Sri Sumantyo**, "Development of Advanced Microwave Remote Sensors and The Applications for the Disaster and Environmental Monitoring," Fakultas Geografi, Universitas Muhammadiyah Surakarta (UMS), 8 December 2023.
364. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Realisasi Sensor Synthetic Aperture Radar Resolusi Tinggi untuk Ketahanan Tanah Air

Terhadap Bencana,” Focus Group Diskusi Penyusunan Draft Awal Peta Jalan (Roadmap) Teknologi, Inovasi, dan Industrialisasi Kebencanaan untuk Resiliensi Berkelanjutan, Badan Nasional Penanggulangan Bencana, Jakarta, 21 December 2023.

365. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Talk About The Bright Future of Synthetic Aperture Radar (SAR) Data for Artificial Intelligence Applications in Indonesia,” Universitas Nasional Indonesia, 22 February 2024.

(Total in FY 2023: 36)

366. Keynote Talk: **Josaphat Tetuko Sri Sumantyo**, “Advanced Technology for Future Geographical Applications”, The 2nd International Conference on Geography, Environment and Sustainability 2023 (ICOGES 2024), 23 April 2024, Universiti Pendidikan Sultan Idris, Malaysia.
367. Keynote Talk: **Josaphat Tetuko Sri Sumantyo**, “Development of AI Remote Sensing Technology and Applications for Disaster Resilience Society”, The 2nd Workshop on Advances in Environmental Sensing Systems for Smart Cities “EnvSys 2024), 7 June 2024, Tokyo, Japan.
368. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Detection of Archaeological Structures using Microwave Remote Sensing,” 21 June 2024, Embassy of Republic Indonesia Tokyo, Japan.
369. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, “Northern Java Problems and Solutions: Merajut Nusantara”, Preliminary Study for Pantura Java Integrated Coastal Development Plan (PJICDP), Kementerian Koordinator Bidang Perekonomian, Republic of Indonesia, 9 July 2024, Unhan, Jakarta.

370. Keynote Talk: **Josaphat Tetuko Sri Sumantyo**, "Research Experience and Strategy to be World Class Scientists", Conference on Social, Science, Technology, Language and Education Research (CASTLE 2024), 4 August 2024, Universitas Negeri Jakarta, Indonesia.
371. Keynote Talk: **Josaphat Tetuko Sri Sumantyo**, "Development of AI Remote Sensing Technology and Applications for Disaster Resilience Society", The 1st International Workshop on Mobile Communications and Applications (IWMCA 2024), 11 August 2024, Hokkaido University, Japan.
372. Keynote Talk: Josaphat Tetuko Sri Sumantyo, "Mengapa Ilmuwan Indonesia Gagal Mendunia? Sebuah Refleksi Seorang Peneliti Indonesia yang Berkarir di Luar Negeri," Universitas Islam Alauddin Makassar, Indonesia, 22 August 2024.
373. Invited Talk: **Josaphat Tetuko Sri Sumantyo**, "Launching dan Bedah Buku: The Untold Story of Josaphat Tetuko," Universitas Sebelas Maret, Indonesia, 23 August 2024.
374. Invited Lecture: **Josaphat Tetuko Sri Sumantyo**, "Advanced AI Microwave Remote Sensing, Technology for Disaster and Environmental Monitoring," Fakultas Sains dan Teknologi Pertahanan, Universitas Pertahanan, Indonesia, 26 August 2024.
375. Keynote Talk: **Josaphat Tetuko Sri Sumantyo**, "The Importance of Remote Sensing in the country's Development", 19 September 2024, International Conference of Islamic University of Kuantan Singingi, Indonesia.
376. Keynote Talk: **Josaphat Tetuko Sri Sumantyo**, "", The 6th International Conference Administration Science (ICAS 2024), Politeknik STIA LAN Bandung, 12 November 2024.

377. Keynote Talk: **Josaphat Tetuko Sri Sumantyo**, “Development of AI Remote Sensing Technology and Applications for Disaster Resilience Society”, The IEEE Asia-Pacific Microwave Conference, 17 November 2024, Bali, Indonesia.
(Total in FY 2024: 12)

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1. **Josaphat Tetuko Sri Sumantyo**, “Preliminary Study of Subsurface Radar Simulation,” Proceedings of The 5th Scientific Meeting of Indonesian Students Association in Japan, Tokyo Institute of Technology, Japan, 29 August 1996 (Tokyo: PPI).
2. **Josaphat Tetuko Sri Sumantyo**, “Two Dimension Subsurface Radar Simulation,” Proceedings of The 5th Scientific Meeting of Indonesian Students Association in Japan, Tokyo Institute of Technology, Japan, 29 August 1996 (Tokyo: PPI).
3. **Josaphat Tetuko Sri Sumantyo**, Isamu Nagano, Satoshi Yagitani, “Buried Object Cross-section Calculation using FDTD Method,” Proceedings of the Joint Conference of Hokuriku Chapters of Institutes of Electrical Engineers, Toyama Polytechnic School, Japan, p.199, 1-2 October 1996 (Toyama: IEICE).
4. **Josaphat Tetuko Sri Sumantyo**, Isamu Nagano, Satoshi Yagitani, “LF Band Underground Radar Simulation by FDTD method,” Proceedings of the 1997 IEICE General Conference, Kansai University, Japan, p.13, 24-27 March 1997 (Osaka: IEICE).

(Total in FY1996: 4)

5. **Josaphat Tetuko Sri Sumantyo**, Ian Yoseph Matheus Edward, "The Analysis of Electromagnetic Wave Propagation in 3-Medium Model Using Hertz Vector," Proceedings of The 3rd International Symposium on Advanced and Aerospace Science & Technology in Indonesia, ISBN:9-798537-084006, Vol.2, pp.601-609, 31 August–2 September 1998 (Jakarta: BPPT).
6. **Josaphat Tetuko Sri Sumantyo** and Trihono Sastrohartono, "The Development of High Current Pulse Subsurface Radar System," Proceedings of The 3rd International Symposium on Advanced Science & Technology in Indonesia, Indonesia, ISBN:9-798537-084006, Vol.2, pp.767-771, 31 August – 2 September 1998 (Jakarta: BPPT).
7. **Josaphat Tetuko Sri Sumantyo**, "Subsurface Radar," Berkala ITB, ISSN: 0216-5201, No.1, Vol. XVIII, pp.1-2, Indonesia, 15 October 1998 (Bandung: ITB).
8. **Josaphat Tetuko Sri Sumantyo**, "Application of Subsurface Radar to Map Land Structure," Proceedings of National Symposium on Control and Instrumentation Technology Application on Agriculture, Indonesian Control Society, Indonesia, S3-5, pp.1-6, 29 October 1998 (Jakarta: BPPT), ISSN: 979-8263-19-7.
9. **Josaphat Tetuko Sri Sumantyo**, Firman Siregar, "Integrated Irrigation Technology using Telecommunication Technology," Proceedings of National Symposium on Control and Instrumentation Technology Application on Agriculture, Indonesian Control Society, Indonesia, ISSN: 979-8263-19-7, S4-7, pp.1-3, 29 October 1998 (Jakarta: BPPT).

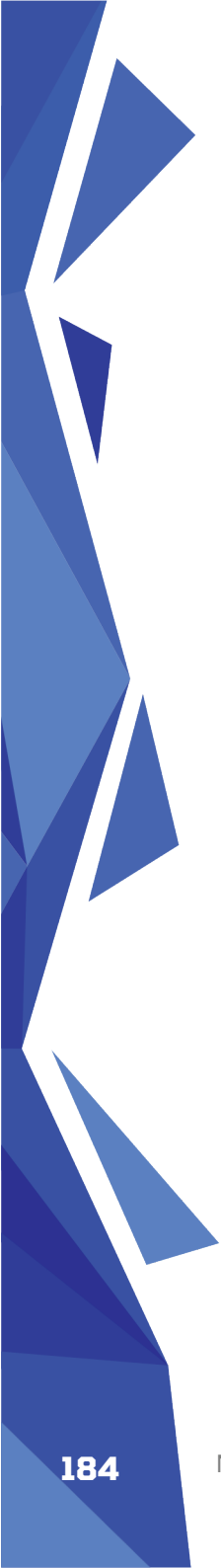
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10. **Josaphat Tetuko Sri Sumantyo**, "Analysis of Ionosphere Layer using Full Wave Method," Proceedings Third Workshop on Electro Communication and Information (WECI-III), Bandung Institute of Technology (ITB), Indonesia, pp.2.23-2.26, 3-4 March 1999 (Bandung: IECI), ISBN: 979-95621.
11. Ketut Wikantika, **Josaphat Tetuko Sri Sumantyo**, Jong-Hyun Park, Ryutaro Tateishi, Agung Budi Harto, "Characteristics of Multi-temporal Backscatter Coefficient of JERS-1 SAR in Urban Area", Proceedings of the Joint Conference of Japan Society of Photogrammetry and Remote Sensing and the Remote Sensing Society of Japan, Japan, P1-6, pp.503-504, May 1999 (Chiba: JSPRS-RSS).
12. Ketut Wikantika, **Josaphat Tetuko Sri Sumantyo**, Wihartini, Ryutaro Tateishi, Jong-Hyun Park, Agung Budi Harto, "A Method for Landuse/Landcover Identification in a Tropical Area using Multisensor Optical and Radar Imageries," Proceedings of 44th SPIE's Annual Conference, US, 1999 (Denver: SPIE).
13. Wihartini, Ketut Wikantika, **Josaphat Tetuko Sri Sumantyo**, and Ryutaro Tateishi, "Speckle Noise Reduction of Various Land Cover Types using Multiresolution Wavelet Transform Analysis", Proceedings of TI-8, Japan, pp.73-76, 3-4 September 1999 (Osaka: PPI).
14. **Josaphat Tetuko Sri Sumantyo**, Ketut Wikantika, and Ryutaro Tateishi, "Influence of Ionospheric Phenomena on SAR Wave Propagation", Proceedings of TI-8, Japan, pp.77-80, 3-4 September 1999, (Osaka: PPI).

15. Ketut Wikantika, **Josaphat Tetuko Sri Sumantyo**, Ryutaro Tateishi, Agung Budi Harto, Jong-Hyun Park, "The Effect of Local Slope on Radar Backscattering Coefficient of JERS-1 SAR", Proceedings of TI-8, Japan, pp.97-99, 3-4 September 1999 (Osaka: PPI).
16. **Josaphat Tetuko Sri Sumantyo**, Ryutaro Tateishi, and Ketut Wikantika, "A New Method to Estimate Tree Trunk Diameter and Its Application to Monitor Indonesian Tropical Forest using L band SAR Imagery," Proceedings of RS-II IECl, Japan, pp.103-107, October 1999 (Tokyo: IECl), ISSN 1344-7491.
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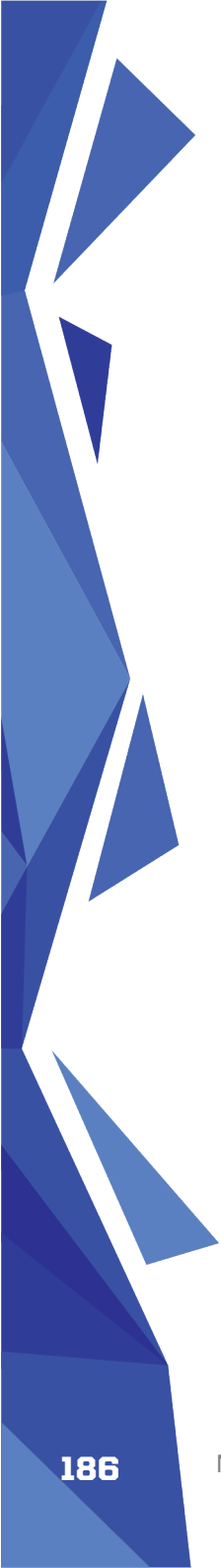
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19. **Josaphat Tetuko Sri Sumantyo** and Ryutaro Tateishi, "A Method to Measure Charcoal Slab Thickness of Forest Fire Scars," Proceedings of Symposium IJW-2000, Chiba University, Japan, pp.58-61, March 2000 (Chiba: IECl), ISSN 1344-7491.

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 23. Ketut Wikantika, Ryutaro Tateishi, **Josaphat Tetuko Sri Sumantyo**, Wihartini, and Agung Budi Harto, "Capability of Landsat-TM Image for Agricultural Land Mapping in Environs of Lake Saguling," Proceedings of Symposium AGRI-BIOCHE, Chiba University, Japan, pp.150-155, March 2000 (Chiba: AGRI-BIOCHE), ISSN: 1343-9073.
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25. **Josaphat Tetuko Sri Sumantyo** and Ryutaro Tateishi, "Electromagnetic Scattering Simulation for Tropical Tree Trunk," Proceeding of Japan Society of Photogrammetry and Remote Sensing Symposium, Japan, pp.121-126, 30 June 2000 (Tokyo: JSPRS).
 26. Ketut Wikantika, Ryutaro Tateishi, **Josaphat Tetuko Sri Sumantyo**, Wihartini, and Agung Budi Harto, "Spectral and Textural Information of Multisensor Data for Land Use Classification in Metropolitan Area," Proceedings of IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2000), No.00.1755, 24-28 July 2000 (Honolulu: IEEE).
 27. **Josaphat Tetuko Sri Sumantyo**, Ryutaro Tateishi, Ketut Wikantika, "A Method to Estimate Tree Trunk Diameter and Its Application to DiscriminateJavaTropicalForestCharacteristics," Proceedings of IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2000), Vol.1, 2000, pp.405-407, 24-28 July 2000 (Honolulu: IEEE).
 28. Ketut Wikantika, Agung Budi Harto, Ryutaro Tateishi, and **Josaphat Tetuko Sri Sumantyo**, "Evaluation of geometric and radiometric aspects of optical and microwave remote sensing data for land use/land cover mapping," Remote Sensing of the Atmosphere, Environment, and Space, Japan, 4152-17, 9-12 October 2000 (Sendai: SPIE).
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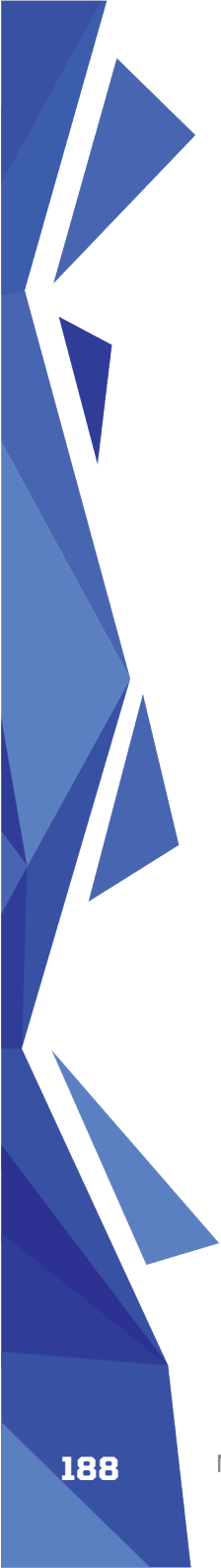
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 31. **Josaphat Tetuko Sri Sumantyo**, Ryutaro Tateishi, Ketut Wikantika, and Rencin Tsolmon, "A method to Analyse Scattered Waves From Pine Trunk and Its Application to Estimate Trunk Diameter using JERS-1 SAR Data," Proceedings of the 4th Workshop on Landcover / Asia, pp.41-50 08 June 2001 (Chiba: CEReS).
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 34. **Josaphat Tetuko Sri Sumantyo** and Ryutaro Tateishi, "Analysis of Scattered Wave from Burnt Coal Seam and Its Application," Proceeding of Japan Society of Photogrammetry and Remote Sensing Symposium, Japan, 3-5 July 2002 (Tokyo: JSPRS).

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35. **Josaphat Tetuko Sri Sumantyo** and Koichi Ito, "Design and Development of Transparent Conformal Antenna," Chiba University Open Research, p.30, 25 September 2002 (Chiba: Joint Research Center).
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 37. David Delaune, Toshimitsu Tanaka, Teruo Onishi, **Josaphat Tetuko Sri Sumantyo**, and Koichi Ito, "Study on a Simple Satellite Tracking on-board Stacked Antenna for ETS-VIII Applications," Technical Report of IEICE, AP2002-116 (2002-12), The Institute of Electronics, Information and Communication Engineers (IEICE), pp.25-30, 2002 (Tokyo: IEICE).

