

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

INTER-PROGRAMME EXPERT TEAM ON SATELLITE UTILIZATION AND
PRODUCTS

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REGIONAL SATELLITE DATA REQUIREMENTS AND DATA EXCHANGE

REGION III AND IV

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Summary and Purpose of Document

Formulating Region-based requirements for satellite data access and exchange has been recognized by WMO as a priority (see WMO Executive Council Resolution 12 (EC-65, 2013)). The last face-to-face meeting of the Coordination Group on Satellite Data Requirements in Region III and Region IV (SDR) was held in Curacao in September 2016. The Group also held 3 teleconferences since the last IPTE-SUP, the last meeting was occurred on 11 April 2017.

This document describes the initiatives and actions taken in the last face to face and telecom meetings, as well the preparation for the new satellite generation and the evolution of the studies to use GNC-A to deliver GOES-16 data. Finally, it discuss the agenda for the next face to face meeting in the NOAA Satellite Conference.

ACTION PROPOSED

The third session is invited to:

- (a) Take note of the Group's achievements and decisions;
- (b) Discuss the proposal for a face-to-face meeting in 2017 in July at the NOAA Satellite Conference;
- (c) To discuss the SDR evolution and next steps.

Appendices:

- A. List of participants of the SDR Curacao meeting, list of SDR members and the terms of reference of the coordination Group for Satellite Data Requirements in the Region III and IV.
- B. GOES-16 impact on GNC-A bandwidth

DISCUSSION

Introduction

In November 2012, the WMO Secretary General asked all Members in RA III and RA IV to nominate candidates for a standing Regional Coordination Group on Satellite Data Requirements (SDR) as a follow-up step from the successively concluded work of a predecessor Task Team. In 2013 and 2016, the group meet during the NOAA Satellite Conference and in Curacao last September. Besides the face-to-face meetings, twenty-one teleconferences were held and several actions were taken. Among these actions, the group, discussed the strategies to receive data from the new satellite generation, conducted two surveys, created and updated the list of satellite data requirements for the region, and selected the data the users would like to receive from the new NOAA geostationary.

In this document, we present the main achievements obtained by the SDR Group in 2016 and early 2017, the proposed agenda for the next face to face meeting and the update of the activities related to the GNC-A dissemination of GOES-16.

1. Face to face meeting in Curacao.

The Second Meeting of the World Meteorological Organization Coordination Group on Satellite Data Requirements for RA III and IV was held in Willemstad, Curaçao 5-8 September 2016. Participants concluded that the meeting was highly successful and productive and an important milestone in preparing the Region for using the new satellites generation. The WMO secretariat described the general achievements of the SDR over the past years which include: coordination among satellite users in RA III and IV; providing a structured user interface to satellite operators; definition of satellite data requirements and priorities and helped define scanning options priorities of GOES-13, a regional surveys and identification of training needs. The meeting was a concrete opportunity to assist in ensuring readiness of users in RA III and IV to receive and use new-generation satellite data. The main priority for the meeting was to ensure that Members are readily prepared to use data from the new-generation GOES-R satellite identify the most cost-effective technical data access and solutions. The meeting also address the training needs, the priorities for GNC-A extra bandwidth use, the conversion from EUMETCast-Americas to GNC-A and updated the satellite data requirements list. NOAA has sent several GOES-R experts to the meeting, offering an excellent opportunity for Group members to get first-hand information.

The meeting presented several outcomes as the list of GOES-16 products and channels to be delivered by GNC-A, trainings and actions and recommendations.

The meeting was very important for the region countries to decide the strategy to receive the GOES-16, to define their priorities and to understand what the new satellite generation will provide, the specification of the hardware needed (store and process), and the different backup solutions.

