

Agenda of the 12th Asia Oceania GEO (AOGEO) Symposium

1. Date : Saturday, November 2, 2019 - Monday, November 4, 2019
2. Venue : University House, Australian National University, Canberra, Australia
3. Organizers : Geoscience Australia / MEXT(Ministry of Education, Culture, Sports, Science and Technology) of Japan / GEO Secretariat
4. Theme : Scaling up successful Earth Observation activities for all of Asia-Oceania
Share the results and design the future steps for three priority engagement areas

MC: Dr David Hudson (AOGEO Coordination Board Co-Chair, GA)

Program (As of 27 October)		
Nov1 (Fri)	15:00-17:00	AOGEO Coordination Board Meeting (CLOSED MEETING - CB member only) (Meeting room: Fellows Boardroom)
Day1 Nov2 (Sat)	09:30 – 10:30	Registration (welcome coffee)
	10:30 – 10:45	Welcome remarks Prof Dr Gilberto Câmara (GEO Secretariat Director)
	10:45 – 11:00	Scene Setting Dr Kentaro Ando (AOGEO Coordination Board Co-Chair, Japan Agency for Marine-Earth Science and Technology (JAMSTEC))
	11:00 – 11:45	Keynote Dr Stuart Minchin (Australia GEO Principal, Geoscience Australia (GA))
	11:45 – 12:00	Group Photo Session
	12:00 – 13:30	Lunch
	13:30 – 15:00	Special Session 1: How do we go from global challenges to improving local decision making? Session Chair: Dr. Yongseung Kim (AOGEO Coordination Board Co-chair, Korea Aerospace Research Institute (KARI)) Part 1. Overview of our different scales (60 min) ✧ GEO global priority areas (Paris, SDGs, Sendai) Mr Osamu Ochiai (GEO Programme Board Co-chair, JAXA) ✧ AOGEO's Integrated Priority Studies: Mekong, Small Islands, Himalaya Dr Kentaro Ando Dr Andy Steven (AOGEO Coordination Board member, Commonwealth Scientific and Industrial Research Organisation (CSIRO)) Mr Birendra Bajracharya (The International Centre for Integrated Mountain Development (ICIMOD)) ✧ IPS Pilots: Samoa, Mekong River Delta and Kangchenjunga Landscape Ms Wenbo Chu (GEO Secretariat) Part 2. Discussion (30 min) Moderator: Dr. Yongseung Kim <i>*Interactive discussions by engaging the speakers, TG leads, and the</i>

		<i>audience by using Slido or equivalent tool.</i>
	15:00 – 15:30	Coffee break
	15:30 – 17:00	Special Session 2 : Cross cutting data and technology Session Chair: Dr David Hudson (AOGEO Coordination Board Co-Chair, GA) Part 1. Overview of Data Sharing and Data Platforms activities (30min) ✧ Overview of progress in Task 10 Dr Zhang Lianchong (Task 10, Aerospace Information Research Institute (AIR-CAS)) ✧ Overview of progress in Task 11 Mr Simon Oliver, GA (Task 11 Co-Lead, Geoscience Australia) Part 2. Panel discussion (60 min) Moderator: Dr. David Hudson <i>*Interactive discussions by engaging the speakers, TG leads, and the audience by using Slido or equivalent tool.</i> Panelists: ✧ Dr Zhang Lianchong (Task 10 Co-Lead, AIR-CAS) ✧ Dr Xiang Zhou (Task 11 Co-Lead, AIR-CAS) ✧ Mr Simon Oliver (Task 11 Co-Lead, Geoscience Australia) ✧ Prof Dr Gilberto Câmara (GEO Secretariat Director) ✧ Prof Toshio Koike (TG 1 Co-Lead, ICHARM)
	17:00 - 17:20	Overview of Sectorial meetings Dr Kentaro Ando
	17:20 – 17:30	Administrative communication about Day 2 and 3 Dr David Hudson
	18:30 – 20:30	Hosted reception
Day2 Nov3 (Sun)	09:00 – 12:00	Task Group meetings TG1: AWCI (GEOSS Asian Water Cycle Initiative) TG2: APBON (Asia-Pacific Biodiversity Observation Network) TG3: Carbon and GHG Initiative TG4: Oceans, Coasts and Islands TG5: Asia-RiCE (Asian Rice Crop Estimation and monitoring) TG6: Drought monitoring and Evaluation TG7: Environmental Monitoring and Protection TG8: Disaster Resilience TG9: Himalayan GEOSS * Each task group will: ✧ Update task group members about agency current and future activities ✧ Develop the work plan of their task for the coming year ✧ Prepare task group input for the annual AOGEO Statement ✧ Update their task group's mapping to GEO Engagement Priorities
	12:00 – 13:00	Lunch
	13:00 – 17:00	Task Group meetings (cont'd)