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38. **Josaphat Tetuko Sri Sumantyo**, David Delaune, Toshimitsu Tanaka, Teruo Onishi, and Koichi Ito, "Dual Band Patch Array Antenna for Mobile Ground Station of Engineering Test Satellite VIII," Technical Report of The Institute of Electronics, Information and Communication Engineers (IEICE), SST2002-61-91, Vol.102, No.668, pp.19-24, 5-6 March 2003 (Yokosuka: IEICE).
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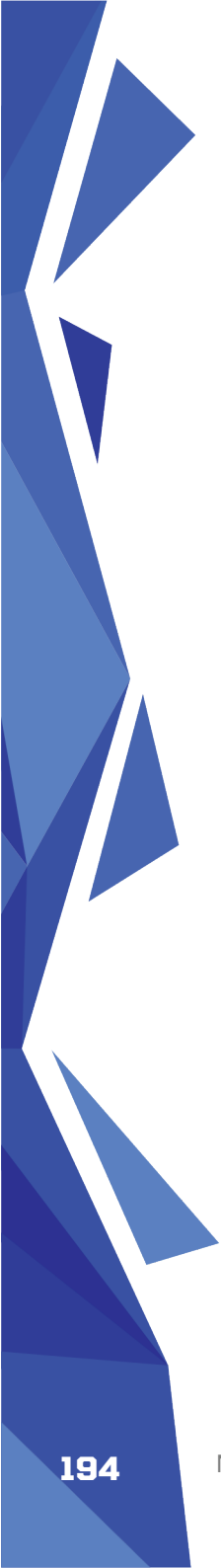
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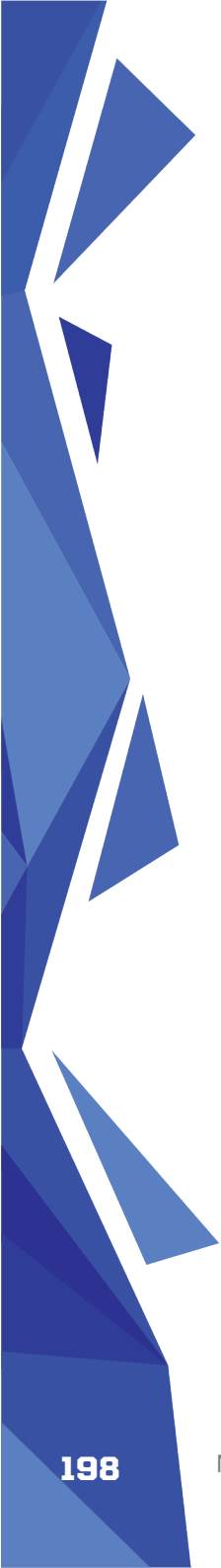
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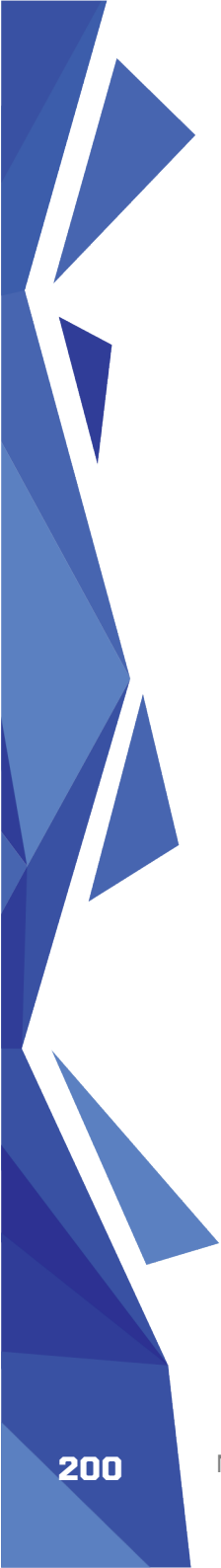
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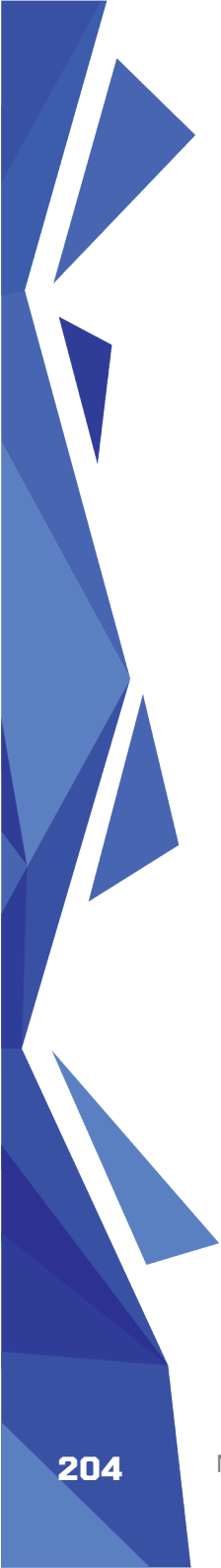
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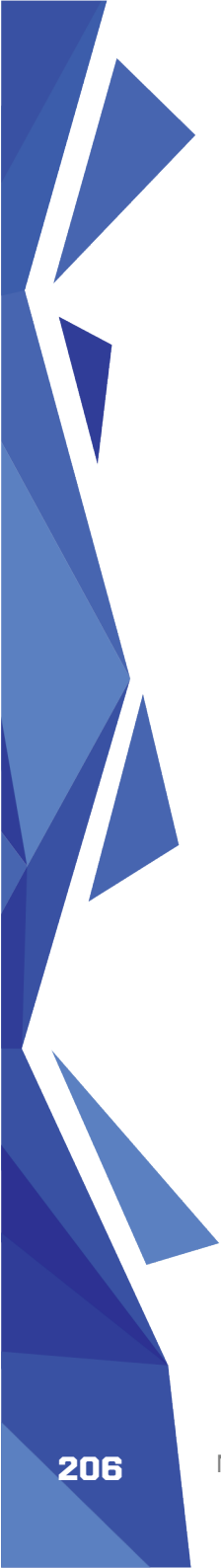
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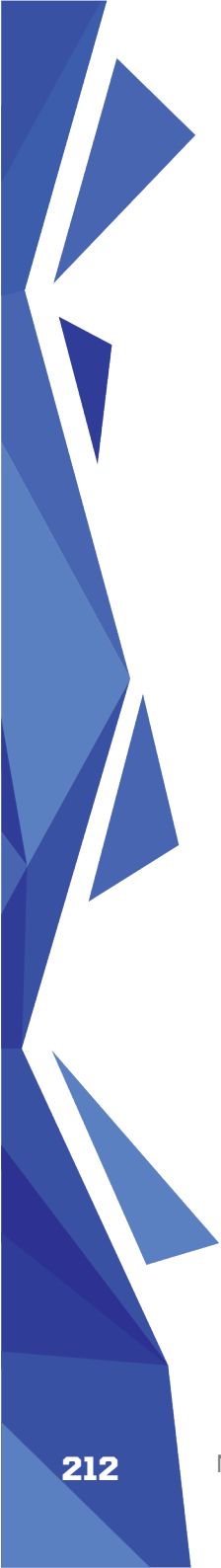
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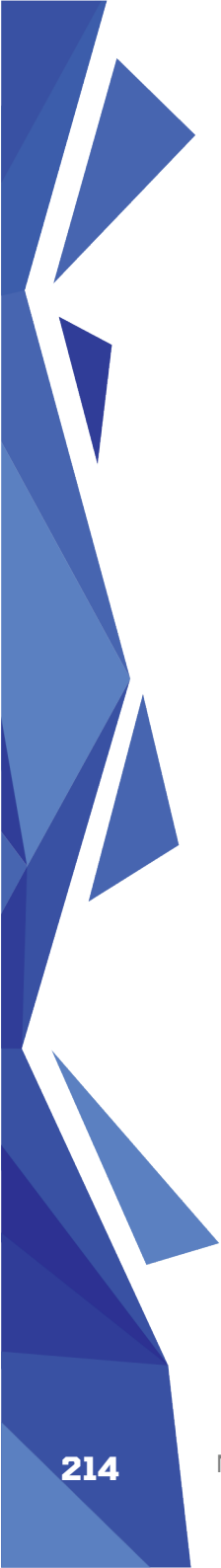
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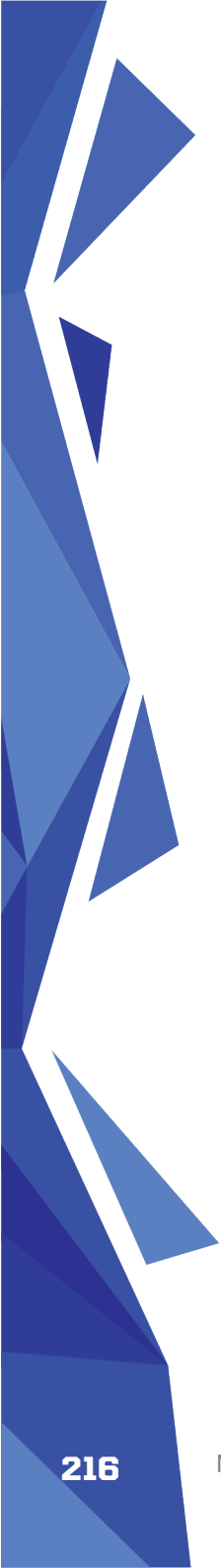
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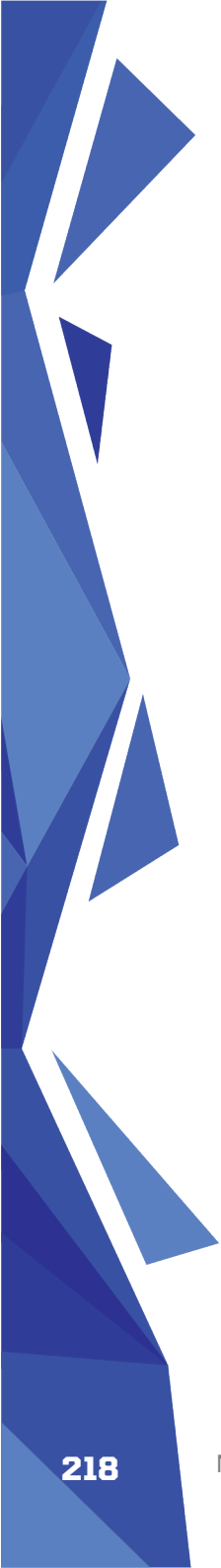
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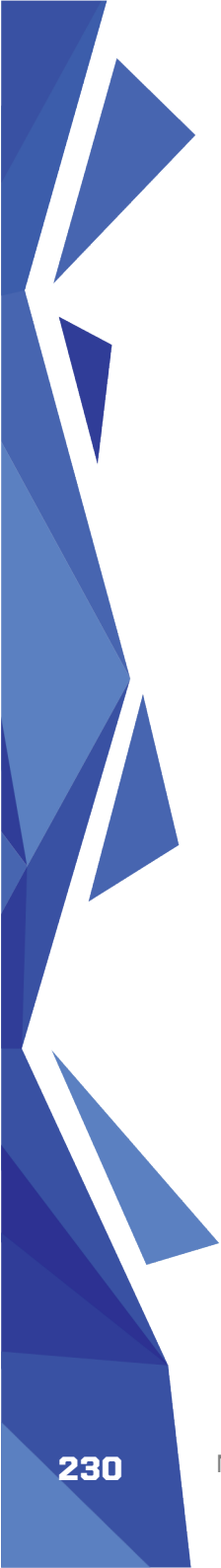
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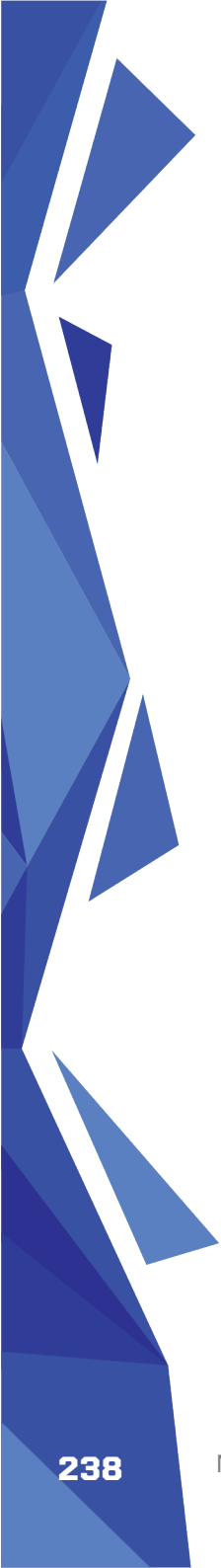
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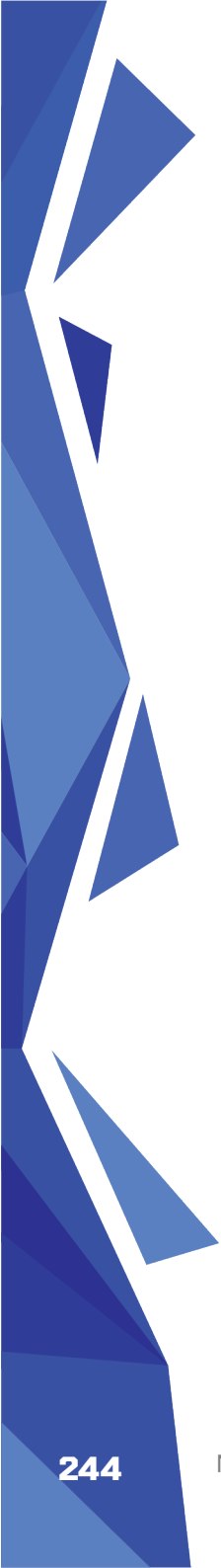
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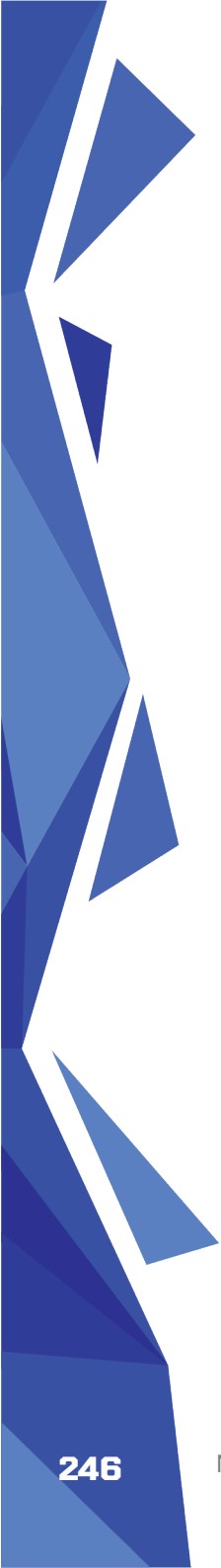
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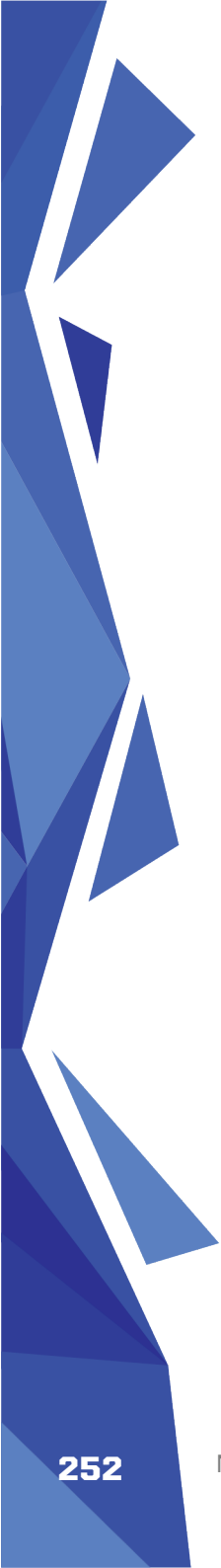
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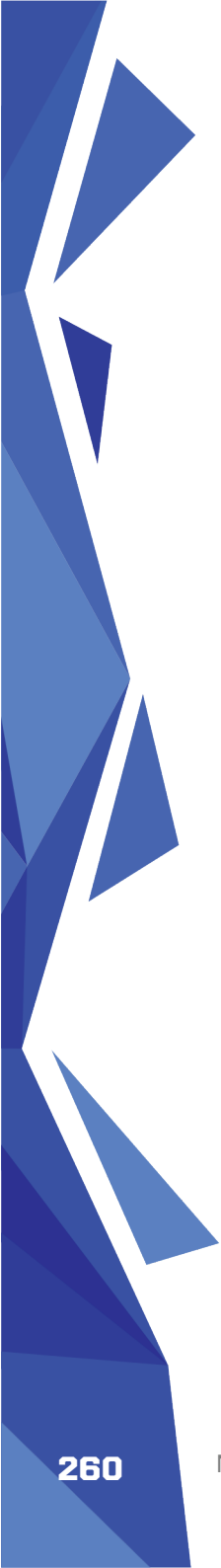
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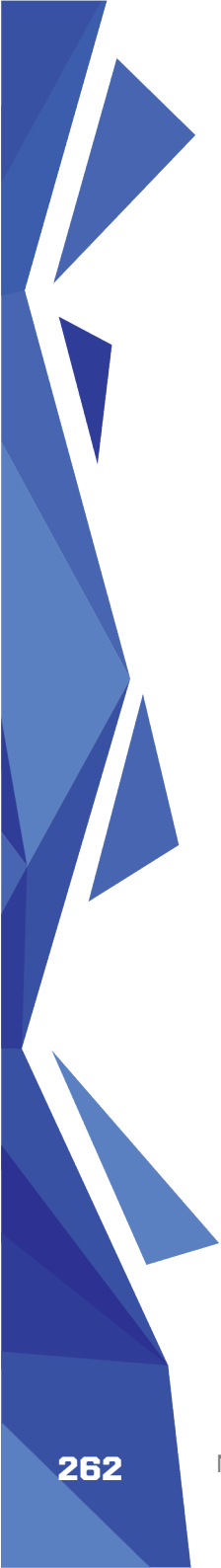
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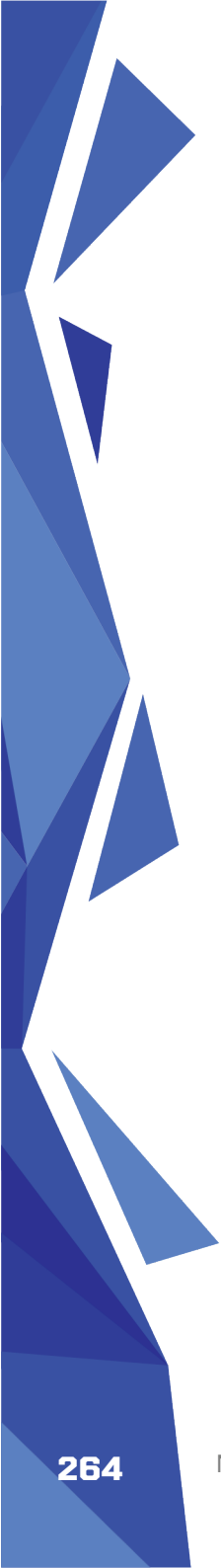
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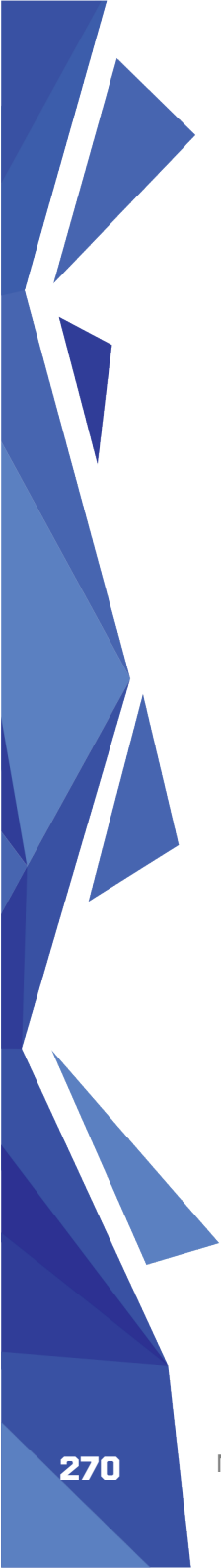
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Research Grants

April 1998 - August 1998	Indonesian Government of National Research Council (DRN) project on Subsurface Radar Sistem Development using Chirp pulse (PI: Josaphat Tetuko Sri Sumantyo)	60 Million Rupiah (Estimated 30,000 USD in 1998)
April 1998 - August 1998	Indonesian Government of National Research Council (DRN) project on Design and Implementation of Digital Filter for Digital Correlator (PI: Dr. Tutun Sujana)	60 Million Rupiah (Estimated 30,000 USD in 1998)

November 2000 - March 2003 Baseline Biodiversity Survey and Monitoring on Tropical Rain Forest of Kerinci Seblat National Park, Sumatera, Indonesia (No. Project J-2RI-037 NASDA), 2nd Research Invitation (RI) Program on the Japanese Earth Resources Satellite-1 (JERS-1), National Space Development Agency of Japan (NASDA) - Indonesia Institute of Sciences (LIPI) Research and Development Center for Biology (PI: Dr. Jito Sugardjito)

November 2001 - October 2002 The Sumitomo Foundation, "Mapping of Biodiversity and Ecosystem Change in Southeast Asia - Monitoring Relationship between Fauna & Flora Extinction and Environment Change using

1 Million yen (Estimated 10,000 USD in 2001)

Remote Sensing Technique" (PI: Prof Ryutarō Tateishi)

1 Apr 2004 - 31 Mar 2005 Futaba Electronics Foundation Research Grant "Venture Antenna System for Mobile Satellite Communication Applications" (PI:

