

# **Status of documenting satellite data access requirements in RA III / RA IV**

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# Outline

- Data Requirements
- Proposal for the Next Steps
- What need to be Defined.

# Data Access

- **Direct Readout**

- a) Old Satellite Generation – Few countries like Brazil and Argentina
- b) New Satellite Generation – NPP and GOES-R, I guess also for METOP (no user is ready)

- **FTP**

- a) Nearly all countries – slow access to high resolution data, only products. Need near real time data.(Nowcasting)

- **GeonetCast**

- a) Growing - possible solution but need to have also raw data and Data Requirement and sustainable dissemination system.



**World Meteorological Organization**  
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Our ref.: OBS/SAT/SDR

GENEVA, 2 November 2012

Annexes: 4 (available in English only)

Subject: Regional Satellite Data Requirements in WMO RA III and RA IV successfully established

Action required: Nominations for Regional Coordination Group on Satellite Data Requirements by **30 November 2012**

Dear Sir/Madam,

Defining an initial set of agreed Region-specific user requirements for satellite data and products, in support of all WMO application areas, has been the objective of the Task Team on Satellite Data Requirements for South and Central America and the Caribbean islands established in 2009. The Team consisted of nine representatives of Members and Territories in the Region, joined by the National Oceanic and Atmospheric Administration (NOAA), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) and WMO.

I am pleased to inform you that the Team successfully completed its work and that the set of requirements thus established is given in Annex I and, together with final documentation, at <http://satellite.cptec.inpe.br/geonetcast/es/datareq.html>. This success has only been possible through the active participation by all Team members (cf. Annex II), and through the generous support that the Team received from NOAA and the National Institute for Space Research, Brazil (INPE), in particular.

NOAA Satellite Conference for Direct Readout, GOES/POES, and GOES-R/JPSS Users April 8-12, 2013

The process of defining regional satellite data requirements in RAs III and IV has led to many positive results, including:

- Better understanding of the technical and operational context of satellite activities for WMO Members in the area;
- Better understanding of existing and planned data dissemination means;
- Demonstration of a process for collecting requirements and subsequent dialogue among data users and providers (e.g., NOAA have added products to the GEONETCast-Americas broadcast stream in response to the requirements);
- Identification of the highest priority needs in the short-term, and recommendations to prepare a sustainable response to regional needs in the longer term;
- Serving as a model for the general Procedure for Documenting Regional Requirements for Satellite Data Access and Exchange for all WMO Regions, as adopted by CBS-XV in September 2012:  
(see [http://www.wmo.int/pages/prog/sat/documents/SAT-GEN\\_CBS-15-ProcedureRegionalDataAccessReq.pdf](http://www.wmo.int/pages/prog/sat/documents/SAT-GEN_CBS-15-ProcedureRegionalDataAccessReq.pdf) for details).


It is now essential that the regional requirements be reviewed on a routine basis, and that a standing regional mechanism be established to coordinate this process. I am therefore inviting your proposals for candidates to a Regional Coordination Group on Satellite Data Requirements, **by 30 November 2012** (cf. Annex III for the Nomination Form and Annex IV for recommended Terms of Reference).

The establishment of the Group will be confirmed by the regional association. It is envisaged that the Group meets in person at least every two years, and that intermittent communication be organized regularly, e.g. by using e-mail and telephone conferences. The WMO Secretariat can assist in this process as appropriate.

WMO also encourages the satellite providers covering the area to continue working with regional Members on meeting their requirements for satellite data, including satellite data dissemination mechanisms in response to regional requirements that could be established on a long-term, timely and affordable footing.

I look forward to your continued collaboration in this important regional activity.

