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RA II WIGOS Project Newsletter

DEVELOPING SUPPORT FOR NATIONAL METEOROLOGICAL AND HYDRO-LOGICAL SERVICES IN SATELLITE DATA, PRODUCTS AND TRAINING

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The First Image from Geo-Kompsat-2A

At 03:10 UTC on 26 January 2019, the first images of all 16 bands were captured by KMA's Geo-Kompsat-2A (GK-2A) geostationary meteorological satellite, which was launched on 4 December 2018.

Testing and checking of the GK-2A system, including related ground facilities, are going well. GK-2A is scheduled to start operation in mid July 2019. GK-2A will be located at 128.2 degree East, and will observe the East Asia and Western Pacific regions as a successor to the current COMS satellite. GK-2A will feature a new imager with 16 bands as advanced to the 5 bands of the COMS Imager.

Full-disk imagery will be obtained every 10 minutes, and rapid scanning target observation with 2-minute intervals will be conducted over several regions, one of which will be for the observation of tropical cyclones among GK-2A FOR (Field Of Regard). KMA will provide the rapid scan observations by the official request from global users via designated tool or web page.

The significant improvements will bring unprecedented levels of performance in monitoring for tropical cyclones as well as rapidly developing cumulonimbus and volcanic ash clouds. (http://nmsc.kma.go.kr/html/homepage/en/ver2/main.do)

(Dohyeong Kim, KMA)

