THE WMO REGIONAL ASSOCIATION II (RA II) WIGOS PROJECT TO DEVELOP SUPPORT FOR NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES (NMHSs) IN SATELLITE DATA, PRODUCTS AND TRAINING

THE FIFTH MEETING OF THE COORDINATING GROUP

VLADIVOSTOK, RUSSIA, 21 OCTOBER 2017

MEETING REPORT

Participants in the fifth meeting of the Coordinating Group

(Back row) Ibrahim Al Abdulsalam, Bodo Zeschke, Khaled Yaseen, Dohyeong Kim, Yoon Jung Sic, Hiroshi Kunimatsu, James Purdom, Alexander Vasilyev, Vasily Asmus, Virendra Singh, Ryo Yoshida, Alexander Uspensky
(Front row) Riris Adriyanto, Xuebao Wu, Kamol Promasakha Sakolnakhon, Khalid Alobeidli, Agnes Lane, Than Naing, Fernando Belda, Chi Kuen Billy So, Ali Shareef, Naddia Binti Kamis, Zoya Andreeva, Humeira Hafeez, Natalia Okulich-Kazarina

1 OPENING

The Fifth Meeting of the Coordinating Group of the WMO Regional Association II (Asia) WIGOS Project to Develop Support for National Meteorological and Hydrological Services (NMHSs) in Satellite Data, Products and Training was held at Far Eastern Federal University on Russky Island in Vladivostok, Russia, on 21 October 2017. A list of attendees is provided in Annex I.

1.1 Welcome Address

Alexander Vasilyev (Principal Scientist, Hydrometcentre of Russia /Roshydromet) welcomed those present, emphasizing the importance of WIGOS with Russia's integration of the observation network as an example and expressing hopes for a most fruitful and rewarding meeting.

1.2 Opening Address

On behalf of WMO, Fernando Belda (Director, WMO Observing and Information Systems Department) welcomed those attending the fifth meeting and expressed his appreciation to Russia for hosting the event. His address emphasized the importance of the meeting in identifying user requirements and supporting the implementation of WIGOS in 2020, and stressed the importance of user training and questionnaires in consideration of the variety of satellite products and applications available today. The address concluded with an expression of hopes for productive discussions and a successful meeting.

1.3 Adoption of the Agenda

A provisional agenda developed by the Project co-coordinators (see Annex II) was adopted. All documents and presentations submitted for the meeting will be posted on the Project website at http://www.jma.go.jp/jma/jma-eng/satellite/ra2wigosproject/ra2wigosproject-intro_en_jma.html.

2 STATUS OF PROJECT

2.1 Accomplishment, Current Status and Work Plan of the Project

Ryo Yoshida (JMA) highlighted Project accomplishments made from 2013 to 2016:

1. Support for the preparation of satellite data users in relation to new-generation geostationary meteorological satellites
2. Establishment of close coordination between the RA II WIGOS Project and the RA-V Task Team on Satellite Utilization
3. Establishment of a portal site for accessing satellite imagery, data and products as well as training resources
4. Hosting of Asia/Oceania Meteorological Satellite Users' Conferences (AOMSUCs) and meetings of the Coordinating Group
5. Conduct of training and questionnaire surveying on the utilization of new-generation

geostationary meteorological satellites via AOMSUCs

6. Issuance of quarterly newsletters

Mr. Yoshida also summarized Project plans for the period from 2017 to 2020 (Annex III) under the Regional WIGOS Implementation Plan 2017 – 2020 as approved at the 16th session of WMO Regional Association II (RA II-16/Doc. 4.3 (1), Feb. 2017), including:

- To Facilitate the timely provision of satellite-related information by satellite operators to NMHSs in RA II;
- To identify requirements and current and planned utilization capabilities of NMHSs in RA II;
- To strengthen capabilities of NMHSs in RA II to use the routine images and derived products from the earth observation satellites;
- (i) To develop a protocol for NMHSs of the countries in the Region to request event-driven rapid scan imagery; and (ii) to assist NMHSs to utilize rapid scan data in support of DRR in response to their requests;
- To continue the issuance of the quarterly newsletters.

James Purdom (Chair, AOMSUC ICSC) noted the significant contribution of RA II and RA V to LEO satellites and proposed that the Project should focus on LEO satellites as well as GEO ones.

Dohyeong Kim (KMA, Project Co-coordinator) noted that Project plans include identification of requirements for earth-observing satellite data and products, and invited contributions from all Project members to quarterly newsletters.