3 Million Yen (Estimated 30,000 USD in 2004)

Josaphat Tetuko Sri Sumantyo)

1 April 2004 - 31 March 2005	Chiba Bank Corporation Research Grant “Venture Antenna System for Mobile Satellite Communication Applications” (PI: Josaphat Tetuko Sri Sumantyo)	1.5 Million Yen (Estimated 15,000 USD in 2004)
20 April 2004 - 31 March 2005	The Japan Society for the Promotion of Science (JSPS) Grant-in-Aid for Scientific Research / Kagakukenkyuhi 2004 (No. 16360185), “Realization of Antenna System for Next-Generation Mobile Satellite Communications” (PI: Prof. Koichi Ito)	10 Million Yen (Estimated 100,000 USD in 2004)
24 August 2005 - 31 March 2006	Venture Business Laboratory (VBL), Chiba University. “Development of Next Generation Synthetic Aperture Radar System” (PI: Josaphat Tetuko Sri Sumantyo)	1 Million yen (Estimated 10,000 USD in 2005)
16 January 2006 - 31 December 2006	Volcanic chronology in Indonesian islands derived from ice cores in Antarctica and Greenland, Fukutake Science and Culture Foundation (PI: Prof. Fumihiko Nishio)	1 Million yen (Estimated 10,000 USD in 2006)

18 April 2006 - 31 March 2008	Development of Antenna System for Mobile Satellite Communications, SCOPE Project, Japan Ministry of Internal Affairs and Communications (PI: Prof. Koichi Ito)	30 million yen, estimated 300,000 USD in 2006
31 July 2006 - 30 April 2007	Coastal disastrous area monitoring using next- generation Synthetic Aperture Radar (SAR), Japan Society for Promotion Science (JSPS) (PI: Josaphat Tetuko Sri Sumantyo)	1.2 million yen (Estimated 10,000 USD in 2006)
8 August 2006 - 31 March 2007	Development of Southeast Asian Urban Environmental Information Archive by using Former Japanese Army Maps and Satellite Images, CERE S - Chiba University (PI: Dr. Yoshiyuki Murayama, Tohoku University)	0.45 million Yen (Estimated 4,000 USD in 2006)
May 2006 - 31 March 2007	Inventory of Central Java Earthquake Damage, Japan Ministry of Education and Technology Grant-in-Aid (PI: Prof. Hiroshi Kawase, Kyushu University)	

11 October 2006 - 31 March 2007	Venture Business Laboratory (VBL), Chiba University. "Development of Circularly Polarized Synthetic Aperture Radar" (PI: Josaphat Tetuko Sri Sumantyo)	0.5 Million yen (Estimated 4,000 USD in 2006)
1 April 2007 - 31 March 2008	Futaba Electronics Foundation Research Grant "University Venture's Circularly Polarized Synthetic Aperture Radar to Generate High Precision Image" (PI: Josaphat Tetuko Sri Sumantyo)	1.5 Million Yen (Estimated 12.000 USD in 2007)
1 April 2007 - 31 March 2008	Venture Business Laboratory - Chiba University Special Project "Development of Microsatellite onboard Circularly Polarized Synthetic Aperture Radar (CP-SAR) Sensor" (PI: Josaphat Tetuko Sri Sumantyo)	3.5 Million Yen (Estimated 30.000 USD in 2007)
1 April 2007 - 31 March 2008	Coastal disastrous area monitoring using next-generation Synthetic Aperture Radar (SAR), Japan Society for Promotion Science (JSPS) (PI: Josaphat Tetuko Sri Sumantyo)	1.2 million Yen (Estimated 10,000 USD in 2007)

1 April 2007 - 31 March 2010	The Japan Society for the Promotion of Science (JSPS) Grant-in-Aid for Scientific Research / Kagakukenyuhi 2007 - Young Scientist (A) (No. 19686025), "Development of circularly polarized Synthetic Aperture Radar to generate high precision image" (PI: Josaphat Tetuko Sri Sumantyo)	23.54 Million Yen Estimated 200,000 USD in 2007)
1 April 2007 - 31 March 2009	Estimation and Mapping of Tropical Forest Biomass by using ALOS-PALSAR Satellite Data, Japan Society for Promotion Science (JSPS No. 19-07023) (PI: Josaphat Tetuko Sri Sumantyo)	2.2 million Yen (Estimated 20,000 USD in 2007)
1 August 2007 - 31 March 2008	National Institute of Information and Communication Technology: Real-time monitoring of plate movement by using satellite and ground electromagnetics observation (PI: Prof. Katsumi Hattori)	Total of 7 million Yen (Estimated 70,000 USD in 2007) (Josaphat Tetuko Sri Sumantyo: 2 million yen, estimated 20,000 USD in 2007)

November 2007	Chiba University Presidential Research Grant: Development of Synthetic Aperture Radar Measurement System (PI: J.T. Sri Sumantyo)	1.0 million yen (Estimated 9,000 USD in 2007)
31 March 2008	International University Exchange Seminar: International Exchange Seminar on Global Warming - Disaster Monitoring by Using Remote Sensing (PI: Josaphat Tetuko Sri Sumantyo)	2.5 million Yen (Estimated 25,000 USD in 2008)
1 August 2008 - 31 March 2009	National Institute of Information and Communication Technology (NICT): Real-time monitoring of plate movement by using satellite and ground electromagnetics observation (PI: Prof. Katsumi Hattori)	A total of 7 million yen estimated 70,000 USD in 2007 (PI: J.T. Sri Sumantyo: 2.5 million yen (Estimated 24,000 USD in 2008))
10 December 2008	Chiba University Special Research Division, The 5th Project "Development of circularly polarized synthetic aperture radar onboard small satellite" (PI: Josaphat Tetuko Sri Sumantyo)	1.38 million yen (Estimated 14,000 USD)

24 December 2008	Chiba University President Research Grant for Network Analyzer to develop the aircraft - small satellite onboard circularly polarized synthetic aperture radar (PI: Josaphat Tetuko Sri Sumantyo)	16 million yen (Estimated 160,000 USD)
23 July 2009 - 31 March 2010	FY2009 Chiba University COE Start-Up Program "Establishment of Small Satellite Research Base for Earth Diagnosis" (PI: J.T. Sri Sumantyo)	6 million yen (Estimated 60,000 USD)
23 July 2009 - 31 March 2010	FY2009 High- Level Research Education Infrastructure Supporting Program "Establishment of Small Satellite Research Base for Earth Diagnosis" (PI: Fumihiko Nishio - Director CEReS)	16.57 million yen (Estimated 165,700 USD)
1 April 2009 - 31 March 2010	Chiba University President Research Grant FY2009 Draft Chamber for Antenna Manufacturing (PI: Josaphat Tetuko Sri Sumantyo)	1,486,000 Yen

2009 April 2009 - 31 March 2010	Research Institute for Sustainable Humanosphere (RISH), Kyoto University "Research on Indonesian Cities and Vegetation Characteristics Measurement using CP-SAR onboard Small Satellite and Old Maps" (PI: Josaphat Tetuko Sri Sumantyo)	680,000 yen
1 November 2009 - 30 August 2010	Hibah Kompetitif Penelitian Untuk Publikasi Internasional Batch III "Pengembangan Pusat manajemen Bencana Berbasis Teknologi Maju Penginderaan Jauh", Direktorat Penelitian dan Pengabdian kepada Masyarakat, Direktorat Jenderal Pendidikan Tinggi (Indonesian Directorate General for Higher Education) (PI: Dr Dodi Sudiana, University of Indonesia)	300 million rupiah (Estimated 30,000 USD)
1 April 2010 - 31 March 2015	The Japan Society for the Promotion of Science (JSPS) Grant-in-Aid for Scientific Research / Kagakukenyuhi S (No. 22220011) (PI: Prof Ryutaro Tateishi)	2.5 million yen (Prof. Josaphat Tetuko Sri Sumantyo)

1 April 2011 – 31 March 2016	SATREPS - Research and Development for Reducing Geo-hazard Damage in Malaysia caused by Landslide & Flood, ODA JICA-JST Project (PI: Prof. Fumihiko Nishio)	9.9 Million yen (Prof. Josaphat Tetuko Sri Sumantyo)
1 January 2011 – 31 December 2011	PASCO Corporation Research Grant: Long-term continuous DInSAR to monitor Indonesian Metropolitan Cities (PI: Josaphat Tetuko Sri Sumantyo)	1 Million yen
1 April 2011 – 31 March 2012	Weathernews Research Grant - Development of 3 Dimensional Weather Radars (PI: Josaphat Tetuko Sri Sumantyo)	3 million yen
1 April 2011 – 31 March 2012	Hibah Riset Kolaborasi International Matching Fund FY2011 “Development of Disaster Management Center using Advanced Remote Sensing Technology-Earthquake and Landslide Disaster Analysis using ALOS/ PALSAR and ASTER Data”, Faculty of Engineering, University of Indonesia), (PI: Dr. Dodi Sudiana, University of Indonesia)	200 million rupiahs (Estimated 20,000 USD)

April 2011 – September 2011	Indonesia - Japan Bank for International Cooperation (JBIC) Project “Development of patch array antenna for national radar strategy” Revitalization of the University of Hasanuddin.	250,000 yen
April 2014 – March 2015	The 4th ALOS Research Announcement (Project # 1024): Monitoring of Land Deformation in Urban Areas using Polarimetry and Interferometry Techniques (PI: Josaphat Tetuko Sri Sumantyo)	
April 2013 – March 2017	FY 2013 Japanese Government National Budget (Special Budget for Project): Integrated Earth Environment Diagnosis Program: Continental Scale Land Deformation Observation using Small Satellite Constellation (PI: Josaphat Tetuko Sri Sumantyo)	360 million yen

Jun 2013 – May 2014	Penelitian Unggulan Perguruan Tinggi – Indonesian Directorate Generale of Higher Education (DGHE) BOTPN (Biaya Operasional PTN): “Development of Disaster Management Center using Advanced Remote Sensing Technology: Land Deformation Analysis on Slope Area using PS InSAR” (PI: Dr. Dodi Sudiana, University of Indonesia)	150 million Rupiah (estimated 15,000 USD)
October 2013 – September 2014	FY2013 Chiba University International Exchange Program “Proposal of a sustainable food production system aimed at strengthening food security”, 1 October 2013 - 30 September 2014 (PI: Chiharu Hongo)	0.5 million yen
Apr 2014 – Mar 2016	FY 2014 Chiba University Venture Business Laboratory Research Project: “Development of Synthetic Aperture Radar onboard Unmanned Aerial Vehicle and Microsatellite” (PI: Josaphat Tetuko Sri Sumantyo)	2.3 Million Yen (Estimated 23,000 USD)

April 2015 – March 2016	Indonesian Government, Development of C-Band Synthetic Aperture Radar 'Sharp-eyes' for UAV and Aircraft (PI: Josaphat Tetuko Sri Sumantyo)	200,000 USD
April 2013 – March 2017	Japanese Government National Budget (Special Budget for Project) FY 2015, "Integrated Earth Environment Diagnosis Program: Continental Scale Land Deformation Observation using Small Satellite Constellation" (PI: Josaphat Tetuko Sri Sumantyo)	5.32 million Yen
April 2015 – March 2016	Japan Radio Company – Development of Synthetic Aperture Radar Onboard Image Processing (PI: Josaphat Tetuko Sri Sumantyo)	420,000 Yen
December 2015 – December 2016	Japanese Government National Budget (Special Budget for Project) FY 2015, No. 2101, Ministry of Education and Technology (MEXT), "Establishment of Advanced Microsatellite Remote Sensing Center of Excellent to Monitor Global Environmental and Disaster: Building of Microsatellite CP-SAR Model" (PI: Josaphat Tetuko Sri Sumantyo)	80 Million Yen

1 April 2016 – 31 March 2018	The 6th ALOS Research Announcement (Project # 3170) of The Japan Aerospace Exploration Agency (JAXA), "Land Deformation Monitoring using Permanent Scatterers Interferometric Synthetic Aperture Radar (PS-InSAR)," 1 April 2016 – 31 March 2018 (PI: Josaphat Tetuko Sri Sumantyo)	6.8 Million Yen
1 April 2016 – 31 March 2017	Japanese Government National Budget (Special Budget for Project) FY 2016, No. 2101, Ministry of Education and Technology (MEXT), "Establishment of Advanced Microsatellite Remote Sensing Center of Excellent to Monitor Global Environmental and Disaster: Building of Microsatellite CP-SAR Model" (PI: Josaphat Tetuko Sri Sumantyo)	6.8 Million Yen
1 April 2016 – 31 March 2017	FY 2016 Chiba University Strategic Priority Research Promotion Program, "Innovative Microwave Remote Sensing", (PI: Josaphat Tetuko Sri Sumantyo)	20 million Yen

1 April 2016 – 31 March 2017	FY2016 Penelitian Unggulan Perguruan Tinggi, “Pengembangan Antenna Pita L Dengan Daya Rendah untuk Aplikasi CP-SAR (Circularly Polarized Synthetic Aperture Radar) pada UAV (PI: Rahmadwati, Universitas Brawijaya)	
1 April 2016 – 31 March 2018	Taiwanese National Space Organization (NSPO): Development of C Band Synthetic Aperture Radar for Aircraft, Contract No. NSPIO-S-105096, FY2016 – FY2017 (PI: Josaphat Tetuko Sri Sumantyo)	300,000 USD
1 April 2016 – 31 March 2017	FY 2016 Chiba University Global Prominent Research Core, “Innovative Microwave Remote Sensing” (PI: Josaphat Tetuko Sri Sumantyo)	5 million Yen
October – November 2016	Agency of Assessment and Application of Technology (BPPT), Indonesian Ministry of Education and Technology (PI: Josaphat Tetuko Sri Sumantyo)	1.5 million Yen

1 April 2016 – 31 March 2017	Indonesia Aerospace Agency (LAPAN), Indonesian Ministry of Education and Technology (PI: Josaphat Tetuko Sri Sumantyo)	1 million Yen
1 April 2016 – 31 March 2017	FY2016 Ministry of Education and Technology of Japan, “Establishment of Research Core on Microsatellite Remote Sensing for Global Environment and Disaster Monitoring” (PI: Josaphat Tetuko Sri Sumantyo)	6.8 million Yen
1 April 2016 – 31 March 2017	FY 2016 Chiba University Strategic Priority Research Promotion Program, “ Innovative Microwave Remote Sensing ” (PI: Josaphat Tetuko Sri Sumantyo)	20 million Yen
1 October 2016 – 31 March 2017	FY 2016 Chiba University Global Prominent Research Core, “Innovative Microwave Remote Sensing” (PI: Josaphat Tetuko Sri Sumantyo)	5 million Yen
October 2016 – November 2016	Indonesia Government Ministry of Technology and Higher Education FY 2016 Agency for Assessment and Application of Technology (BPPT) (PI: Josaphat Tetuko Sri Sumantyo)	1.5 million Yen

November – December 2016	FY 2016 Indonesia Government Ministry of Technology and Higher Education FY 2016- Indonesia Aerospace Agency (LAPAN) Project No. J09KF00807 (PI: Josaphat Tetuko Sri Sumantyo)	1 million Yen
1 April 2017 – 31 March 2018	FY 2017 Japan Ministry of Education and Technology, “Establishment of Research Core on Microsatellite Remote Sensing for Global Environment and Disaster Monitoring” (PI: Josaphat Tetuko Sri Sumantyo)	6.8 million Yen
1 April 2017 – 31 March 2018	FY 2017 Microwave Remote Sensing Research Core, Chiba University Global Prominent Research Core (PI: Josaphat Tetuko Sri Sumantyo)	16.55 Million Yen
1 August 2017 – 30 July 2019	SOAR-EI Project #5436 Forest Biomass Estimation using Pol-InSAR, Canadian Space Agency (CSA) (PI: Josaphat Tetuko Sri Sumantyo)	

1 April 2018 – 31 March 2019	FY 2018 Japan Government National Budget “Establishment of Global Environment – Disaster Observation Microsatellite Remote Sensing Research Center (PI: Josaphat Tetuko Sri Sumantyo)	10,600,000 Yen
1 April 2018 – 31 March 2022	JAXA ALOS-2 6th Research Announcement No.3170, “Land Deformation Monitoring using Persistent Scatterers Interferometric Synthetic Aperture Radar (PS- InSAR)” (PI: Josaphat Tetuko Sri Sumantyo)	
1 April 2019 – 31 March 2020	Japan Radio Company, Development of X Band Synthetic Aperture Radar (SAR) (PI: Josaphat Tetuko Sri Sumantyo)	2,000,000 Yen
1 April 2019 – 31 March 2022	Research Grant Aid (Kakenhi) Chosentekikenkyu (Hoga) 19K22905 “Improving High-Resolution Image of Environmental Remote Sensing using Multi Beam Synthetic Aperture Radar) (PI: Josaphat Tetuko Sri Sumantyo)	4.8 millions Yen

1 April 2020 – 31 March 2021	FY 2020 Microwave Remote Sensing Research Institute, Chiba University Global Prominent Research Institute (PI: Josaphat Tetuko Sri Sumantyo)	10,650,000 Yen
1 April 2020 – 30 September 2020	Sumitomo Metal Mining Group “Development of Extreme Environment Observation System (PI: Josaphat Tetuko Sri Sumantyo)	600,000 Yen
1 October 2020 – 31 March 2021	Sumitomo Metal Mining Group “Development of Microwave Imaging in Dry Kiln,” (PI: Josaphat Tetuko Sri Sumantyo)	1,500,000 Yen
1 April 2021 – 31 March 2022	FY 2021 Microwave Remote Sensing Research Core, Chiba University Global Prominent Research Core (PI: Josaphat Tetuko Sri Sumantyo)	10,700,000 Yen
1 April 2021 – 31 March 2022	Sumitomo Metal Mining Group “Development of Microwave Imaging in Dry Kiln,” (PI: Josaphat Tetuko Sri Sumantyo)	Direct Grant 2,538,462 Yen In-Direct Grant 761,538 Yen
		Total 3,300,300 Yen

1 April 2022 – 31 March 2025	JAXA ALOS the 3rd Research Announcement on the Earth Observations (EO RA3) “Bridging Consecutive DInSAR Method for Long Term Land Deformation Observation” PI No: ER3A2N102 (PI: Josaphat Tetuko Sri Sumantyo)	
1 April 2022 – 31 March 2023	Sumitomo Metal Mining Group “Development of Microwave Imaging in Dry Kiln,” (PI: Josaphat Tetuko Sri Sumantyo)	Direct Grant 2,538,462 Yen In-Direct Grant 761,538 Yen Total 3,300,300 Yen
1 April 2023 – 31 March 2024	Sumitomo Metal Mining Group “Development of Microwave Imaging in Dry Kiln,” (PI: Josaphat Tetuko Sri Sumantyo)	Direct Grant 5,076,923 Yen In-Direct Grant 1,523,077 Yen Total 6,600,000 Yen
1 April 2023 – 31 March 2024	Chiba University Research-Grant-Aid Support Grant 2024 “Development of Global Climate Modification : Simulator and Multi Sensor Cloud Modification (PI: Josaphat Tetuko Sri Sumantyo)	3,870,000 Yen

Professional Memberships

1. Institute of Electrical and Electronics Engineers (IEEE), Senior Member since 30 June 2012
 - a IEEE Microwave Theory and Techniques Society (MTTS).
 - b IEEE Geosciences and Remote Sensing Society (GRSS).
 - c IEEE Antennas and Propagations Society (APS).
 - d IEEE Aerospace and Electronic Systems Society (AES).
2. Japan Society of Photogrammetry and Remote Sensing (JSPRS), Member.
3. Institute of Electronics, Information and Communication Engineers (IEICE), Member.
4. Remote Sensing Society Japan (RSSJ), Member.



