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APSAR 2023

2023 8th Asia-Pasific Conference on Synthetic Aperture Radar

International Conference

23-27 October 2023

CONFERENCE PROGRAMME

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APSAR 2023

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Conference Programme

2023 8th Asia-Pasific Conference on Synthetic Aperture Radar

Welcome Message from General Chair

Asia-Pacific Conference on Synthetic Aperture Radar (APSAR) is an international conference devoted to SAR technology development and applications and Co-Sponsored by IEEE Geosciences and Remote Sensing Society (GRSS). The APSAR is a forum of Synthetic Aperture Radar (SAR) engineers and scientists from all over the world, especially from the Asia-Pacific region. The bi-annual APSAR conference is held every two years in China, Japan, Korea, Australia, and Singapore in turn, and The 8th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2023) is being held in Bali Dynasty Resort, Kuta District, Bali island, Indonesia. This conference is jointly hosted with The 2023 IEEE International Conference on Aerospace Electronics and Remote Sensing Technology (ICARES 2023).

The APSAR 2023 is being held in In Person International Conference on 23 - 27 October 2023. Accepted papers will be submitted for inclusion into IEEE Xplore subject to meeting IEEE Xplore's scope and quality requirements. The selected paper also could be submitted to the Special Issue of "APSAR2023" of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS). We are inviting you sincerely to participate in APSAR 2023, and we hope you and your family enjoy during Amazing APSAR with the Balinese environment.

Prof. Josaphat Tetuko Sri Sumantyo, Ph.D

Welcome Message from General Co- Chair

Dear participants, all the remote sensing experts. Welcome to the 8th-Asia Pacific Conference on Synthetic Aperture Radar (APSAR) 2023. The APSAR 2023 is a great event that is held every two years is the right place to share the latest technology, knowledge, and research on utilizing the Synthetic Aperture Radar (SAR) data in various fields of application by all the remote sensing experts from the entire worlds.

Remote sensing is critical to supporting development at the local, regional, and global levels. Indonesia as a part of South East Asia, would like to become the growth epicentrum for development purposes in many fields such kind of academia, industries, and other sectors that take an advantage of remote sensing have to realize that we are part of the SDGs. Growing from the locals, strengthening the regional, and becoming the most sustainable in the global is our future.

The APSAR 2023 may have an important role in promoting the sustainable development goals (SDGs) by approaching each goal with hundred alternative solutions to help to solve the problem that occurs in many geographic regions from the global to local scale that related to food security, natural disaster, land and ocean environment to the urban and rural area.

Besides that, to strengthen the bonding of all stakeholders, The APSAR 2023 has the mission to offer the junior scientist, researchers, and academics to collaborate, share, and

Besides that, to strengthen the bonding of all stakeholders, The APSAR 2023 has the mission to offer the junior scientist, researchers, and academics to collaborate, share, and disseminate their findings and experience by taking part in the next APSAR that plan to be held regularly.

Enjoy the 8th APSAR 2023

Sincerely,

Prof. Ketut Wikantika
General Co-Chair

Welcome Message from Technical Program Committee Chair

On behalf of Technical Program Committee of the 8th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR) 2023, we are honoured to welcome you to APSAR 2023 that is held in Bali, the beautiful place in the world. It has been our pleasure to serve this prestigious conference and technical proceedings.

The proceedings contain the papers selected for presentation at 2023 8th APSAR. We hope this proceeding will serve as a valuable reference for the research community.

The bi-annual APSAR conference is held every two years, and previously, the 2021 APSAR is hosted in Bali Island, Indonesia, but in virtual mode due to COVID-19 pandemic. Fortunately we, once again are trusted to organize the 2023 APSAR in Bali with in person meeting. We are certain that new collaborations can be created and ongoing collaborations strengthened.
For this conference, We received 169 submissions from 19 countries, and selected 82 papers. This level of international participation is indeed exhilarating and encouraging.

In organizing this Conference, we are grateful to many dedicated persons who have contributed to the success of this event. We would like to extend our sincere thanks to Prof. Josaphat Tetuko Sri Sumantyo, Ph.D for his enthusiasm in realizing this conference, TPC members and reviewers from 31 countries, especially for Prof. Josaphat Tetuko Sri Sumantyo, Mr. I Made Oka Guna Antara, Mrs. Rika Hernawati, Dr. Ilham Alimuddin, Dr. Wahyudi Hasbi, Dr. Mochamad Firman Ghazali, who committed their time, energy and thoughts. We would also like to thank the organizing committee who has work tirelessly for the conference.

Finally, we would to extend our gratitude to all authors, whom without their contributions, this year's conference would not exist.

Dr. Agustan
Technical Program Committee Chair

Welcome Message from Chair of the IEEE Indonesia Section

Asia-Pacific Conference on Synthetic Aperture Radar (APSAR) is an international conference devoted to SAR technology development and applications and Co-Sponsored by IEEE Geosciences and Remote Sensing Society(GRSS). As the Chair of the IEEE Indonesia Section, it is our great pleasure to sponsor and support The 8th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR2023) that is being held in Bali Dynasty Resort, Kuta District, Bali island, Indonesia on 23-27 October 2023. I hope the participants can share and discuss the newest knowledge and technology on synthetic aperture radar (SAR) during the conference. Don't forget to boost your network by finding new friends and colleagues during the conference to promote your research to contribute to the technology and applications of the SAR, especially the monitoring of disaster and environment. Please enjoy your stay at Bali island, and don't forget to learn about the culture and culinary activities with your friends and family!

Prof. Gamantyo Hendrantoro, Ph.D.
Chair of IEEE Indonesia Section

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Schedule

APSAR 2023 Conference Agenda

Date	Central	Central European	US Eastern	Meeting Agenda	Speaker
Oct 22nd, 2023	12:00 - 17:00	06:00 - 11:00	00:00 - 05:00	Registration in front of Grand Nusa Penida	
	16:30 - 18:00	10:30 - 12:00	04:30 - 06:00	Ice Break Program at Rooftop of Gracie Kelly's (Irish Pub)	
Oct 23rd, 2023	08:00-12:00 AM	02:00 - 06:00	20:00 - 00:00	Opening Ceremony at Grand Nusa Penida	
	07:30 - 17:00	**01:30 - 11:00**	**19:30 - 05:00**	**Registration**	
	08:00-08:15	02:00-02:15	20:00-20:15	Industrial Session 1 Nextway	
	08:15-08:30	02:15-02:30	20:15-20:30	Industrial Session 2 Badan Informasi Geospatial	
	08:30-09:00	02:30-03:00	20:30-21:00	Industrial Session 3 Contec	
	09:00-09:30	03:00-03:30	21:00-21:30	Industrial Session 4 MetaSensing	
				Certificate and placard	Prof Josaphat Tetuko Sri Sumantyo
				Indonesian National Anthem "Indonesia Raya"	
	09:30-09:40	03:30-03:40	21:30-21:40	Opening Speech 1 General Chair APSAR 2023	Prof Josaphat Tetuko Sri Sumantyo
	09:40-09:50	03:40-03:50	21:40-21:50	Opening Speech 2 Chair of MAPIN and TPC Chair Report Dr Agustan	Dr Agustan
	09:50 - 10:05 (18:50-19:05 LA Time)	03:50 - 04:05	21:50 - 22:05	Opening Speech 3 President of IEEE GRSS Dr Mariko Burgin	Dr Mariko Burgin
	10:05-10:15	04:05-04:15	22:05-22:15	Opening Speech 4 Head ORPA BRIN	Dr. Robertus Heru Triharjanto
	10:15-10:20	04:15-04:20	22:15-22:20	Opening Speech 5 President of IEEE Indonesia Section	Prof. Gamantyo Hendrantoro
	10:20-10:25	04:15-04:25	22:15-22:25	Opening Speech 6 Chair of Indonesia Section IEEE AESS/GRSS Indonesia Chapter	Dr. Ing. Arifin Nugroho, D. E. A.
	10:25-10:35	04:25-04:35	22:25-22:35	Opening Speech 7 Director CEReS Chiba University	Prof Katsumi Hattori
	10:35-10:40	04:35-04:40	22:35-22:40	Opening Gong	
	10:40-10:50	04:40-04:50	22:40-22:50	Souvenirs and Certificate delivery	
	10:50-11:05	04:50-05:05	22:50-23:05	Opening Dance 1 Sekar Jagad - Unud	
	11:05-11:30	05:05-05:30	23:05-23:30	Coffee Break	
	11:30-13:10	**05:30-07:10**	**23:30-1:10**	**Moderator Keynote Speeches : Prof. Ketut Wikantika**	
	11:30-12:00	05:30-06:00	23:30-00:00	Keynote Speak 1 : Synthetic Aperture Radar Research and Applications in Indonesia	Dr. Robertus Heru Triharjanto - BRIN, Ina
	12:00-12:30	06:00-06:30	00:00-00:30	Keynote Speak 2 : Active Optical Remote Sensing Sensors and Instrumentation for NASA's Future Earth and Space Science Measurements/Missions	Dr. Upendra N Singh - NASA, USA
	12:30-13:00	06:30-07:00	00:30-1:00	Keynote Speak 3 : From Tandem-X To Multi-Static Sar Systems	Dr. Michelangelo Villano - DLR, Germany
	13:00-13:10	07:00-07:10	01:00-01:10	Souvenirs and Certificate delivery	
	13:10-14:30	**07:10-08:30**	**01:10-02:30**	**Lunch**	
	14:30-16:00	**08:30-10:00**	**02:30-04:00**	**Moderator Plenary Talk : Dr Ilham Alimuddin**	
	14:30-15:00	8:30-9:00	02:30-03:00	Plenary Talk Session 1 : Potential Use of Airborne SAR Interferometry for the Acceleration of Nationwide Large-scale Topographic Base Mapping in Indonesia	Prof Muh Arif Marfai - BIG Indonesia
	15:00-15:30	9:00-9:30	03:00-03:30	Plenary Talk Session 2 : Unveiling the Impact of the Largest SAR Commercial Constellation	Oscar Gil - ICEYE, Finland
	15:30-16:00	9:30-10:00	03:30-04:00	Plenary Talk Session 3: Development of Microwave Sensors for Disaster and Environmental Monitoring	Prof Josaphat Tetuko Sri Sumantyo
	16:00-16:15	10:00-10:15	04:00-04:15	APSAR 2025	Prof Junichi Susaki
	16:15-16:30	10:15-10:30	04:15-04:30	Closing Dance 2 Merak Angelo - Unud	
	18:00 - 20:00	12:00 - 14:00	06:00 - 08:00	APSAR Executive Meeting at Premier Lounge (VIP and Committee Member only)	
Oct 24th, 2023	08:00-18:05	02:00-12:05	20:00-06:05	Parallel Session at Grand Nusa Penida	
	18.30-20.30	12.30-14.30	06.30-08.30	Banquet at H2O	
Oct 25th, 2023	08:00-15:35	02:00-09:35	20:00-03:35	Parallel Session at Grand Nusa Penida	
Oct 26th, 2023	08.30-14.30	02.30-08.30	20.30-02.30	Closing Ceremony at Grand Nusa Penida	
	15:00-16:30	09:00-10:30	03:00-04:30	Closing Ceremony	