Yours faithfully,



(M. Jarraud)  
Secretary-General



**WORLD METEOROLOGICAL ORGANIZATION**

**OBS/SAT/SDR, ANNEX IV**

**RECOMMENDED TERMS OF REFERENCE FOR THE REGIONAL COORDINATION GROUP  
ON SATELLITE DATA REQUIREMENTS**

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 analyzes 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 (see [http://www.wmo.int/pages/prog/sat/documents/SAT-GEN\\_CBS-15-ProcedureRegionalDataAccessReq.pdf](http://www.wmo.int/pages/prog/sat/documents/SAT-GEN_CBS-15-ProcedureRegionalDataAccessReq.pdf)).
8. The Group meets in person at least every two years, and, to ensure continuity, works through collaborative tools during the intersessional period.

# Example of Data Requirements

52 different products are presently on the list (distributed in 3 Priority levels: P1; P2; and P3). All the products would require, at least, a 2.1Mbps data rate for broadcasting.

WORLD METEOROLOGICAL ORGANIZATION  
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OBS/SAT/SDR, ANNEX I

RA III – IV Satellite Data Requirements (Status: 21 March 2011)

item	INFORMATION FROM PROVIDER									INFORMATION FROM USER				
	Product Name	Data characteristics	Format	Geographical area	Frequency	Size (kB)	size comment	Format expected in the Future	FINAL Size (compressed) - kB	Basic Application	Priority		Timeliness (min)	Required data rate (kb/s)
1	GOES imagery over the Region - A	GEO satellite, channel VIS, WV, IR, Resolution 4km	level 1B original from Satellite Operator	SAM	15 - 30 minutes	16500	three images	Geotiff	8250	1)Product and Image generation.	P1	Real time	15	73.3
2	GOES imagery over the Region - B	GEO satellite, channel VIS, WV, IR, Resolution 12km	tiff image	SAM	30 minutes	2100	three images	Geotiff	1050	warning (+Synoptic analysis)	P1	Real time	5	28.0
3	GOES imagery over the Region - C	GEO satellite, other channels	level 1B original from Satellite Operator	SAM	30 minutes	5500	GOES (+1ch South America)	Geotiff	2250	1)Product and Image generation.	P2	Real time	10	30.0
4	GOES imagery from other regions	GEO satellite, channel IR Resolution 4km	level 1B original from Satellite Operator	to be defined	3 hours	5500	One ch/ additional GEO Sat.	Geotiff	2250	1)Product and Image generation.	P1	Real Time	20	15.0
5	MSG imagery over the Region - A	GEO satellite, channel VIS, WV, IR, Resolution 4km	level 1B original from Satellite Operator	30N, 30S, 50W, 50E	15 - 30 minutes	40500	six channels compress	Geotiff	40500	1)Product and Image generation	P1	Real time	10	540.0
6	MSG imagery over the Region - B	GEO satellite, channel VIS, WV, IR, Resolution 12km	tiff image	15N, 37S, 71W, 25E	30 minutes	2100	three images	Geotiff	1050	synoptic Analysis	P1	Real time	10	14.0
7	MSG imagery over the Region - C	GEO satellite, other channels	level 1B original from Satellite Operator	60N, 60S, 60W, 60E	30 minutes	13500	full disk one channel	Geotiff	6750	1)Product and Image generation.	P2	Real time	10	90.0
8	Regional Wind vectors from GEO - A	Low,middle, and high level. Low resolution.	Tiff mage	SAM	3 hours	2100	3 images	Geotiff	1050	Synoptic analysis	P1	real time	10	14.0
9	Regional Wind vectors from GEO - B	From IR, WV, VIS and 3.9 Retrieval zonal, meridional, height and quality indicator	BUFR	SAM	3 hours	8000	four images (4 channels)	BUFR	8000	Product generation. Synoptic analysis Assimilation	P1	real time	30	35.6

# SATELLITE DATA REQUIREMENTS

- Dataset available in GEONETCast based in regional data requirements.
- The development of a set of satellite data requirements in each region requires interactions between data providers, product producers, the data users in interaction with the stakeholders and end users.
- Satellite data requirements reflect the needs of a Region. The needs depend on the climatological context and the regional socio-economic priorities.



