

Tackling Extreme Precipitation Events Workshop -Indo-Pacific region-

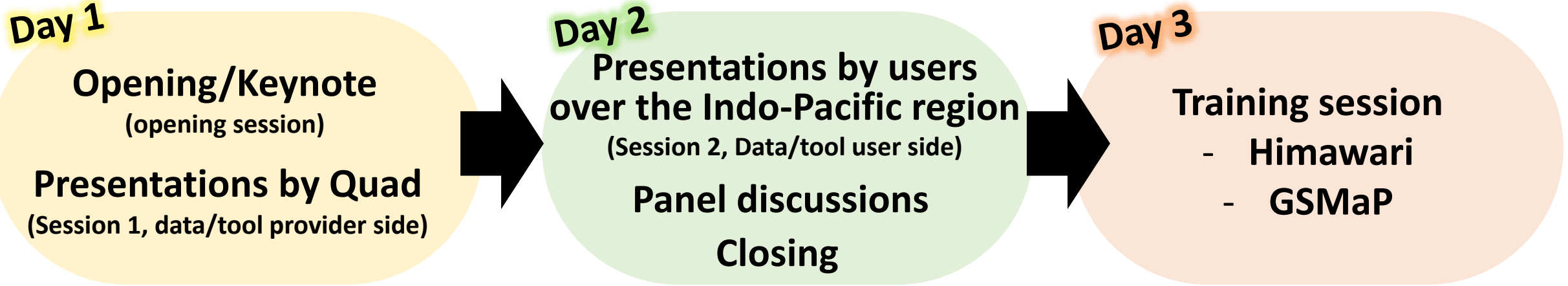
Wrap-up of Day 1

*Moeka Yamaji,
Earth Observation Research Center, JAXA*

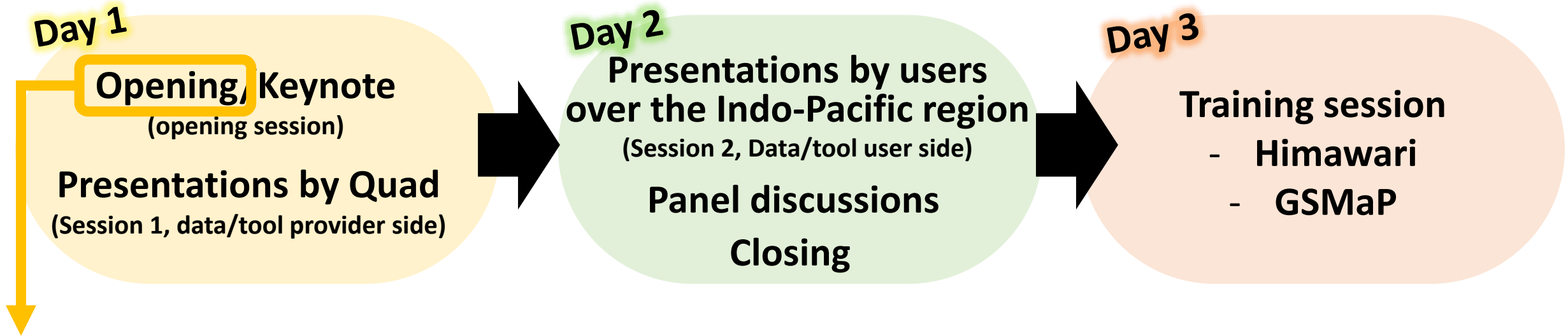
Online, March 1st-3rd, 2023



Overview of the workshop on March 1-3



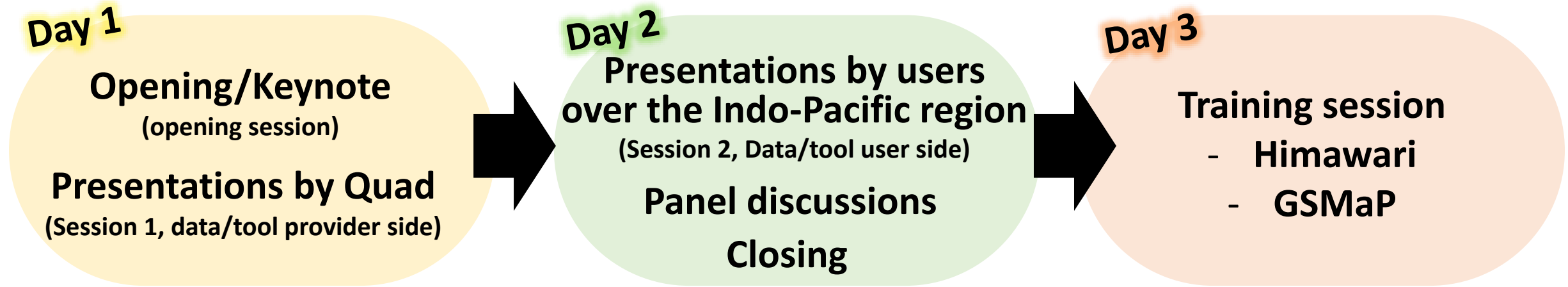
Overview of the workshop on March 1-3



Opening remarks by Mr. Koji Terada, Vice President, JAXA

- Background of this workshop:
 - Australia-India-Japan-U.S. Quad Leaders renewed their commitment, in which Quad leaders have committed that they will work together to provide capacity-building support to countries in the region, including with regards to partnering on using space capabilities to respond to extreme precipitation events.
- JAXA would like to contribute to enhancing the resilience of the efforts to protect precious lives and livelihoods from natural disasters in the Indo-Pacific region.

Overview of the workshop on March 1-3



Workshop Overview and Purpose by Dr. Akiko Noda, JAXA

The aim of this workshop is to explore ways to address this common challenge by unlocking the Quad countries space-based capabilities and by collaborating with non-quad countries in the Indo-pacific region.

In terms of presentation files (some questions raised in chat):