Schedule

APSAR 2023 Conference Agenda

Date	Central Indonesian Time (WITA)	Central European Summer Time (CEST)	US Eastern Time (ET)	Meeting Agenda		
				Room 1	Room 2	Room 3
24-Oct-23	08:00-10:05	02:00 - 04:05	20:00-22:05	**Parallel Session 1**		
				TU1.R1 IInterferometric and Polarimetric SAR 1	TU1.R2 SAR Applications 1	TU1.R3 SAR and Radar Systems 1
	10:05-10:30	04:05 - 04:30	22:05-22:30	Break		
	10:30-12:35	04:30 - 06:35	22:30-00:35	**Parallel Session 2**		
				TU2.R1 Interferometric and Polarimetric SAR 2	TU2.R2 SAR Applications 2	TU2.R3 SAR and Radar Systems 2
	12:35-13:30	06:35-07:30	00:35-01:30	Lunch		
	13:30-15:35	07:30-09:35	01:30-03:35	**Parallel Session 3**		
				TU3.R1 Interferometric and Polarimetric SAR 3	TU3.R2 SAR Image Processing 1	TU3.R3 Dedicated for Indonesian Remote Sensing Society 1
	15:35-16:00	09:35-10:00	03:35-04:00	Break		
	16:00-18:05	10:00-12:05	04:00-06:05	**Parallel Session 4**		
				TU4.R1 Interferometric and Polarimetric SAR 4	TU4.R2 SAR Image Processing 2	TU4.R3 Dedicated for Indonesian Remote Sensing Society 2

Date	Central Indonesian Time (WITA)	Central European Summer Time (CEST)	US Eastern Time (ET)	Meeting Agenda		
				Room 1	Room 2	Room 3
25-Oct-23	08:00-10:05	02:00 - 04:05	20:00-22:05	**Parallel Session 1**		
					WE1.R2 SAR Image Processing 3	WE1.R3 SAR Platform 1
	10:05-10:30	04:05 - 04:30	22:05-22:30	Break		
	10:30-12:35	04:30 - 06:35	22:30-00:35	**Parallel Session 2**		
				WE2.R1 Instrumentation and Future Technologies	WE2.R2 SAR Image Processing 4	WE2.R3 SAR Platform 2
	12:35-13:30	06:35-07:30	00:35-01:30	Lunch		
	13:30-15:35	07:30-09:35	01:30-03:35	**Parallel Session 3**		
				WE3.R1 SAR Moving Target and Detection 1	WE3.R2 SAR Moving Target and Detection 2	

Keynote Speaker

Keynote Speaker 1.
SYNTHETIC APERTURE RADAR RESEARCH AND APPLICATIONS IN INDONESIA

Speaker: Dr. Robertus Heru Triharjanto

Abstract :
With about 3 million km2 of territorial water and 2 million km2 of land, having located between two continents and to oceans, and having tropical weather, Indonesia, is in urgent needs for high quantity SAR remote sensing data. Law enforcement in maritime domain, from illegal fishing, transshipment/smuggling, and oil pollution, needs high revisit SAR satellite system. Crop estimations, to ensure high validity data of harvest predictions, that crucial for the socio- economic of the nation, also need extensive satellite-based SAR data due to cloud coverage more than half of the year. Environmental degradations, such as land subsidence that happen in part of Indonesia's most populous island, are another problem that needs monitoring system based on SAR data. The speech will present the development of SAR satellite remote sensing applications for public services in Indonesia. It will also present the plan for near-equatorial SAR satellite constellation, to ensure the availability of SAR data for such applications. The development of indigenous SAR technology will also be presented to promote international and national collaborations.

Keynote Speaker 2.
ACTIVE OPTICAL REMOTE SENSING SENSORS AND INSTRUMENTATION FOR NASA'S FUTURE EARTH AND SPACE SCIENCE MEASUREMENTS/MISSIONS

Speaker: Dr. Upendra N. Singh

Abstract :
Active optical (Laser/Lidar) measurement techniques are critical for the future National Aeronautics and Space Administration (NASA) Earth, Planetary Science, Exploration, and Aeronautics measurements. The latest science decadal surveys recommend a number of missions requiring active optical systems to meet the science measurement objectives and the aeronautics community continues to use Laser/Lidar technologies to meet the aeronautics measurement objectives. This presentation will provide an overview of NASA efforts in developing and maturing state-of-the-art advanced solid-state flight laser/lidar systems for airborne and space-borne remote sensing measurements. The presentation will also provide details of a strategic approach for active optical technologies and techniques to meet the NASA's future Earth and Space Science measurements/missions needs and requirements for space-based applications.

Keynote Speaker

Keynote Speaker 3.
FROM TANDEM-X TO MULTI-STATIC SAR SYSTEM

Speaker: Dr. Michelangelo Villano

Abstract :
Earth science benefits tremendously from space-borne synthetic aperture radar (SAR). High-resolution wide-swath SAR systems allow for frequent imaging of the Earth's surface on a global scale and constellations of low-cost SAR sensors further reduce the revisit time on local areas and guarantee a timely response to natural disasters. SAR becomes even more powerful, if multiple images taken from different positions are combined to form digital elevation models (DEMs) or tomograms that unveil the three-dimensional structure of vegetation, ice, and dry soil. The TanDEM-X mission, the first bistatic radar in space consisting of two satellites flying in close formation, allowed producing a global DEM with unprecedented height accuracy and resolution and, more recently, a "Change DEM", which highlights the topographic changes occurred over a five-year period on a global scale.

In order to create robust and accurate DEMs or high-resolution tomograms and exploit them to monitor fast dynamic processes, however, it is essential to be able to simultaneously acquire several, sometimes many, images from different viewing angles. This is driving the development of distributed and multi-static SAR systems, for which a number of challenges needs to be addressed, from mutual synchronization to safe formation flight. In order to contain the overall cost of the missions, clusters of small-sats with small apertures can be exploited in combination with innovative processing approaches to replace and enhance large aperture, high power radar systems. A prominent example is the creation of high-quality DEMs from noisy and undersam pled data, which represents a paradigm shift from state-of-the-art techniques that demand expensive, ambiguity-free imagery. Furthermore, the simultaneous transmission of orthogonal waveforms from multiple satellites allows inferring unique information about different scattering mechanisms in natural and man-made environments, overcoming in this way an inherent limitation of conventional SAR tomography.

rder to contain the overall cost of the missions, number of challenges needs to be addressed, from mutual synchronization to safe formation flight. In order to contain the overall cost of the missions,

APSAR 2023

Plenary Talk

Plenary Talk 1.
POTENTIAL USE OF AIRBORNE SAR INTERFEROMETRY FOR THE ACCELERATION OF NATIONWIDE LARGE-SCALE TOPOGRAPHIC BASE MAPPING IN INDONESIA

Speaker: Prof. Muh Arif Marfai

Abstract :
Indonesia as one of the largest tropical archipelagic countries in the world, includes more than 17,000 islands, characterized by very diverse and complex land cover, topographically varies from flat to mountainous with very extensive cloud cover, even almost permanent in some areas. This makes Indonesia a very challenging region in the field of topographic survey and mapping. Topographic survey and mapping activities often encounter obstacles due to cloud cover, especially in the application of remote sensing technology using optical sensors on various platforms such as drone (UAV), airborne and spaceborne systems.