The screenshot shows the GEONETCast Americas website. At the top, there are logos for NOAA and USGEO, along with navigation links for 'Mapa del Sitio' and 'Contacto'. Below the header, there is a navigation menu with 'HOME', 'SOBRE', 'PRODUCTOS', 'USUARIOS', and 'FAQs, Links, Publicaciones'. The main content area features a satellite image of the Indian Ocean with two tropical cyclones. Text overlays describe Tropical Cyclone Hondo and Tropical Cyclone 17s. Below the image, there is a section titled 'Satellite Data Requirements for RA III and RA IV' with a globe icon. This section includes a heading for a 'SATELLITE DATA REQUIREMENTS WORKSHOP FOR RA III and RA IV' held in INPE, São José dos Campos/Cachoeira Paulista, 1-3 February 2010, and another workshop in INPE, Cachoeira Paulista, March, 29, 2011. A list of three updates follows: 1. Changes to the previous Rev-3D version. 2. Changes to data format (Geotiff/HDF) and table structure. 3. Use of 'FINAL SIZE' (compressed) column to estimate data rates. At the bottom, there is a 'DOWNLOAD' button and a link to 'RA-III-IV-Requirements-v20110321.xls'.



# How to Proceed and go Further

- Define the Scope of the user
- What system should be considered
- Know the Status of the Region – receiving systems and planned for next satellite generation
- Find out a Sustainable System to provide the Data specify in the Data Requirements
- How the Task team will be structured
- Who will support the Activities
- How Agencies and Users will interact.

# Vision for Satellite Utilization and Products for the Next Satellite Generation

## USER COMMUNITY

Primary users, two main groups of meteorological and environmental satellite users can be defined:

I. The users having direct readout, rather specialized users who are dealing with “raw data”

This first category of users, basically relying on Direct Broadcast transform raw data to level 1 (data calibrated and navigated) and assimilate this information in NWP models and/or produce some specialized products

II. The users who are mainly interested in receiving satellite products (the majority of users).

This category of users, the one less specialized, can access satellite products from the Internet or by Digital Video Broadcast (DVB) dissemination services, which allows the reception of large amounts of products using low-cost receiving equipment.

***Extracted from: Luiz Machado and WMO SP Secretariat - Vision for Satellite Utilization and Products in 2025. ET-SUP6***

# Define the Scope of the user

What Communities data requirements should be considered?

- I. The users having direct readout, rather specialized users who are dealing with “raw data”

Large amount of Data

- II. The users who are mainly interested in receiving satellite products (the majority of users).

Typical GEOSS users

- II. Data Assimilation

Large Amount of Satellite Data

# How to Proceed and go Further

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- **What system should be considered**
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# What System should be Considered?

- Only one Type – the GNC-A?
- Different Types – FTP, GNC-A, Direct Readout
- If one How to pay the bill?



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# Region Status

- Prepare a Simple questionnaire to the main users in each Country in the RAIII and RAIV
  - a. What system do you use to have satellite data
  - b. Do you intend to expand or change the reception system in the next years?
  - c. Are you ready to contribute to a specific dedicated system to receive all satellite data?
  - d. What are the main use of satellite data. What type of users you are?
  - e. What is the contact point to discuss about the most important satellite data and product in your Institution

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# Sustainable System

- For Geonetcast system or any other reception system .
- Who will pay the bill?
- How much is the bill? – rate and data
- What is the countries contributions besides the payment of the bill. (product validation, development, feedback...)

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- **How the Task team will be structured**
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# Task Team

- How to make pro-active task team
- How to consider others countries besides the one represented in the task Team.
- How to have a home page
- How to make this task team recognized as important in your weather service
- What will be the frequency of the meetings
- How to exchange efficiently data and information

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- **Who will support the Activities**
- How Agencies and Users will interact.

# Who will support the activities

- People working
- Home page
- Teleconference
- Meetings
- Data Compilation
- Technical Support Officer

# How to Proceed and go Further

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- Who will support the Activities
- **How Agencies and Users will interact.**

# Data Provider – Data User

- How to establish a mechanism to improve communication between agencies and users
- How to create an active/operational protocol of communication and feedback
- How to make the users more active!



- **Thank you**