2.2 Information on Relevant Activities

Agnes Lane (AuBoM) gave a briefing on the activities of the RA V Task Team on Satellite Utilization (TT-SU), including a plan for the distribution of a questionnaire to identify user requirements in relation to satellite data. AuBoM has drafted the questionnaire and plans to issue it to RA V Members.

2.3 WMO Space Programme Update

Fernando Belda delivered a WMO Space Programme Update presentation with focus on input to the RA II satellite user mechanism and capacity building. The activities of the Programme were summarized as follows:

1. Observation
    - Coordination of satellite-based observing systems, orbits and instruments for WIGOS
    - Development of architecture for climate monitoring from space

2. Products
    - Setting standards on quality and consistency of satellite-based products
3. Data Dissemination and Access
    - Coordination of rapid, integrated global dissemination for satellite data consistent with WIS
4. Training and Awareness
    - Promotion of member readiness for new-generation satellites (2015 – 2020)
    - Maintenance of resources and regional projects; provision of advice and guidance

Mr. Belda also gave a briefing on the regional mechanisms listed below (including the project for enhancing satellite data utilization) and stressed their essential role in creating opportunities for user-provider dialogue, coordination of data distribution and identification of training needs.

- Dissemination Expert Group (RA I)
- WIGOS Project Coordination Group (RA II)
- Coordination Group (RA III/IV)
- Task Team on Satellite Utilization (RA V)

The presentation highlighted that RA II has numerous satellite providers and a wide range of user capabilities, giving rise to the need for a systematic approach to identify, document and address user needs. In the presentation, documentation on RA III-IV satellite user requirements was used as a reference, with templates adopted to investigate requirements relating to satellite data/products, data access mechanisms and data reception infrastructure. The presentation concluded with an introduction to WMO tools used for improving user awareness of available data, tools and resources.

Riris Adriyanto (BMKG) thanked WMO for helping developing countries to access satellite data. His address highlighted how the satellite-based climate extreme monitoring pilot project to be initiated under the WMO Space Programme with support from satellite data providers in the near future will explore a greater body of valuable information from satellite remote sensing data provided for climatological communities in all WMO regions, and particularly for those with sparse density of surface meteorological observation.

2.4 Review of AOMSUC-8 Results and Country Report

Zoya Andreeva (Roshydromet) reported on AOMSUC-8 and gave a briefing on RA II/RA V country reports as organized by Roshydromet ahead of the conference.

The 8th Asia-Oceania Meteorological Satellite Users' Conference (AOMSUC-8) was hosted from Oct. 18th to 20th 2017 by Roshydromet and Roscosmos at Far Eastern Federal University on Russky Island, Vladivostok, Russia. More than 170 users and satellite operators representing 28 countries attended, and 68 oral papers and 51 posters were presented.

Roshydromet developed and distributed the country report based on information submitted by 16 countries in RA II and RA V. Its main part covers 1) satellite data used to address regional challenges, 2) collection, processing and utilization of satellite data, and 3) challenges in satellite data utilization.

Riris Adriyanto underlined the importance of information resources on LEO satellites provided by satellite operators and WMO for improving operational weather forecasting.

Fernando Belda identified information provided by EUMETSAT as a good example of such information, and raised the question of whether CMA, JMA and KMA offered such information or communication plans.

Bodo Zeschke (BoM) commented on the challenges of incorporating the LEO satellite data freely provided online (a very effective resource for training events) into the forecasting process.

3 USER AND PROVIDER PERSPECTIVES

3.1 User Requirements for Satellite Data Utilization and for the Training Events during AOMSUC

3.1.1 Survey on WMO RA II / RA V Training Event

Zoya Andreeva gave an overview of a training event on satellite data and product application held in conjunction with AOMSUC-8 on 16 and 17 October. A total of 115 people, including 66 from NMHSs, attended the event. The result of the related survey is presented in Annex IV.

3.1.2 Results from the WMO 2016 Survey

Fernando Belda gave an overview of the WMO 2016 Survey on the Use of Satellite Data. WMO conducts a global user survey on satellite data every four years. Developed by WMO CBS IPET-SUP, the survey consisted of an online questionnaire covering access to and use of GEO/LEO satellite data, satellite applications and training. Replies from the 16 RA II Member respondents indicated:

- a need for processing/visualization software and related training (GEO and LEO);
- a largely successful transition to Himawari-8 data usage; and
- progress of preparations for FY-3D/E by many Members.