2023 – Present
2022 – 2023

Professor, Health And Disease Omics Center, Faculty of Medicine, Chiba University
Head Department of Environmental Remote Sensing, Graduate School of Science and Engineering, Chiba University

2022 – 2023

Head Division of Earth Science, Graduate School of Science and Engineering, Chiba University

2022 – 2024

Honorary Professor, Institute of Technology Bandung

2021 – Present

Head Division of Disaster Data Analysis, Research Institute of Disaster Medicine, Faculty of Medicine, Chiba University

2021 – Present

Lecturer, Departemen Teknik Elektro, Fakultas Teknik, Universitas Sebelas Maret

2019 – 2020

Head Department of Environmental Remote Sensing, Graduate School of Science and Engineering, Chiba University

2019 – 2020

Head Division of Earth Science, Graduate School of Science and Engineering, Chiba University

2013 – Present

Full Professor – Center for Environmental Remote Sensing, Chiba University

2005 – 2013

Associate Professor – Center for Environmental Remote Sensing, Chiba University

2002 – 2005

Lecturer – Venture Business Laboratory, Chiba University

1999 – 2002

Graduate School of Science and Technology, Chiba University, Japan (Ph.D)

1995 – 1997

Graduate School of Electrical and Computer Engineering, Kanazawa University, Japan (M.Eng)

1991 – 1995

Department of Electrical and Computer Engineering, Kanazawa University, Japan (B.Eng)

1986 – 1989

SMA Negeri 1 Surakarta (Solo) High School, Indonesia



Biografi Prof Josaphat : Cerita hidup Prof Josaphat untuk mencipta radar (Akses : Bukunesia Store, Shopee, Tokopedia)

Expertise

Journal paper >155, Invited Talk >375, Conference Paper >530, Book >17, Patent dasar >10 patent etc

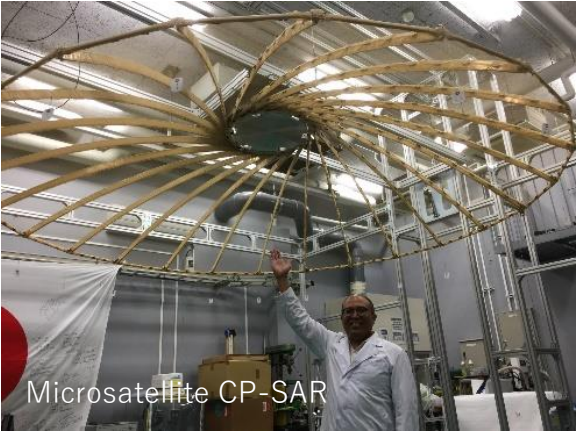
Synthetic Aperture Radar (SAR)
Ground Penetrating Radar (GPR)
Mobile Satellite Communications
Antennas development for various applications
Unmanned Aerial Vehicle (Drone)
Microsatellite

Co-Leader IEEE Geoscience and Remote Sensing Society (GRSS) Instrumentation and Future Technology Technical Committee– Unmanned Aerial Vehicle (UAV) Future Technology
Associate Editor, IEEE Geoscience and Remote Sensing Letters (GRSL)
Associate Editor, IEEE Antennas, Wireless, and Propagation Letters (AWPL)
Associate Editor, IEEE Journal on Miniaturization for Air and Space Systems
Reviewer of IEEE GRSL, TGRS, JSTARS, IJRS etc
General Chair IEEE GRSS APSAR 2021 and APSAR 2023 etc



Kick Andy – Anak Kolong Menggapai Dunia

Inovasi Teknologi Penginderaan Jauh, Kunci Indonesia untuk Memimpin Dunia



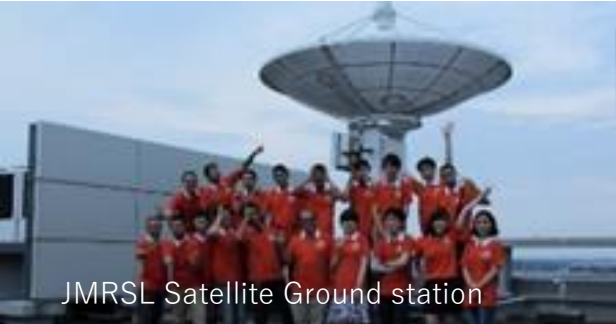
Microsatellite CP-SAR



Remote Sensed Hybrid Drone



X Band SAR onboard Boeing 737-200



JMRSL Satellite Ground station



JMRSL JX-1



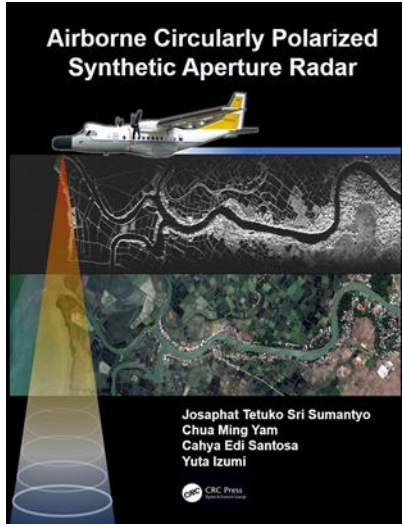
L Band SAR onboard JX-1



L Band CP-SAR



C Band CP-SAR onboard CN235MPA



Prof. Josaphat 'Josh' Tetuko Sri Sumantyo, Ph.D

Center for Environmental Remote Sensing,
Chiba University
1-33, Yayoi-cho, Inage-ku, Chiba-shi
263-8522 Japan
Email jtetukoss@faculty.chiba-u.jp
<https://www.jmrsl.jp/>

Departemen Teknik Elektro, Fakultas Teknik
Universitas Sebelas Maret
Jalan Ir. Sutami 36 A, Surakarta,
Jawa Tengah, Indonesia
Email jtetukoss@staff.uns.ac.id
<https://elektro.ft.uns.ac.id/>



Latar Belakang : Josaphat dan Radar

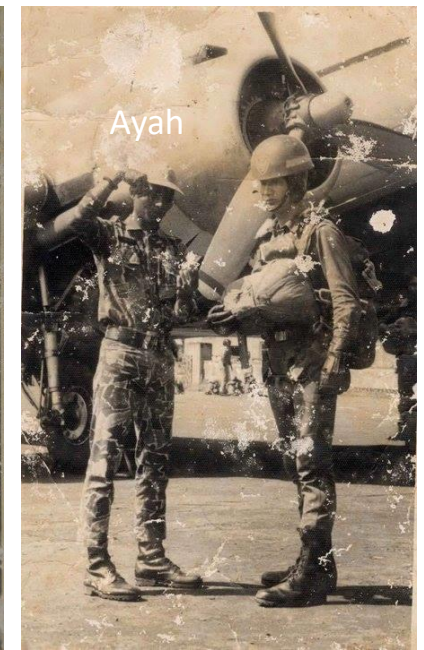
Josaphat Tetuko Sri Sumantyo aka "Josaphat" aka "Josh" aka "Tetuko" aka "Tuko" lahir di Pangkalan Udara TNI-AU Sulaiman, Bandung pada tanggal 25 Juni 1970. Josh terlahir dengan Ayah sebagai Instruktur Komando Pasukan Gerak Tjepat (Kopasgat/PGT) TNI-AU dan menggunakan Pangkalan Udara Adisumarmo, Solo sebagai tempat bermain semasa kecilnya.

Pada saat umur lima tahun pada tahun 1975, Josh bermain di bengkel radar TNI-AU Lanud Adisumarmo dekat sang Ayah melatih pasukan di Skadron 401/402, menanyakan asal berbagai jenis radar TNI-AU kepada Ayah. Ternyata jawabannya membuat Josh kaget, karena hampir seluruh radar adalah produk import. Kemudian Tetuko berjanji untuk membangun radar untuk melindungi Ayahnya saat bertugas di medan perang sebagai Komando Kopasgat/PGT, serta melindungi TNI-AU dan Negara Indonesia.

Akhirnya Josh merealisasikan janji kepada Ayah, berupa radar 'only-one' dan 'original' yaitu **circularly polarized synthetic aperture radar (CP-SAR)** untuk pesawat dan satelit pada 13 Maret 2018. Sensor radar penginderaan jarak jauh ini dapat digunakan untuk keperluan kemanusiaan, lingkungan, keamanan negara, kebencanaan hingga misi observasi bulan dan planet seperti yang dilakukan oleh Josh saat ini bersama beberapa badan ruang angkasa dunia.



Josh dan orang tua



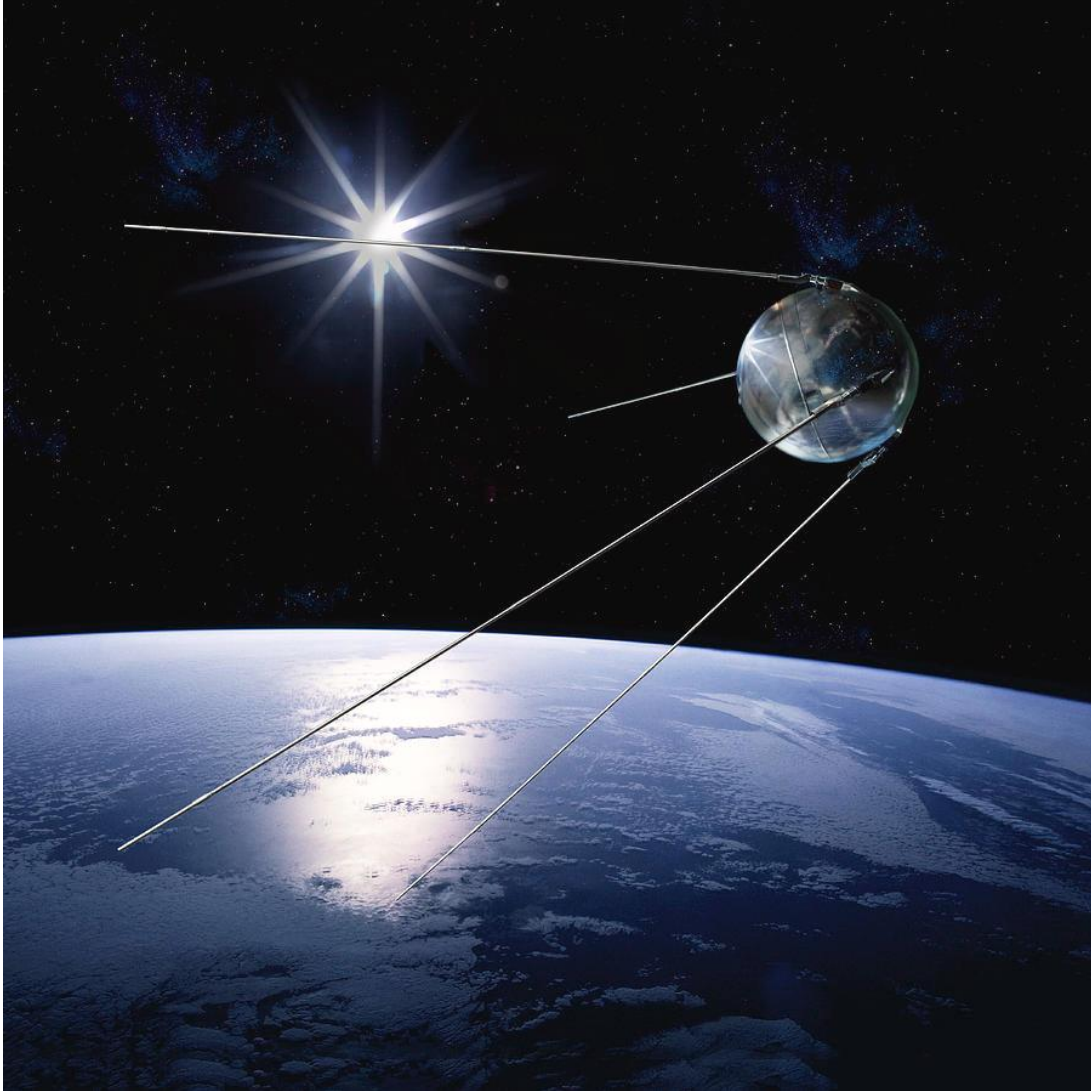
Pelatih Kopasgat di Lanud Sulaiman



Radar Josh dan CN235MPA Skadron 5 Lanud Sultan Hasanuddin

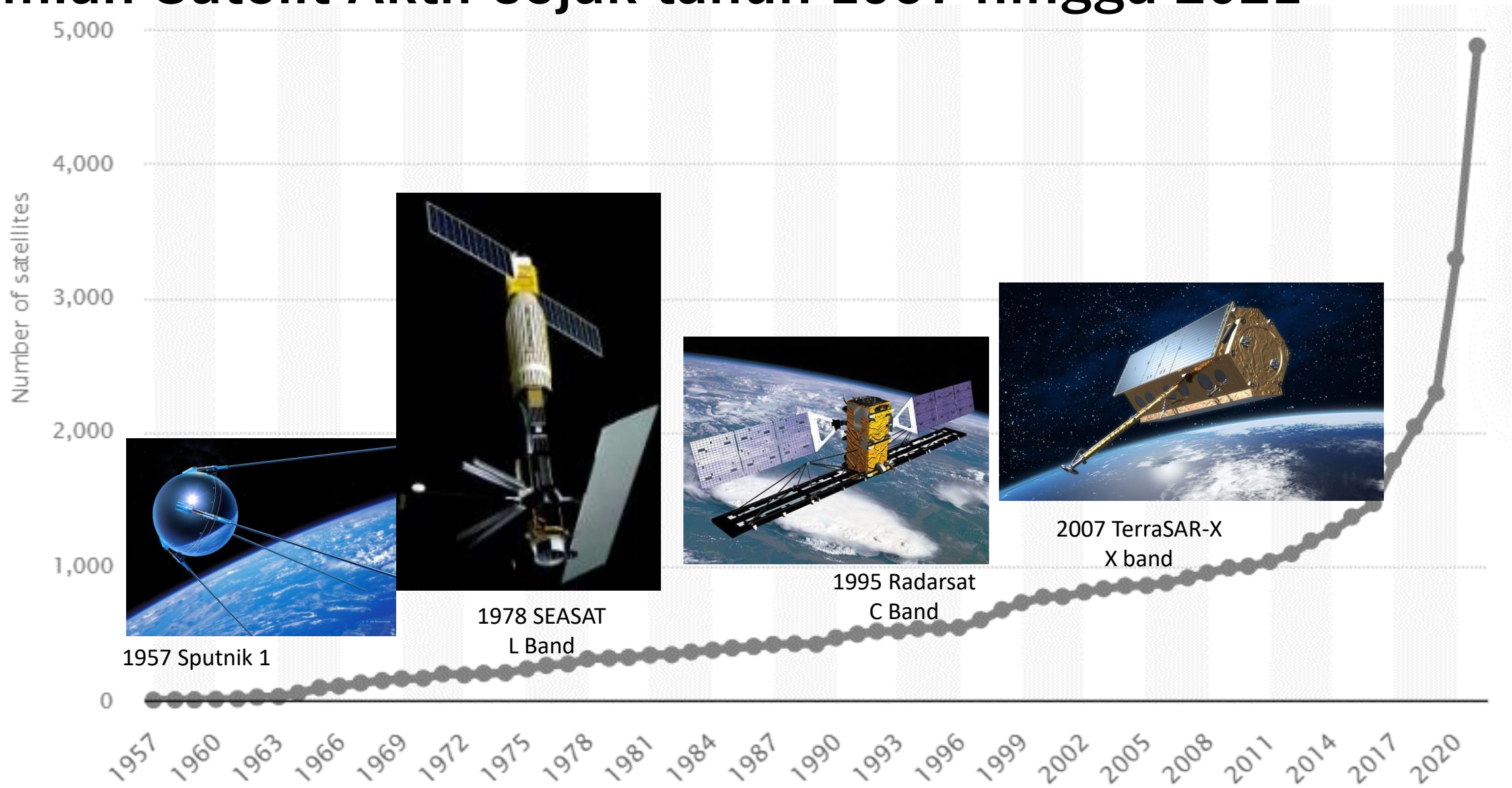
Ayah kami, Michael Suman Juswaljati pelatih Sekolah Pasukan Dasar AURI pertama di Lanud Panasan (sekarang Lanud Adisumarmo) and beberapa tugas di Timor-Timur dll

First Satellite : Sputnik-1



Source : <https://photos.com/art/sputnik>

Jumlah Satelit Aktif sejak tahun 1957 hingga 2021



All of Earth's Satellites Visualized Who Owns Our Orbit?

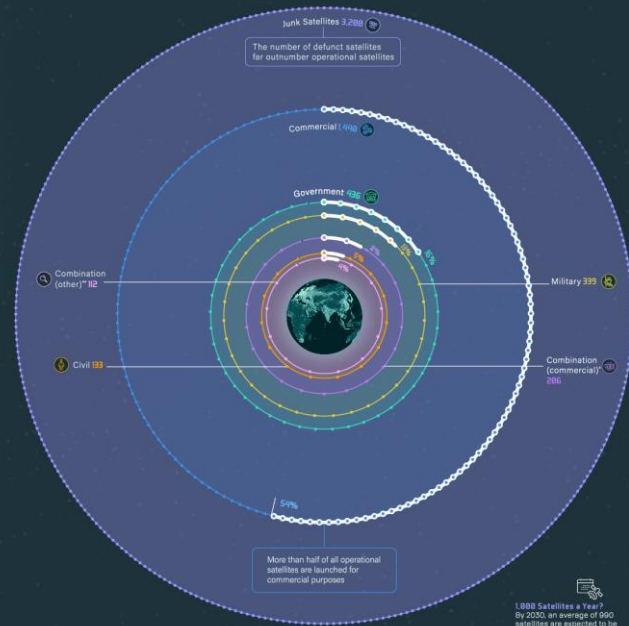
The new space race is on. Hundreds of satellites are launched into Earth's orbit every year for purposes ranging from communications and IoT, to environmental monitoring and border security.

Thousands more defunct satellites are orbiting the planet as space junk. In total, there are nearly 6,000 satellites circling our tiny planet—and that number keeps growing.