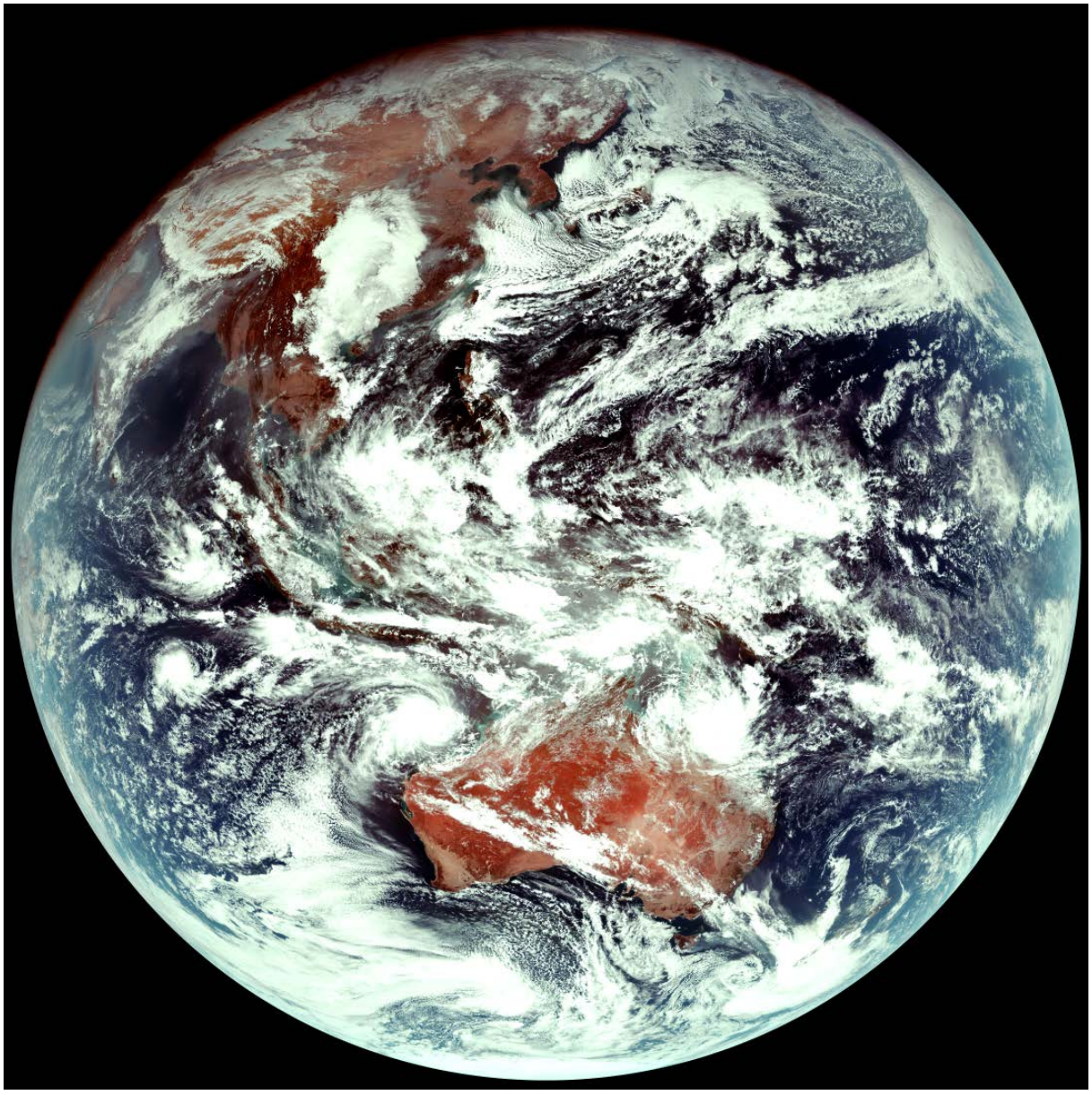


Figure 1: First image of Geo-Kompsat-2A: 03:10 UTC on 25 January 2019
Color composite image of visible three bands (brightness adjusted)

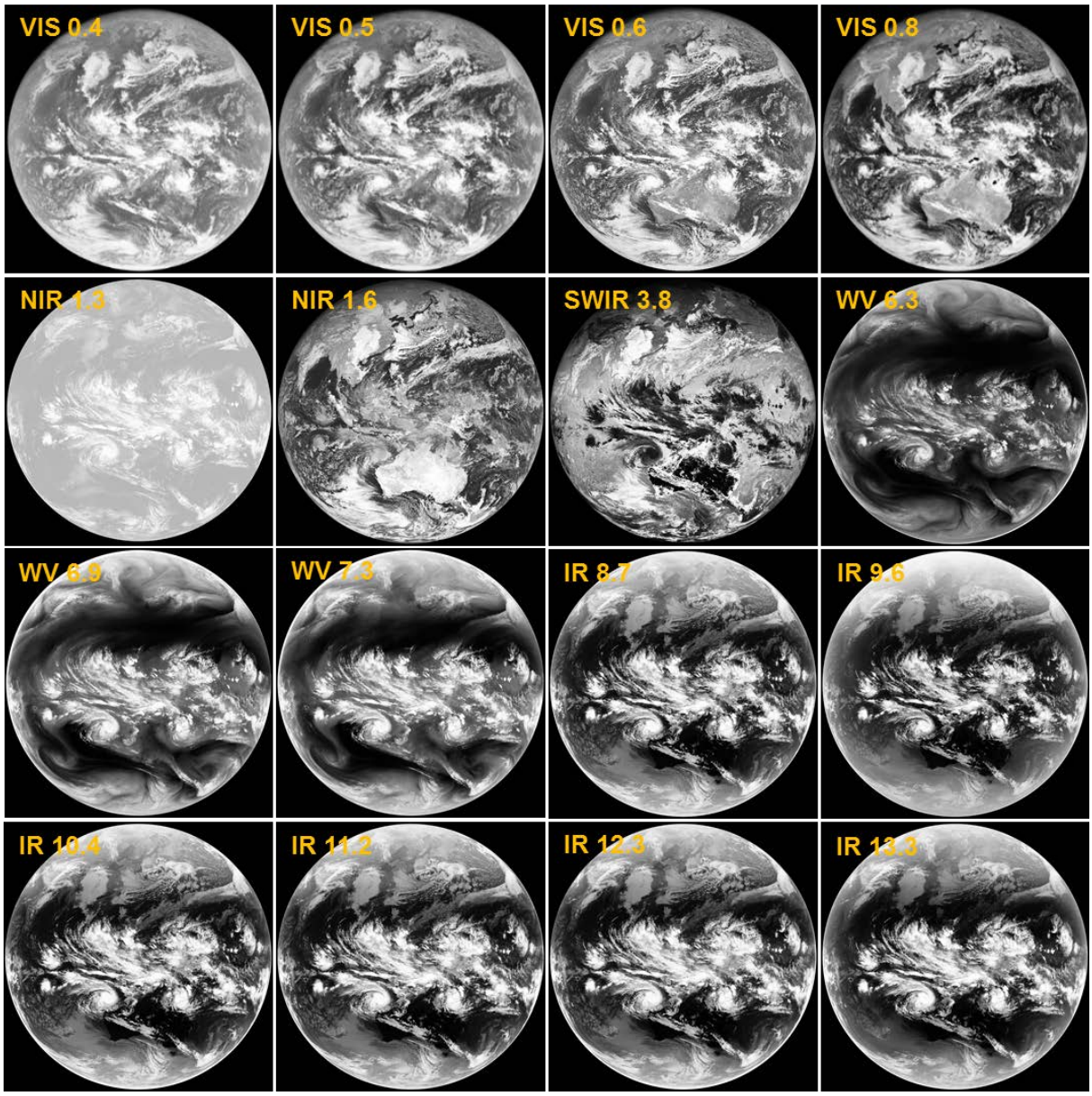
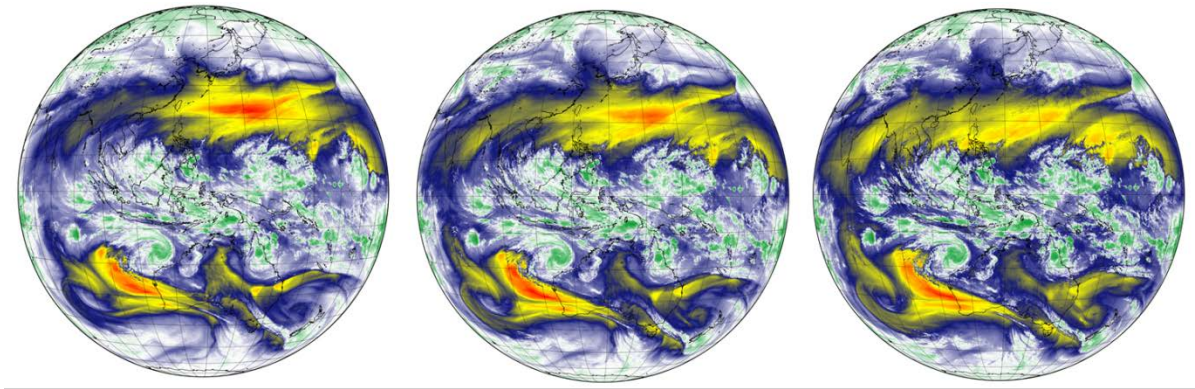