James Purdom highlighted the utilization of LEO satellites in operational systems from the early 2000s due to improved direct-readout capabilities and a greater number of training opportunities. It was noted that NOAA, CIMSS and MODIS team members had developed processing packages and provided training programs helping users to utilize direct-readout satellite data.

3.1.3 RA II Project Questionnaire Survey

Hiroshi Kunimatsu (JMA, Project Co-coordinator) reviewed RA II user surveys on satellite data, including the WMO global initiatives of 2012 and 2016. In consideration of the Project work plan, a 2018 RA II user survey was also proposed with the possible involvement of RA V.

Fernando Belda expressed WMO's support for the 2018 RA II user survey, which is intended to harvest a wealth of information on the availability and use of satellite data and products.

Riris Adriyanto also indicated support for the survey's implementation in conjunction with RA V, highlighting that a lower number of surveys will produce a better response rate.

Agnes Lane noted that the RA V TT-SU, in which RA II satellite operators (CMA, JMA and KMA) are also involved, works closely with RA II, and highlighted that having more representatives for RA V TT-SU would lead to a higher RA V response rate.

3.2 Requirements for Severe Weather Forecasting (SWFDP)

3.2.1 Survey Study of Using Multi-geo-satellites

Dohyeong Kim presented a study on parallax correction for multi-GEO satellites. Parallax is the apparent displacement of cloud locations in relation to the earth's surface in satellite imagery due to a non-zero satellite viewing angle. The presentation highlighted typhoon eye positional discrepancies of up to 10 km as observed by COMS and MTSAT and the potential for parallax correction using cloud top height, zenith angle and other geographical parameters.

James Purdom stated that parallax correction would improve the quality of many satellite applications, and that atmospheric motion vectors show biases due to parallax in assimilation to NWP.

Bodo Zeschke cautioned that parallax correction can also cause the loss of cloud details that are highly important in analysis.

3.2.2 SCOPE-Nowcasting

Fernando Belda highlighted WMO SCOPE-Nowcasting, intended to demonstrate continuous and sustained provision of consistent and well-characterized satellite products for nowcasting and severe weather risk reduction. Four pilot projects conducted since 2013 for development of the following were highlighted:

1. Basic VIS/IR imagery and RGBs for Asia-Pacific
2. Satellite-derived volcanic ash information for aviation

3. Satellite-derived precipitation information

4. Sand and dust monitoring in East Asia

The presentation also covered the following proposals for new pilot activities as discussed at a SCOPE-Nowcasting executive panel meeting held from 18 to 20 September 2017:

A) Nowcasting in a Big Data World: Multi-sensor feature-based nowcasting of convective development
B) Advanced nowcasting: Atmospheric structure with focus on water vapour using vertical weighting functions of low-level water vapour bands
C) Advanced nowcasting: Incorporating satellite-based MW observations about column condensed water into nowcasting applications

Kamol Promasakha Sakolnakhon (Thailand) asked about WMO efforts for the standardization of satellite data formats.

Fernando Belda commented that WIS is intended to support both data exchange and the definition of standard formats.

Bodo Zeschke commented that feedback received from RAV attendees at the fourth meeting of the Coordinating Group of the WMO RA II WIGOS Project indicated that satellite data should be released with full spatial resolution. This is especially true for small island nations, where the monitoring of local effects is of great importance. Stakeholders are happy to receive this data with a reduced spatial domain to reduce the data transfer burden involved.

3.2.3 SWFDP Current Status

Fernando Belda gave an overview of WMO's Severe Weather Forecasting Demonstration Project (SWFDP), which is intended to close international gaps in the application of advanced tools and technology in forecasting and early warnings via implementation of the following cascading forecasting process:

- Global NWP centres to provide available NWP and Ensemble Prediction Systems (EPS) and sat-based products, including in the form of probabilities, cut to the project window frame

- Regional centres to analyses and interpret information received from global centres, prepare daily guidance products (out to day-5) for National Meteorological Centres (NMCs), run limited-area model to refine products, maintain Regional Specialized Meteorological Centre (RSMC) website, liaise with the participating NMCs

- NMCs have access to all products and maintained responsibility and authority over national warnings and services; to issue alerts, advisories, severe weather warnings; to liaise with user communities, and to contribute feedback and evaluation of the project.

Dr. Belda also highlighted ongoing SWFDP regional subprojects and training programmes.