- Presentation Materials of this workshop will be uploaded to the dedicated website after a couple of weeks later.
- We will send the URL address to all participants via e-mail.

Transformative Steps to shift the world onto a sustainable and resilient path

Prof. Toshio Koike, Director of ICHARM

- Big picture related to water in the global frameworks; SDGs, PARIS2015, Sendai Framework for Disaster Risk Reduction
- "Kumamoto Water Initiative" announced by Japanese's Prime Minister Kishida, as Japan's contribution to water issues.
- Operation supporting system for hydroelectric dams to improve flood control and power generation



United Nations

UN 2023 Water Conference
22 – 24 Mar 2023, New York

[4th Asia-Pacific Water Summit] Kumamoto Initiative for Water (Outline)

- Proactive Contribution to the Development of "Quality Infrastructure" based on a "New Form of Capitalism" -

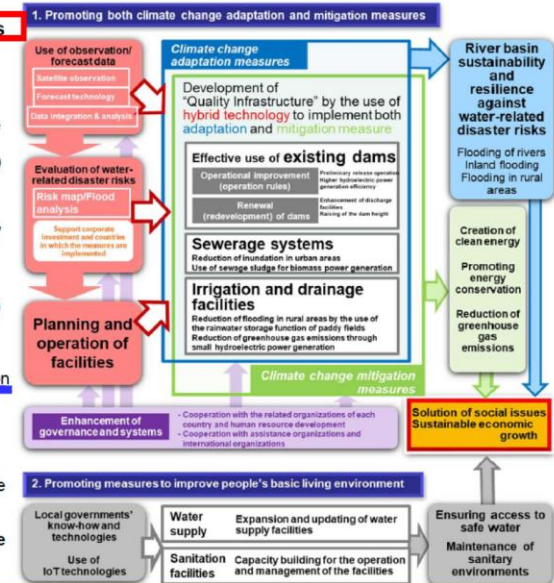
Japan will proactively contribute to the solution of water-related social issues faced by the Asia-Pacific region by developing "Quality Infrastructure" capitalizing on Japan's advanced technologies, and based on a "New Form of Capitalism", which means promoting public-private partnerships and fostering digitization and innovation to solve social issues as a growth engine for sustainable development and the formation of a resilient society and economy.