Figure 2: First 16 channels image of GK-2A: 03:10 UTC on 25 January 2019



WV 6.3 WV 6.9 WV 7.3

Figure 3: weighted water vapor 3 channels image of GK-2A: 03:10 UTC on 25 January 2019

How Himawari-8 data has revolutionised the work of Bureau Forecasters

The availability of geostationary satellite data is crucial for the effective delivery of high quality forecast products by Australian Bureau of Meteorology operational forecasters. This is particularly because Australia is a large country surrounded by ocean with sparse coverage by other observational data.

The Himawari-8 data as supplied by the Japan Meteorological Agency have been used by Australian Bureau of Meteorology staff since early 2015. A "Himawari-8 Data Use" questionnaire was circulated to Bureau staff during 2017 to assess the impact of this new revolutionary satellite data. The feedback from 115 Bureau Meteorologists constituting approximately 50% of Bureau forecasters has been collected and compiled into a research paper.

The results indicate that the significant increase in temporal, spatial and spectral detail of the Himawari-8 satellite when compared to previous geostationary satellites has revolutionised the way Bureau Meteorologists do their work. The paper presents five key findings based on the forecaster's feedback.

Firstly, forecasters are using the Himawari-8 data more effectively within the forecasting process. Himawari data can be readily combined with other observational data due to similar temporal frequency. The high resolution and colourful Himawari data and data products make it easier for the forecaster to recognise the drivers of as well as the development stages of hazardous weather. Varying the animation speeds of this 10-minute imagery permits unprecedented insight into mesoscale meteorological processes.

Secondly, changes in forecaster's workflow have occurred because of the enhanced usefulness of the Himawari-8 satellite data. This has reinforced the good forecaster practise of "observations first, Numerical Weather Prediction (NWP) data second". Indeed Himawari-8 data are often used in preference to other observational data, for example during the initial stages of thunderstorm formation.

Thirdly, there is increased confidence in using the new data by forecasters. Better interrogation of the current situation is possible with the high quality imagery having less false signals or "noise" in the data. Features identified in the satellite image often verify other observational data. All this reduces the element of uncertainty which is important for forecasters during stressful severe weather days.

Fourthly, the use of Himawari data results in weather and warning services that better meets stakeholder needs. The greater forecaster confidence in the use of the data can be communicated for more informed decision-making. The high-resolution satellite data available in near real-time permits up to date briefing of weather critical to stakeholders. The detailed information permits prompt amendments of forecasts and warnings pertaining to critical weather.