3.3 Relevant Training Activities in Cooperation with RA II and RA V

Yoon Jung Sic (KMA) reported on training activities conducted by KMA since 2007. KMA has participated in the WMO VLab program and contributed to the WMO VLab Technical Support Officer initiative since 2012. The Agency ran the COMS Data Analysis training program from 2007 to 2015 with the attendance of around 120 people from 14 countries, and in 2016 launched the Analysis and Application of Next-generation Satellite Data training course as a three-year project. The presentation concluded with an introduction to the 2017 international training course scheduled for the period from 29 October to 24 November 2017 and the quarterly online joint regional focus group meeting with CoE-Australia in December 2017.

Bodo Zeschke underlined the importance of having active contact points in each country for training events.

Fernando Belda supported Bodo Zeschke's comments and emphasized the need for all countries to clarify their contact points.

4 COLLABORATION AND FUTURE PROJECT WORK PLAN

4.1 Development of the Protocol for Himawari-8/-9 Request-driven Rapid Scan in RA II and RA V

Ryo Yoshida summarized a draft protocol (v0.4, October 2017) for Himawari-8/9 request-driven rapid scanning in RA II and RA V. Himawari-8/9 are capable of regional monitoring, referred to as Target Area Observation, covering selected areas of 1,000 x 1,000 km every 2.5 minutes.

The protocol describes a mechanism by which WMO RA II and RA V NMHS Members can request Target Area Observation over selected areas.

RA II and RA V Members can email requests to JMA and AuBoM, respectively. AuBoM, which plays a broker role in the protocol, manages requests from RA V and informs JMA of requests for certain time slots. Request emails are submitted online via a website shown in the presentation.

The latency of JMA responses to requests is still under consideration. Target-area data will be provided via the HimawariCloud service and imagery on the JMA website.

JMA will continue to coordinate the details of the request procedure with AuBoM, and aims to implement the protocol in early 2018.

4.2 Work plan 2017-2020

Key project activities for the period from 2017 to 2020 are as follows:

- Implementation of the protocol for Himawari-8/9 request-driven rapid scanning in early 2018
- Identification of satellite-related requirements via a regional survey
- BMKG hosting of the 9th Asia/Oceania Meteorological Satellite Users' Conference and user-focused training event in Indonesia in October 2018
- Hosting of a Coordinating Group teleconference before AOMSUC-9
- Hosting of the 6th meeting of the Coordinating Group of the RA II WIGOS Project (TBD)
- Issuance of quarterly newsletters

5 SUMMARY OF THE MEETING

Hiroshi Kunimatsu summarized the details of the meeting. Action items based on the discussions conducted are as follows:

- The co-coordinators of the RA II WIGOS Project and the chair of the RA-V Task Team on Satellite Utilization will provide WMO and BMKG with details of requirements from trainees for reflection in the next conference (WMO, JMA, KMA and BoM).
- JMA and BoM will complete development of the protocol for Himawari-8/9 request-driven rapid scanning and implement it in early 2018 (JMA and BoM).
- The co-coordinators of the RA II WIGOS Project to Develop Support for NMHSs in Satellite Data, Products and Training and the chair of the RA-V Task Team on Satellite Utilization will attend relevant meetings on a reciprocal basis and collaborate toward the possible future integration of the two projects (JMA, KMA and BoM).
- The co-coordinators of the project will develop and conduct a regional user survey in 2018 in coordination with the chair of the RA-V Task Team on Satellite Utilization (JMA, KMA and BoM).
- Each project member will nominate a focal point for training events.

6 CLOSING

Hiroshi Kunimatsu and Dohyeong Kim thanked all attendees and expressed gratitude to Roshydromet staff for their hard work in organizing the 8th Asia/Oceania Meteorological Satellite Users' Conference and associated events, including this meeting.

ANNEX I

LIST OF PARTICIPANTS

Co-coordinators

Japan	Hiroshi Kunimatsu	Japan Meteorological Agency (JMA)
Korea	Dohyeong Kim	Korea Meteorological Administration (KMA)

Coordinating Group Members

China	Xuebao Wu	China Meteorological Administration (CMA)
India	Virendra Singh	India Meteorological Department (IMD)
Japan	Ryo Yoshida	Japan Meteorological Agency (JMA)
Korea	Yoon Jung Sic	Korea Meteorological Administration (KMA)
Russia	Vasily Asmus	Roshydromet
Russia	Alexander A. Vasilyev	Roshydromet
Russia	Alexander B. Uspensky	Roshydromet
Russia	Zoya Andreeva	Roshydromet
Russia	Angelika Kostornaya	Roshydromet
Russia	Ilya Pustynsky	Roshydromet
Russia	Oksana Novikova	Roshydromet
Russia	Andrey Dedukh	Roshydromet
Russia	Yulia Kiseleva	Roshydromet