1. Promoting both climate change adaptation and mitigation measures

- (1) Promoting the development of "Quality Infrastructure"
 - Develop and provide hybrid technology to develop dams, sewerage systems and agricultural facilities to reduce the damage caused by flooding for river basin sustainability and resilience against water-related disaster risks for climate change adaptation and also to reduce greenhouse gas emissions for climate change mitigation (Improve and renew existing dams to bring about the effects more speedily)
 - Propose the introduction of "Quality Infrastructure" through public-private partnership
- (2) Contribution to fill gaps of observation data
 - Provide satellite data obtained from the meteorological satellite "Himawari" and Advanced Land Observing Satellite-2 (ALOS-2) "Daichi-2" as well as from the core satellite of the Global Precipitation Measurement (GPM) mission
- (3) Contribution to governance (systems, human resources and capacity)
 - Sophisticate the evaluation of water-related disaster risks by the use of AI/IoT-based forecast and analysis technologies
 - Support human resource development through the Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT) and the Data Integration and Analysis System (DIAS)
- (4) Utilization and expansion of the Joint Crediting Mechanism (JCM)

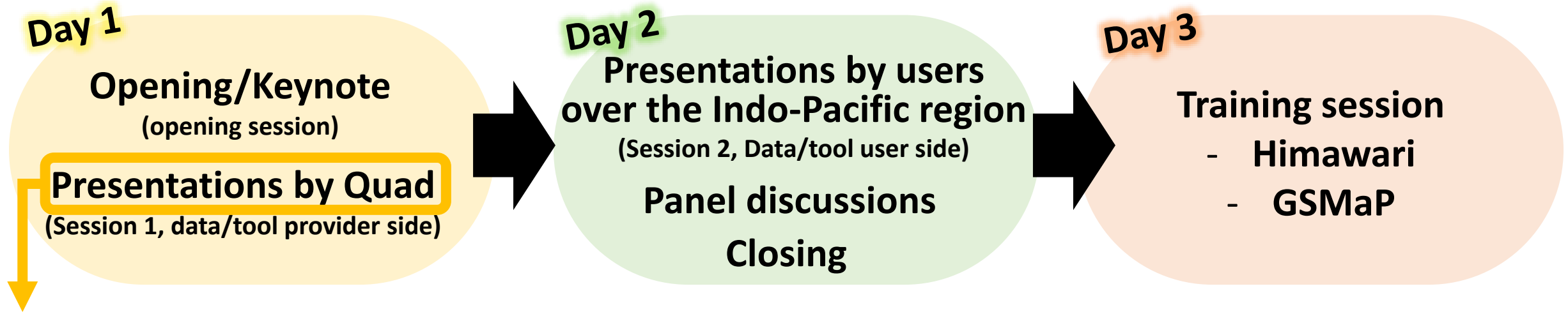
2. Promoting measures to improve people's basic living environment

- (1) Promoting the development of "Quality Water Supply Systems"
 - Introduce advanced technologies, including IoT technologies for the development of water supply facilities
- (2) Promoting the development of "Quality Sanitation Facilities"
 - Develop sewerage systems and on-site treatment facilities and enhance abilities to operate comprehensive treatment facilities



Providing financial assistance worth approximately 500 billion yen over the next five years

Overview of the workshop on March 1-3



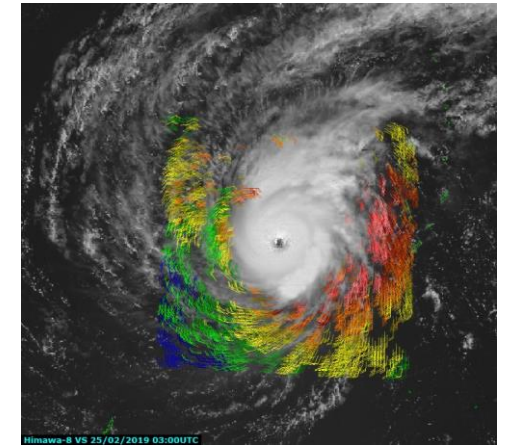
Presentations by quad countries included:

- What kind of satellite information can Quad provide related to extreme precipitation events?
- How can users get information? (how to distribute?)
What kind of tools (website, toolkit etc.) are available?
- What is benefit of users in the Indo-Pacific region?
- Any opportunities for training to use these information or tools?