The meeting report is available here:

http://www.wmo.int/pages/prog/sat/documents/RA-3-4-SDR-2_Final-Report.pdf (English)

http://www.wmo.int/pages/prog/sat/documents/RA-3-4-SDR-2_Final-Report-es.pdf (Spanish)

2. Telecons of the SDR Group

There were three telecons after the last IPET-SUP, the first one 21 March 2016, the second one 31 October 2016 and the last one the 11 April 2017. The next telecon will be held on 20 June 2017 for the preparation of the face to face meeting in July during the NOAA Satellite Conference. The first meetings was important to prepare the meeting in Curacao and the documentations to be

delivered before the meeting as the GOES-R roadmap. The second meeting, discussed the actions and recommendations taken during the Curacao meeting and presented the update about the GOES-R data. The last meeting was dedicated to follow the activities of each country to receive GOES-16 and the update of the GOES-16 data delivers.

Telecons are very valuables because it provides a way to follow the activities and to discuss the main problem of the regions in this important time where the two satellites are in orbit, the old and new generation.

3. GNC-A preparation for the GOES-16

In February 2017, the GNC-A transmission bandwidth has increased from 8.6 Mbps to 11.6 Mbps in preparation for GOES-16 imagery and products along with other product offerings. This is the third bandwidth increase in the last two years (2 Mbps originally, 6.7 Mbps and 8.7 Mbps previously). When GOES-R data will become available for public release, in June 2017, this will mean roughly a 6-fold increase in data coming down from the satellite to GNC-A receive stations. The SDR during the Curacao meeting established the base of products to be delivered by GNC-A, but as the bandwidth was increased, the final list of products has yet to be determined but it will include a selection of GOES-R Channels in Level II and other Advanced Baseline Imager (ABI) Level II products. The Imagery and other ABI Level II products will all be in full disk. As it becomes available and the feasibility of dissemination is determined, the Geostationary Lightning Mapper (GLM) products will also be added. In order to evaluate the viability of the GOES-R products addition to the broadcast, the impact on the GNC-A bandwidth was previously calculated using the estimated file sizes. In the end of February, statistics from real data flow were made available and the average impact could be determined. The appendix B shows the average bandwidth usage for the 16 channels. The channel 2, visible with 500 m resolution, will hardly affect due to high bandwidth usage. The alternative is to transmit a downgraded (1 km) full-disk or full resolution (0.5 km) with only South America – Caribe region.

It is essential that GNC-A users be prepared to receive, analyze and store the high data volume or choose the amount of data being received by: GOES-R-ABI, GOES-R-GLM, and GOES-R-Level-2-Products. Users could also use a script in their GNC-A system to regularly delete files depending on the capacity of their computer. A new GNC-A Product List will be published at the official page (<http://www.geonetcastamericas.noaa.gov/other-publications.html>) after testing to determine the more appropriated products combination in agreement with the SDR.

4. Proposed Agenda for the next SDR meeting during the 2017 NOAA Satellite Conference

The next SDR meeting will have two session, one with 3 hours duration on Sunday afternoon (16 July) and one, Wednesday afternoon (19 July), with 2 hours duration. The following topics are suggested to be discussed:

- a) Review the GNC-A list of GOES-16 data and provide feedback;
- b) Discuss the GOES-16 data acquisition in each country and exchange information;
- c) Discuss the conversion of Eumetcast to Geonetcast stations.
- d) Discuss the use of SigmaCast and/or others manage/visualization software;
- e) Review the training activities and provide feedback;
- f) Review the TOR and update with the new challengers;
- g) Discuss the preparation for JPSSSS.

Appendix/ices: A

CURACAO MEETING LIST OF PARTICIPANTS

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**MEMBERS OF THE COORDINATION GROUP FOR SATELLITE DATA REQUIREMENTS IN
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TERMS OF REFERENCE OF THE COORDINATION GROUP FOR SATELLITE DATA REQUIREMENTS IN REGION III AND IV