17:30 - 18:30	Statement meeting (Only for TG Leads, CB Co-Chairs, Co-Organisers)
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Day3 Nov4 (Mon)	08:30 – 09:30	Plenary Session Moderator: Dr Xingfa Gu (AOGEO Coordination Board Co-Chair, AIR-CAS) Speakers: Representatives from each TG (5 min for each TG). ✧ Reporting activities and next designs of all TGs ✧ Reporting the results of Joint Sessions
	09:30 – 09:50	Coffee break
	09:50 – 11:00	Special Session 3: How do we connect and synergize GEO and AOGEO activities? Moderator: Dr Xingfa Gu Part 1. Successful achievements and the factors (30 min) Speakers: ✧ Dr Shinichi Sobue (TG 5 Co-Lead, Japan Aerospace, Exploration Agency (JAXA)) ✧ Dr Sheila Vergara (TG 2 Co-Lead, ASEAN Centre for Biodiversity) ✧ Dr Marjan van Meerloo (Policy officer, DG RTD, European Commission, EuroGEO) ✧ Dr. Tae Hyung Kim (Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific (UN-GGIM-AP)/United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP)) Part 2. Discussion (40 min) <i>*Interactive discussions by engaging the speakers, TG leads, and the audience by using Slido or equivalent tool.</i>
	11:00 – 11:20	Coffee break
	11:20 – 12:00	Closing Ceremony Session Chair: Dr. Kentaro Ando ✧ Awarding of AOGEO Fellow ceremony (15 min) Dr Xingfa Gu ✧ Adoption of the 2019 AOGEO Statement (15 min) Dr David Hudson ✧ Closing Remarks (5min) Mr Yoshiyuki Chihara (GEO Principal of Japan, Deputy Director-General of MEXT)

AOGEO Symposium Sectorial Meeting Schedule

Sunday November 3, Day 2,

Room	Stanner Room	Scarth Room	Fellows Room	Common Room	Drawing Room	North room	Torrance room
Set up	Boardroom	Boardroom	Boardroom	Cabaret	Cabaret	Boardroom	Boardroom
Pax	20	50	18	84	42	16	16
09:00-09:30	TG 3	TG2	TG 4	TG1	TG 9	TG 7	TG 8
09:30-10:00	TG 3	TG2	TG 4	TG1	TG 9	TG 7	TG 8
10:00-10:30	TG 3	TG2	TG 4	TG1	TG 9	TG 7	TG 8
10:30-11:00	TG 3	TG2	TG 4	TG1	TG 9	TG 7	TG 8
11:00-11:30	TG 3	TG2	TG 4	TG1	TG 9	TG 7	TG 8
11:30-12:00	TG 3	TG2	TG 4	TG1	TG 9	TG 7	TG 8
12:00-12:30	Joint Lunch @ Main Hall						
12:30-13:00							
13:00-13:30	TG 3	TG2	TG 4	TG1	Possible time slot For joint session	TG 5	
13:30-14:00	TG 3	TG2	TG 4	TG1		TG 5	
14:00-14:30	TG 3	TG2	TG 4	TG1		TG 5	
14:30-15:00		TG2 and TG 3 Joint Session	TG 4	TG1		TG 5	
15:00-15:30			TG 4	TG1		TG 5	TG 6
15:30-16:00			TG 4	TG1		TG 5	TG 6
16:00-16:30	TG 3	TG2	TG 4	TG1		TG 5	TG 6
16:30-17:00	TG 3	TG2	TG 4	TG1		TG 5	TG 6
17:00-17:30							
17:30-18:00				Statement meeting			
18:00-18:30				Statement meeting			
18:30-19:00							

TG1: GEOSS ASIAN WATER CYCLE INITIATIVE (AWCI)

Human factors, such as globalization, population growth, poverty, urbanization and changes in land use, are aggravating the negative consequences of climatological, hydrological and meteorological hazards. Extreme climate events are also increasing water-related disaster risks faced by populations living in vulnerable areas. Losses are increasing in both developed and developing countries, and in this inter-connected world, the impact of an event can immediately cross borders, leading to cascading consequences, even in areas that are remote from the event. Repeated exposure to disasters is hampering sustainable development in vulnerable localities.

In 2015, the international community agreed on three major accords: the Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework), the Sustainable Development Goals (SDGs), and the Paris Agreement on Climate Change (Paris Agreement). These agreements collectively present an urgent need and opportunity for action now and beyond. There are important connections among these agreements. The SDGs on water and its related targets capture many ways water is utilized, managed, treated and protected throughout the entire water cycle. These targets address pressing water-related issues including social vulnerability and water-related hazards due to intensified climate change as well as poverty, hunger and cities. These water issues are inter-related and interdependent and must be addressed in a systemic and global way to create a more water-secure world.

GEOSS/AWCI has stepped into the second phase as one of Task Groups of AOGEO and a part of GEOGLOWS. Based on the series of discussions at the Asia Water Cycle Symposium (AWCS2016) in Tokyo, March 2016, the 9th, 10th, 11th GEOSS Asia-Pacific Symposiums in Tokyo 2017, Hanoi 2018 and Kyoto 2018, respectively, the 3rd and 4th UN Special Thematic Sessions on Water and Disasters in New York in July 2017 and June 2019, respectively, and the plenary meetings in Myanmar, Pakistan, Philippines, Sri Lanka and Indonesia, AWCI in collaboration with the International Flood Initiative (IFI) established a Platform on Water Resilience and Disasters in each country and has launched its activity.