JMA's Overview of satellite data utilization for preparing extreme precipitation events

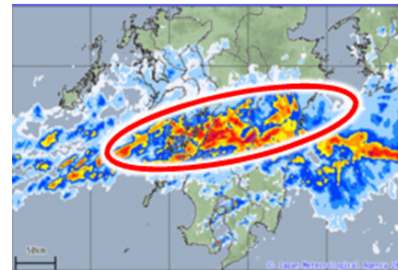
Mr. Kotaro Bessho, JMA, Japan

- Himawari-8/9 and products
- International service for NMHSs by JMA “HimawariRequests” to support disaster risk reduction activities in the Asia Oceania region.
- Stationary Linear Mesoscale Convective Systems (SLMCS), causing floods, inundation and landslides in Japan
- Himawari follow-on Program and Himawari-10 concept



ASWinds from small domain around a typhoon. (0300 UTC on 25 Feb. 2019).

Stationary linear mesoscale convective systems



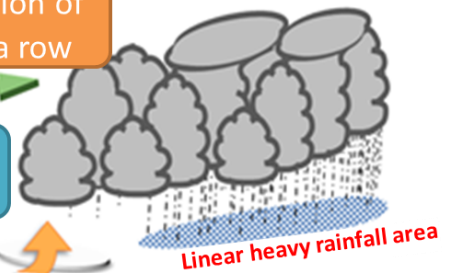
Radar observation, 4 July 2020

4. Upper winds supporting formation of multiple cumulonimbus clouds in a row

3. Unstable conditions supporting cumulonimbus development

1. Continuous flow of warm humid air over the sea

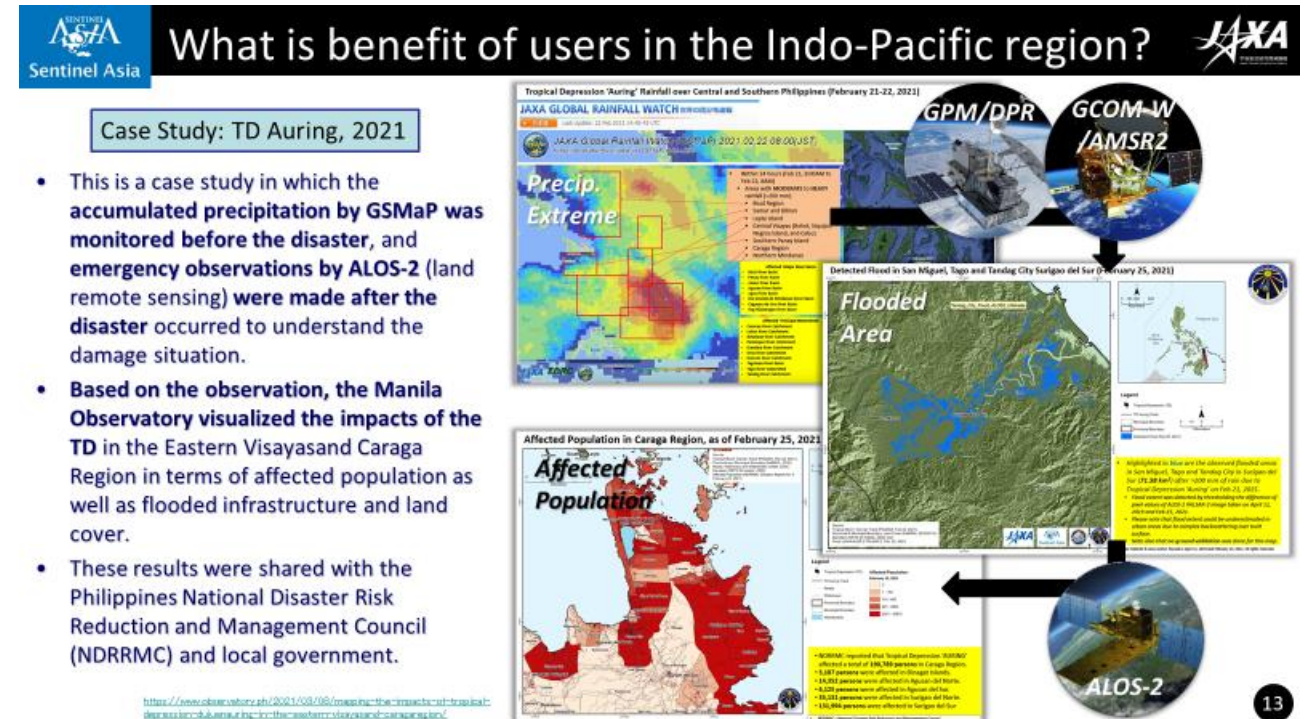
2. Atmospheric lifting from local fronts or orographic effects to generate clouds