Forecasters enjoy using the spectacular high impact animations of the Himawari-8 satellite data. The data is also popular with the news media as it enhances their ability to present the "meteorological message" to the public dramatically and clearly.

Finally there is a need for ongoing developments in the utilisation of the Himawari-8 data, including the modification of existing and the creation of new Red-Green-Blue (RGB) and derived products, addressing limitations in the visualisation of the data, as well as ongoing training to ensure the most effective use of the new data and data products.

(Bodo Zeschke, Bureau of Meteorology Training Centre, BOM)

Figure 4. Supervising Meteorologist at the VICRO RFC

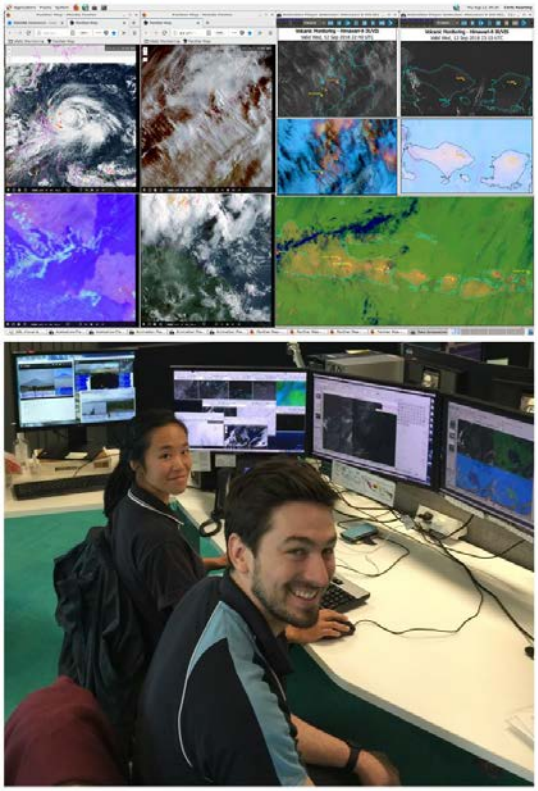


Figure 5. VAAC forecasters and RGB images

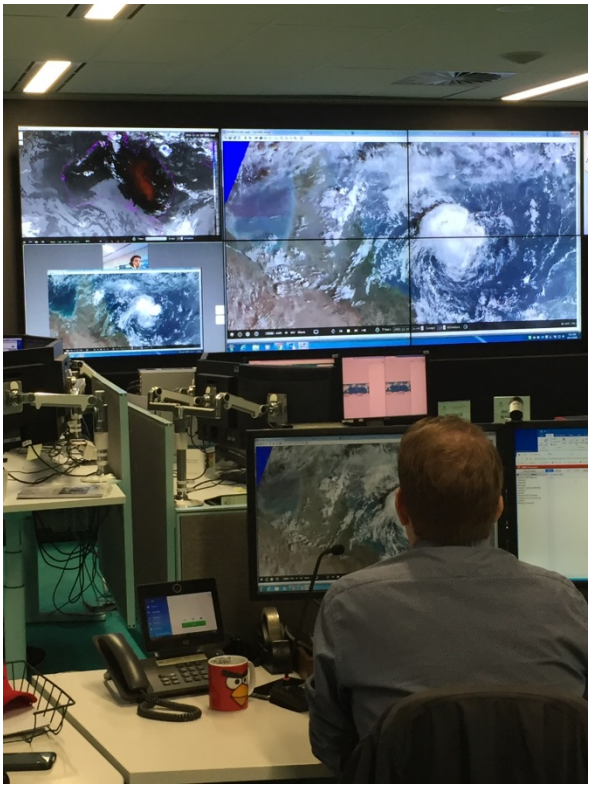


Figure 6. BNOC Chart Discussion

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From the Co-editors

The co-editors invite contributions to the newsletter. Although it is assumed that the major contributors for the time being will be satellite operators, we also welcome articles (short contributions of less than a page are fine) from all RA II Members, regardless of whether they are registered with the WMO Secretariat as members of the WIGOS Project Coordinating Group. We look forward to receiving your contributions to the newsletter.
(Dohyeong KIM, KMA, and Hiroshi KUNIMATSU, JMA)

RA II WIGOS Project Home Page

http://www.jma.go.jp/jma/jma-eng/satellite/ra2wigosproject/ra2wigosproject-intro_en_jma.html

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