The session this year will discuss concerted actions in the Asia-Oceania region to be taken for effectively contributing to the three global key agendas, i.e., the Sendai Framework, the SDGs and the Paris Agreement, and successfully implementing the UN Decade of Action "Water for Sustainable Development" (2018-2028)

Co-Chairs:

Dr. Srikanth Herath, Senior Advisor, Ministry of Megapolis and Western Development, Sri Lanka

Dr. Angelica Gutierrez, Chair of GEOGLOWS, NOAA, USA

Prof. Toshio Koike, International Centre for Water Hazard and Risk Management (ICHARM)

9:00-9:30	1. Opening GEOSS/AWCI Breakout Session	
	1) Opening Address	Co-Chairs
	2) Opening Remarks	
	GEO Secretariat	
	APN (TBD)	
	3) Report on the AWCI Session of the 11 th GEOSS-AP and the related activities	Toshio Koike
9:30-10:20	2. Keynote Lecture	Dushmanta Dutta, New South Wales Government, Australia Angelica Gutierrez, NOAA, USA
10:20-10:30	<i>Break</i>	
10:30-10:40	*5. Introductions to the International Activities on Water	
	1) JAXA	Shinichi Sobue
10:40-12:00	3. Water (TG1)-Agriculture (TG5)-Droughts (TG6) Joint Session	
	1) TG6 inputs	Jia, Li
	2) TG5 inputs	Shinichi Sobue
	3) TG1 inputs	Toshio Koike
	4) Discussion towards coordination and integration	
12:00-13:00	<i>Lunch Break</i>	
13:00-14:20	4. Report on the Platforms on Water Resilience and Disasters	
	1) Myanmar	
	2) Philippines	
	3) Sri Lanka	
	4) Indonesia	
14:20-14:40	5. Introductions to the International Activities on Water (WebEX)	
	2) WMO	Johannes Cullmann
	3) UNESCO	Shahbaz Khan
14:40-15:00	<i>Break</i>	
15:00-15:40	6. Summary on Practical Contributions to the Global Agendas	
	1) SDGs	All

- 2) Sendai Framework
- 3) Paris Agreement

15:40-16:20 7. Regional Cooperation during the UN International Decade for Action
“Water for Sustainable Development”

All

- 1) Hydrometeorology
- 2) Disaster Management
- 3) Infrastructure Design and Management

16:20-16:50 8. Inputs into the Canberra Statement

All

16:50-17:00 9. Closing Remarks

Co-Chairs

17:00 Adjourn

AOGEO Task Group 2: Asia Pacific Biodiversity Observation Network (APBON)
-Achievements, highlights, and next steps of biodiversity observations and community development-

Objectives of the session

The Asia-Pacific Biodiversity Observation Network (APBON) was established in order to network institutions and research groups in the Asia Pacific region that contribute to and utilize a knowledge resource base for decision making and policy for the conservation of biodiversity and ecosystems. It was launched in 2009, by responding to Biodiversity Observation Network under the Group of Earth Observations (GEO BON) in 2008. Since then, APBON facilitates the organization of and periodically convenes a regional network of biodiversity observation institutions to maintain a knowledge base that will support biodiversity conservation. APBON is developing its new workplan for the next three years based on the achievements, gaps and opportunities identified by research, capacity building and communication activities. Through past APBON's meetings, we recognized that there were still large observation gaps geographically and thematically in the region. We also recognized that societal demand for biodiversity monitoring is increasing and we need to collaborate with other disciplines to solve the global environmental issues. Thus the major objectives of this APBON session in the 12th AOGEO Symposium are; (1) engagement of biodiversity observation communities in the region particularly in the Pacific and Oceanic regions taking advantage of AOGEO Symposium being held in Australia, (2) identifying policy-relevant biodiversity observations and assessments, and (3) seeking collaborative opportunities with carbon cycle community and satellite observation mission(s). Hence APBON will initiate its new workplan from 2020.

APBON Co-chairs

Tetsukazu Yahara (Kyusyu University, Japan)
Sheila Vergara (ASEAN Centre for Biodiversity, Philippines)
Eun-Shik Kim (Kookmin University, Republic of Korea)

Session organizers

Hiroyuki Muraoka (Gifu University, Japan; AOGEO Coordination Board; GEO Programme Board)
Yayoi Takeuchi (National Institute for Environmental Studies, Japan)
Shin Nagai (Japan Agency for Marine-Earth Science and Technology, Japan)
Takehisa Yamakita (Japan Agency for Marine-Earth Science and Technology, Japan)
Yuuichi Kano (Kyusyu University, Japan)

APBON Secretariat

Biodiversity Center of Japan, Ministry of the Environment, Japan

Programme

- 9:00-9:20 **Opening session** (Moderator: Tetsukazu Yahara)
 1. Welcome by Co-chairs of APBON
 2. Welcome by Ministry of the Environment, Japan
 3. Setting the scene - Overview of APBON New Workplan and Today's agenda
- 9:20-9:45 **Keynote 1**
 "Biodiversity observations in Asia-Oceania – Marine"
 Takehisa Yamakita (JAMSTEC, Japan)
- 9:45-10:10 **Keynote 2**
 "Australian-LTER and its potential to contribute to AP-BON"
 Michael Liddell (James Cook University, Australia)
- 10:10-10:40 *Group photo and tea/coffee Break*
- 10:40-12:00 **Session 1. Engagement of local, national and regional biodiversity observations** (Moderator: Sheila Vergara)
 This session is expected to expand our network with gap areas of biodiversity monitoring as well as AOGEO's priority study areas (Mekong, Pacific Islands and Himalaya). We learn their observation

activities and share the status and issues of biodiversity monitoring.

- Session Introduction 10:40 – 10:45 (Sheila Vergara)
- Recent development of local/national biodiversity obs. (15 min x 3 speakers)
 - 10:45 – 11:00 Charlie Heatubun (University of Papua, Indonesia)
 - 11:00 – 11:15 Mangal Man Shakya (Wildlife Watch Group, Nepal)
 - 11:15 – 11:30 Bunthang Touch (IFReDI, Cambodia)
- Discussions (30 min)

12:00-13:00 *Lunch*

13:00-14:10 **Session 2. Recent activities and Highlights of outcomes relevant to science-policy linkage** (Moderator: Eun-Shik Kim)

This session is expected to learn recent achievements of GEO BON and APBON in the context of solving regional/global biodiversity issues. We will also discuss how we can deliver scientific evidence to policymakers.