Project Participants (RA II)

Bahrain	Khaled Yaseen	Directorate of Meteorology
Hong Kong, China	Chi Kuen Billy So	Hong Kong Observatory
Kyrgyz	Natalia Okulich-Kazarina	Agency on Hydrometeorology
Malaysia	Naddia Binti Kamis	Malaysian Meteorological Department
Maldives	Ali Shareef	Maldives Meteorological Service
Myanmar	Than Naing	Department of Meteorology and Hydrology
Oman	Ibrahim Al Abdulsalam	Directorate General of Meteorology
Pakistan	Humeira Hafeez	Pakistan Meteorological Department, Karachi
Thailand	Kamol Promasakha Sakolnakhon	Thai Meteorological Department
UAE	Khalid Alobeidli	National Center of Meteorology and Seismology
UAE	Ali Albreiki	National Center of Meteorology and Seismology

Project Participants (RA V Task Team on Satellite Utilization)

Australia	Agnes Lane	Australian Bureau of Meteorology (AuBoM)
Australia	Bodo Zeschke	Australian Bureau of Meteorology (AuBoM)
Indonesia	Riris Adriyanto	Meteorological, Climatological, and Geophysical Agency (BMKG)

WMO Secretariat

WMO	Fernando Belda	World Meteorological Organization (WMO)

Observers

USA	James Purdom	AOMSUC International Conference Steering Committee (ICSC)

ANNEX II

AGENDA

21 October 2017

	1. OPENING
09:00~09:15	1.1 Welcome Address (Roshydromet) 1.2 Opening address (WMO) 1.3 Adoption of the Agenda
	2. STATUS OF PROJECT
09:15~10:15	2.1 Accomplishments, Current status and Work Plan of the Project (JMA) 2.2 Information on Relevant Activities 2.3 WMO Space Programme Updates (WMO) 2.4 Review of AOMSUC-8 Results and Country Reports (Roshydromet)
10:15~10:45	Coffee Break
	3. USER AND PROVIDER PERSPECTIVES
10:45~12:35	3.1 User Requirements for Satellite Data Utilization, and for the Training Events during AOMSUC 3.1.1 Survey on WMO RA II / RA V Training Event (Roshydromet) 3.1.2 Results from the WMO 2016 Survey (WMO) 3.1.3 RA II Project Questionnaire Survey (JMA) 3.2 Requirements for Severe Weather Forecasting (SWFDP) 3.2.1 Study of Using Multi-geo-satellites (KMA) 3.2.2 SCOPE-Nowcasting (WMO) 3.2.3 SWFDP Current Status (WMO) 3.3 Relevant Training Activities in Cooperation with RA II and RA V (KMA)
	4. COLLABORATION AND FUTURE PROJECT WORK PLAN
12:35~13:00	4.1 Development of the Protocol for Himawari-8/9 Request-driven Rapid Scan in WMO RA II and RA V (JMA) 4.2 Work plan 2017-2018 (JMA)
13:00~13:10	**5. SUMMARY OF THE MEETING (JMA)**
13:10	**6. CLOSING**

ANNEX III

Work plan 2017-2020 of the Project approved at the 16th session of the WMO Regional Association II (RA II-16/Doc. 4.3(1), Feb. 2017)

Project Title	Develop Support for NMHSs in Satellite Data, Products and Training
Type	Regional Implementation Project (RA II)
Timescale	2017-2020
Background	The unique meteorological and geophysical nature of the Asia region is characterized by frequent high-impact phenomena such as typhoons, severe convective weather and volcanic eruptions. The National Meteorological and Hydrological Services (NMHSs) play the essential role in support of Disaster Risk Reduction (DRR) to protect lives and property in this densely populated Region. In 2008 the 14th session of WMO Regional Association II (RA II) adopted a resolution to establish a pilot project for the development of support for NMHSs in the areas of satellite data, products and training. At the 15th session of RA II in 2012, it was decided that the pilot project should continue and become the RA II WIGOS Project from 2013 in light of its importance in improving dialogue between satellite providers and users in the Region.
Plan/Activities	This project will include following activities: (a) To facilitate the timely provision of satellite-related information by satellite operator to NMHSs in RA II including developing countries via the project web page, newsletters, user's conference, etc., aligning with VLab activities to optimize assistance to NMHSs in RA II and coordinating training activities on use of satellite data/products; (b) To identify requirements and current and planned utilization capabilities of NMHSs in RA II regarding data and products of Earth observation satellites including new generation geostationary meteorological satellites in support of their weather services, including forecasts and warnings, providing a gap analysis in which the capabilities are matched against the requirements so as to develop an action plan to close the gap; (c) To strengthen capabilities of NMHSs in RA II to use the routine images and derived products from the Earth observation satellites including new generation geostationary meteorological satellites, Himawari-8/9, FY-4 series and GEO-KOMPSAT-2 satellites, by user training and guidance on upgrading processing software/hardware, information and tools; (d) (i) To develop a protocol for NMHSs of the countries in the Region to