Unlike optical sensors, radar sensors or currently known as Synthetic Aperture Radar (SAR), which is an active remote sensing system, has the ability to penetrate clouds, fly higher with wider coverage so that acceleration can be carried out and overcome the main obstacles of topographic survey and mapping. SAR technology uses the so called interferometry technique / Interferometric SAR (InSAR or IFSAR) in the field of topographic mapping, particularly in creating DEM (Digital Elevation Model) showing a very promising trend and reach up to sub-meter level of vertical accuracy. The Philippines and Malaysia, which have characteristics and geographical conditions similar to Indonesia as tropical countries with extensive cloud coverage, have used airborne InSAR technology for their nationwide large-scale topographic mapping in 2013 and 2017, respectively. Indonesia will carry out nationwide large-scale topographic base mapping at 1:5.000 scale using hybrid technology for the next 5 years. Photogrammetry and LiDAR technology will be used for topographic base mapping of urban areas whilst Airborne InSAR will be used for rural and forest areas, respectively. The provision of medium- and small-scale base maps will be produced by an automatic generalization method from larger-scale base maps. The Availability of multi-scale base maps are mainly aimed to support national spatial planning programs.

Plenary Talk 2.
UNVEILING THE IMPACT OF THE LARGEST SAR COMMERCIAL CONSTELLATION

Speaker: Dr. Oscar Gil

Abstract :
Explore the transformative power of the largest commercially owned Synthetic Aperture Radar (SAR) constellation. Discover how this constellation offers persistent monitoring and daily change detection, revolutionizing applications such as Deforestation Monitoring, Natural Catastrophe and Flood Monitoring, Dark Vessel Detection, and more. Learn how this asset amplifies our understanding of dynamic Earth processes and empowers proactive decision-making for a sustainable future.

Plenary Talk

Plenary Talk 3.
DEVELOPMENT OF MICROWAVE SENSORS FOR DISASTER AND ENVIRONMENTAL MONITORING

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

Abstract :
This talk will introduce the development of unmanned aerial vehicle, aircraft, high altitude platform system (HAPS), and microsatellite onboard multiband microwave sensors called circularly polarized synthetic aperture radar (CP-SAR) for disaster and environmental monitoring. The development of this multiplatform CP-SAR is including the the international research and education collaboration on microwave remote sensing that has been promoted by the Center for Environmental Remote Sensing of Chiba University for environmental and disaster monitoring since 2005. The international education in this research includes double degree program, short/long stay programs, world-class professor program, visiting professor, postdoctoral program under Japanese governmental program and overseas governments to promote high skill and knowledge on the microwave remote sensing. We hope this research and education activities could boosting the development of microwave remote sensors for future Earth and planetary missions.

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Room 1

TU1.R1 IInterferometric and Polarimetric SAR 1					
Chair: Avik Bhattacharya				Co-Chair: Giulia Tessari	Manager: Angelica Zeta Fandy
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	07:50-08:00	01:50-02:00	18:50-19:00	Opening and video	
	08:00-08:25	02:00-02:25	19:00-19:25	Characteristic Analysis of Ground Deformation	Takashi Nonaka (Nihon University, Japan)
	08:25-08:50	02:25-02:50	19:25-19:50	Ground Deformation in Afar Detected by ALOS-2 ScanSAR InSAR Time Series Analysis	Ryu Sugimoto and Yu Morishita (National Institute of Advanced Industrial Science and Technology, Japan); Masanobu Shimada (Tokyo Denki University & Japan Aerospace Exploration Agency, Japan); Ryo Natsuaki (The University of Tokyo, Japan); Ryousuke Nakamura (National Institute of Advanced Industrial Science and Technology (AIST), Japan); Chiaki Tsutsumi (AIST, Japan); Yoshio Yamaguchi (Niigata University, Japan); Shin-ichi Sobue (JAXA, Japan)
	08:50-09:15	02:50-03:15	19:50-20:15	A Channel Phase Error Compensation Algorithm Based on the Strong Points Analysis for GNSS-Based InBSAR Systems	Zhanze Wang (China); Peifeng Ma (Chinese University of Hong Kong, China); Feifeng Liu (Beijing Institute of Technology, China)
	09:15-09:40	03:15-03:40	20:15-20:40	Slope Displacement Monitoring with Corner Reflectors by PSInSAR Analysis Using Sentinel-1 SAR Data	Hidenori Abo (Tokyo Electric Power Services Co., Ltd., Japan); Takahiro Osawa (Yamaguchi University, Japan); I Nyoman Sudi Parwata (Udayana University, Indonesia); Pinglan Ge (Tokyo Electric Power Services, Japan); Sakurazawa Hiroki and Ryuhei Ikemoto (TEPCO Renewable Power, Japan)
	09:40-10:05	03:40-04:05	20:40-21:05	The Use of MODIS and Sentinel-1 Data Fusion to Estimate Precipitable Water Vapor Values	Noorlaila Hayati and Shaza Flanetta Putri (Institut Teknologi Sepuluh Nopember, Indonesia); Fikri Bamahry (Royal Observation of Belgium, Belgium); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan); Filsa Bioresita (Institut Teknologi Sepuluh Nopember, Indonesia)

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Room 2

TU1.R2 SAR Applications 1					
Chair: Rahmat Arief				Co-Chair: Rika Hernawati	Manager: Yasmine Padmacinta
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	07:50-08:00	01:50-02:00	18:50-19:00	Opening and video	
	08:00-08:25	02:00-02:25	19:00-19:25	Seasonal and Geographical Differences of Accuracy for SAR Sea Wind Retrieval Using Deep Neural Networks in Coastal Waters of	Jason Sung-uk Joh (Pukyong National University, Korea (South)); Yangwon Lee (Corresponding, Korea (South))
	08:25-08:50	02:25-02:50	19:25-19:50	Sea Surface Height Spatial Models of Radar Altimetry for Oceanographic Phenomena	Agus Hartoko (Diponegoro University, Indonesia)
	08:50-09:15	02:50-03:15	19:50-20:15	Quantifying Mangrove Dynamics Using Sentinel-1 Multitemporal Data and Random Forest Algorithm	Nirmawana Simarmata (Institut Teknologi Bandung & Institut Teknologi Sumatera, Indonesia); Ketut Wikantika (Bandung Institute of Technology, Indonesia); Soni Darmawan (Itenas, Indonesia); Agung Budi Harto (Bandung Institute of Technology & Remote Sensing Research Group, Indonesia); Zulfikar Adlan Nadzir (University of Bonn Geomatics Engineering, Germany); Dewi Nawang Sari (Institut Teknologi Sumatera, Indonesia)
	09:15-09:40	03:15-03:40	20:15-20:40	Flood Inundation Identification in Katingan Regency, Indonesia Using SAR Data and Adaptive Dynamic Thresholding	Rizqi Muhammad Hakim, Filsa Bioresita and Noorlaila Hayati (Institut Teknologi Sepuluh Nopember, Indonesia)
	09:40-10:05	03:40-04:05	20:40-21:05	Land Subsidence Observation in Bali Dense Population Area Using L-Band SAR Images from 2007 to 2021	I Made Oka Guna Antara (Chiba University, Japan & Universitas Udayana, Indonesia); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan); Putu Edi Yastika (Universitas Mahasaraswati Denpasar, Indonesia)

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Room 3

TU1.R3 SAR and Radar Systems 1					
Chair: Ilham Alimuddin				Co-Chair: Muhammad Hamka Ibrahim	Manager: Efraim Batunanggar
Date	**WITA**	**CEST**	**ET**	**Agenda**	
45223	07:50-08:00	01:50-02:00	18:50-19:00	Opening and video	
	08:00-08:25	02:00-02:25	19:00-19:25	Demonstration of Staggered Ambiguous SAR Mode for Ship Monitoring Using TerraSAR-X	Nertjana Ustalli, Maxwell Nogueira Peixoto and Thomas Kraus (German Aerospace Center (DLR), Germany); Ulrich Steinbrecher and Gerhard Krieger (DLR, Germany); Michelangelo Villano (German Aerospace Center (DLR), Germany)
	08:25-08:50	02:25-02:50	19:25-19:50	A Phase Synchronization Technique for Multistatic SAR Systems Based on a Microwave Link	Nertjana Ustalli (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Josef Hermann Martin Mittermayer and Michelangelo Villano (German Aerospace Center (DLR), Germany)
	08:50-09:15	02:50-03:15	19:50-20:15	Circularly Polarized Lunar Regolith Simulant Antenna for Future Lunar Communication	Subuh Pramono (Universitas Sebelas Maret, Indonesia); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan); Muhammad Hamka Ibrahim (Universitas Sebelas Maret, Indonesia & Chiba University, Japan); Steven Shichang Gao (Chinese University of Hong Kong, China); Koichi Ito (Chiba University, Japan); Yuki Yoshimoto (Sumitomo Metal Mining Co., Ltd. & Chiba University, Japan); Hisato Kashihara (Chiba University, Japan); Cahya Edi Santosa (National Research and Innovation Agency, Indonesia & Chiba University, Japan); Ayaka Takahashi (Teikyo University, Japan)
	09:15-09:40	03:15-03:40	20:15-20:40	Multi-Static Synthetic Aperture Radar for Earth Monitoring: Challenges, Innovative Solutions, and Demonstrations Using Swarms of Drones	Michelangelo Villano, Maxwell Nogueira Peixoto and Sumin Kim (German Aerospace Center (DLR), Germany); Victor Mustieles-Perez (Friedrich-Alexander-Universität Erlangen-Nürnberg & German Aerospace Center (DLR), Germany); Nertjana Ustalli (German Aerospace Center (DLR), Germany); Francesca Scala (German Aerospace Center DLR, Germany); Thomas Börner (German Aerospace Center, Germany); Josef Hermann Martin Mittermayer (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany); Alberto Moreira (German Aerospace Center (DLR), Germany)