JAXA's Overview of satellite data utilization for preparing extreme precipitation events

Dr. Takuji Kubota, JAXA, Japan

- Continuous contribution on satellite sensors: precipitation radar and passive microwave radiometer
- Global Satellite Mapping of Precipitation (GSMaP) and its application on Extremes Monitoring
- Precipitation monitoring by GSMaP before the disaster, and emergency observations by ALOS-2 (land remote sensing) after the disaster occurred to understand the damage situation.

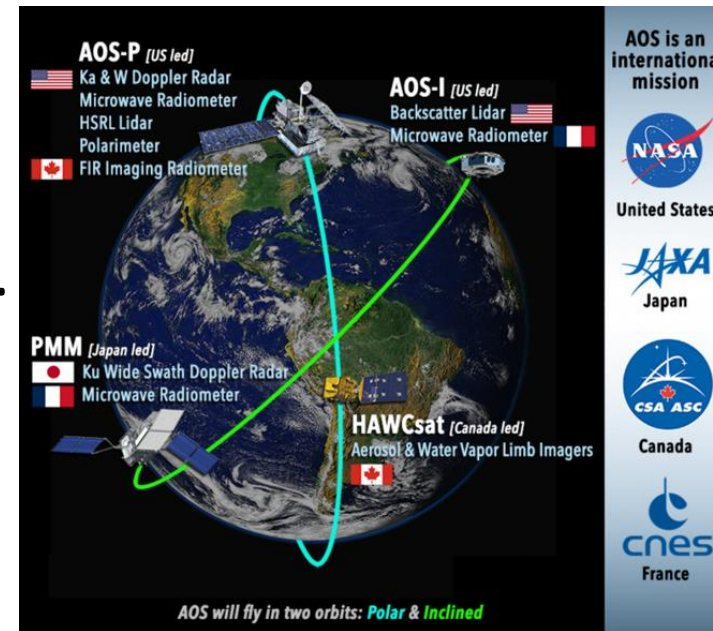
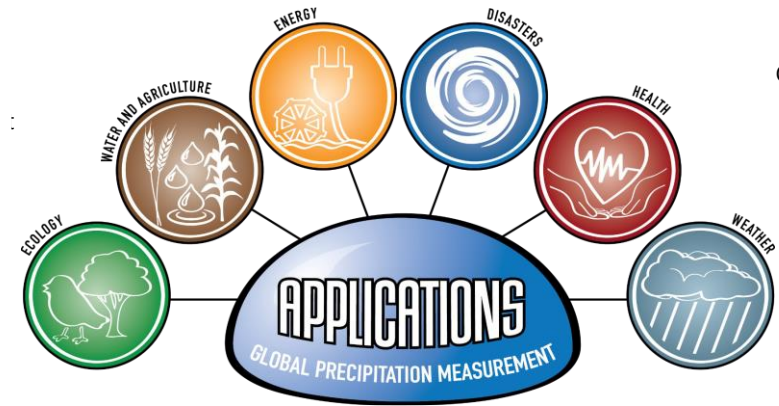


Session 1: Overview of satellite data utilization for preparing extreme precipitation