	request event-driven rapid scan imagery; and (ii) to assist NMHSs to utilize rapid scan data in support of DRR in response to their requests; (e) To continue the issuance of the quarterly newsletters.
Aim(s)	This project assists NMHSs in RA II to make better use of satellite-related information, in collaboration with all relevant satellite operators. It is necessary to establish close coordination and create synergy between other ongoing projects such as the WMO-CGMS Virtual Laboratory (VLab), and the RA V Task Team on Satellite Utilization, and to provide greater benefits while avoiding duplication of effort.
Benefits	Facilitating the timely provision of satellite-related information by satellite operators to NMHSs in RA II, and capacity-building to use satellite images and derived products.
Achievements in the previous period (2013-2016)	- Establishment of the Project website: http://www.jma.go.jp/jma/jma-eng/satellite/ra2wigosproject/ra2wigosproject-intro_en_jma.html - RA II WIGOS Project Newsletters (quarterly) - Asia/Oceania Meteorological Satellite Users' Conference (AOMSUC): • 4th Conference, Melbourne, Australia (Oct. 2013) • 5th Conference, Shanghai, China (Nov. 2014) • 6th Conference, Tokyo, Japan (Nov. 2015) • 7th Conference, Incheon, Republic of Korea (Oct. 2016) • Russia, India and Indonesia newly joined • Memorandum signed by PR from sponsors (WMO EC-68, 2016) - Coordination Group meetings: • 3rd meeting, Tokyo, Japan (Nov. 2015) • 4th meeting, Incheon, Republic of Korea (Oct. 2016) - Held training seminars on meteorological satellite data for NMHSs in Asia and Pacific region along with AOMSUC - Inclusion of RA II specific satellite datasets and products in WMO Product Access Guide - Support users for smooth transition to the new generation satellites - Tutor programmes (dispatching experts on satellite data utilization) for users in Asia and Pacific to facilitate efficient use of Himawari-8 - Feasibility study on Himawari-8 event-driven rapid-scan with AuBoM
Player(s)	Coordinating Group: Japan (Co-coordinator), Republic of Korea (Co-coordinator) and other satellite operators in RA II and, as an observer, EUMETSAT. Participants:

	All the other RA II Members and members of the RA V Task Team on Satellite Utilization.
Global and Regional Partnership	
Relationship with existing framework/ project(s)	To link with the Asia/Oceania Meteorological Satellite Users' Conference (AOMSUC) mechanism to foster cooperation among satellite operators and users as stipulated in the Memorandum signed during a ceremony at the sixty-eighth session of the WMO Executive Council. To establish a close coordination with the RA V Task Team on Satellite Utilization, in particular following-up the Jakarta Declaration adopted in the Joint RA-II/V Workshop on WIGOS for DRR (Oct 2015).
Expected Key Deliverables	- Reports on requirements of NMHSs regarding satellite imagery, data products and training. - Improvement on access to information on satellite data/products. - Improvement on capacity in use of satellite data/products and facilitation of training datasets and toolboxes. - Protocol for NMHSs of the countries in the Region to request event-driven rapid scan imagery and, to assist NMHSs to utilize rapid scan data in support of DRR in response to their requests.
Major risk(s)	Lack of resources (funds/expertise)
Website	http://www.jma.go.jp/jma/jma-eng/satellite/ra2wigosproject/ra2wigosproject-intro_en_jma.html
Project Coordinator	JMA (Japan) and KMA (Korea)
Co-coordinator	

ANNEX IV

The result of the survey on the training event associated with the AOMSUC-8

It was received 14 responses to the survey on the training event questionnaire, including: 10 – from the representatives of NMHSs and 4 – from other institutions.