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Room 1

TU2.R1 Interferometric and Polarimetric SAR 2					
Chair: Hidenori Abo				Co-Chair: Noorlaila Hayati	Manager: Maharetha Wirandari Wibowo
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	10:20-10:30	04:20-04:30	22:20-22:30	Opening and video	
	10:30-10:55	04:15-04:30	22:15-22:30	Assessing Three-Dimensional Displacement in the Low Latitude Area from Multi-Geometry Sentinel-1 InSAR: Case Study Palu City	Argo Galih Suhadha (Universitas Gadjah Mada, Indonesia & National Research and Innovation Agency, Indonesia); Harintaka Harintaka (Universitas Gadjah Mada, Indonesia)
	10:55-11:20	04:30-04:45	22:30-22:45	Exploring Diverse Polarimetric Information Contents from SAR Data	Avik Bhattacharya and Abhinav Verma (Indian Institute of Technology Bombay, India); Subhadip Dey (Indian Institute of Technology Kharagpur, India); Alejandro C Frery (Victoria University of Wellington, New Zealand)
	11:20-11:45	04:45-05:00	22:45-23:00	A Novel Coherence Estimation Method for InSAR	Ruobin Liang, Xu and Zhaohong Li (Beihang University, China)
	11:45-12:10	05:00-05:15	23:00-23:15	Fundamental Polarimetric Scattering Analysis for Detecting Oriented Manmade Objects Using Polarimetric Correlation Coefficients	Ryoichi Sato (Niigata University, Japan); Toshifumi Moriyama (Nagasaki University, Japan); Yuya Arima (National Institute of Advanced Industrial Science and Technology, Japan); Yoshio Yamaguchi and Hiroyoshi Yamada (Niigata University, Japan); Ryu Sugimoto (National Institute of Advanced Industrial Science and Technology, Japan); Chiaki Tsutsumi (AIST, Japan); Ryousuke Nakamura (National Institute of Advanced Industrial Science and Technology (AIST), Japan)
	12:10-12:35	05:15-05:30	23:15-23:30	Use of the Gershgorin Theorem to Characterize Scattering Mixture from Polarimetric SAR Data	Himanshu Maurya (IIIT Allahabad, India); Avik Bhattacharya (Indian Institute of Technology Bombay, India); Rajib Panigrahi (IIT Roorkee, India)

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Room 2

TU2.R2 SAR Applications 2					
Chair: Agus Hartoko				Co-Chair: Putu Edi Yastika	Manager: Kadek Janita Devi Adnyana Putri
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	10:20-10:30	04:20-04:30	22:20-22:30	Opening and video	
	10:30-10:55	04:30-04:55	22:30-22:55	Seasonal Variability of Internal Solitary Waves Phase Speed in the Lombok Strait Revealed by Sentinel-1 SAR	Chonnaniyah Chonnaniyah (Institute of Science and Technology Nahdlatul Ulama Bali (ISTNUBA), Indonesia & International Collaboration Office, Yamaguchi University (YUICO), Indonesia); Takahiro Osawa (Yamaguchi University, Japan); Abd Rahman As-syakur (Udayana University, Indonesia); I Wayan Gede Astawa Karang (Universitas Udayana, Indonesia)
	10:55-11:20	04:55-05:20	22:55-23:20	Leaf Area Index of Oil Palm Plantation Using RVI Based on Sentinel-1A	Rika Hernawati (Institut Teknologi Nasional Bandung, Indonesia); Soni Darmawan (Itenas, Indonesia); Ketut Wikantika (Bandung Institute of Technology, Indonesia); Agung Budi Harto (Bandung Institute of Technology & Remote Sensing Research Group, Indonesia)
	11:20-11:45	05:20-05:45	23:20-23:45	SAR Stacking Interferometry to Monitor Critical Infrastructures and Detect Deformation Anomalies	Giulia Tessari, Paolo Riccardi and Francesco Holecz (Sarmap SA, Switzerland); Paolo Pasquali (SARMAP, Switzerland)
	11:45-12:10	05:45-06:10	23:45-:00.10	SAR UAV for Soil Moisture Estimation	Dušan Gleich (University of Maribor, Slovenia)

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Room 3

TU2.R3 SAR and Radar Systems 2					
Chair: Michelangelo Villano				Co-Chair: Subuh Pramono	Manager: Ni Made Etha Astrinita
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	10:20-10:30	04:20-04:30	22:20-22:30	Opening and video	
	10:30-10:55	04:30-04:55	22:30-22:55	Physics-Assisted Deep Learning for FMCW Radar Quantitative Imaging of Two-Dimension Target	Zhuoyang Liu (Fudan University, China & Weizmann Institute of Science, Israel); Huilin Xu and Feng Xu (Fudan University, China)
	10:55-11:20	04:55-05:20	22:55-23:20	Design of DDS Chirp Generator Using FPGA	Taiga Misono, Kazuteru Namba and Josaphat Tetuko Sri Sumantyo (Chiba University, Japan)
	11:20-11:45	05:20-05:45	23:20-23:45	Terrain Extraction and Fusion Method Based on Multi-Aspect SAR Image Sequence	Shanshan Feng (Aerospace Information Research Institute Chinese Academy of Sciences, China); Bing Han (Institute of Electronics, Chinese Academy of Sciences, China); Hanqing Zhang (Aerospace Information Research Institute Chinese Academy of Sciences, China); Fei Teng (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Yun Lin (North China University of Technology, China); Wen Hong (National Key Laboratory of Microwave imaging Technology & Institute of Electronics, Chinese Academy of Scienecs, China)
	11:45-12:10	05:45-06:10	23:45-:00.10	The Oil Quality Detection on the Gearbox of Monopulse Surveillance Secondary Radar	Dian Anggraini Purwaningtyas (Bina Nusantara University & Politeknik Penerbangan Indonesia, Indonesia)
	12:10-12:35	06:10-06:35	00:10-00:35	Fusion of ALOS-2/PALSAR-2 and Sentinel-1 Polarimetric Imagery with Explainable Neural	Gunjan Joshi, Ryo Natsuaki and Akira Hirose (The University of Tokyo, Japan)

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Room 1

TU3.R1 Interferometric and Polarimetric SAR 3					
Chair: Ilham Alimuddin				Co-Chair: Arifin Nugroho	Manager: Achmad Ramadhan
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	13:20-13:30	07:20-07:30	01:20-01:30	Opening and video	
	13:30-13:55	07:30-07:55	01:30-01:55	SAR Tomography Reconstruction Using ISTA and GLRT Techniques	Prithvi Laguduvan Thyagarajan (Universität Siegen, Germany); Holger Nies (University of Siegen, Germany); Othmar Frey (ETH Zurich & Gamma Remote Sensing, Switzerland); Joachim H. G. Ender (Fraunhofer FHR & Universität Siegen, Germany); Ivo Ihrke (Universität Siegen, Germany)
	13:55-14:20	07:55-08:20	01:55-02:20	Scattering Analysis of Polarimetric Inverse SAR Image Using Scale Model Under Vegetation Canopy	Muhammad Hamka Ibrahim (Universitas Sebelas Maret, Indonesia & Chiba University, Japan); Jing-Yuan Wang (Chiba University, Japan); Subuh Pramono (Universitas Sebelas Maret, Indonesia); Hisato Kashihara (Chiba University, Japan); Yuta Izumi (Muroran Institute of Technology, Japan); YuFan Cai (Chiba University, Japan); Muhammad Arif Munandar (Universitas Gadjah Mada & Chiba University Japan, Indonesia); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan)
	14:20-14:45	08:20-08:45	02:20-02:45	Scattering Power Components from Dual-Pol SLC and GRD SAR Data	Abhinav Verma and Avik Bhattacharya (Indian Institute of Technology Bombay, India); Subhadip Dey (Indian Institute of Technology Kharagpur, India)
	14:45-15:10	08:45-09:10	02:45-03:10	Development and Application of Pseudo-SAR Image Simulator	Yuka Teranishi, Junichi Susaki, Tetsuharu Oba and Yoshie Ishii (Kyoto University, Japan); Hirofumi Hisada (West Nippon Expressway Company, Japan)
	15:10-15.35	09:10-09.35	03:10-03.35	PSInSAR and Well Based on Land Surface Pressure and Ground Water Model in the Law of Terzaghi	Katsunoshin Nishi (Chiba University, Japan); Masaaki Kawai (Mitsubishi Heavy Industries, Ltd., Japan); Kaori Nishi (Bella Earther, Japan); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan)