- Session Introduction 13:00 – 13:05 (Eun-Shik Kim)
- GEO BON's activities and post-2020 strategy (20 min)
 - 13:05 – 13:25 Laetitia Navarro (GEO BON)
- Highlighting APBON activities for biodiversity-based consideration on environment-society issues (15 mins each)
 - 13:25 – 13:40 Freshwater – Yuichi Kano (Kyusyu University, Japan)
 - 13:40 – 13:55 Marine – Hiroya Yamano (NIES, Japan)
- Discussions (15 min)

14:10-14:30 *Tea/coffee break*

14:30-15:50 **Session 3. Designing the future steps: filling observational gaps by multi-disciplinary approach (joint session of TG2 and TG3)** (Moderator: Hiroyuki Muraoka)

This session invites TG3 and a Satellite monitoring scientist and overview our common interest and research theme. Then we will discuss on what outcomes we expect by multi-disciplinary and cross-scale approach and how do we achieve and develop it.

- Session Introduction 14:30 – 14:35 (Hiroyuki Muraoka)
- Expectations from APBON (20 min)
 - 14:35 – 14:55 Yayoi Takeuchi (NIES, Japan)
- Expectations from satellite observations (20 min)
 - 14:55 – 15:15 Osamu Ochiai (JAXA, Japan)
- Expectations from Carbon and GHG initiative / AOGE Task Group 3 (20 min)
 - 15:15 – 15:35 Kazuhito Ichii (Chiba University, Japan)
- Discussions (15 min)

15:50-16:50 **Session 4. Summary and next steps** (Moderator: Yayoi Takeuchi)

This session is expected to discuss and summarize how we contribute to AOGE's agenda such as AOGE Engagement Priorities, Integrated Priority Studies, Data sharing and Capacity building. We also prepare our input for AOGE statement.

- Understanding biases and developing better standards for biodiversity data
 - 15:55 – 16:10 Alice Hughes (XTBG)
- APBON's contribution to AOGE (GEO's three Engagement Priorities, AOGE Integrated Priority Studies)
- Summary of the Sectorial session - Drafting APBON's input to AOGE Statement

16:50-17:00 **Closing remarks** (APBON Co-chairs)

AOGEO Task Group 3: The GEO Carbon and GHG Initiative

Objectives of the session

The Paris Agreement established a long-term goal of keeping the global average temperature well below 2 °C above the pre-industrial level by achieving a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases (GHGs) in the second half of this century. To monitor and evaluate the impacts of climate change measures for implementing the Paris Agreement, accurate knowledge of emission trends and reliable GHG inventories are necessary. Emission reporting from developing countries is particularly important.

There has been an increase in the number of observational platforms, such as satellites, aircraft, ships, and ground stations, for monitoring the concentrations of atmospheric GHGs and their surface fluxes. National and regional inventories of emissions have also been prepared at higher spatial and temporal resolutions. The reliability of evaluations of natural and anthropogenic sources and sinks has been improved in recent years by combining data regarding sources and sinks with advanced analysis systems such as "top-down" (with atmospheric observations and inverse modeling) and "bottom-up" (with surface flux/emission network data and upscaling) methods. However, due to uncertainties in modelling tools, and limited observational data coverage, high uncertainty, and less well-known processes still remains in global or regional sources/sinks estimations, particularly for carbon dioxide (CO₂).

Asia, as one of the world's largest GHG emitters, has a responsibility to play an important role to turn the goals of Paris Agreement into reality. Urgent needs in Earth observation are to harmonize the increasing number of platforms for monitoring GHGs in Asia–Oceania, to reduce their source/sink estimation uncertainties and to identify current knowledge gaps and requirement for further international collaboration. Estimating emissions based on Earth observations for GHGs has enormous potential for providing additional sources of information that can complement national inventories. In particular, monitoring emission from expanding megacities, intermittent emissions from agricultural fields and forest (peat) fires, emissions from large-scale land-use change, and coastal carbon budget are essential future targets.

Relevant Asian-Oceanian institutions and agencies for GHG observation and analysis will cooperate to improve up-to-date analysis systems and data coverage in Asia–Oceania for better estimation of emission distributions with sufficient accuracy, and to provide the data and knowledge to stakeholders in time with such activities as the Global Stocktake Process under the Paris Agreement.

Session organizers

Kazuhito Ichii (Chiba University, Japan)

Pep Canadell (CSIRO, Australia)

Programme [*Note: Time slots may be changed according to entire planning of the Symposium*]

9:20-9:30 **Opening:** Setting the scene – Overview of Today's Session

9:30-9:50 **Keynote 1**

“Inverse model/top-down estimation of CO₂ and CH₄ sources and sinks using atmospheric observations and chemistry-transport simulation”

Prabir Patra (Japan) (online)

9:50-10:10 **Keynote 2**

“TBD”

TBD

10:10-10:40 *Group photo and Networking Break*

10:40-12:00 **Session 1. Observation (in-situ and remote sensing): Updates and Requirements Across Asia-Oceania**

This session is expected to share current status of Observation (in-situ network and satellite) and their integration, including current gaps and requirement for international collaboration on CO₂ and GHG budget across Asia and Oceania.