Earth's Satellites: Operational vs. Junk

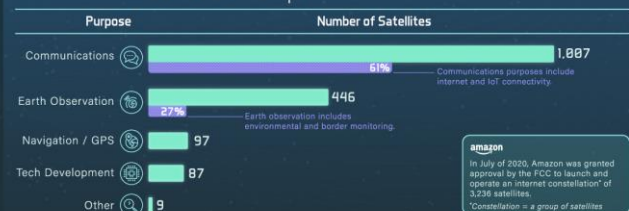


All of Earth's Satellites



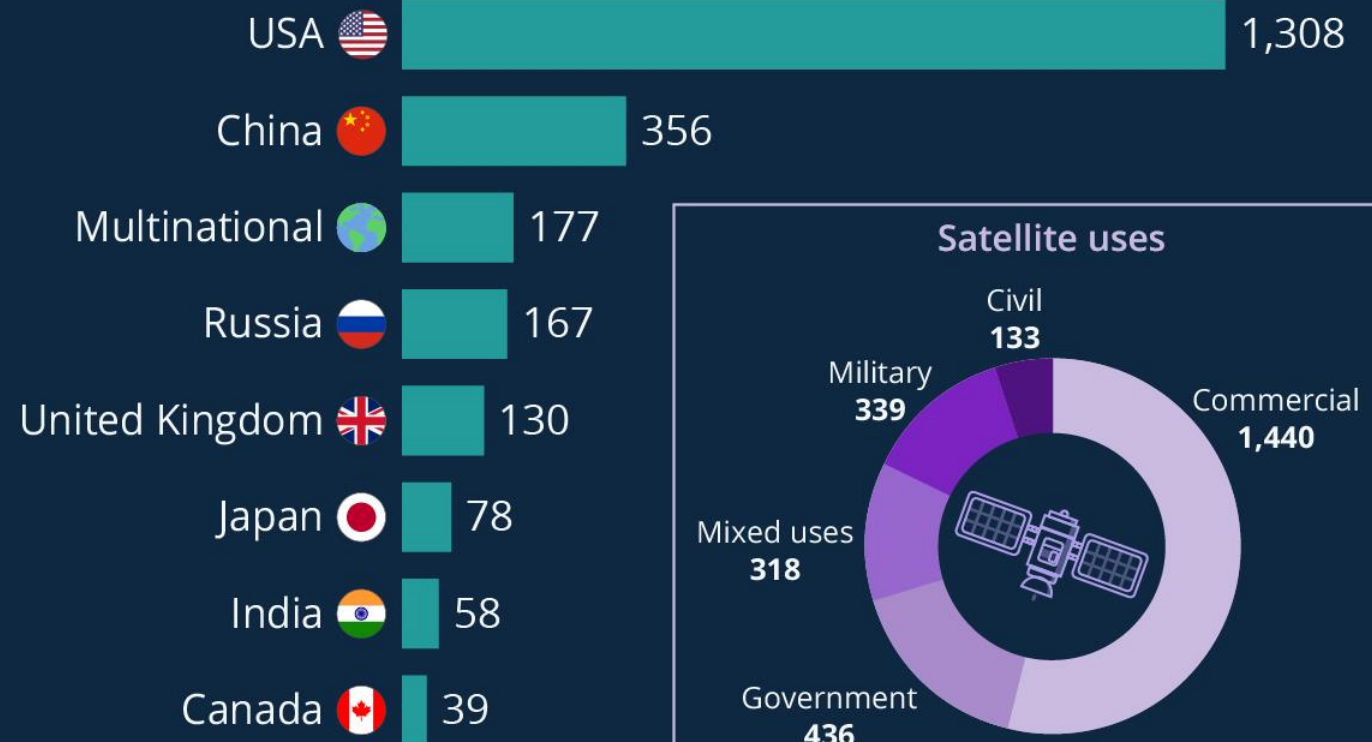
*Satellites with combined purposes, including commercial
*Satellites with combined purposes, including commercial
Source: The Union of Concerned Scientists (UCS), Business Insider, Euroconsult, European Space Agency

Satellites with a Purpose



The Countries With the Most Satellites in Space

Satellites currently orbiting Earth by country* (as of April 2020)



* Country of operator/owner

Source: Union of Concerned Scientist Satellite Database



Sensor Optis vs Synthetic Aperture Radar (SAR)

Sensor Optis

Mudah dimengerti karena menggunakan pantulan sinar matahari

Observasi menggunakan panjang gelombang yang dikenali mata manusia

Sensor Radar (SAR)

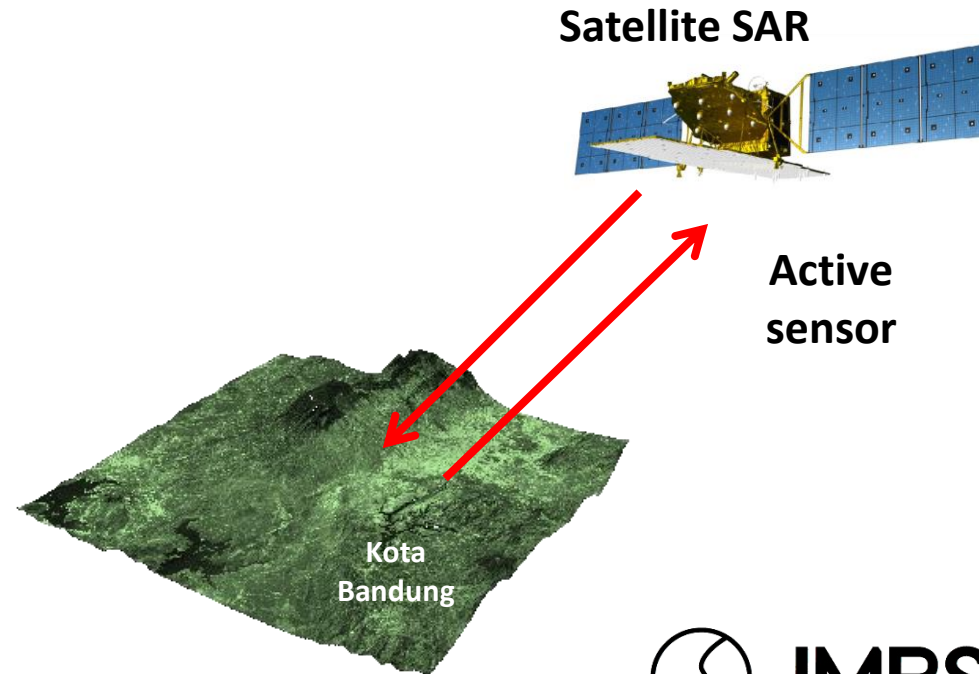
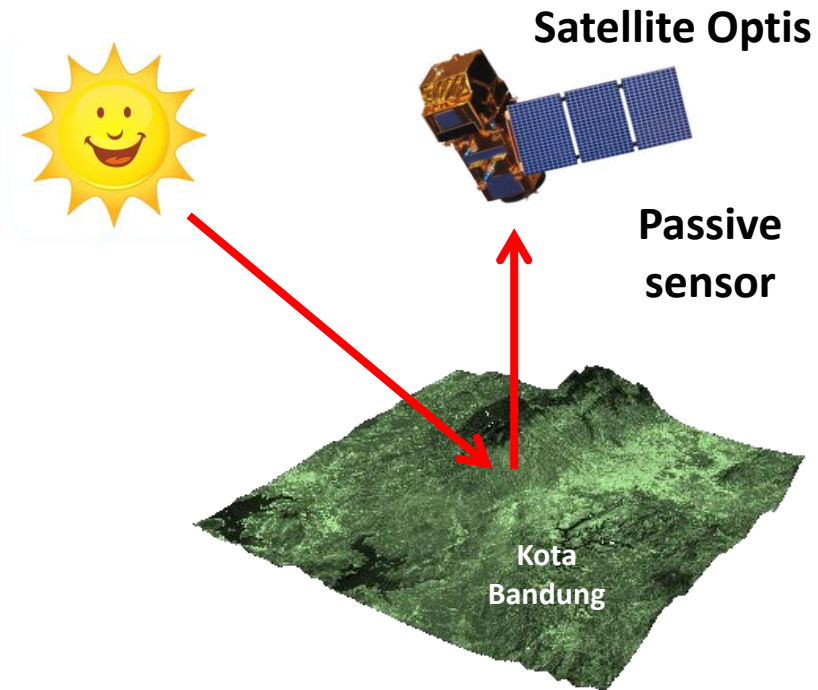
Memancarkan gelombang mikro dan menerimanya kembali (active sensor)

Tidak terbaca oleh mata manusia → sulit dimengerti

Panjang gelombang orde sentimeter

Mekanisme pantulan yang kompleks

Distorsi citra karena teknik observasi ke samping (side looking radar)

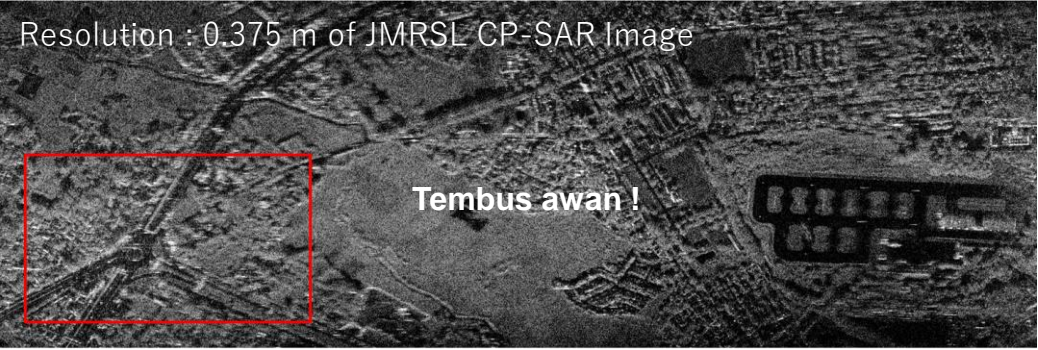


Sensor Optis vs Synthetic Aperture Radar (SAR)

Sensor Optis

Sensor Radar (SAR)

- Mudah dimengerti karena menggunakan pantulan sinar matahari
- Observasi menggunakan panjang gelombang yang dikenali mata manusia
- Memancarkan gelombang mikro dan menerimanya kembali
- Tidak terbaca oleh mata manusia → sulit dimengerti
- Panjang gelombang orde sentimeter
- Mekanisme pantulan yang kompleks
- Distorsi citra karena teknik observasi ke samping (side looking radar)



← Citra Radar



← Citra Optis

↑ Citra Radar

← Citra Optis

Josaphat Tetuko Sri Sumantyo et.al. "Airborne Circularly Polarized Synthetic Aperture Radar," IEEE Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS), Vol.14, pp.1676-1692, January 2021, DOI:10.1109/JSTARS.2020.3045032.

M. Mahmudur Rahman, Josaphat Tetuko Sri Sumantyo, and M. Fouad Sadek, "Microwave and Optical Image Fusion for Surface and Sub-surface Feature Mapping in Eastern Sahara", International Journal of Remote Sensing (IJRS), Vol.31, No.20, pp.5455 - 5460, June 2010 (London: Taylor and Francis) Online ISSN 1366-5901, Print ISSN 0143-1161, DOI:10.1080/01431160903302999.

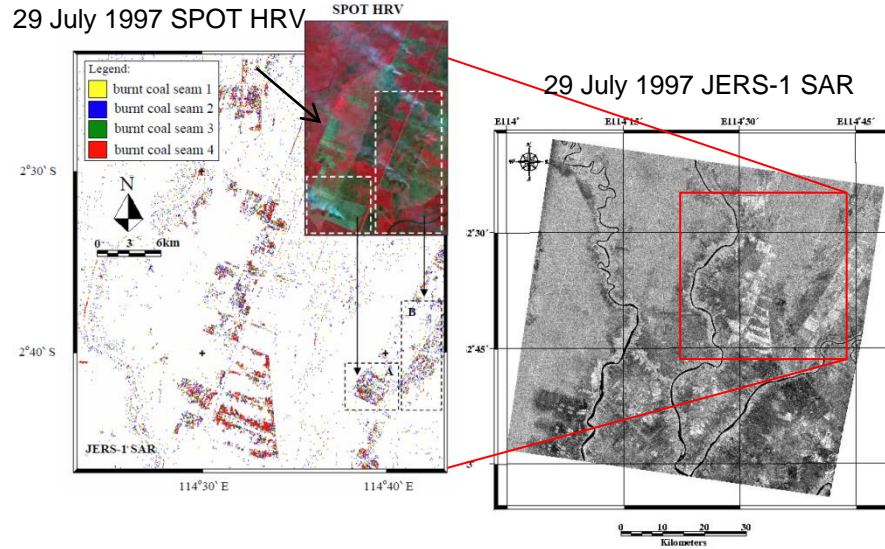


Beberapa Contoh Penerapan Synthetic Aperture Radar (SAR)

Kelebihan Synthetic Aperture Radar (SAR)

- ▶ Dapat beroperasi di segala cuaca
- ▶ Monitoring pada siang dan malam hari (Active sensor)
- ▶ Koherensi yang tinggi dan informasi fase utk deteksi perubahan permukaan tanah dengan akurasi sentimeter / tahun
- ▶ Polarisasi untuk deteksi perubahan obyek di permukaan tanah : Polarimetric, **Circularly Polarized Synthetic Aperture Radar (CP-SAR)**

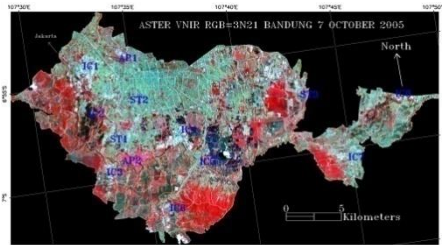
Estimasi ketebalan batu bara di lahan bakar gambut Kalteng



Estimation of burnt coal seam

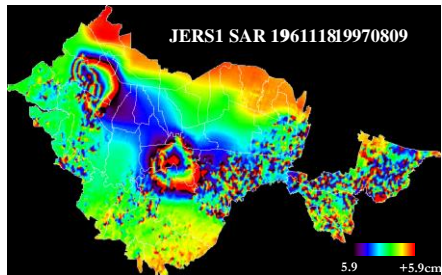
Josaphat Tetuko Sri Sumantyo, Ryutaro Tateishi, and Nobuo Takeuchi, "Estimation of Burnt Coal Seam Thickness in Central Borneo using a JERS-1 SAR Image," **International Journal of Remote Sensing (IJRS)**, Vol.24, No.4, pp.879-884, February 2003 (London: Taylor and Francis) Online ISSN 1366-5901 Print ISSN 0143-1161, DOI:10.1080/01431160110069854.

Penurunan Tanah Bandung

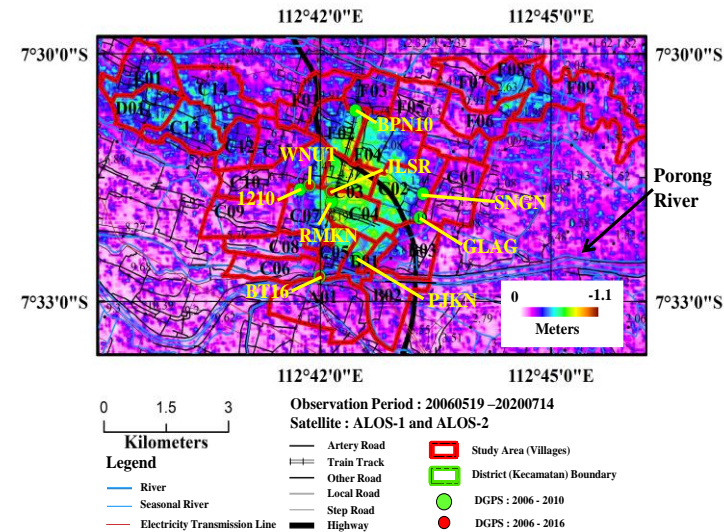


Monitoring of subsidence at Bandung city using JERS-1 SAR and ALOS PALSAR Differential Interferometric SAR

Josaphat Tetuko Sri Sumantyo, Masanobu Shimada, Pierre Peter Mathieu, and Hasanuddin Zainal Abidin, "Long-term Consecutive DInSAR for Volume Change Estimation of Land Deformation," **IEEE Transactions on Geoscience and Remote Sensing**, Vol.50, No.1, pp.259-270, January 2012 (New Jersey: IEEE) ISSN 0196-2892, DOI:10.1109/TGRS.2011.2160455.(S ICE award)



Penurunan Lapindo Sidoarjo akibat semburan lumpur panas



Permanent Scattering Interferometric Synthetic Aperture Radar (PS-InSAR)

Josaphat Tetuko Sri Sumantyo, Daniele Perissin, Joko Widodo, Heri Andreas, Ketut Wikantika, Mohammad Rohmaneo Darminto, Akbar Kurniawan, Mokhammad Nur Cahyadi, and Teguh Hariyanto, "Estimation of Spouted Hot Mudflow Current using Continuity Equation and DInSAR," **IEEE Transactions on Geoscience and Remote Sensing (TGRS)**, DOI: 10.1109/TGRS.2021.3122812, 20 October 2021.