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Room 2

TU3.R2 SAR Image Processing 1					
Chair: Masato Kawada				Co-Chair: Katsunoshin Nishi	Manager: Putu Kumara Yasa
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	13:20-13:30	07:20-07:30	01:20-01:30	Opening and video	
	13:30-13:55	07:30-07:55	01:30-01:55	A Fast Near-Field 3D Imaging Method for Single-Frequency MIMO Arc Array Radar	Qiming Zhang and Ruoyun Li (Beihang University, China); Dandan Gu (National Key Laboratory of Scattering and Radiation, China); Changshun Yuan (Hangzhou Innovation Institute of Beihang University, China); Jinping Sun (Beihang University, China)
	13:55-14:20	07:55-08:20	01:55-02:20	Terahertz SAR Vibration Compensation Based on Alternating Direction Method of Multipliers	Zhaoxin Hao, Qiming Zhang and Jinping Sun (Beihang University, China)
	14:20-14:45	08:20-08:45	02:20-02:45	Modified Frequency Domain Backprojection Autofocus: Experimental Assessment Using	Takayuki Kitamura and Masayoshi Tsuchida (Mitsubishi Electric Corporation, Japan)
	14:45-15:10	08:45-09:10	02:45-03:10	SAR Few-Shot Recognition Based on Inner-Loop Update Optimization of Meta-Learning	Zhiqiang Zeng and Jinping Sun (Beihang University, China); Yanping Wang (North China University of Technology, China); Dandan Gu (National Key Laboratory of Scattering and Radiation, China); Zhu Han (Chinese Academy of Sciences, China); Wen Hong (National Key Laboratory of Microwave imaging Technology & Institute of Electronics, Chinese Academy of Scienecs, China)
	15:10-15.35	09:10-09.35	03:10-03.35	SAR Target Recognition Based on Decoupling and Reconstruction Learning Using Complex-	Jiang Qin, Bin Zou, Lamei Zhang and Zihao Ma (Harbin Institute of Technology, China)

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Room 3

TU3.R3 Dedicated for Indonesian Remote Sensing Society 1					
Chair: Agustan				Co-Chair: Dian Anggraini Purwaningtyas	Manager: Dinda Amelia Putri
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	13:20-13:30	07:20-07:30	01:20-01:30	Opening and video	
	13:30-13:55	07:30-07:55	01:30-01:55	Application of Remote Sensing and Modelling Method in Effective Mitigating Anthropogenic Disasters Due to Sea Tin Mining Activities Around Bangka Belitung's Marine Conservation Region	Aditya Pamungkas (Universitas Bangka Belitung & Indonesia, Indonesia); Wahyu Adi, Okto Supratman and Siti Aisyah (Universitas Bangka Belitung, Indonesia); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan)
	13:55-14:20	07:55-08:20	01:55-02:20	Utilization of NTSB Report and Himawari 8 for Aviation Turbulence on Asia	Muhammad Arif Munandar (Universitas Gadjah Mada & Chiba University Japan, Indonesia); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan); M Hadi (Faculty of Geography, Universitas Gadjah Mada, Yogyakarta, Indonesia); Muh Aris Marfai (Universitas Gadjah Mada, Indonesia); Atsushi Higuchi (Center for Environmental Remote Sensing Chiba University, Japan); Muhammad Hamka Ibrahim (Universitas Sebelas Maret, Indonesia & Chiba University, Japan)
	14:20-14:45	08:20-08:45	02:20-02:45	Fast-Time STAP for FDA-SAR Underground High-Resolution Imaging	Wen-Qin Wang, Lei Wu and ShunSheng Zhang (University of Electronic Science and Technology of China, China)
	14:45-15:10	08:45-09:10	02:45-03:10	Backscatter Response on Electrical Conductivity (EC) for Source Tracing of Sea Surface Salinity (SSS) in Cimanuk River-Indramayu: A Preliminary Study	Mochamad Firman Ghazali (Universitas Lampung & Earth Sciences, Bandung Institute of Technology, Indonesia); Asep Saepuloh (Institute of Technology Bandung, Indonesia); Ketut Wikantika (Center for Remote Sensing, Indonesia)

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Room 1

TU4.R1 Interferometric and Polarimetric SAR 4					
Chair: Muhammad Hamka Ibrahim				Co-Chair: Junichi Susaki	Manager: Donna Sanovyana
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	15:50-16:00	09:50-10:00	10:50-04:00	Opening and video	
	16:00-14:25	10:00-10:25	04:00-04:25	Sentinel-1 Based Land Deformation Mapping in Bali Island Indonesia Using Persistent Scatterer Interferometry SAR	Rahmi Sukmawati (CONTEC & Yesong-gu, Korea (South)); Mirza Muhammad Waqar (CONTEC, Korea (South))
	16:25-16:50	10:25-10:50	06:25-04:50	Land Subsidence Monitoring in Semarang (Indonesia) by SBAS-DInSAR Using ALOS-2 and Sentinel-1 SAR Data from 2015 to 2023	I Nyoman Sudi Parwata (Udayana University, Indonesia); Takahiro Osawa (Yamaguchi University, Japan); Hidenori Abo (Tokyo Electric Power Services Co., Ltd., Japan)
	16:50-17:15	10:50-11:15	04:50-05:15	Change Detection Analysis Using Information Theoretic Measures on SAR Images	Debanshu Ratha (IIT Bombay, India); Vineet Kumar and Avik Bhattacharya (Indian Institute of Technology Bombay, India); Alejandro C Frery (Victoria University of Wellington, New Zealand)
	17:15-17:40	11:15-11:40	05:15-05:40	The Evaluation of the Relationship Between Land Subsidence and Building Weights in Jakarta Using DInSAR	Takumi Sawahata, Josaphat Tetuko Sri Sumantyo and Hisato Kashihara (Chiba University, Japan); I Made Oka Guna Antara (Chiba University, Japan & Universitas Udayana, Indonesia); Gregorius Haryuatmanto (MAPIN, Indonesia)

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Room 2

TU4.R2 SAR Image Processing 2					
Chair: Soni Darmawan				Co-Chair: Takayuki Kitamura	Manager: Ni Made Yuni Mas Jantikasari
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	15:50-16:00	09:50-10:00	10:50-04:00	Opening and video	
	16:00-14:25	10:00-10:25	04:00-04:25	Performance Verification of Scattering Power Decomposition for PolSAR Data by Using Random-Rotated Dihedral Scattering Component	Masato Kawada (Niigata University, Japan)
	16:25-16:50	10:25-10:50	06:25-04:50	Semi-Supervised SAR Image Change Detection with Complex-Valued Graph Contrastive Learning	Haolin Li, Bin Zou, Lamei Zhang and Jiang Qin (Harbin Institute of Technology, China)
	16:50-17:15	10:50-11:15	04:50-05:15	A Two-Step Target Decomposition Method for Polarimetric SAR Based on Reflection Symmetry	Wang Xiao (Shanghai Radio Equipment Research Institute, China); Feiming Wei and Hongwen Dong (Dept. of Shanghai Radio Equipment Research Institute, China); Jialian Sheng (Shanghai Radio Equipment Research Institute, China); Haolin Li (Harbin Institute of Technology, China)
	17:15-17:40	11:15-11:40	05:15-05:40	Interferometric Phase Restoration Using Biquaternion Neural Networks in PolInSAR	Yuta Otsuka, Ryo Natsuaki and Akira Hirose (The University of Tokyo, Japan)

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Room 3

TU4.R3 Dedicated for Indonesian Remote Sensing Society 2					
Chair: Mochamad Firman Ghazali				Co-Chair: Muhammad Arif Munandar	Manager: Ida Bagus Putu Ananda Arjawa
Date	**WITA**	**CEST**	**ET**	**Agenda**	
24-Oct-23	15:50-16:00	09:50-10:00	10:50-04:00	Opening and video	
	16:00-14:25	10:00-10:25	04:00-04:25	Emergency Inundation Analysis of the August 2021 Japan Floods Using SAR Intensity Images	Wen Liu and Yoshihisa Maruyama (Chiba University, Japan); Fumio Yamazaki (National Research Institute for Earth Science and Disaster Resilience, Japan)
	16:25-16:50	10:25-10:50	06:25-04:50	Sentinel-1 SAR Imaging for Detection and Analysis of Oil Spills in the Coastal Waters of Bintan: A Case Study and Environmental Monitoring Application	Muhammad Rizki Nandika and Martiwi Diah Setiawati (National Research and Innovation Agency (BRIN), Indonesia); Badrul H Husain (Ministry of Environments and Forestry of the Republic of Indonesia & Balai Pelatihan Lingkungan Hidup dan Kehutanan Pekanbaru, Indonesia); Herlambang Aulia Rachman (IPB University & SpatialQU, Indonesia); Uday Chatterjee (Bhatter College, India); Aidy M. Muslim (Universiti Malaysia Terengganu, Malaysia); Tsuyoshi Eguchi (Yamaguci University, Japan); Novi Adi (The Ministry of Maritime Affairs and Fisheries, Indonesia)
	16:50-17:15	10:50-11:15	04:50-05:15	Time Series InSAR for Ground Deformation Observation in Semarang Area, Central Java	Agustan Agustan (National Research and Innovation Agency, Indonesia); Rachmadhi Purwana (Universitas Indonesia, Indonesia); Budi Heru Santosa, M. Sc. and Ruki Ardiyanto (National Research and Innovation Agency, Indonesia); Takeo Ito (Nagoya University, Japan); Heri Sadmono (Badan Riset dan Inovasi Nasional, Indonesia)
	17:15-17:40	11:15-11:40	05:15-05:40	FASNet: Fusion Attention Siamese Network for Change Detection of Remote Sensing Images	Hongwen Dong and Feiming Wei (Dept. of Shanghai Radio Equipment Research Institute, China); Wang Xiao (Shanghai Radio Equipment Research Institute, China); Gao Sun (Dept. of Shanghai Radio Equipment Research Institute, China); Jialian Sheng (Shanghai Radio Equipment Research Institute, China); Haolin Li (Harbin Institute of Technology, China)

