

UPDATE ON THE SCOPE-NOWCASTING INITIATIVE

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An update on the Sustained Coordinated Processing of Environmental Satellite Data for Nowcasting (SCOPE-Nowcasting) initiative is provided. SCOPE-Nowcasting aims at ensuring continuous and sustained provision of consistent, well-characterized satellite products for nowcasting and severe weather risk reduction. Recent discussions including at the 7th session of WMO ET-SUP resulted in an updated set of criteria and a refined set of pilot projects that should demonstrate the added value of the initiative. The updated list of pilot projects encompass: (i) basic nowcasting products with a focus on RGBs, (ii) advanced nowcasting products with a focus on volcanic ash, and (iii) precipitation, (iv) real-time ocean products, and (v) sand and dust products.

The following CGMS members nominated focal points for SCOPE-Nowcasting: JMA, CMA, and EUMETSAT.

Action/Recommendation proposed:

Action: CGMS members to nominate focal points for the SCOPE-Nowcasting initiative as appropriate (KMA and NOAA NESDIS in particular)

UPDATE ON THE SCOPE-NOWCASTING INITIATIVE

1 INTRODUCTION

An update on the Sustained Coordinated Processing of Environmental Satellite Data for Nowcasting (SCOPE-Nowcasting) initiative is provided. SCOPE-Nowcasting aims at ensuring continuous and sustained provision of consistent, well-characterized satellite products for nowcasting and severe weather risk reduction. Established under WMO auspices, the goal of SCOPE-Nowcasting is to provide a mechanism through which satellite data could be made available simply and quickly, in a harmonized way as appropriate, for the benefit of users with capabilities ranging from basic to more advanced.

Four broad categories of products under consideration in SCOPE-Nowcasting are: basic nowcasting products (e.g., RGBs, imagery), advanced products (e.g., fog detection, cloud products; volcanic ash products), real-time ocean products, and atmospheric composition products (e.g., dust products). The SCOPE-Nowcasting concept and a set of pilot projects were presented to CGMS-40, resulting in a number of Actions (40.27, 40.28) targeted at buy-in from CGMS members, and Recommendations on the inclusion of volcanic ash-related product development in the initiative (R40.24, R40.27). In response to these, the following CGMS members nominated focal points for SCOPE-Nowcasting: JMA, CMA and EUMETSAT.

A kick-off teleconference in April 2013 and recent discussions at the 7th session of WMO ET-SUP (27-30 May 2013) resulted in a refined set of criteria and an update to the pilot projects.

2 UPDATED SET OF PILOT PROJECTS

The list of Pilot Projects was reviewed and revised during ET-SUP using the following a refined set of criteria. In summary, nowcasting datasets / products generated in a Project should be characterized by:

- a. The use of multi-satellite data;
- b. Dataset formats that can be read by standard tools;
- c. Concise product documentation (<2 pages) including a description on: general product characteristics, data format, data fields, originating satellite datasets, algorithm, validation and uncertainty estimates, limitations;
- d. Open and easy access;
- e. Available in near-real time (<6h latency);
- f. Availability of training information; and
- g. An official commitment from all agencies involved in the project.

The following updated set of pilot projects is proposed:

Pilot Project 1: Basic Nowcasting

Consistent RGB composites should be developed based on the next generation of geostationary imagers operated by CMA, JMA and KMA, using the de facto standard for RGBs endorsed by WMO¹. Currently, none of the satellite operators in RA II and RA V currently deliver RGB products in real time, and the imagers Himawari-8, FY-4A and Geo-KOMPSAT-2A will provide an appropriate platform for delivery of these products. At ET-SUP-

¹ http://www.wmo.int/pages/prog/sat/documents/RGB-WS-2012_FinalReport.pdf

7, it was agreed in consultation with CMA and JMA to develop (i) a product specification document, and (ii) a product dissemination plan, for harmonized RGBs for nowcasting from the imagers on Himawari-8, FY-4A. With the agreement of KMA, it is hoped to expand this Pilot Project to Geo-KOMPSAT-2A.

Pilot Project 2: Advanced Nowcasting

A globally-consistent volcanic ash product (from GEO and LEO) would be an appropriate target product for this pilot. The reasons for this decision are:

- (i) There is a clear need expressed by ICAO for a consistent product to be made available globally;
- (ii) A number of centres have made recent advances in developing satellite-based volcanic ash products; these could form the basis of a standard;
- (iii) More global coordination is required;
- (iv) The need for this activity has been recognized by CGMS².

Pilot Project 3: Advanced Nowcasting: Precipitation / Severe Rainfall Risk Reduction

This project led by INPE leading toward a blended satellite-based global precipitation product has made good progress and the additional use of microwave data in an integrated product should be considered. Contingency measures should be developed with regard to the launch of GPM. Formal agreement from data providers (NOAA, NASA, and JAXA) is sought.

Pilot Project 4: Real-time Ocean Products

As currently framed, this Pilot Project does not address the criteria and considerations outlined above. The project plan is being revised to include real-time provision of ocean winds from multiple sources, including Metop/ASCAT, Oceansat-2/OSCAT and HY-2A/SCAT, with the possible addition of AMV data.

Pilot Project 5: Real-time Atmospheric Composition Products: Sand and Dust Forecasting

At ET-SUP, representatives from JMA (H. Kunimatsu) and CMA (X. Fang) agreed to progress this initiative through the implementation of Aeolian dust products based on a common algorithm, to be applied to the imagers on Himawari-8 and FY-4A. The initial focus is on deriving aerosol optical depth, with other aerosol parameters to be encompassed at a later stage. KMA may consider doing the same for Geo-KOMPSAT-2A. Appropriate synergy with the RGB dust product derived in Pilot Project 1 should be achieved.

Consistent with the SCOPE-Nowcasting Concept of Operations, ET-SUP restated that data providers involved in pilot projects may distribute processing software which host agencies can use to themselves generate products, using raw satellite data distributed by the providers (following the EUMETSAT Nowcasting-SAF model).

3 NEXT STEPS

The Chair of ET-SUP, Anthony Rea (Australian Bureau of Meteorology), will provide a briefing to the Plenary session of CGMS-41 on SCOPE-Nowcasting. The next opportunity arises with the 4th Asia/Oceania Meteorological Satellite Users' Conference (Melbourne, Australia, 9-11 Oct 2013) to report on progress in SCOPE-Nowcasting; a Conference side meeting with users from RA II and RA V is planned to focus on their detailed nowcasting requirements.

² Recommendation 40.27 (CGMS-40, 2012): "The scientific development (EUMETSAT, JMA, NOAA joint development of common/consistent volcanic ash products) should be considered as a pilot activity of SCOPE-Nowcasting."

A first meeting of the ad-hoc SCOPE-Nowcasting Working Group in Geneva, Switzerland, is tentatively scheduled for the week 25-29 Nov 2013.

4 CONCLUSION: SUGGESTED ACTIONS/RECOMMENDATIONS

Action: CGMS members to nominate focal points for the SCOPE-Nowcasting initiative as appropriate (KMA and NOAA NESDIS in particular).