

WORLD METEOROLOGICAL ORGANIZATION

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COMMISSION FOR BASIC SYSTEMS
OPEN PROGRAMME AREA GROUP ON INTEGRATED OBSERVING SYSTEMS

INTER-PROGRAMME EXPERT TEAM ON SATELLITE UTILIZATION AND
PRODUCTS

ITEM: 7.1

THIRD SESSION

Original: ENGLISH

GENEVA, SWITZERLAND, 2-5 MAY 2017

SCOPE-NOWCASTING
Imagery and RGBs for SWFDP in RA II/V (Pilot Project 1)

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Summary and Purpose of Document

This document reports on the updates on progress in SCOPE-Nowcasting Pilot Project 1.

ACTION PROPOSED

The third session is invited to:

- (a) Take note of recent activities of the pilot project;
 - (b) Provide comments and suggestions for enhancing progress.
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DISCUSSION

1. Introduction

The theme of SCOPE-Nowcasting Pilot Project 1 is basic satellite imagery; RGB composites and enhancements, visible and infrared imagery, precipitation potential products and cloud products. The target area coverage is the RA-II/V and SWFDP/SWFDDP regions.

Recent activities of the pilot project focus on RGB composite products. RGB compositing techniques offer the possibility of compressing multispectral information content for optimum visualization, while at the same time preserving pattern and texture of cloud and surface features as well as continuity in the time domain (WMO, 2007).

Himawari-8 satellite managed by the Japan Meteorological Agency (JMA) began operation at 02 UTC on 7 July 2015. Besides that, its twin satellite, Himawari-9 was successfully launched on 2 November 2016 and subsequently started the back-up operation for Himawari-8 on 10 March 2017. JMA is willing to provide the current dataset and maintain the data dissemination system for Asia and Pacific regions until 2029 with these satellites. Their multi-band, high-frequency and high-resolution Imagery will serve for severe weather monitoring and forecasting in these regions.

China Meteorological Administration (CMA) successfully launched new generation geostationary satellite, FY-4A 11 December 2016. By December 2017, CMA will finish the satellite and ground segment test and plans to start the operation from January 2018.

KMA plans to launch their new generation geostationary satellite, GEO-KOMPSAT-2A in May 2018. At this time there will be three advanced geostationary meteorological satellites operating in the RA-II/RA-V area, with similar capabilities and overlapping coverage.

2. SCOPE-Nowcasting Pilot Project 1 Updates

Regional Focus Group Discussion of Melbourne VLab Centre Of Excellence

JMA, Korea Meteorological Administration (KMA) and many other NMHS in RA II and V have participated in monthly Regional Focus Group (RFG) meetings which are hosted by Australian VLab Centre of Excellence. During 2016, many weather and forecast topics were presented, such as case studies using Himawari-8 data, examination related to tuned RGB composite imagery. These meetings have been precious opportunities for all Himawari-8 data users to share latest information.

EUMETSAT Satellite Conference 2016

At the session 2, Use of Satellite data for nowcasting and short-range NWP, JMA made a presentation titled "New recipes of RGB composite images from Himawari-8 developed by JMA". This presentation was about the tentative ideas for new RGB recipes (Cloud Phase, Water Vapor, Fire/Smoke detection, Convection and SO₂) and adjustment of the MSG recipes to Himawari-8.

Seventh Asia/Oceania Meteorological Satellite Users Conference (AOMSUC-7)

The Conference was hosted and sponsored by KMA. At the training event, which was held prior to the conference, about 60 trainees participated, and the staff from KMA, CMA, AuBoM and JMA made lectures to the trainees. Training topic covered the broad range of utilization of satellite data, including how to utilize RGB imagery.

At the conference, JMA made a presentation about the same contents with that at EUMETSAT Satellite Conference 2016.

(Relating Recommendation 2.12)

2016 NOAA-Australian Bureau-JMA Virtual Session on RGBs

JMA made a presentation "New recipes of RGB composite images by Himawari-8 Introduction of Experimental New RGBs by Himawari-8/AHI". In this session, participants agreed to share the information for development of RGB images.

Modification of webpage for Himawari Real-Time Image

Meteorological Satellite Center (MSC) of JMA has been providing satellite imagery on the website for Himawari Real-Time image. (<http://www.data.jma.go.jp/mscweb/data/himawari/index.html>)

The website provides Himawari-8 images including RGB composite images for full disk and selected areas. In 2016, JMA added some new regions for Pacific island nations in response to their request which JMA experts were received when they visited at each NMHSs of the Pacific region for the training seminar, which is intended to enhance their weather monitoring and forecasting capacity based on the use of Himawari-8 imagery.

3. Future Plan

Adjustment of the RGB recipes to Himawari-8

JMA has investigated the availabilities of existing RGB recipes (mainly EUMETSAT recipes) to create RGB composite imagery from Himawari-8 data. Through the investigation, JMA found that appropriate enhancements or adjustments of individual color beams will be required. This is due to difference between imagers of Himawari-8 and Meteosat (MSG). Through the investigation the adjustments by regression coefficients seemed to be appropriate. JMA plans to develop the adjusted recipe by the regression coefficient method and continue to collaborate with experts of AuBoM, EUMETSAT, NOAA, and so on.

RGB product of FY-4A and GEOKOMPSAT-2A

Advanced Geosynchronous Radiation Imager (AGRI) of FY-4A has 14 observation bands.

KMA plans to launch their new generation geostationary satellite, GEO-KOMPSAT-2A on May 2018. Its Advanced Meteorological Imager (AMI) has 16 observation bands.

The RGB product derived not only from Himawari-8/9 but also FY-4A and GEO-KOMPSAT-2A will serve the disaster risk reduction.

RGB Experts and Developers Workshop

WMO, JMA and EUMETSAT are planning to hold the “RGB Expert and Developers Workshop” on 7-9 November 2017 at Tokyo. The topic of the workshop will be a) Review of existing RGB composite standards, b) Application of RGBs using new-generation imagers, c) Demonstrating the value of RGBs in context (NWP, products), d) Compilation of demonstration and training material, and e) Exploring new standards for satellite-based composites. (see item IPET-SUP-3/INF.5.5) (*Relating Recommendation 2.13*)