- Presentations on recent development of observations. (15 min x 4 speakers)
 - “GHG Concentration Observation and Flux / Emission Estimates by GOSAT Satellite Series : Status, Gaps, and Future Directions”
Tsuneo Matsunaga (Japan)
 - “TanSat mission achievement and Chinese CO₂ fluxes inversion from Top-down method”
Yi Liu (China)
 - “Progress of empirical bottom-up estimation of terrestrial CO₂ fluxes using AsiaFlux”
Kazuhito Ichii (Japan)
 - “CarbonWatchNZ: A bird's eye view of New Zealand's greenhouse gas emissions and carbon uptake.”
Sara Mikaloff-Fletcher (New Zealand)
- Discussions (20 min)

12:00-13:20 *Lunch*

13:20-14:10 **Session 2. Emergent and Key Topics in Asia-Oceania (15 min x 3)**

This session is expected to bring and share latest important topics and learn recent achievements of these topics in the context of ‘hotspot’ of CO₂ and GHG budget changes.

- “Carbon budget assessment in Southeast Asia: multi-data and -model synthesis”
Masayuki Kondo (Japan)
- “Fire-induced CO₂ emission from Equatorial Asia in 2015 estimated by CONTRAIL”
Yosuke Niwa (Japan)
- “TBD”
TBD
- Discussions (15 min)

14:10-14:30 *Networking break*

14:30-15:50 **Session 3. Designing the future steps: filling observational gaps by multi-disciplinary approach (joint session of TG2 and TG3)**

This session invites TG3 and a Satellite monitoring scientist and overview our common interest and research theme. Then we will discuss on what outcomes we expect by multi-disciplinary and cross-scale approach and how do we achieve and develop it.

- Expectations from APBON (20 min) Yayoi Takeuchi (NIES, Japan)
- Expectations from satellite observations (tbd) (20 min) Osamu Ochiai (JAXA)
- Expectations from Carbon and GHG initiative (tbd) (20 min) Kazuhito Ichii (AOGEO TG3)
- Discussions (20 min)

15:50-16:50 **Session 4. Summary and next steps (title tbd)**

This session is expected to discuss and summarize how we contribute to AOGEO's agenda such as AOGEO Engagement Priorities, Integrated Priority Studies, Data sharing and Capacity building. We also prepare our input for AOGEO statement.

- Contribution to AOGEO (Engagement Priorities, Integrated Priority Studies)
- Practical ideas for promoting data and information sharing
- Summary of the Sectorial session - Drafting to AOGEO Statement

16:50-17:00 **Closing remarks**

The Ocean, Coasts, Islands (OCI) sectorial meeting in the 12th AOGEO symposium

Oceans Coasts and Islands (OCI) is a recent synthesis of Tasks 4 (Oceans and Society) and 8 (Coasts and Islands) in the AOGEOSS implementation plan to better align the activities of these two tasks. The former Task 4 has successfully operated for a number of years as part of GEOSS-AP bringing together participants from Japan, India, Malaysia, Thailand, Philippines, Indonesia Vietnam and Australia to coordinate access to meta level oceanographic information through the GEOSS-AP Ocean Data Networking System (AP-ONS: <http://www.jamstec.go.jp/geossap/>). The former Task 8 recognizes the considerable and shared coastal development and climate challenges faced by many nations in Asia, as well as the particular needs of small island nations in the Indo-Pacific region (e.g. rapid sea level rise and extreme events, coral reef monitoring blue carbon and aquaculture opportunities to support sustainable livelihoods).

This new task, Ocean Coast and Islands (OCI) has the following objectives: to 1) provide a regional mechanism to advance and exploit synergies among the many observational programmes devoted to islands, coasts and oceans of the Asia-Oceania region; 2) articulate regional user needs from Earth Observations and raise awareness of the societal benefits of ocean observation; 3) seek to address gaps in user needs in the Asia-Oceania region to evolve a comprehensive and integrated observation data or inventory system for the region; 4) continue development of, and cooperation for, a data inventory system, and facilitate sharing of data, tools and products, and 5) link with other GEO Initiatives (e.g. Blue Planet, GFOI, GEOGLAM and other AOGEOSS tasks) to develop regional data hub and coordinate regional activities and integrated products.

In this working group session, bearing on mind of SDG14, we aim to: 1) further promote development of and expand the regional data inventory system, and 2) articulate regional user needs for monitoring and data collections from islands and coastal regions, focusing on the IUU.

Place: University of Canberra, Canberra, Australia

Date: 3rd, November 2019

For more information on logistics, please visit at <https://www.earthobservations.org/geoweek19.php?t=aogeo>

<https://www.earthobservations.org/geoweek19.php?t=aogeo>

Agenda: 3rd Nov., 2019:

9:30-12:00: Session-1 **Development of Ocean Data Inventory** (K Ando & Idham Khalil)

1.1. Progress up to now: since the 2018 Statement (10 min, K Ando)

1.2. Collaborative works between JAMSTEC and CSIRO (20 min, Fumihiko Akazawa, confirmed & Sharon Tickell)

1.3. Progress and update of each oceanographic data system

Indonesia: LIPI data system (15 min, Bayu Prayudha)

Malaysia: UMT data system (15 min, Idham Khalil)

Thailand: PMBC data system (15 min, Kongkiat Kittiwantanawong)

Vietnam: VIO data system (15 min, Huu Huan Nguyen)