1. The Group consists of a representative number of members from the satellite data user community in the Region, joined, as associate members, by satellite data providers and WMO. The Group is chaired by one or two representatives from key satellite data user organizations of the Region.
2. The Group maintains an updated list of satellite data and products available to the Region through existing dissemination services. Data and products shall be classified by categories of variables and derived products.
3. The Groups regularly reviews sources of regional needs and undertakes, as needed, further information gathering, such as surveys, to ensure that views of WMO Members in the Region are adequately represented.
4. The Group analyses the requirements for each relevant category of product, and identifies which requirements are not adequately met by existing services. The unmet requirements are prioritized, taking into account:
 - a. The applications supported and their impact
 - b. The number and representativeness of the users
 - c. The status of the required data or products
 - d. The quality and suitability of the required data or products.
5. In summary the Group formulates recommendations pertaining to:
 - a. Existing satellite data/products (with detailed references) to be included in existing distribution services, or moving a product from one service to another, or assigning lower priority to an existing product (or removing it if obsolete)
 - b. Amendments of existing products or development of new products
 - c. Evolution (upgrade, or consolidating) of data dissemination means, or other
(e.g. training, tools, user equipment)
 - d. Short-term action to implement these recommendations
6. The Group maintains a dialogue with satellite data providers of relevance to the Region, and other partners as needed, to ensure that its recommendations are implemented.
7. The Group uses the [WMO Procedure for Documenting Regional Requirements for Satellite Data Access and Exchange](#), for guidance.
8. The Group meets in person at least every two years, and, to ensure continuity, works through collaborative tools during the intersessional period.

Appendix/ices: B – GOES-16 impact on GNC-A

Table B1: Average bandwidth usage for the 16 ABI channels

PRODUCT	Central Wavelength (μm)	RESOLUTION [km]	FREQUENCY [min]	AVERAGE GNC-A IMPACT [%]
CMI - Channel 01	0.47	1	15	3.83
CMI - Channel 02	0.64	0.5	15	28.60
CMI - Channel 03	0.865	1	15	4.67
CMI - Channel 04	1.378	2	15	0.93
CMI - Channel 05	1.61	1	15	4.51
CMI - Channel 06	2.25	2	15	1.03
CMI - Channel 07	3.90	2	15	2.15
CMI - Channel 08	6.19	2	15	1.54
CMI - Channel 09	6.95	2	15	1.50
CMI - Channel 10	7.34	2	15	1.69
CMI - Channel 11	8.5	2	15	2.23
CMI - Channel 12	9.61	2	15	1.91
CMI - Channel 13	10.35	2	15	2.33
CMI - Channel 14	11.2	2	15	2.18
CMI - Channel 15	12.3	2	15	2.32
CMI - Channel 16	13.3	2	15	1.60

TableB2: Average bandwidth usage for the 28 Baseline Level II Products:

PRODUCT	RESOLUTION [km]	FREQUENCY [min]	AVERAGE GNC-A IMPACT [%]
Aerosol Detection (including Smoke and Dust)	2	15	0.32
Aerosol Optical Depth	2	15	0.40
Clear Sky Masks	2	15	0.18
Cloud Optical Depth	4	15	0.54
Cloud Particle Size Distribution	2	15	1.67
Cloud Top Height	10	15	0.12
Cloud Top Phase	2	15	0.31
Cloud Top Temperature	2	15	0.12

Cloud Top Pressure	10	15	2.15
Derived Motion Winds (Band 2)	10	15	3.19
Derived Motion Winds (Band 7)	10	15	0.37
Derived Motion Winds (Band 8)	10	15	0.54
Derived Motion Winds (Band 9)	10	15	0.52
Derived Motion Winds (Band 10)	10	15	0.61
Derived Motion Winds (Band 14)	10	15	0.38
Derived Stability Indices	10	15	0.32
Fire / Hot Spot Characterization	2	15	0.23
Land Surface Temperature (Skin)	10	15	0.03
Legacy Vertical Moisture Profile	10	15	19.43
Legacy Vertical Temperature Profile	10	15	19.44
Rainfall Rate /QPE	2	15	0.17
Sea Surface Temperature (Skin)	2	15	2.46
Snow Cover	2	15	0.28
Total Precipitable Water	10	15	0.10
Volcanic: Detection and Height	2	15	1.94
Hurricane Intensity	2	15	0.02
Downward Shortwave Radiation	50	15	0.02
Reflected Shortwave Radiation	25	15	0.05
Global Lightning Mapper	10	TBD	1.00