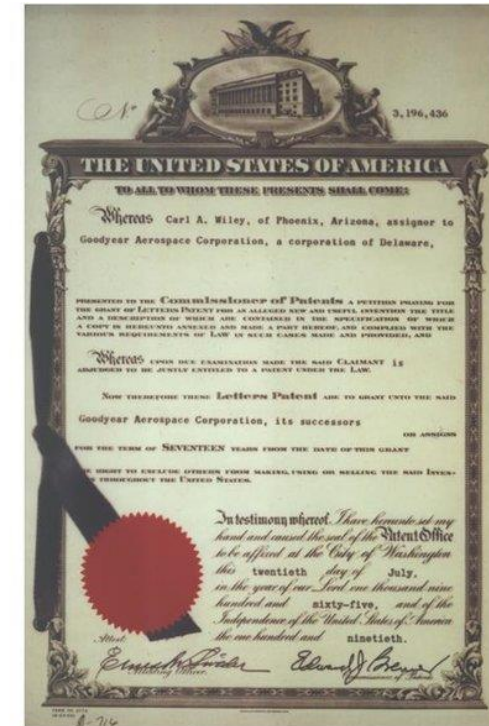
History of Synthetic Aperture Radar (SAR)

- 1953 Carl Wiley (Good Year Corporation) invented SAR
- 1960s Civil application : archeology, real aperture interferometry
- 1978 SEASAT (NASA) : 25m resolution, L band
- 1980s ALMAZ (Soviet), Shuttle Imaging Radar (SIR)(NASA)
- 1991 ERS-1 (ESA), Interferometry, C band
- 1992 JERS-1 (JAXA), 12.5m resolution, L band
- 1995 RADARSAT (RSI)
- 1999 SRTM, single pass interferometry, 80% continental coverage
- 2002 ENVISAT (ESA)
- 2006 ALOS
- 2007 TerraSAR-X
- 2014 ALOS-2 and Sentinel-1A
- 2015 Sentinel-1B
- 2018 CP-SAR oleh Josaphat



(a)

Carl Wiley



(b)

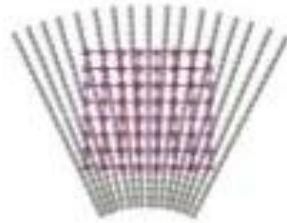
Patent SAR



History of Synthetic Aperture Radar



The SAR concept was invented by Carl Wiley in 1951 while at Goodyear



High Resolution (Polar Format) Processing



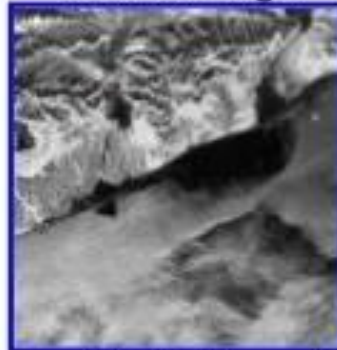
1950
 ↑
 Early Demonstration
 University of Illinois
 1953

↑
 Willow Run Lab
 Michigan

1960

Courtesy of NASA/JPL

Seasat Image



Waves off Alaska's southern coastline near Yakutat

1970

Seasat



Courtesy of NASA/JPL

1978

↑
 Seasat
 1st Satellite with SAR Capability

SAR Antenna

1980

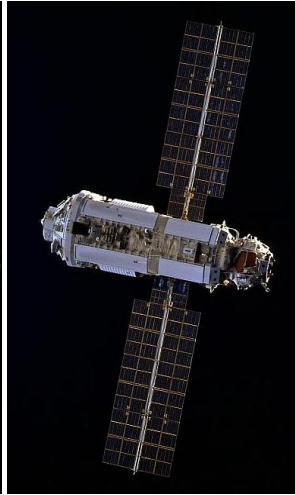
Optical Processing Using Coherent Holography based Laser Technology to Implement Fourier Transforms



Spaceborne SAR



(a) SEASAT



(b) ALMAZ



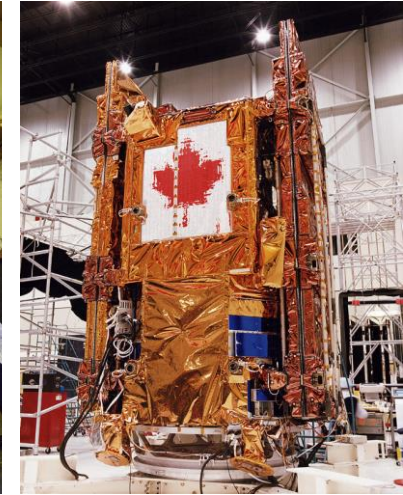
(c) ERS-1



(d) JERS-1



(e) TerraSAR-X



(f) Radarsat-1



(g) Radarsat-2



(h) ENVISAT



(i) ALOS-2



(j) Sentinel-1A

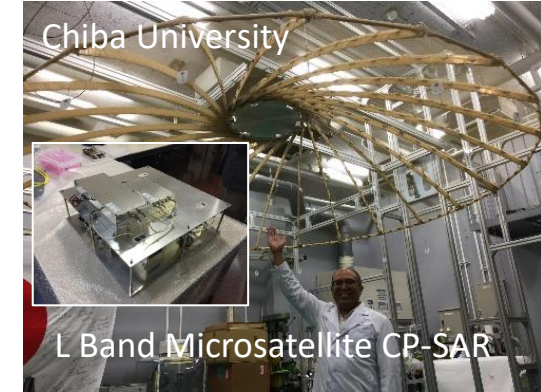
Circularly Polarized Synthetic Aperture Radar (CP-SAR) ciptaan Josaphat

Tujuan

- Bencana seperti tanah longsor, gempa, gunung meletus, penurunan tanah dll sering terjadi di permukaan bumi, sehingga memerlukan sensor yang akurat, ringan, tangguh (robust), kaya informasi polarisasi, multi platform untuk pesawat tanpa awak, pesawat terbang, hingga satelit yang dapat dioperasikan di seluruh kondisi cuaca dan malam-siang hari (24 jam/hari).
- Promosi penelitian dan Pendidikan mengenai microwave remote sensing, khususnya synthetic aperture radar (SAR) dan aplikasinya.

Kelebihan CP-SAR

- Dapat beroperasi di segala platform darat, laut, dan udara, mis. kendaraan, kapal, UAV/Drone, high altitude platform System (HAPS), pesawat, micro/medium/large satellite dll.
- Mengurangi pengaruh ionosfer (Faraday rotation) untuk misi satelit ruang angkasa
- Mengurangi pengaruh misalignment pesawat / satelit
- Efisiensi energi : $\frac{1}{2}$ power dibandingkan SAR sistem konvensional (linear SAR)
- Data polarisasi lebih kaya dan detail dibandingkan SAR sistem konvensional dll



Airborne SAR



EMISAR; L and C bands
(DCRS)



DOSAR; S,C,X and K bands
(EADS / Donier GmbH)



DLR; P, L, S, C and X bands
(DLR)



MEMPHIS/AERII-PAMIR
Ka, W and X bands
(UVSQ / CETP)



NASA; P, L and C bands
(JPL)



AuSAR-INGARA; X band
(DSTO)



AES1; X and P bands
(InterMap Technologies)



RAMSES; P, L, S, X, Ku, Ka,
and W bands
(ONERA)



PHARUS; C band
(TNO-FEL)



PISAR; L and X bands
(Mitsubishi Electric)



SAR580; C and X bands
(Environmental Canada)

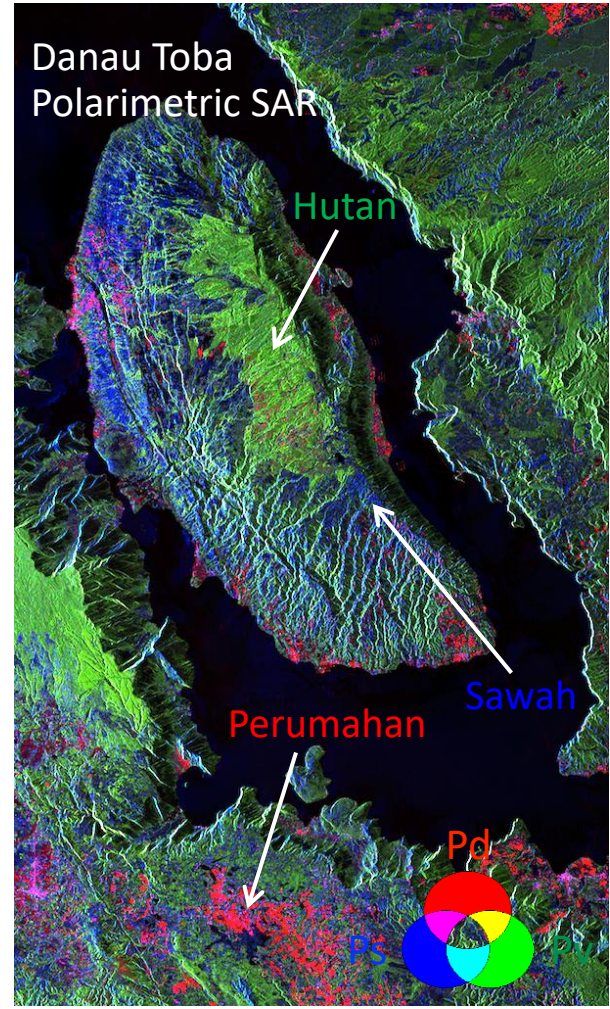
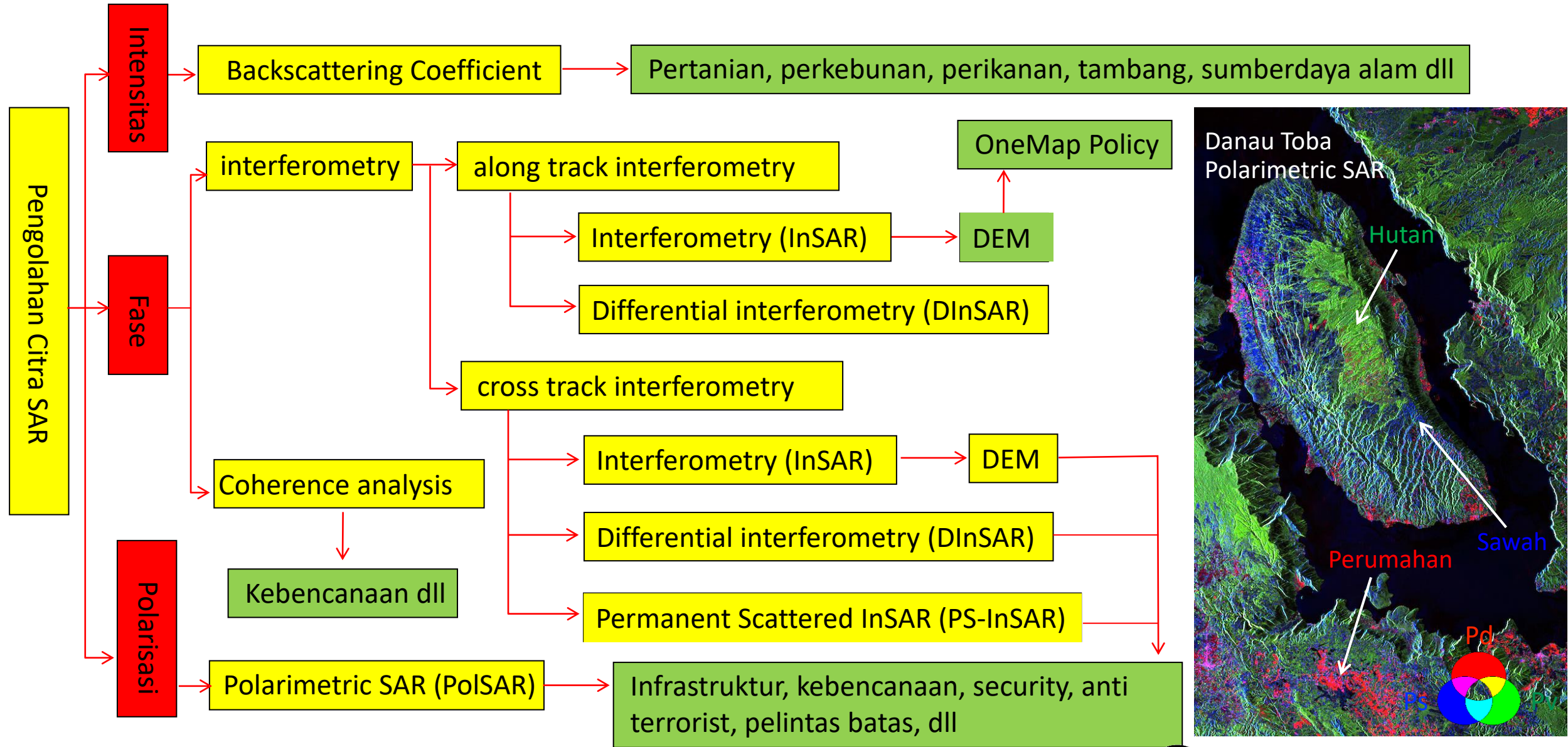


CP-SAR Only one di dunia !

CN235MPA; L, C, X bands (JMRSL)

Josaphat Tetuko Sri Sumantyo, Chua Ming Yam, Cahya Edi Santosa, Good Fried Panggabean, Tomoro Watanabe, Bambang Setiadi, Franciscus Dwi Sri Sumantyo, Kengo Tsushima, Karna Sasmita, Agus Mardiyanto, Edi Supartono, Eko Tjipto Rahardjo, Gunawan Wibisono, Muh Aris Marfai, R. H. Jatmiko, Sudaryatno, T. H. Purwanto, B. S. Widartono, M. Kamal, Daniel Perissin, Steven Gao, and Koichi Ito, "Airborne Circularly Polarized Synthetic Aperture Radar," IEEE Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS), Vol.14, pp.1676-1692, January 2021, DOI:10.1109/JSTARS.2020.3045032.

Pengolahan Citra CP-SAR dan Aplikasinya



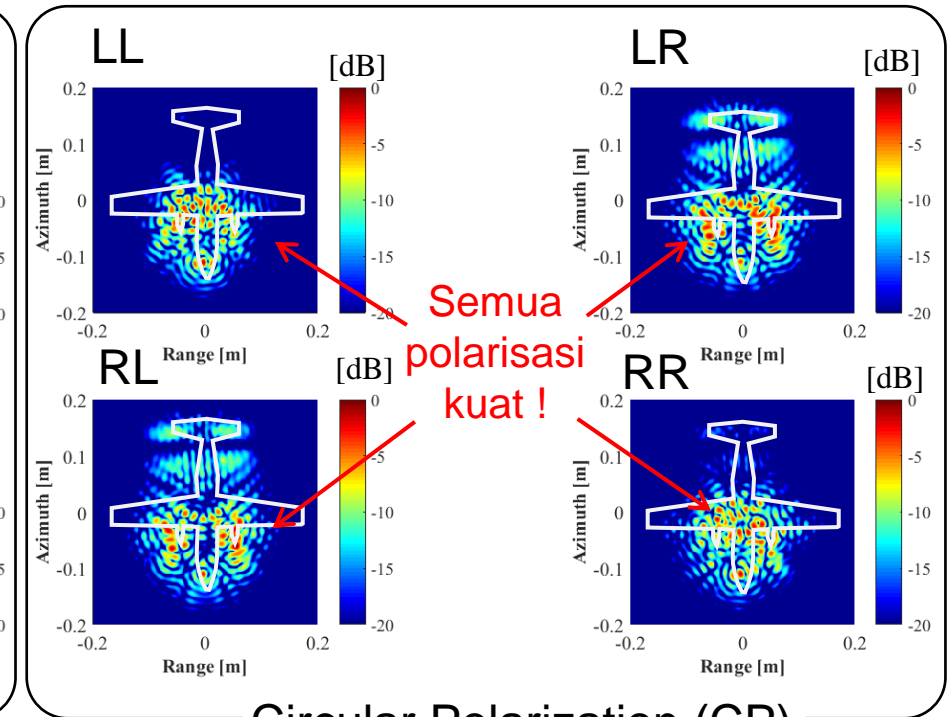
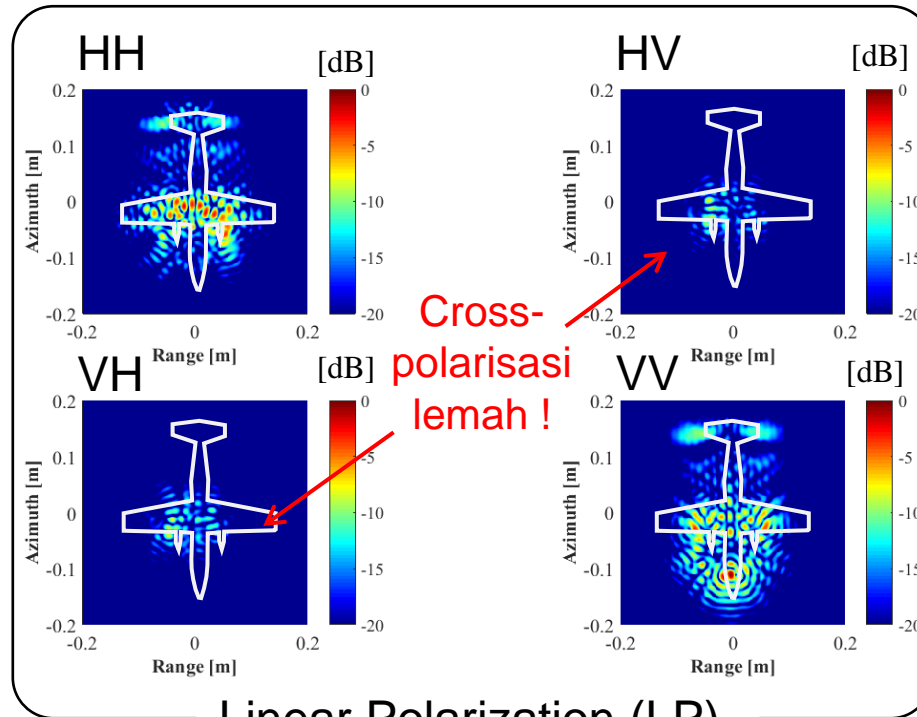
Karakteristik CP-SAR : Pantulan Linear vs Circular (Melingkar)

Polarisasi Linear (LP)

HH, VV >> HV, VH

Polarisasi Melingkar (CP)

LL, RR << LR, RL



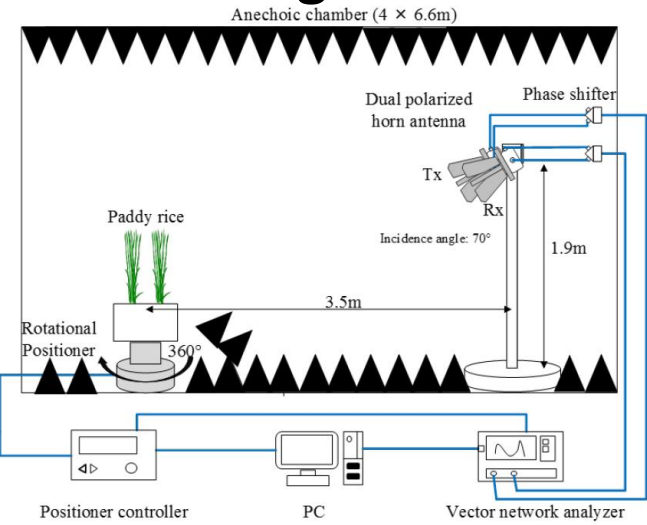
- Co-polarisasi kuat
- Cross-polarisasi lemah
- Efek misalignment kuat
- Pengaruh Faraday rotation kuat
- Bentuk pesawat kurang jelas

- Co-polarisasi kuat
- Cross-polarisasi kuat
- Efek misalignment berkurang
- Pengaruh Faraday rotation berkurang
- Citra (bentuk pesawat) lebih jelas →

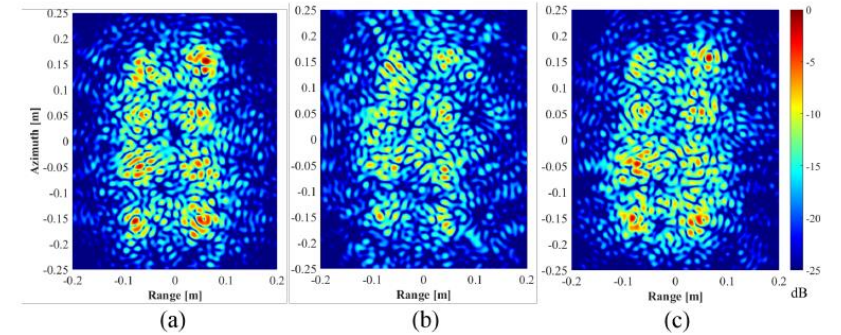
Radar bandara masa depan

Josaphat Tetuko Sri Sumantyo, Koo Voon Chet, Lim Tien Sze, Takafumi Kawai, Takuji Ebinuma, Yuta Izumi, Mohd Zafri Baharuddin, Steven Gao and Koichi Ito, "Development of circularly polarized synthetic aperture radar onboard UAV JX-1," **International Journal of Remote Sensing**, Special Issue Papers on Drones, UAVs, RPASs for Environmental Research, Vol. 38, No. 8-10, pp.2745-2756, online 8 December 2016, printed July 2017 (DOI : 10.1080/01431161.2016.1275057)