- 1.4. Development of Indonesian NODC (15 min, Indonesian expert)
- 1.5. IOC/IODE/ODIS approaches (15 min, Idham Khalil)
- 1.6. Data catalogue of Marine Plastic and litter by BPI (20 min, Emily, BPI/NOAA)
- 1.7. TORI's projects and possible collaborations in future (10 min, Chau-Chang Wang)
- 1.8. Enhancing networking, and way forward (30min, K. Ando)

12:00-13:30 Lunch

13:30-15:30: Session-2: **Combatting IUU with better Earth Observation**

Chairs: Andy Steven and James Movick

- 2.1. Overview of IUU issues in the AO Region and EO Needs (James Movic)
- 2.2. Forum Fisheries Agency Activities in the Pacific (Bryan Scott)
- 2.3. Indonesia's IUU activities (Teja Arief Wibawa)
- 2.4. IUU Surveillance in the Pacific French Territories (Remi Andreoli)
- 2.5. Technology innovations and applications for IUU (Chris Wilcox)
- 2.6. Facilitated Discussion on IUU needs in the Asia Oceania Region (Andy Steven)

15:30-16:00 Coffee Break

16:00-17:00: Session-3 Contributions to AOGEO cross cutting projects: Integrated Priority Studies of AOGEO (IPS/AOGEO)

- 3.1 Mekong (KA)
- 3.2 Pacific Islands (AS)
- 3.3 Discussion to foster IPS/AOGEO
 - What we are doing in two regions? (by all)
 - What we can do in future? (by all)
 - Requirements to IPS/AOGEO

17:00-17:30: Session-4 Wrap-up (by all)

Inputs to Canberra Statement

AOGEO TG5: Asia-RiCE (Asian Rice Crop Estimation and Monitoring)

The Australian National University, Canberra, 2nd-4th November 2019

Objectives of the session:

While food demand is increasing due to rapid growth of population and economy, we are facing the shortage of arable land and water resource for crop production, and the frequent hazardous weather events such as flood and drought under a changing climate. The future agricultural systems need to go for sustainable intensification, with less environmental footprints and more biodiversity, while keeping high productivity and resource-use efficiency. The Task Group (TG) 5 particularly addresses SDG 2 (*“End hunger, achieve food security and improved nutrition and promote sustainable agriculture”*), SDG 1 (*“End poverty in all its forms everywhere”*), and SDG 13 (*“Take urgent action to combat climate change and its impacts”*) and indirectly SDG 10 (*“Reduce inequality within and among countries”*) and SDG 15 (*“Protect, restore and promote sustainable use of terrestrial ecosystems”*).

Realizing that earth observation at the global/regional/local scale is one of the key factors to address the above issues, several groups have been involved in the satellite and ground-level observations with a collection of statistical information and trying to apply such data to agricultural models for crop yield forecast and assessment of crop damage. In spite of the importance of merging data from satellite and ground observations for better decision-support systems, integration of multi-platform data with models and available statistical information is still limited.

In TG5, participants representing different observation platforms and decision-support systems will discuss the earth observations for regional food security in Asia and Oceania regions, particularly in the Mekong region. As the chair of the Committee on Earth Observation Satellites (CEOS) for 2019, Vietnam National Space Center (VNSC) primarily pursues carbon observations (forested regions) and observations for agriculture (rice) (<http://ceos.org/2019chairinitiative/>). VNSC seeks to integrate a number of ongoing CEOS activities in support of the target applications for the Mekong Delta, by sharing analysis-ready data and algorithms, the coordination of pilot activities, training and capacity building.

The outputs in TG5 will be reflected to the Global Agriculture Monitoring (GEO GLAM) project for G20 action plan, especially Asia rice crop team activity in GEO GLAM and other international projects such as FAO and ASEAN Food Security Information System (AFSIS).

Co-chairs:

Lam Dao Nguyen (Vietnam National Space Center, Vietnam)

Yoichiro Kato (The University of Tokyo, Japan)

Session Co-organizer:

Shinichi Sobue (Japan Aerospace Exploration Agency)

Program:

Date/time: Sunday, 3rd November 2019

From 10:30am to 12:00pm

Place: Common Room, University House

- Water (TG1)-Agriculture (TG5)-Droughts (TG6) Joint Session

Lunch (12pm to 1pm)

From 1pm to 5pm

Place: North Room, University House

- Rice monitoring technologies for regional food security, with emphasis on the Asia-Pacific region (1pm-3pm)

Session Chair: Dr. Yoichiro Kato

1. Dr. Shinichi Sobue (Japan Aerospace Exploration Agency)
2. Dr. Pakorn Petchprayoon (Geo-Informatics and Space Technology Development Agency, Thailand)
3. Dr. Vang Seng (Department of Agricultural Land Resources Management, General Directorate of Agriculture, Cambodia)
4. Dr. Zheng-Shu Zhou (Commonwealth Scientific and Industrial Research Organisation, Australia)

Coffee break (3pm-3:30pm)

- Research for Development network on the rice monitoring in the Mekgon region, with reference to CEOS (3:30pm-5pm)

Session Chair: Dr. Shinichi Sobue

5. Dr. Lam Dao Nguyen (Vietnam National Space Center, Vietnam)
6. Dr. Quyen Hanh Nguyen (Asia Disaster Prediction Center, Thailand)