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Room 2

WE1.R2 SAR Image Processing 3					
Chair: Soni Darmawan				Co-Chair: Ryo Natsuaki	Manager:Achmad Ramadhan
Date	**WITA**	**CEST**	**ET**	**Agenda**	
25-Oct-23	07:50-08:00	01:50-02:00	18:50-19:00	Opening and video	
	08:00-08:25	02:00-02:25	19:00-19:25	A Multi-Pulse Coding Waveform and Decoding Method Against Stepped Frequency Shift Jamming and Random Frequency Shift Jamming in SAR	Jingyi Wei, Yachao Li, Mingyue Ding and Jiabao Ding (Xidian University, China)
	08:25-08:50	02:25-02:50	19:25-19:50	SAR ATR Based on a Deep Feature Fusion Network with Limited Measured Data	Yang Chen, Xiaokun Sun, Yifei Wang, Runze Zhu and Deliang Xiang (Beijing University of Chemical Technology, China); Yanjiao Yang (Beijing Electro-Mechanical Engineering Institute, China)
	08:50-09:15	02:50-03:15	19:50-20:15	Analysis of Sentinel 1 and Sentinel 2 Image for Monitoring Heterogeneous Pepper Plantation in Magelang Indonesia	Muhammad Hamka Ibrahim (Universitas Sebelas Maret, Indonesia & Chiba University, Japan); Wisanggeni Titovandaru (Universitas Sebelas Maret); Subuh Pramono, Meiyanto Eko Sulistyo, Joko Slamet Saputro, Sutrisno Ibrahim, Joko Hariyono and Faisal Rahutomo (Universitas Sebelas Maret, Indonesia); Kalingga Titon Nur Ihsan (Institut Teknologi Bandung, Indonesia); Bayu Nugroho (Universitas Gadjah Mada, Indonesia); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan)
	09:15-09:40	03:15-03:40	20:15-20:40	Phenology-Based Crop Classification from Multi-Frequency Dual-Pol SAR Data Utilizing Gaussian Processes	Swarnendu S Ghosh (Indian Institute of Technology Bombay, India); Dipankar Mandal (Kansas State University, USA); Sandeep Kumar and Narayanarao Bhogapurapu (Indian Institute of Technology Bombay, India); Paul Siqueira (University of Massachusetts, USA); Biplab Banerjee (IIT Bombay, India); Avik Bhattacharya (Indian Institute of Technology Bombay, India)
	09:40-10:05	03:40-04:05	20:40-21:05	Extraction of Damaged Urban Areas Due to the 2023 Kahramanmaraş, Turkey, Earthquake Using ALOS-2 Images	Fumio Yamazaki (National Research Institute for Earth Science and Disaster Resilience, Japan); Wen Liu (Chiba University, Japan)

Oral Session

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Room 3

WE1.R3 SAR Platform 1					
Chair: Duk-Jin Kim				Co-Chair: Joao E. Pereira-Pires	Manager: Kadek Janita Devi Adnyana Putri
Date	**WITA**	**CEST**	**ET**	**Agenda**	
25-Oct-23	07:50-08:00	01:50-02:00	18:50-19:00	Opening and video	
	08:00-08:25	02:00-02:25	19:00-19:25	A Novel Atmospheric Phase Correction Based on Kriging Incorporating Temporal Phase Evolution for Ground-Based SAR	Yuta Izumi (Muroran Institute of Technology, Japan); Motoyuki Sato (Tohoku University, Japan); Giovanni Nico (Consiglio Nazionale delle Ricerche, Italy); Othmar Frey (ETH Zurich & Gamma Remote Sensing, Switzerland); Simone Baffelli (ETH Zurich, Switzerland); Irena Hajnsek (ETH Zurich, DLR Oberpfaffenhofen, Germany)
	08:25-08:50	02:25-02:50	19:25-19:50	Drone Borne SAR Tomography as A Powerful Surface Survey Tool	Gian Oré (University of Campinas, Brazil); Alexandre Santos (Federal Institute of Mato Grosso, IFMT, Brazil); Hugo Enrique Hernandez-Figueroa (Unicamp, Brazil)
	08:50-09:15	02:50-03:15	19:50-20:15	X-Band Circularly Polarized Microstrip Array Antenna for Full Polarization UAV-SAR	Hisato Kashihara and Josaphat Tetuko Sri Sumantyo (Chiba University, Japan); Yuta Izumi (Muroran Institute of Technology, Japan); Koichi Ito (Chiba University, Japan); Steven Shichang Gao (Chinese University of Hong Kong, China)
	09:15-09:40	03:15-03:40	20:15-20:40	A Fine Motion Compensation Method for Aerial Maneuvering Targets Forward-Looking Imaging with Bistatic Radar	Jiabao Ding, Yachao Li, Jiadong Wang, Endi Zhu and Jingyi Wei (Xidian University, China); Ming Li (XIDIAN University, China)

Oral Session

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Room 1

WE2.R1 Instrumentation and Future Technologies					
Chair: Rika Hernawati				Co-Chair: Takahiro Osawa	Manager: Angelica Zeta Fandy
Date	**WITA**	**CEST**	**ET**	**Agenda**	
25-Oct-23	10:20-10:30	04:20-04:30	22:20-22:30	Opening and video	
	10:30-10:55	04:15-04:30	22:15-22:30	SAR Onboard Broadband C-Band Circularly Polarized Antenna for In-Situ Volcanic Lava Observation	Yuki Yoshimoto (Sumitomo Metal Mining Co., Ltd. & Chiba University, Japan); Subuh Pramono (Universitas Sebelas Maret, Indonesia); Ayaka Takahashi (Teikyo University, Japan); Hisato Kashihara (Chiba University, Japan); Cahya Edi Santosa (National Research and Innovation Agency, Indonesia & Chiba University, Japan); Steven Shichang Gao (Chinese University of Hong Kong, China); Koichi Ito (Chiba University, Japan); Motoyuki Naito (Sumitomo Metal Mining Co., Japan); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan)
	10:55-11:20	04:30-04:45	22:30-22:45	GNSS-InBSAR Cross-Orbital Observation: First Step to High-Frequency Deformation Retrieval	Chenghao Wang (Institute of Technology & School of Information and Electronics, China); Feifeng Liu, Cheng Hu, Jingtian Zhou and Jiahao Gao (Beijing Institute of Technology, China)
	11:20-11:45	04:45-05:00	22:45-23:00	Interrelationships Between Satellite Imagery Pollutants and Aerosol Particles in Air Quality Assessment (NO2, SO2, O3, CO, AOD) and GNSS ZWD Data	Failaqul Haq and Mokhamad Nurcahyadi (Institut Teknologi Sepuluh Nopember, Indonesia); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan)
	11:45-12:10	05:00-05:15	23:00-23:15	SAR Raw Data Simulation Based on Frequency-Domain Signal Modulation	Zihao Ma, Bin Zou and Lamei Zhang (Harbin Institute of Technology, China)
	12:10-12:35	05:15-05:30	23:15-23:30	Drone-Borne InSAR Using Off-The-Shelf MIMO-FMCW Radar and Its Validation	Ryotaro Yamakawa, Akira Hirose and Ryo Natsuaki (The University of Tokyo, Japan)

Oral Session

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Room 2

WE2.R2 SAR Image Processing 4					
Chair: Fumio Yamazaki				Co-Chair: Yoshiki Takahashi	Manager: Donna Sanovyana
Date	**WITA**	**CEST**	**ET**	**Agenda**	
25-Oct-23	10:20-10:30	04:20-04:30	22:20-22:30	Opening and video	
	10:30-10:55	04:15-04:30	22:15-22:30	Sentinel-1-Derived Multi-Temporal Flood Hazard of North and South Java: The Case of Bodri and Serayu Watershed	Sudaryatno Sudaryatno (Universitas Gadjah Mada, Indonesia); Ramadhan Ramadhan (Universitas Gadjah Mada, Indonesia & Fairatmos, Indonesia); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan)
	10:55-11:20	04:30-04:45	22:30-22:45	Forest Height Estimation Using Sentinel-1/2 and ALOS-2	João E. Pereira-Pires (Uninova, Portugal); João M. N. Silva (Forest Research Centre and Associate Laboratory TERRA University of Lisbon, Portugal); José Fonseca (Uninova, Portugal); Raffaella Guida (University of Surrey, United Kingdom (Great Britain)); Andre Mora (Uninova, Portugal)
	11:20-11:45	04:45-05:00	22:45-23:00	Development of Three-Dimensional Convolutional Neural Network for Urban Flood Classification Using Synthetic Aperture Radar Multi-Temporal Image	Indra Riyanto and Mia Rizkinia (Universitas Indonesia, Indonesia); Rahmat Arief (National Research and Innovation Agency, Indonesia); Anton Satria Prabuwono (King Abdulaziz University & Budi Luhur University, Saudi Arabia); Josaphat Tetuko Sri Sumantyo (Chiba University, Japan); Ketut Wikantika (Bandung Institute of Technology, Indonesia); Dodi Sudiana (Universitas Indonesia, Indonesia)
	11:45-12:10	05:00-05:15	23:00-23:15	Reconstruction of the SAR Image for a Tree Using the W-Band SAR System	HyokBeen Lee and Duk-jin Kim (Seoul National University, Korea (South))