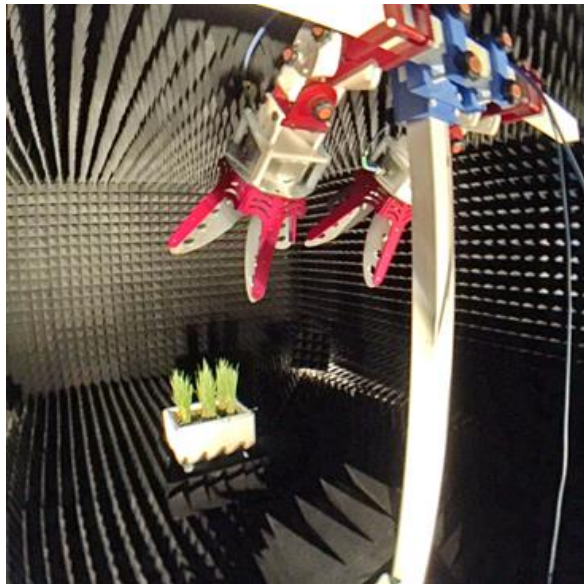
Monitoring Masa Tanam Padi menggunakan CP-SAR menuju Ketahanan Pangan Dunia



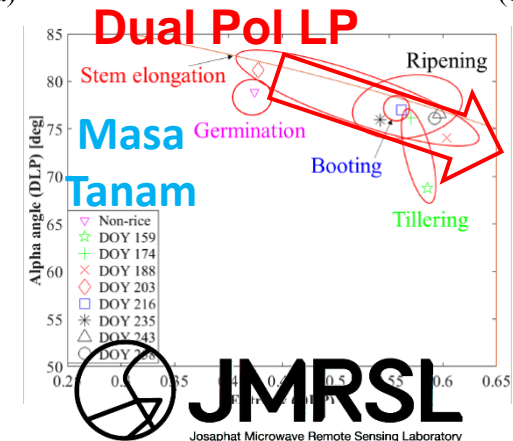
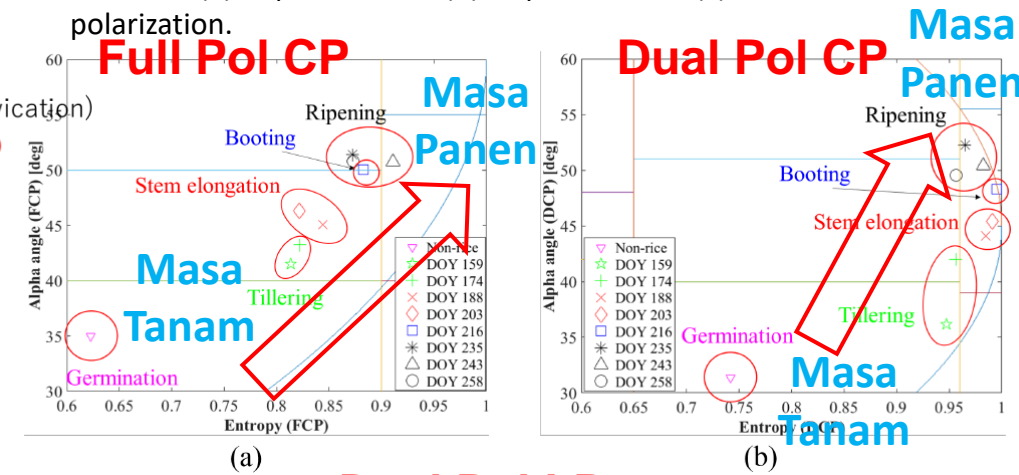
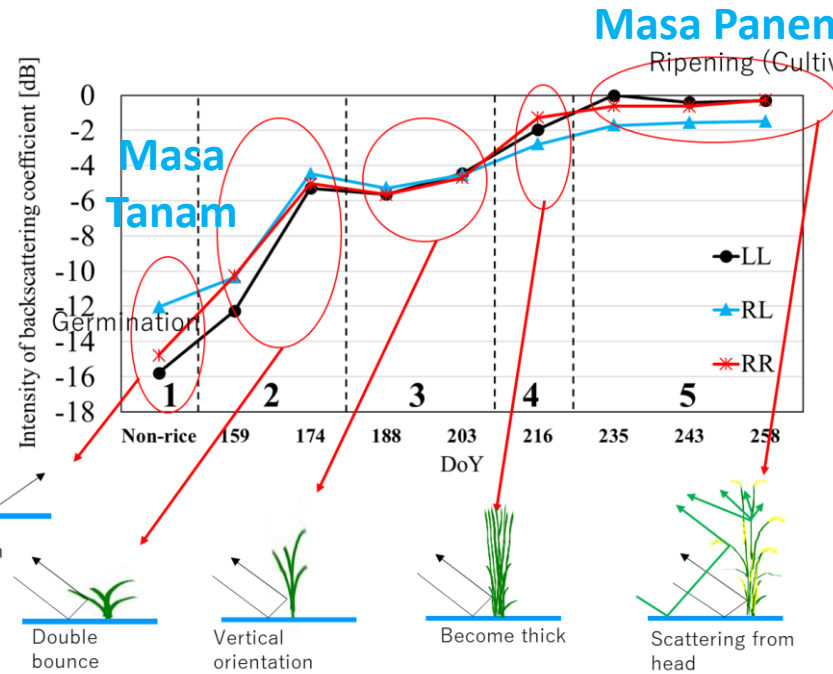
The rice used in experimental validation



Reconstructed CP-SAR images for the rice observed on August 30, 2016. (a) LL polarization; (b) RL polarization; (c) RR polarization.



Experimental geometry for rice monitoring inside of an anechoic chamber.

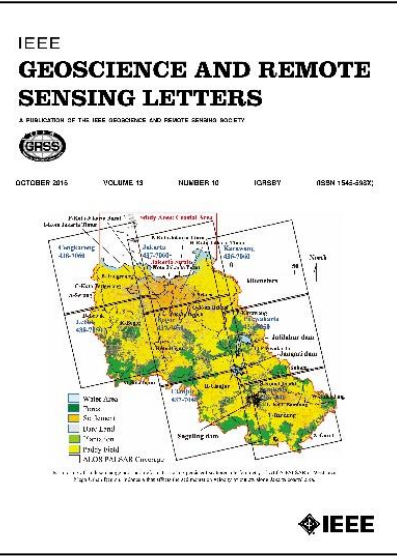
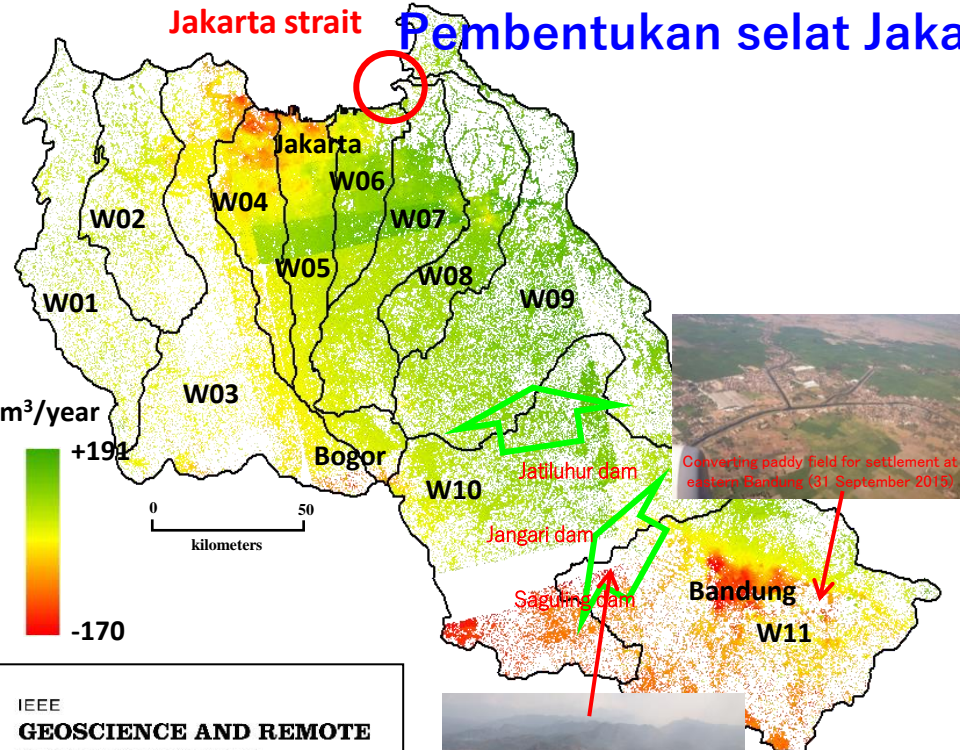


Masa Panen

Yuta Izumi, Sevket Demirci, Mohd Zafri Bin Baharuddin, Tomoro Watanabe, and **Josaphat Tetuko Sri Sumantyo**, "Analysis of Dual- and Full-Circular Polarimetric SAR Modes for Rice Phenology Monitoring: An Experimental Investigation through Ground-Based Measurement," MDPI Applied Sciences, Vol.7, No.4, 368, February 2017, DOI:10.3390/app7040368.

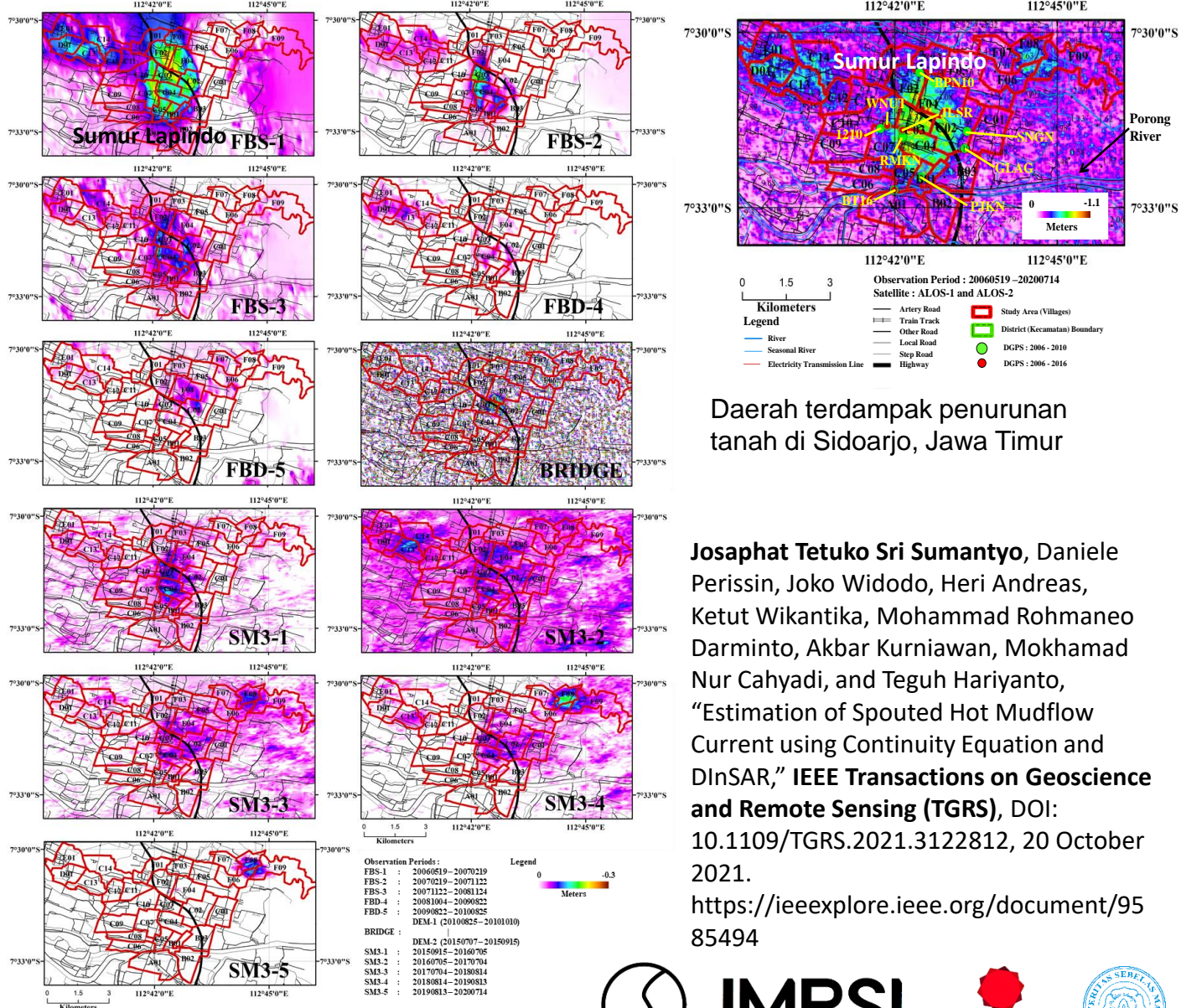
Monitoring Kebencanaan menggunakan Synthetic Aperture Radar (SAR)

Penurunan tanah, sedimentasi dan pembentukan selat Jakarta



Josaphat Tetuko Sri Sumantyo, Bambang Setiadi, Daniele Perissin, Masanobu Shimada, Pierre-Phillipe Mathieu, Minoru Urai, and Hasanuddin Zainal Abidin, "Analysis of Coastal Sedimentation Impact to Jakarta Giant Sea Wall using PSI ALOS PALSAR," **IEEE Geoscience and Remote Sensing Letters (GRSL)**, Vol. 13, Issue 10, pp. 1472 – 1476, 1 October 2016 (DOI (identifier) : 10.1109/LGRS.2016.2592940)

Penurunan Lapindo Sidoarjo akibat semburan lumpur panas

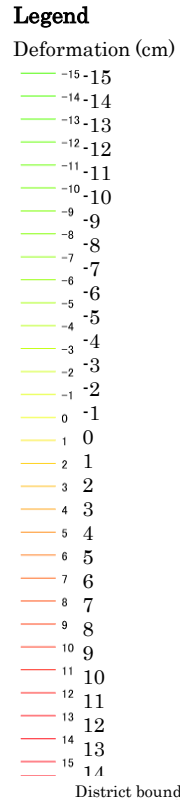
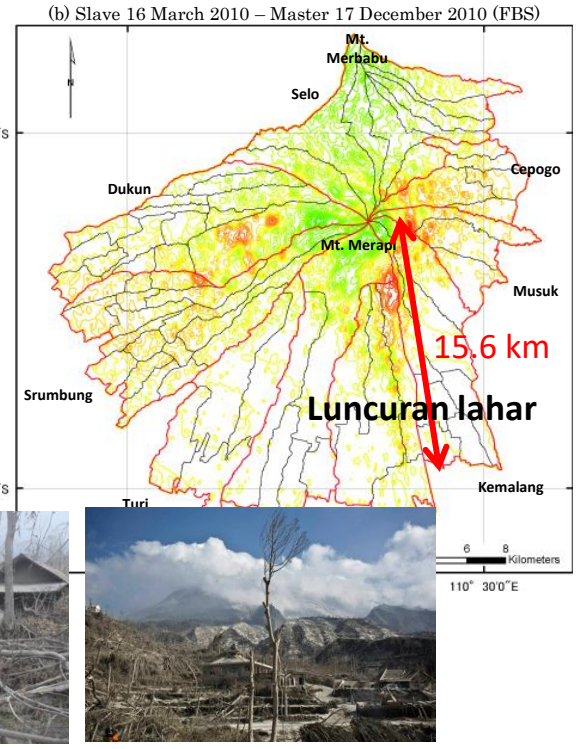


Daerah terdampak penurunan tanah di Sidoarjo, Jawa Timur

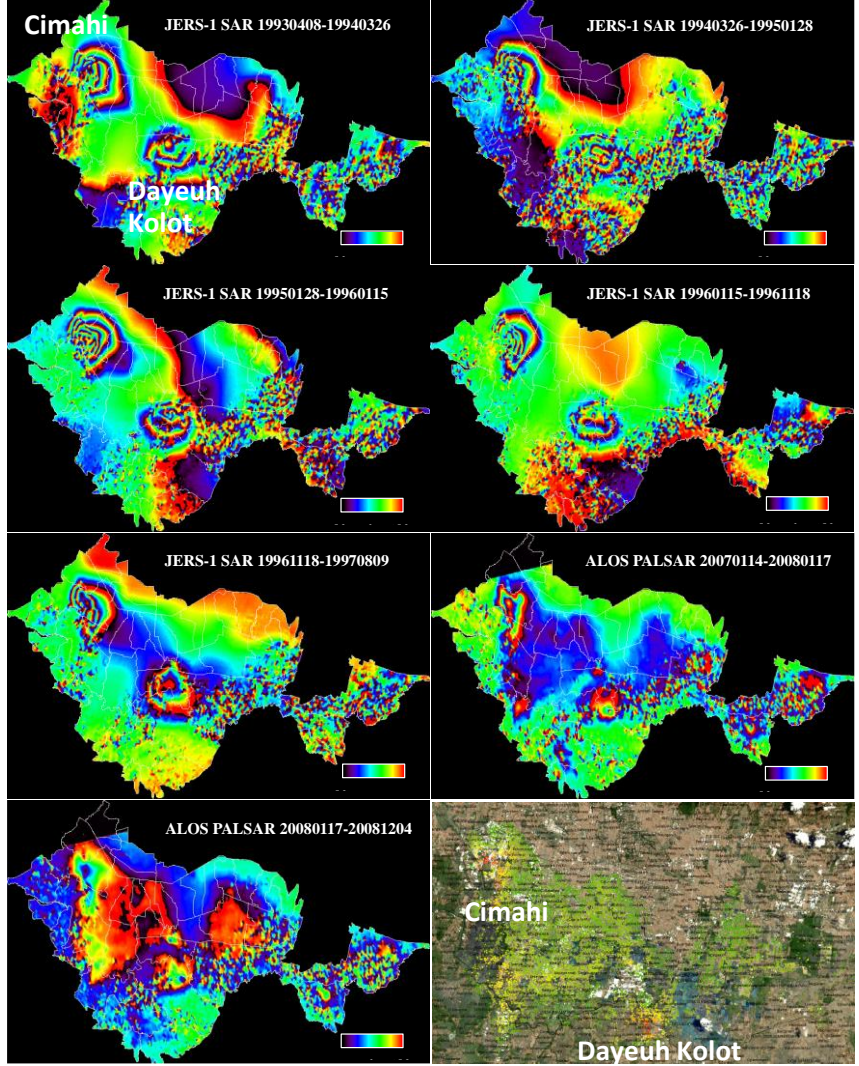
Josaphat Tetuko Sri Sumantyo, Daniele Perissin, Joko Widodo, Heri Andreas, Ketut Wikantika, Mohammad Rohmaneo Darminto, Akbar Kurniawan, Mokhammad Nur Cahyadi, and Teguh Hariyanto, "Estimation of Spouted Hot Mudflow Current using Continuity Equation and DInSAR," **IEEE Transactions on Geoscience and Remote Sensing (TGRS)**, DOI: 10.1109/TGRS.2021.3122812, 20 October 2021. <https://ieeexplore.ieee.org/document/9585494>