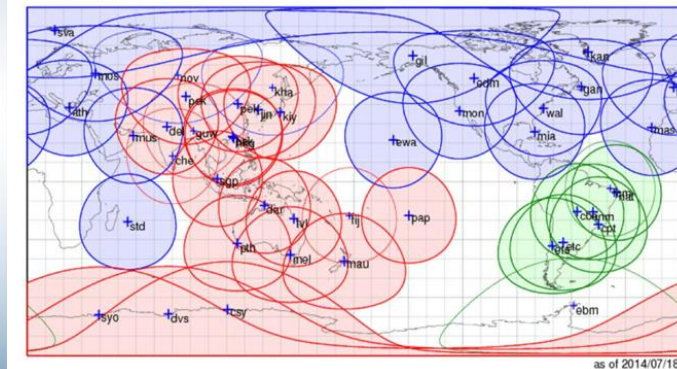
Overview of satellite data utilization for preparing extreme precipitation events - U.S. status

Dr. Mitch Goldberg, NOAA (joint presentation with NASA, USGS), U. S.

- Maintaining and expanding the global constellation of satellite precipitation measurements
- Societal benefit areas from precipitation measurements
- Various precipitation products: Global Hydro-Estimator, Integrated Multi-satellite Retrievals for GPM etc.
- Importance accessibility to real-time products for emergency response.



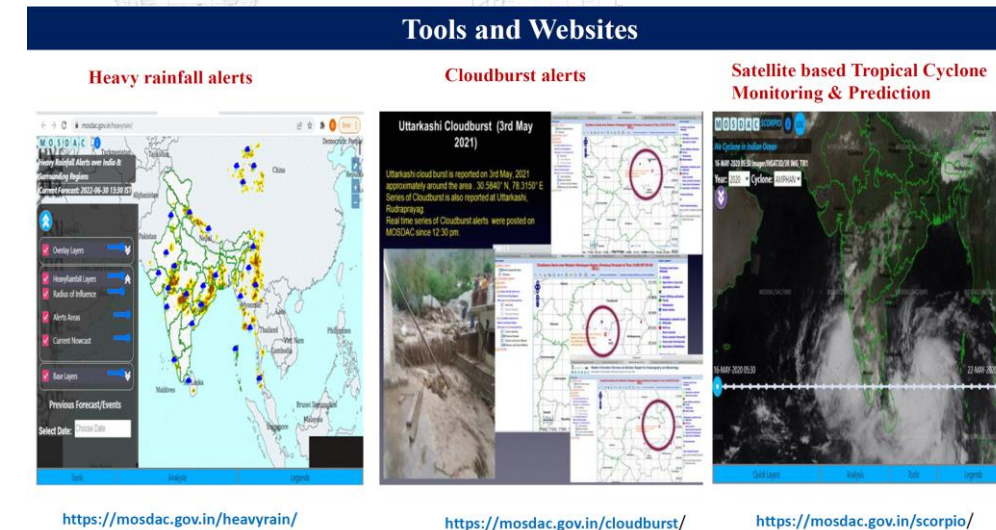
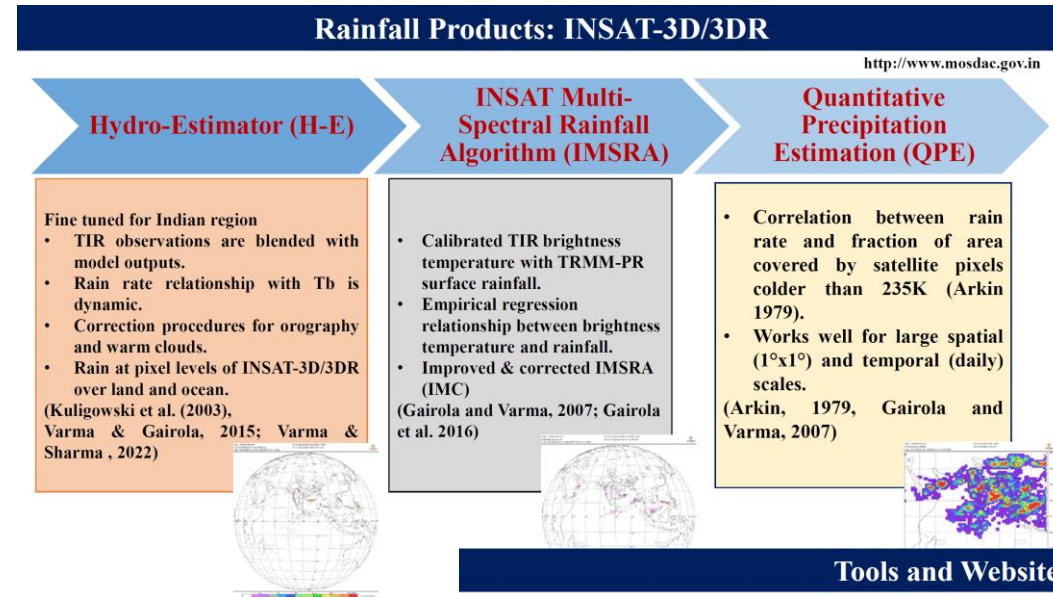
Direct Broadcast Provides Real-time Information