- Wrap-up of the meeting: Summary for the plenary session on Day 3

AOGEO Task Group 6: Drought Monitoring and Evaluation

Background

Drought is a process-based complex phenomenon, which can lead to potentially devastating and large-scale impacts on agriculture, environment, economic and society. It is crucial to monitor and evaluate the onset, evolution and impact of drought events. Due to climate change, the frequency, severity and duration of droughts in Asia-Oceania region have increased in the last decades. The Drought Monitoring and Evaluation Task Group aims at applying Earth Observations and other Space-based technologies to effective drought monitoring, evaluation, and management in Asia-Oceania region. Further, it will promote the regional cooperation on drought monitoring in this region. The major objectives of the session on Drought Monitoring and Evaluation at the 12th AOGEO Symposium are to:

- (1) review the drought events and features in the Asia-Oceania region;
- (2) present recently progress in observations and methods on drought monitoring;
- (3) evaluate the impacts of drought and solutions to drought risk reduction in Asia-Oceania region;
- (4) update the future activities and discuss the cooperative mechanism in Asia-Oceania region under the framework of AOGEO-TG6.

Drought Monitoring and Evaluation

Co-Chairs: Li Jia (RADI/CAS/China)

Programme

13:00-13:10 Session Introduction (Li Jia)

13:10-13:30 Update of work plan and activity of AOGEO AG6

Li Jia, Institute of Remote Sensing and Digital Earth (RADI), Chinese Academy of Sciences (CAS), China

13:30-14:00 Flood and droughts in Bihar of India due to climate variability

Ramakar Jha, National Institute of Technology (NIT), India

14:00-14:30 The impacts of severe drought events and ways to disaster risk reduction

Jianjun Wu, Beijing Normal University, China

14:30-15:00 *Tea/coffee break*

15:00-15:30 Drought monitoring in Mongolia

Bulgan Davdai, Information and Research Institute of Meteorology, Hydrology and Environment (IRIMHE), National Agency Meteorology and the Environmental Monitoring, Mongolia

15:30-16:00 Monitoring the evolution of flash droughts using evapotranspiration-based indices

Min Jiang, Institute of Remote Sensing and Digital Earth (RADI), Chinese Academy of Sciences (CAS), China

16:00-16:50 Discussion

16:50-17:00 Summary and Closing

Participants:

- Prof. Li Jia, Institute of Remote Sensing and Digital Earth (RADI), Chinese Academy of Sciences (CAS), China
- Prof. Ramakar Jha, National Institute of Technology (NIT), India
- Prof. Jianjun Wu, Beijing Normal University, China
- Dr. Anond Snidvongs, GISTDA Executive Director
- Dr. Pakorn Petchprayoon, Chief of Economic Division, GISTDA
- Drs. Bulgan Davdai, Information and Research Institute of Meteorology, Hydrology and Environment (IRIMHE), National Agency Meteorology and the Environmental Monitoring, Mongolia
- Dr. Yaokui Cui, Peking University, China
- Dr. Min Jiang, Institute of Remote Sensing and Digital Earth (RADI), Chinese Academy of Sciences (CAS), China
- Representatives from of TG1, 3, 6 and 9

Agenda of the AOGEO Sectorial meeting of TG7: Environmental Monitoring and Protection (EMP)

(Draft on 2019. 10, 25)

Due to the rapid urbanization and economic development in Asia-Oceania region, the environmental deterioration and pollution endanger the security of ecosystem services and human being healthy. Inherit the previous AOGEOSS implementation plan in the past term, TG7 is to improve the regional and international cooperation to monitor the terrestrial ecosystem status and atmosphere environmental qualities, and to provide decision-making support knowledge for human being health and environmental protection.

This sectorial meeting is to present the recent progresses on TG7 and discuss for the next working plan for the near future.

Organizers:

Qinhua LIU (RADI, CAS of China), liuqh@aircas.ac.cn;

Alfredo HUETE (UTS, Sydney of Australia) Alfredo.Huete@uts.edu.au;

Xingfa GU(RADI, CAS of China) guxf@aircas.ac.cn

Contact:

Li Li (RADI, CAS of China) Lili3982@radi.ac.cn,

Date: 9:30am-12:00am, November 3November 3

Agenda

Time	Title	Presenter	Affiliation
9:00-09:15	Introduction of Environmental Monitoring and Protection (EMP)	Prof. Qinhua Liu	Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences
9:15-10:00	National Progresses on the Environment Monitoring and Protection in AO Region	representatives from Australia, Japan, Korean...	To be decided
10:00-10:15	Global Ecosystem and Environment Observation and Analysis Research Cooperation (GEOARC): Progresses in 2019	Dr. Junjun Wu	Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences
10:15-10:30	Coffee break		
10:30-10:45	Ecosystem Assessment and the Climate Change Responses Analyses	Prof. Alfredo Huete	University of Technology Sydney, Australia
10:45-11:15	Remote Sensing Inversion Algorithm, Product Generation and Validation for the Key Ecosystem Parameters	Participants from Different Institutions	To be decided
11:15-11:30	Introduction to the International cooperation project of Ministry of Science and Technology (MOST), China	Prof. Qinhua Liu	Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences
11:30-11:55	Discussion for the Working Plan in 2020-2022	All Participants	
11:55-12:00	Closing Remarks	Prof. Xingfa Gu	Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences

AOGEO Task Group 8: Disaster Resilience

9:00-12:00, Sunday 3 November

Boardroom, University House at the Australian National University, Canberra, Australia

Identification of initial work programme activities, participants and linkages to other related GEO and non-GEO activities; agreement of working arrangements for the Task Group.