There is the result of the survey on the training event below:

Programme of the Training event

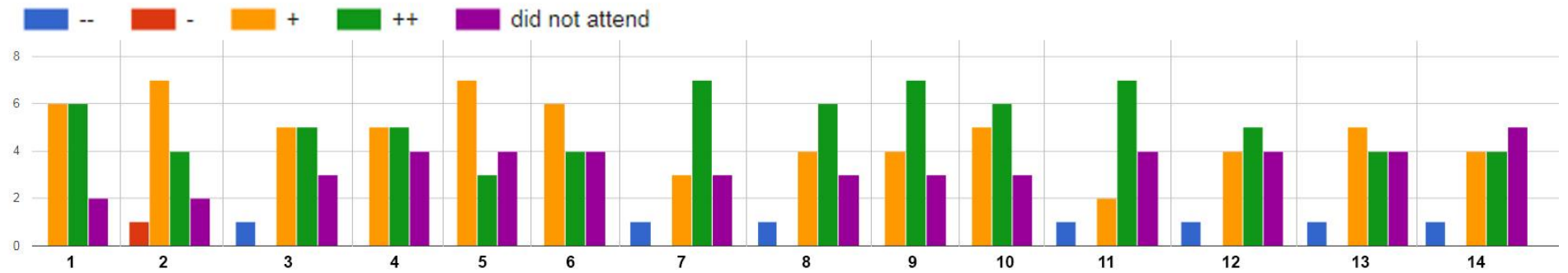
Did the programme of the Training event meet your needs?

Your comment on the Training event's programme

I would like to need more satellite training.
Practical training on FY series satellites and INSAT satellites be included.
Great thanks to Dr. Bodo Zeschke for explanation of Himawari-8 products in training room
No comment. All good.

ANNEX IV

Please assess the usefulness of each lecture/practical session in frame of the Training event for your work?

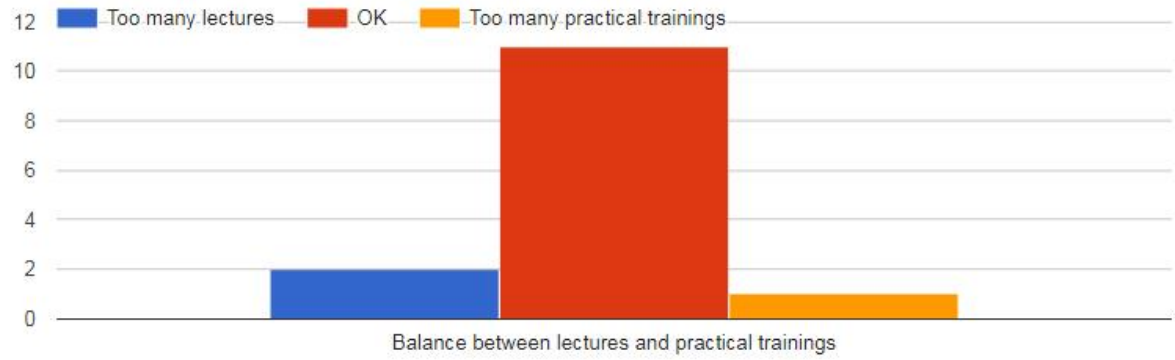


1. Alexander Uspensky - Satellite Data Applications for Hydrometeorology and Environmental Monitoring in Roshydromet
2. Alexander Chunosov - Roscosmos' Geoinformation Services
3. Mitchell Goldberg - Overview of JPSS Mission
4. Mark Higgins - Meteosat-8: New Data and Products and its Application for RGB Products
5. Niu Ning - Introduction of Satellite Training Activities and Perspective in CMA
6. Zhang Xiaohu - FY-4A: Introduction on the New-Generation Geostationary Satellite
7. Ziad Haddad - Gridded Satellite Rainfall Products
8. Ziad Haddad - Assimilating Satellite Observations of Clouds and Precipitation into NWP Models
9. Yusuke Ioka - Overview of Himawari-8 and its Application for RGB Products
10. Bodo Zeschke - Himawari-8 Data and Data Product Use within WMO RA V
11. Yusuke Ioka - Practical Training on RGB Products Using SATAID Software
12. Kathleen Strabala - Satellite Direct Broadcast Software and Applications
13. Kathleen Strabala and Jessica Braun - Overview of Hydra2 Software
14. Kathleen Strabala and Jessica Braun - Practical Training on Hydra2 Software