Overview of Indian Satellite data Utilization for Preparing Extreme Precipitation Events

Dr. Neerja Sharma, ISRO and Dr. S C Bhan, IMD/MoES, India

- Rainfall products of INSAT-3D/3DR
 - Hydro-estimator
 - IMSRA
 - QPE
- Various tools and websites
 - MOSDAC
 - Real-time Analysis of Products & Information Dissemination (RAPID)
- Training opportunities
 - 2 weeks short courses on “Use of Space Technology for weather and climate studies” and more

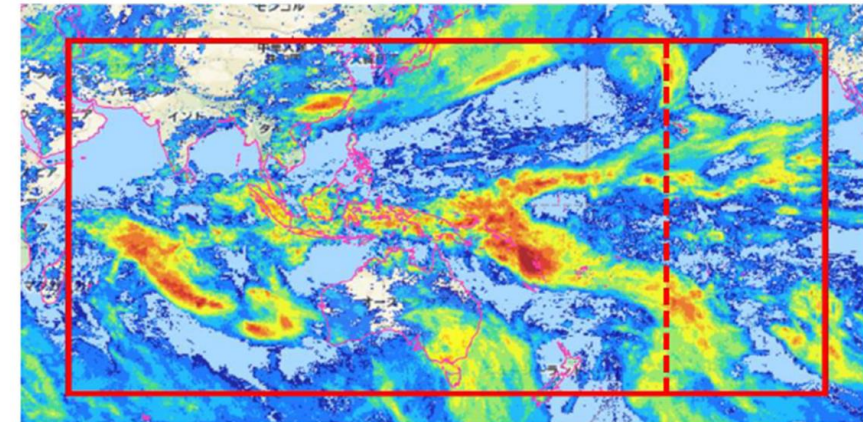


Extreme rainfall event monitoring using Satellite precipitation estimates in the Pacific

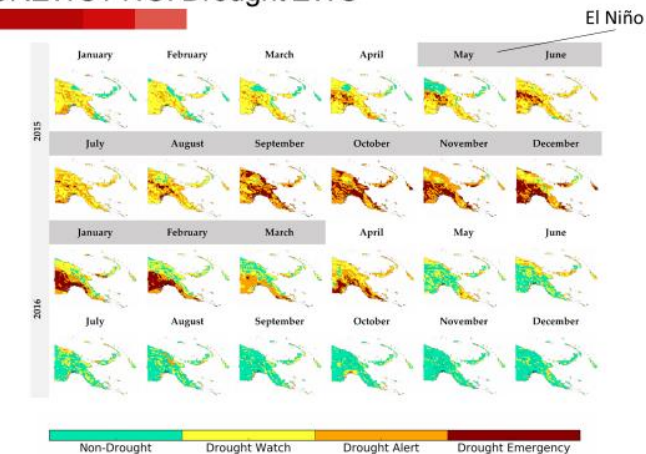
Dr. ZhiWen Chua and Prof. Yuriy Kuleshov, Australian Bureau of Meteorology, Australia

- WMO projects contributing to “Early Warning and Early Action”:
 - Climate Risk and Early Warning Systems (CREWS) : case in Papua New Guinea
 - Space-based Weather and Climate Extremes Monitoring (SWCEM).
 - Drought Monitoring Using SWCEM Products: PNG
- Recommendations
 - Assisting Most Vulnerable Countries with Climate Change Adaptation
 - Strengthening Observing System