Oral Session

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Room 3

WE2.R3 SAR Platform 2					
Chair: Soni Darmawan				Co-Chair: Hugo Hernandez	Manager:Putu Kumara Yasa
Date	**WITA**	**CEST**	**ET**	**Agenda**	
25-Oct-23	10:20-10:30	04:20-04:30	22:20-22:30	Opening and video	
	10:30-10:55	04:15-04:30	22:15-22:30	A Highly-Squinted TOPSAR Image Formation and Azimuth Resolution Enhancement Using Embedded Focusing Based on Hybrid-Domain	Iman Heidarpour Shahrezaei and Hyun-Cheol Kim (Korea Polar Research Institute (KOPRI), Korea (South))
	10:55-11:20	04:30-04:45	22:30-22:45	High-Resolution Imaging of Azimuth Frequency Scanning SAR	Rui Bao, Chunsheng Li, Pengbo Wang, Yuqiing Liu and Yanan Guo (Beihang University, China)
	11:20-11:45	04:45-05:00	22:45-23:00	A Moving Target Imaging Method for Maritime Scenarios with Azimuth Multi-Channel SAR Based on Image Quality Optimization	Jiayi Guo and Zhirong Men (Beihang University, China); Yang Wei (BeiHang University, China); Jie Chen (School of Electronics and Information Engineering, Beihang University, China); HongCheng Zeng (BeiHang University, China); Yamin Wang (Beihang University, China); Chao Yang (Shanghai Institute of Satellite Engineering, China)
	11:45-12:10	05:00-05:15	23:00-23:15	Development of Onboard SAR Processor Using COTS GPU	Yumiko Nakamura, Mayu Miyamoto, Kunihiro Fujita, Akira Chiba, Jin Miyazawa and Shusuke Yoshida (Mitsubishi Electric Corporation, Japan)

Oral Session

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Room 1

WE3.R1 SAR Moving Target and Detection 1					
Chair: Muhammad Mukhayadi				Co-Chair:	Manager: Maharetha Wirandari Wibowo
Date	**WITA**	**CEST**	**ET**	**Agenda**	
25-Oct-23	13:20-13:30	07:20-07:30	01:20-01:30	Opening and video	
	13:30-13:55	07:30-07:55	01:30-01:55	The Trajectory Reconstruction Results of Ground Moving Target in Single Channel Circular SAR	Zhiguo Zhang (Aerospace Information Research Institute, Chinese Academy of Sciences, China); Wenjie Shen (North China University of Technology, China); Shanshan Feng and Chuanzeng Xu (Aerospace Information Research Institute Chinese Academy of Sciences, China); Yun Lin (North China University of Technology, China); Wen Hong (National Key Laboratory of Microwave imaging Technology & Institute of Electronics, Chinese Academy of Scienecs, China)
	13:55-14:20	07:55-08:20	01:55-02:20	An Improved Track-Before-Detect Algorithm for GNSS-Based Bistatic Radar Target Detection	Shengming Zhang (School of Electronics and Information Engineering, BeiHang University, China); Pengbo Wang, Tao Tang and Xin-Kai Zhou (Beihang University, China); HongCheng Zeng (BeiHang University, China)
	14:20-14:45	08:20-08:45	02:20-02:45	Detection Method of Human Gait-Rate and Vital-Sign Using Dual-Baseband Doppler Radar	Eugin Hyun and JiEun Bae (DGIST, Korea (South)); In-Oh Choi (Korea Maritime & Ocean University, Korea (South)); Min Kim (KIOST, Korea (South)); Chi-ho Park and Young-Seok Jin (DGIST, Korea (South))
	14:45-15:10	08:45-09:10	02:45-03:10	Adaptive Target Detection with FDA-MIMO Radar in Partially Homogeneous Environment	Ping Li, Bang Huang and Wen-Qin Wang (University of Electronic Science and Technology of China, China); Abdul Basit (International Islamic University Islmabad, Pakistan)
	15:10-15.35	09:10-09.35	03:10-03.35	Investigating the Complex Signal Kurtosis for SAR Ship Classification	Al Adil Al Hinai and Raffaella Guida (University of Surrey, United Kingdom (Great Britain))

Oral Session

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Room 2

WE3.R2 SAR Moving Target and Detection 2					
Chair: Ilham Alimuddin				Co-Chair:	Manager: Yasmine Padmacinta
Date	**WITA**	**CEST**	**ET**	**Agenda**	
25-Oct-23	13:20-13:30	07:20-07:30	01:20-01:30	Opening and video	
	13:30-13:55	07:30-07:55	01:30-01:55	Adaptive Distributed Target Detection for FDA-MIMO Radar in Clutter Environment Without Training Data	Bang Huang and Ping Li (University of Electronic Science and Technology of China, China); Jiangwei Jian (University of Electronic Science and Technology of China & School of Information and Communication Engineering, China); Wen-Qin Wang, ShunSheng Zhang and Lei Wu (University of Electronic Science and Technology of China, China)
	13:55-14:20	07:55-08:20	01:55-02:20	Distributed-Array Radar System with Synchronization Using Known Targets	Yoshiki Takahashi (Mitsubishi Electric Corporation, Japan); Hiroyoshi Yamada (Niigata University, Japan); Tatsuya Hagiwara and Tadashi Oshima (Mitsubishi Electric Corporation, Japan)
	14:20-14:45	08:20-08:45	02:20-02:45	An Accelerated SBR-MOM Method for Scattering Analysis of Complex Large Targets	Jingwen Li and Xu (Beihang University, China)
	14:45-15:10	08:45-09:10	02:45-03:10	Wake Detection and Ship Velocity Estimation Methods in SAR Images	Yu Takayanagi (Mitsubishi Electric Corporation, Information Technology R&D Center, Japan)

Venue

Bali Dynasty Resort, Kuta, Bali Island, Indonesia

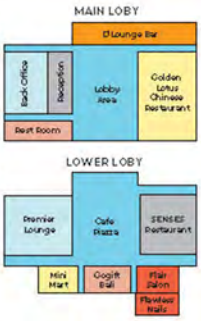
Room Directory

	SOUTH POOL		NORTH POOL	
3rd FL	DPK	EXS | DPK	DPK | EXS	DXK
2nd FL	DPK	EXS | DPK	DPK | EXS	DXK
1st FL	FPA	EXS | FPV	FVP | EXS	KSE

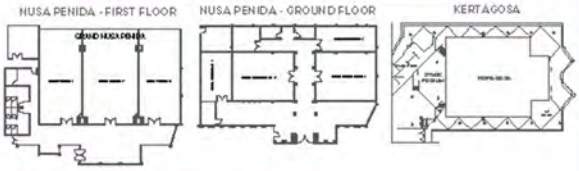
	SOUTH GARDEN		NORTH GARDEN	
3rd FL	DXK	FXS | DXK	DXK | FXS	DXK
2nd FL	DXK	FXS | DXK	DXK | FXS	DXK
1st FL	KSE | FPA	FXS | FGV	DLT | FXS	KSE

	BANYAN WING B	BANYAN WING A
3rd FL	DXK	STO
2nd FL	DXK	STO
1st FL	FGV	STO

DXK	Deluxe
DPK	Deluxe Pool View
FPA	Family Lagoon Pool
STO	Family Studio Room
KSE	Kid Suite Room
FPV	Family Pool View
EXS	Executive Suite
FXS	Family Suite
FGV	Family Garden



Meeting Room Layout



Guest Room & Service Facilities

- Individually controlled air conditioning
- Colour TV with satellite channels
- In-room safe deposit box
- Non-smoking rooms
- Hairdryer
- Bathtub and shower
- IDD Phone
- Disabled rooms
- Mini bar
- DVD Player

Guest Services

- Mini mart
- Photo service
- Taxi counter
- Internet corner
- Playstation rental
- Library
- Valet parking
- Same day laundry & dry cleaning
- Doctor on call 24 hours
- Baby sitting service
- Tour and Information Center
- 4 guest lifts
- Currency exchange
- Laptop rental
- Wi-fi throughout
- Gym
- Gaming Room

1. Beach Zone
2. Kids Club
3. Kids Water Fun Zone
4. Kids Waterslide
5. Towel Hut
6. Kids Playground
7. Gym
8. Sunset Bar
9. Lazy Pool & Upper Lawn - Adults Only
10. Ashoka Spa
11. Main Pool
12. Sunken Bar
13. Lagoon Pool
14. H2O Restaurant & Upperdeck
15. Inner Garden
16. Temple
17. Fish Pond
18. Banyan Wing
19. Executive Office
20. Main Lobby
21. Golden Lotus Chinese Restaurant
22. Duck Pond
23. Front Garden
24. Nusa Penida Meeting Room
25. Art Shop
26. Car Park
27. Kertagosa Meeting Room
28. Security gate
29. Gracie Kelly's Irish Pub
30. Queen's Of India