Monitoring Kebencanaan menggunakan Synthetic Aperture Radar (SAR)

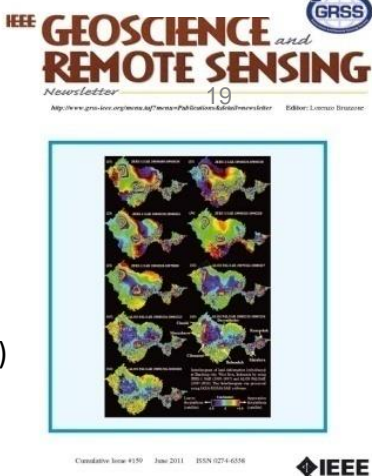
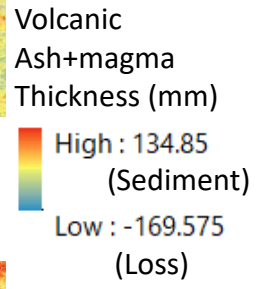
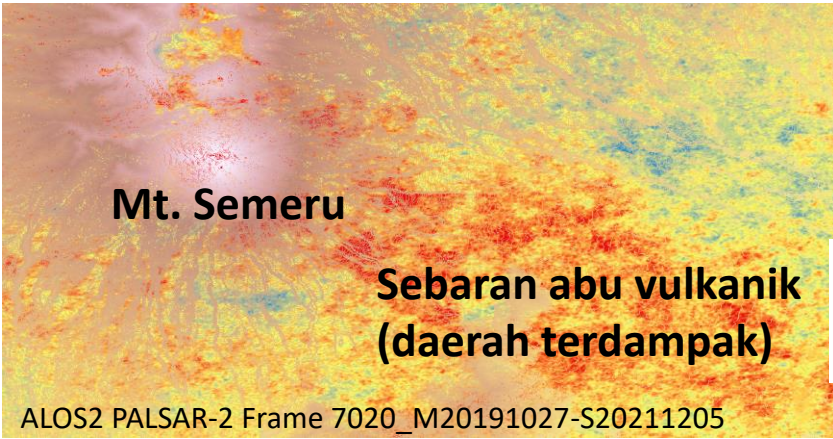
Letusan Gunung Merapi



Penurunan Tanah Bandung dan pengaruhnya



Letusan Gunung Semeru



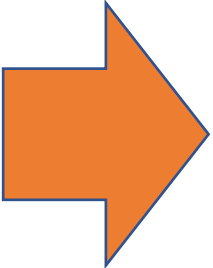
J. T. Sri Sumantyo, M. Shimada, P.P. Mathieu, and H.Z. Abidin, "Long-term Consecutive DInSAR for Volume Change Estimation of Land Deformation," IEEE Transactions on Geoscience and Remote Sensing Vol. 50, No. 1, pp. 259 - 270, January 2012. (SICE and IEICE awards)



AI in Automatic Features Recognition using CP-SAR



元SAR画像



(a)前処理なし



(b)結合結果



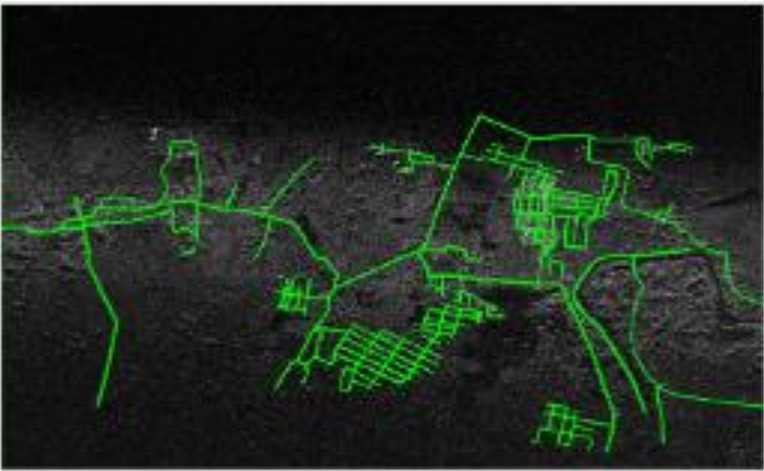
(c)後処理結果1



(d)後処理結果2



CP-SAR



Artificial Intelligent (AI) application to fastening the features Recognition and mapping process, example of airborne SAR data of Makassar city



Applications for ATR/BPN, PUPR, BIG

Josaphat Laboratory (JMRS�) Roadmap on Synthetic Aperture Radar Development

6 Programs

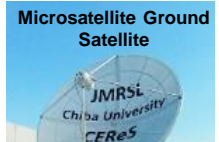
Strategic priority research promotion program

Institute of Global Prominent Research

FY 2015-2022



CHIBA UNIVERSITY



Space Environment

Development of Microsatellite

Advanced Microwave Remote Sensing Research Center : Domestic and International Researcher Exchange

2016-2017

Microsatellite SAR Mission System :
Bus System : Lapan

2018-2024

Microsatellite SAR Mission System :
Bus System : Lapan

~2015

UAV SAR System
Ground Station
Ground Test
Flight Test
etc

Launching

Calibration and validation using Boeing 737-200 and UAV

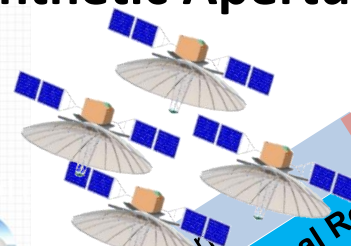


Josaphat Tetuko Sri Sumantyo, Koo Voon Chet, Lim Tien Sze, Takafumi Kawai, Takuji Ebinuma, Yuta Izumi, Mohd Zafrî Baharuddin, Steven Gao and Koichi Ito, "Development of circularly polarized synthetic aperture radar onboard UAV JX-1," *International Journal of Remote Sensing*. Special Issue Papers on Drones, UAVs, RPASs for Environmental Research, online 8 December 2016, printed July 2017 – In press (DOI : [10.1080/01431161.2016.1275057](https://doi.org/10.1080/01431161.2016.1275057))

LAPAN-CHIBASat



Calibration & Validation



2025
Microsatellite SAR Validation and Calibration

2026

Microsatellite SAR Applications Development

2027

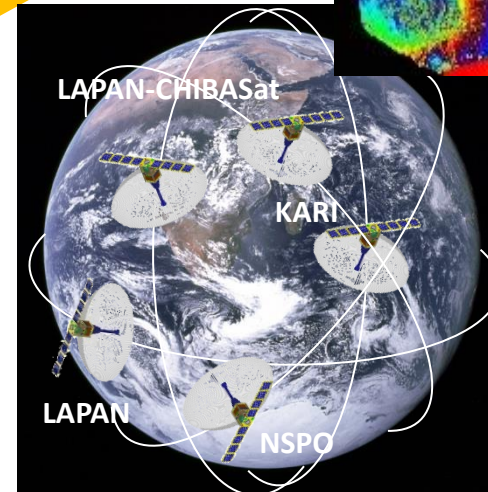
Microsatellite SAR Constellation

2028

Microsatellite SAR Constellation
Global Environment & Land Deformation Monitoring

2029~

Operation



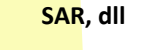
Microsatellite SAR Constellation

Observasi Darurat Hi-Res & Real Time

High Altitude Platform System HAPS



Satelit Himawari-8/9
GOSAT, GCOM, GPS, SAR, dll



Awan

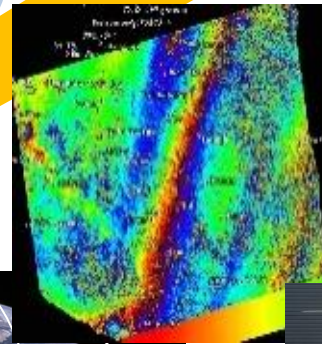
Hujan

Banjir

Tanah longsor

Lidar

Mm/cm accuracy of InSAR Technology using Microsatellite SAR



Observasi detail dan real-time bencana menggunakan multi sensor. Observasi siang dan malam hari 24 jam non-stop. Observasi penuh wilayah bencana menggunakan multi sensor



Pengembangan multi-drone untuk monitoring kebencanaan dan lingkungan hidup (pangan, hutan, perikanan, perkebunan, perkotaan, medis dll)



JMRS�
Josaphat Microwave Remote Sensing Laboratory



Collaborators & Contributions

■ Background & Objectives :

Promoting microwave remote sensing technology for research and education on spaceborne (microsatellite) in Asia Pacific region → [Double Degree Program](#), [Degree by Research BRIN](#), [TWINCLE program](#), [SS & SV Program](#) etc.

■ Domestic Collaborators :

Tokyo University, Kyoto University, Nagoya University, Tohoku University, Hokkaido University, Kanazawa University, Kyushu University, Miyazaki University, JAXA etc

■ International Collaborators :

Indonesia (13 Institutions : UI, ITB, IPB, Unpad, UGM, Undip, ITS, Unud, Unhas, UIR, and BMKG), Malaysia (MMU, USM, UPM & Uniten), Korea (KARI & Ajou University), Taiwan (NSPO, National Central University), China (Fudan University), Poland (Warsaw University), UK (Kent University), Italy (ESA), Bangladesh (SPARSSO) etc
International Exchange Center (IEC) UI

■ Scholarship Supports :

Satoh Yo Scholarship Foundation, TWINCLE, Global Study Program, ENGINE Program etc

■ Company Collaborators :

JRC, Softbank, Nextway, Sumitomo etc

■ Organizations :

IEEE, IEICE, JSPRS, RSSJ, IJSS

■ Political Relationship :

Indonesia and Japan

■ Industry and Company :

Japan and Indonesia



Sumbang sih Diaspora untuk Indonesia



The 6th Indonesia Japan Joint Scientific Symposium (IJSS 2014)

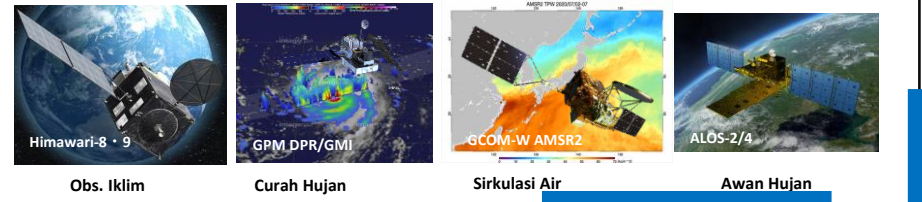


MoU WINNER's Lab Ajou University Korea & Josaphat Laboratory for microsatellite SAR development

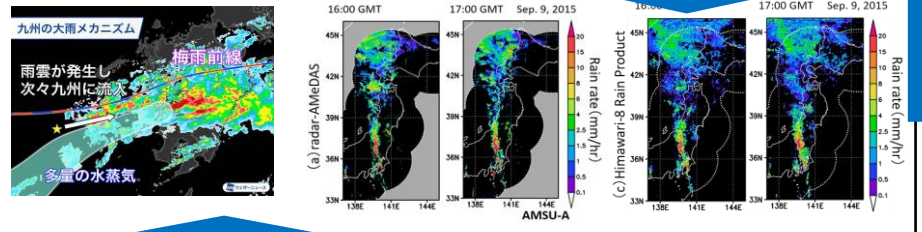


Penelitian lanjut : Penginderaan Jauh Resolusi Tinggi Temporal dan Spasial Tinggi untuk Mitigasi Bencana

Big Data Observasi Satelit dan Ground



Model Ramalan Uap Air

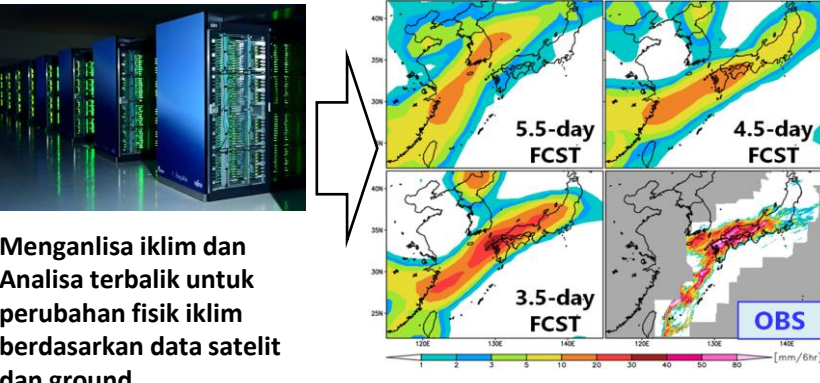


Input Data

Assimilation

Informasi kebencanaan

Assimilasi data menggunakan model analisa (AI, deep learning, dll) untuk data satelit dan ground untuk modeling ramalan cuaca untuk memprediksikan bencana dan akibatnya.

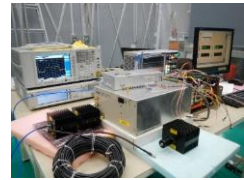


Menganalisa iklim dan Analisa terbalik untuk perubahan fisik iklim berdasarkan data satelit dan ground

Pengembangan Sensor Selama ini di Josaphat Laboratory (JMRSLS)



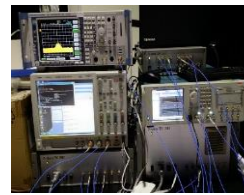
L Band SAR System Microsatellite & HAPS



L Band SAR System Aircraft / UAV



C Band SAR System Aircraft / UAV / HAPS



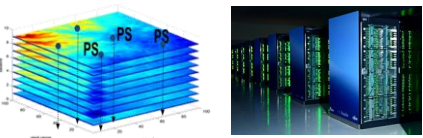
Band SAR System Aircraft / UAV



C Band SAR UAV ~5 kg

Input Data

Database Server

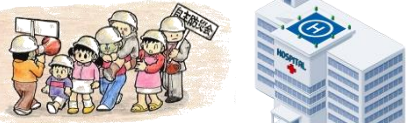


Data iklim dan ground observation

Pemakai



Mass media Aparat Pemerintahan

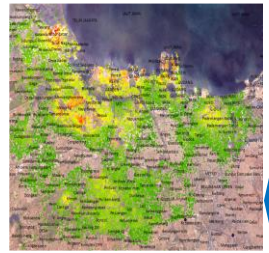


Masyarakat umum Institusi Kesehatan

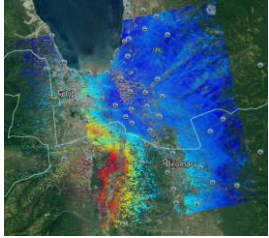
Dijitasi

Sosialisasi Data

Sosialisasi data real time dan detail multi sensor



Land deformation



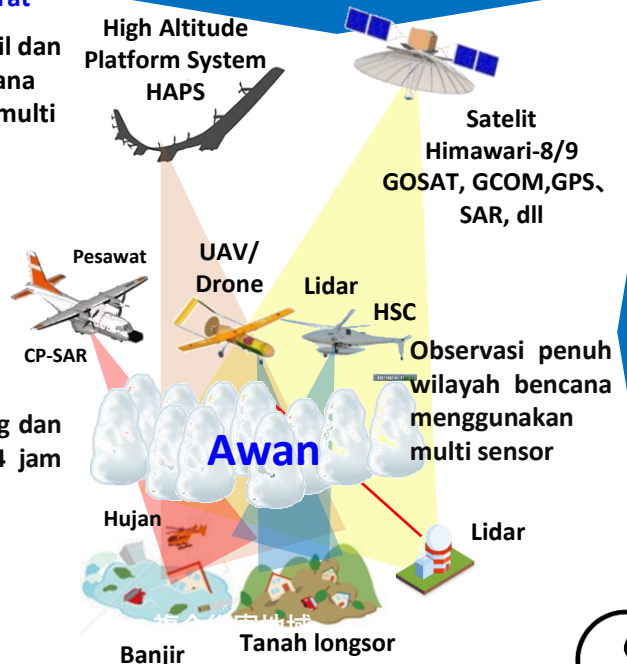
Tanah longsor

Visualisasi

Detail Observation

Observasi Darurat

Observasi detail dan real-time bencana menggunakan multi sensor



Observasi siang dan malam hari 24 jam non-stop

Penerapan

Terimakasih atas kebersamaan dan dukungan selama ini



Ibu, Florentina Srindadi dan (alm) Ayah, Michael Suman Juswaljati



Adik, Franciscus Dwikoco Sri Sumantyo, Lucia Trierowadanti Sri Sumantyo, dan Kolonel TNI Lita Kristiani

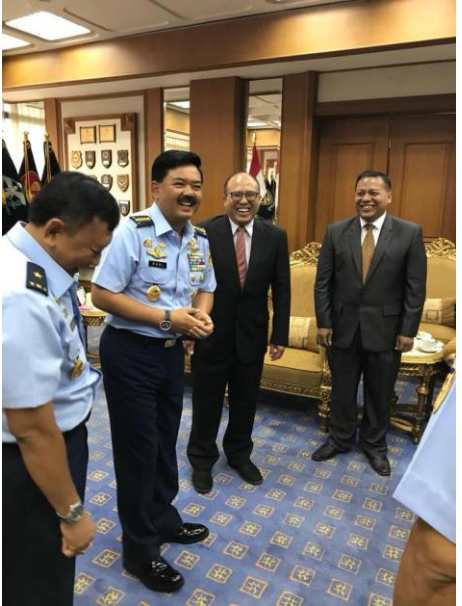


Keluarga, terkhusus penerus kami Johannes Pandhito Panji Herdento



Cerita hidup Prof Josaphat untuk radar Dapat diperoleh di website Buknesia, Gramedia, Shopee, dan Tokopedia

Terimakasih atas dukungan kepada keluarga kami



Para Kepala Staff TNI-AU (Marsekal Hadi Tjahjanto, Marsekal Yuyu Sutisna, dll)

TNI-AU atas penyematan nama Ayah kami untuk ruang instruktur pasukan di Lanud Adisumarmo, Solo untuk mengenang ketelatenan, keteladannya, dan pelopor Pendidikan Pasukan Dasar (Kopasgat) AURI (sekarang TNI-AU) di Lanud Panasan (sekarang Lanud Adisumarmo)



JX-1 Flight Test at Fujikawa Airfield



Microsatellite SAR Test



CP-SAR Flight Test at Akademi Angkatan Udara (AAU) dan Lanud Adisucipto, Yogyakarta

Para alumni, peneliti, dan mahasiswa Josaphat Laboratory (JMRS�)



Indonesia yang mendunia ! BRIN yang mendunia !



JMRSL Satellite Ground station



JMRSL Hinotori-X1



JMRSL Hinotori-C1



Josaphat Laboratory UAV (JX-1)

Fujikawa Airfield, 29 August 2013 UTC 06:09:54.521



Microsatellite SAR



JMRSL JX-1



JMRSL JX-2



JMRSL Hinotori-C2

Prof. Josaphat Tetuko Sri Sumantyo, Ph.D

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Email jtetukoss@faculty.chiba-u.jp
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Departemen Teknik Elektro, Fakultas Teknik, Universitas Sebelas Maret
Jalan Ir. Sutami 36 A, Surakarta,
Jawa Tengah, Indonesia
Email jtetukoss@staff.uns.ac.id
<https://elektro.ft.uns.ac.id/>



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