ANNEX IV

Structure of the Training event

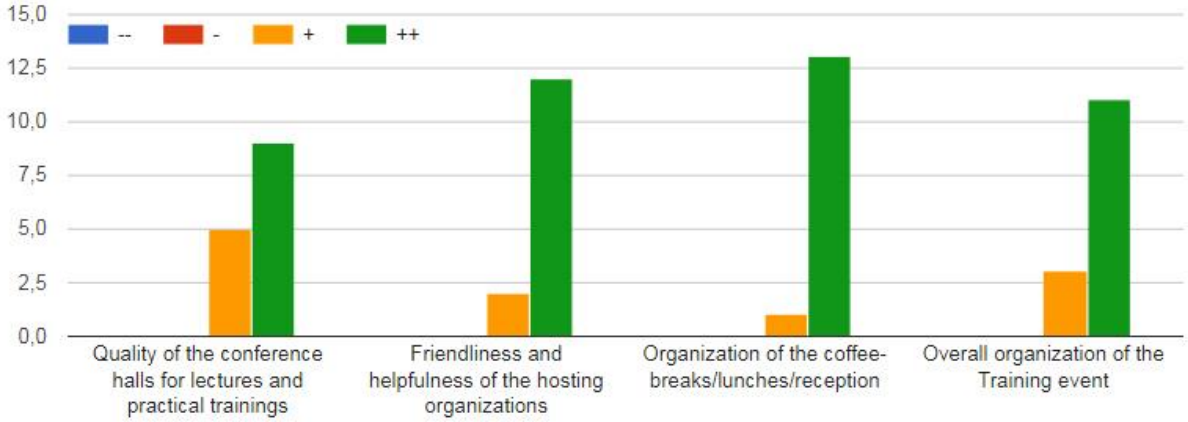
Balance between lectures and practical trainings



Duration of the Training event

Organization of the Training event

Please assess the organization of the Training event

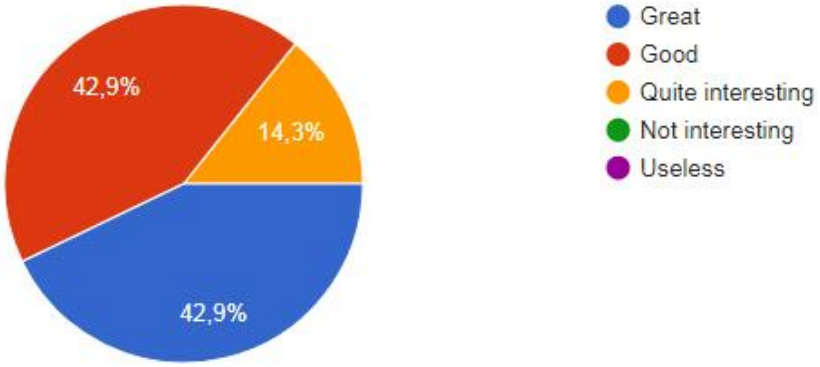


Any other comments on the organization of the Training event

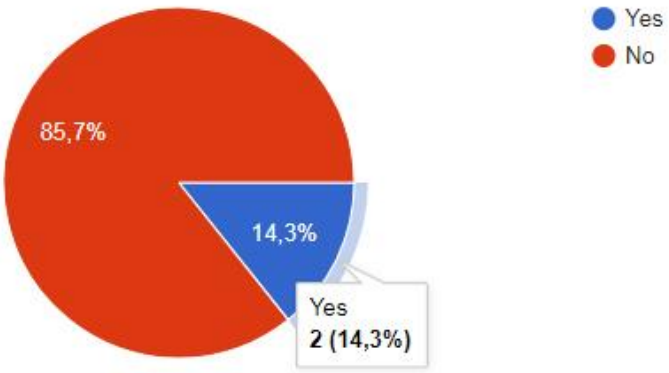
I want to need remote sensing training.
Meeting going on up to 6pm is too exhaustive. Site seeing tour could be nice.

Overall assessment of the Training event

Please give your overall assessment of the Training event



Did you participate in the WMO RA II/RA V training events in 2012-2016?



If "yes", please specify which topic you suggest to be addressed.

Utilizing of FY and INSAT series satellite products
Inter-calibration
Evaluation of strong precipitation by means of Satellite Observations in real time mode
Perhaps something on the use of Satellite quantitative data, rather than just RGB products, for forecasters
Applications in thunderstorm and convection initiation forecast, aviation hazard weather forecast, rainfall estimation, and nowcasting
Using satellite products in meteorology, ecology, physics of atmosphere; education, teaching young people in subjects, mentioned above
Satellite data and product applications
Hydrology

Can future AOMSUC host send the announcement of the future conferences to your e-mail?