Objectives of the session

This is the first face-to-face meeting of AOGEO Task Group 8: Disaster Resilience. The objective is to agree an outline scope of work for the Task Group that can be used to support the development of a 3-year work programme for Task Group 8 under the framework of the 2020-2022 GEO Work Programme application Asia-Oceania GEO (AOGEO). We aim to have the Task Group work plan in place by January 2020.

The meeting will identify Task Group participants and establish agreed working arrangements.

The session will be an opportunity to review candidate Task Group 8 subtasks and their linkages to other existing GEO and AOGEO work programme activities, as well as related initiatives that are operating under other organisations' programmes, such as CEOS, UN-SPIDER and UN-GGIM.

There will be opportunity for the organisations present to contribute to the discussion, and some brief presentations will be given on current ongoing work to provide context for the discussions.

Candidate work programme activities to be discussed include:

- EO to support better response and recovery, including use of the International Charter "Space and Major Disasters"
- Improving understanding of disaster risk and exposure
- Supporting risk and damage reduction
- Developing EO guidelines to support Sendai Framework reporting
- Advocating for and develop Analysis Ready Data standards, pipelines and public hubs
- Strengthening EO use in national Disaster Risk Reduction policy
- Support for Small Island Developing States within the AO region
- Potential pilot studies that could account for Asia-Oceania regionally specific multi-hazard characteristics
- Mapping linkages to other related initiatives
- Other potential activities proposed or identified during the Task Group meeting

At the conclusion of the session we aim to have:

- reached agreement on priority work programme tasks to be included in the initial 3-year work programme planning,
- identified key activities within other AOGEO, GEO and related work organisations' work programmes that we can learn from and coordinate with,
- identified individuals and/or organisations who are willing to work as members of the Task Group and support its activities, and
- agreed the working arrangements for the Task Group

Task Group Co-chairs

Li Suju, (National Disaster Reduction Centre of China, China)

Rob Deakin (Land Information New Zealand, New Zealand)

Session Organisers

Li Suju, (National Disaster Reduction Centre of China, China)

Rob Deakin (Land Information New Zealand, New Zealand)

Task Group 8 Secretariat

TBC

Programme

09:00 – 09:20 Welcome and introductions

Welcome by Co-chairs

Scene setting and aims of the meeting

Brief introductions from all attendees

09:20 – 10:30 Setting the context for Disaster Resilience

Background to AOGEO Task Group 8

Li Suju, (NDRCC, China)

Disaster Resilience and the GEO work programme

James Norris (GEO Secretariat)

Current regional activities

Li Suju, (NDRCC, China)

Rafael Kargren, (Xerra, New Zealand)

Others to be confirmed

UN-GGIM Disasters Working Group

Rob Deakin (LINZ, New Zealand)

10:40 – 10:45 Break

10:45 – 11:30 Candidate work programme activities

(Moderators: Rob and Suju)

11:30 – 11:45 Task group working arrangements

(Led by Co-chairs)

11:45 - 12:00 Summary of actions, next steps and closing remarks

(Led by Co-chairs)

Summary of decisions and actions

Any other business

Closing remarks

AOGEO Task Group 9: Himalayan GEOSS

Background

Extending over 3,500 km from Afghanistan in the west to Myanmar in the east, the Hindu Kush Himalaya (HKH) mountains are home to the world's highest peaks, rich biodiversity, unique cultures, and vast reserves of natural resources. A critically important global asset with vast ice fields outside the polar regions, this mountain range is also known as the Third Pole. Himalayan GEOSS Task Group focuses on the mountain region with a geographic scope in the HKH countries which include Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan. The Himalayan GEOSS addresses the gaps in EO applications in the thematic areas of agriculture and food security, water resources, snow and glacier, disaster risk reduction, land use, land cover change and ecosystem services. Further, it promotes access to and sharing of data, standards and methodologies, fosters regional cooperation to build complementary efforts to address common issues and works towards building capacities of individuals and institutions addressing the needs in the region.

The major objectives of this Himalayan GEOSS session in the 12th AOGEO Symposium are to:

1. present key findings from the recent assessment of the HKH region from climate change, sustainability and people perspective;
2. update on Himalayan GEOSS activities and plan to address the needs and gaps in the region for promoting EO applications; and
3. explore collaborations with other cross cutting AOGEO Task Groups for building synergies.

Himalayan GEOSS Co-Chairs:

Basanta Shrestha (ICIMOD)

Birendra Bajracharya (ICIMOD)

Programme

09:00 - 09:20 Welcome by TG Co-chair
Remarks by Chair

9:20-10:00 Key findings of *Hindu Kush Himalaya Assessment* and Call for Action
- *Basanta Shrestha*

(The Hindu Kush Himalaya Assessment report presents a cautionary picture of the impact of climate change in the HKH region as it synthesizes various scientific studies. A first of its kind in its comprehensiveness and focus, the report provides an assessment of one of the world's most significant yet often overlooked mountain regions, exposing the fragility of not just the region but its ecosystems as a whole.)

10:00-10:30 Himalayan GEOSS: current efforts and future strategies to EO applications for sustainable mountain development
- *Birendra Bajracharya*

10:30 – 11:00 Tea break

11:00 – 12:00 Key challenges and next steps (interactive discussion)

Moderator: Basanta Shrestha

This session is will initiate discussions among participants on the following topics and summarize way forward.

- Capacity building
- Data and information sharing
- AOGE0/ GEO Engagement - Integrated Priority Studies, Cloud pilot
- Collaboration with other TGs of AOGE0
- Himalayan GEOSS contributions to AOGE0

12:00 – 12:30 Summary and Closing