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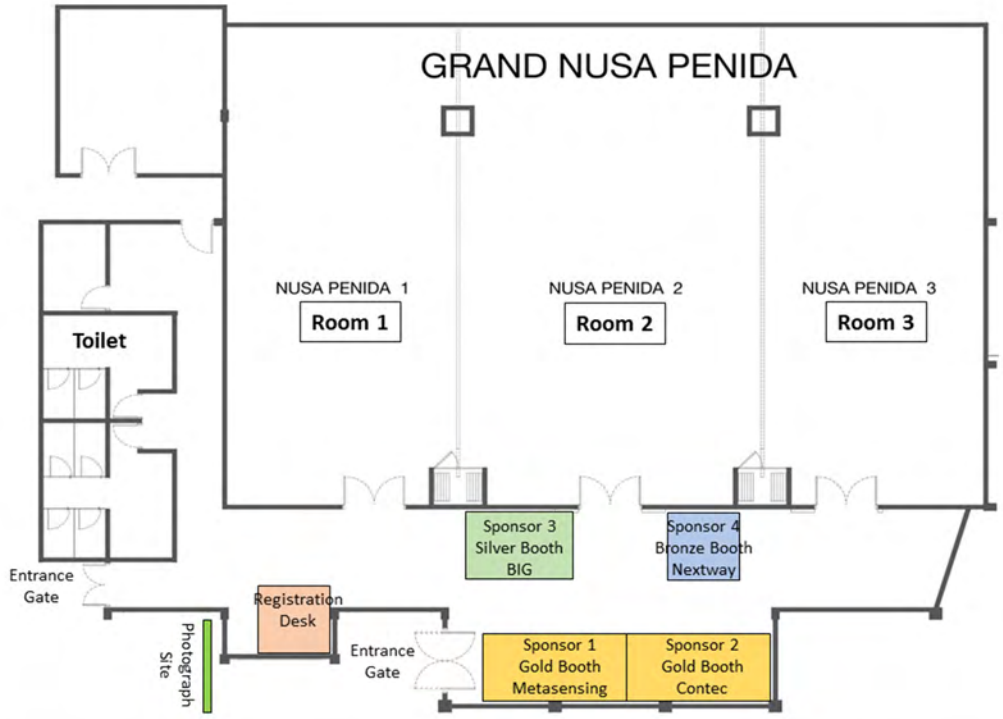
Venue



NB:
GNP (Grand Nusa Penida)
NP 1 (Nusa Penida 1)
NP 2 (Nusa Penida 2)
NP 3 (Nusa Penida 3)
GK (Gracie Kellys)
PL (Premier Lounge) / location: meeting room inside PL
H2O (official name)

Bali and Tourists

Om Swastyastu.
Welcome to Bali

The island of Bali is one of the more than 17,000 islands in Indonesia. With 153 km long and 112 km wide and an island area of 123.98 km2. Geographically, the island is located on 8°25′23″ south latitude and 115°14′55″ east longitude, between Java and Lombok. This is what makes Bali a tropical climate like other parts of Indonesia, warm and humid all year round with two main distinctive seasons: Dry Season and Rainy Season. Some of the areas around Bali's central mountains (volcanoes) have several peaks over 2,000 meters above sea levels. Up here the temperatures are considerably cooler, and there is much more rainfall than in the coastal areas. Bali is the most popular tourist destination on earth. Also known as the island of the Gods, Bali appeals through its sheer natural beauty of looming volcanoes and lush terraced rice fields that exude peace and serenity. Many tourists from all over the world visit each year. Bali is famous for its arts and culture with colorful ceremonies, traditional dances and music, carvings, paintings, and crafts to its luxurious beach resorts and exciting nightlife. It has many tourist attractions, which are interesting places to visit during a vacation on this island. The mixture of cultures, events, art, and history are a few examples of what this island can really be proud of. Bali is welcome for everyone.

The gateway to enter Bali by a flight route is through the Ngurah Rai International Airport. International and national flights are available around the clock, to take the visitor to the Island of The Gods. More about Bali can be explored on https://baliprov.go.id/.

Bali has the first rank of tourist destination both from domestic and international. One of the reasons for it is that because of the beautiful landscapes and rich culture of Balinese, which is different from other islands in Indonesia. As the first tourist destination, Bali has so many places that you should visit outside their Balinese traditional music instruments and other cultures. Most of them come from nature, history, and even Balinese cultures.

1. Kuta Beach

Kuta beach has beautiful scenery of the sunset with white sand along the shore. That makes tourist loves to visit this beach again and again. Moreover, it has a great wave that perfect for surfing. So, if you bring your children to swim there you should be aware of the wave. Kuta beach is located around the south of Denpasar, in the Kuta regions. If you depart from Ngurah Rai Airport, it needs about 15 minutes to reach the beach without traffic. Since the road around the beach also comes crowded from traffic, you should be prepared enough to get there on time.

2. Pandawa Beach

Pandawa beach is a famous beach in Bali after Kuta beach. It is located not far from the Kuta beach in around the south of Kuta regions in Badung district. On the way to get the beach, you will find beautiful hills that mindblowing your eyes. Pandawa beach is hidden with two giant cliffs that make this beach has unique scenery. On the one side of the cliff, there is the Pandawa sculpture complete with the five persons of Pandawa and the goddess of Kunti.

3. Kelingking Beach

Kelingking beach is located in Nusa Penida island in the Klungkung district. It is a bit far from Denpasar as the capital city of Bali. Once you reach the Sanur port from the city, you should take the boat to get to this beautiful beach. Kelingking beach has turquoise blue water that amazingly great to see. The beach is sounded by the headlands that have a form like the little finger and cliffs. You should be careful while getting down the beach. Commonly, the tourist has a favorite spot to get their photo from the upside the beach with the scenery of a little finger island and the sea.

4. Pura Tanah Lot

Pura Tanah Lot is a Hinduism temple located in the middle of the sea at the Baraban village, Tabanan district. The temple builds right at the giant reef so that it has beautiful scenery when the sunset comes down. Balinese still using the Pura Tanah Lot for

5. Pura Uluwatu

Pura Uluwatu is a Hinduism temple located at the hill of the Hindia ocean at the Pecatu village, Kuta, Badung district. This temple is so popular from time to time and is always crowded with a tourist visit. Moreover, there is a Kecak fire dance that you can watch while waiting for the sunset down. Pura Uluwatu is a historical place for Hinduism in Bali. This place is built around 1550 as the hidden place for Balinese holy priests. They are using the temple to pray to their highest god that they call the Dang Hyang Nirartha.

6. Ubud Monkey Forest

Ubud monkey forest is a preservation forest protected by the Indonesian government. It is located in Monkey forest street, Ubud, Gianyar district. Just like the names, this place is full of a monkey with a long tail as the native animals in Bali. The trees around the forest are so high just like a typical rain forest in Indonesia. Inside the Ubud monkey forest, there also a Pura which Balinese always use the temple for prayers.

7. Tegalalang

Tegalalang is a ricefield with a terracing irrigation system located in Tegalalang street, Ubud, Gianyar district. It has beautiful scenery with the terracing field that brings a harmonizing view to watch and so closer to the story of some folktales from Bali.

Tegalalang is popular in tourism visits for both domestic and international tourists. The place has cool weather, which is different from Denpasar or other districts in Bali.

8. Penglipuran Village

Penglipuran village is located in the Penglipuran street, Bangli district. This village has a special village that represents the original Balinese houses. The villagers also still using the traditional Balinese house, common Balinese name for people, and Balinese origin culture there. Penglipuran village claims to the cleanest village in Bali so that the village is clear from waste. That makes this place so popular with the pureness of Balinese culture that kept by the villagers from time to time.

9. Garuda Wisnu Kencana

Garuda Wisnu Kencana is the most iconic sculpture in Bali with the highest sculpture monument in Indonesia. The place was built for the cultural park located in Uluwatu street, Ungasan, South of Kuta, Badung. This place is open daily from 10 am up to 6 pm. Garuda Wisnu Kencana represents the god of Wisnu which in Hinduism calls the God of preservation. Balinese commonly calls the god by Stithi names which on the statue he rides a Garuda bird.

There are some glances about the most popular tourist destination in Bali that you should know. Most of them have beautifully mindblowing both for your body and mind. You could ask the Tourist Desk in the venue of APSAR 2021 to find your destination!

Please enjoy your stay on Bali island!

CALL FOR PAPERS

IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on "The 8th Asia-Pacific Conference on Synthetic Aperture Radar (APSAR 2023)"

Asia-Pacific Conference on Synthetic Aperture Radar (APSAR) is an international conference devoted to SAR technology development and applications and Co-Sponsored by IEEE Geosciences and Remote Sensing Society (GRSS) and Technical Committee on Instrumentation and Future Technologies (IFT) GRSS. The APSAR is a forum of Synthetic Aperture Radar (SAR) engineers and scientists from all over the world, especially from the Asia-Pacific region. The bi-annual APSAR conference is held every two years in China, Japan, Korea, Australia, and Singapore in turn, and APSAR 2023 was held at Bali island, Indonesia on 23-27 October 2023. Along with the conference, a special issue of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (J-STARS) has been planned, open to the authors of all papers presented during the APSAR 2023. Please note that papers submitted to this J-STARS special issue should NOT be the same as the APSAR 2023 conference papers. A 2 to 3 times longer paper is typically expected, with a more detailed presentation of the work, enhanced techniques, and approaches, including additional data sets and comparisons in an enhanced experimental section. In the cover letter, please provide the corresponding "Paper Number" (ten digits of EDAS #) for APSAR 2023. If this information is not provided, the paper will be considered a REGULAR submission.

The broad topics include (but are not limited to):

- SAR and Radar Systems
- SAR Image Processing
- SAR Platform
- Interferometric and Polarimetric SAR
- Multiband and Multibeam SAR
- Planetary SAR
- SAR Applications

Schedule

Jan. 1, 2024	Submission system opening
Jun. 30, 2024	Submission system closing

Format

All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on http://mc.manuscriptcentral.com/jstars, using the Manuscript Central interface and select the "APSAR2023" special issue manuscript type. Prospective authors should consult the site https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9082768 for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced). Please visit http://www.ieee.org/publications_standards/publications/authors/author_templates.html to download a template for transactions. Please note that as of Jan. 1, 2020, IEEE J-STARS has become a fully open-access journal charging a flat publication fee $1,250 per paper.

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APSAR 2023

2023 8th Asia-Pasific Conference on Synthetic Aperture Radar

International Conference

23-27 October 2023

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