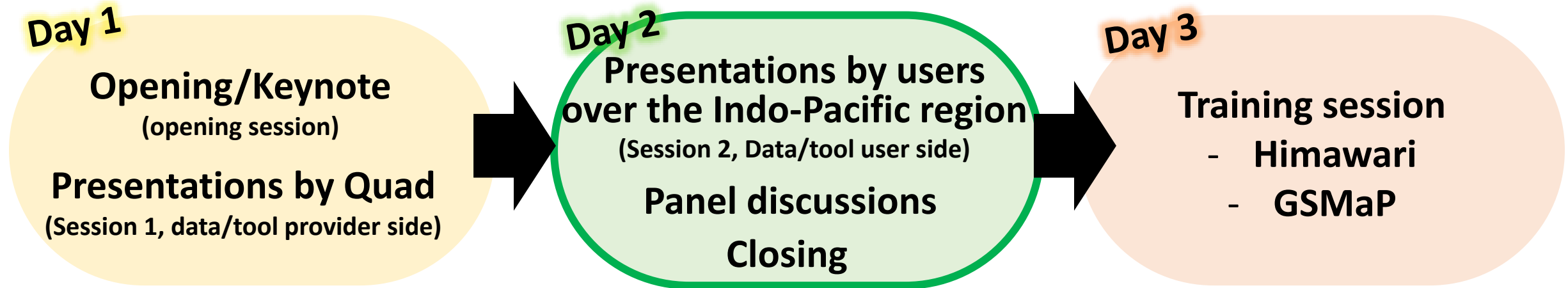
SWCEM Implementation in Asia-Pacific



CREWS PNG: Drought EWS



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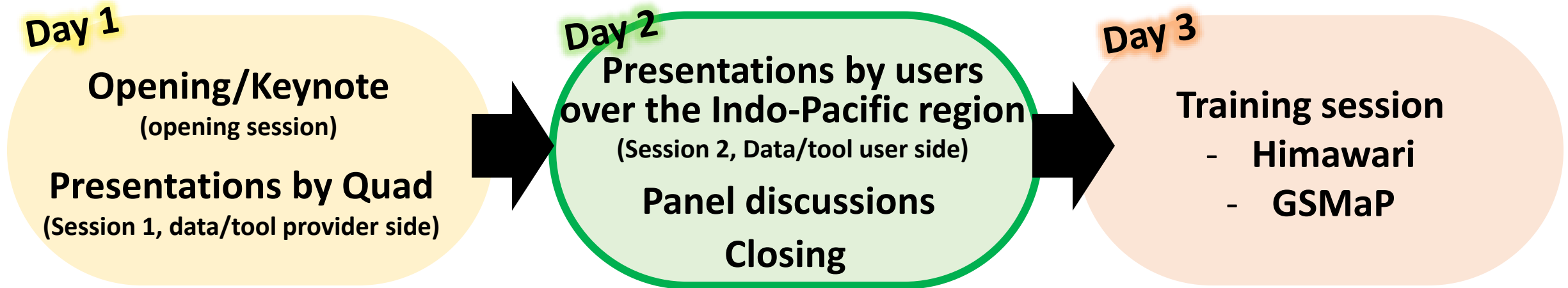
Tomorrow, we invite user agencies from Indo-Pacific region

Session 2. Application of satellite data for tackling extreme precipitation events

<Theme 1> National meteorological/hydrological services

- Mr. Stephen Meke, Fiji Meteorological Service, Fiji
- Mr. Eric Lau, National Weather Service Pacific Region Headquarters, Hawaii, U.S.
- Mr. Bony Septian Pandjaitan, Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG), Indonesia
- Ms Adel Duran, Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), Philippines

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Session 2. Application of satellite data for tackling extreme precipitation events

<Theme 2>

- Dr. Mohamed Rasmy, ICHARM
- Dr. Paolo Manunta, Asian Development Bank (ADB)
- Dr. Masahito Ishihara, Senior Director, Japan International Cooperation Agency (JICA)

Panel discussions

Closing

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*We look forward to seeing you tomorrow
at the same time (1:00am UTC)!*