WMO Coordination Group on
Satellite Data Requirements for RA III and RA IV

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Activities of the Coordination Group on Satellite Data Requirements for RA III and RA IV (RA-III-IV-SDR-Group)

Diego Souza and Marcial Garbanzo

RA-III-IV-SDR-Group Co-Chairs

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World Meteorological Organization
Organisation météorologique mondiale

Joint RA-II/V Satellite Coordination Meeting

AOMSUC-12

18 November 2022, 11:40 JST

Presentation Outline

- **RA-III-IV-SDR-Group Timeline**
- **5th SDR Face to Face Meeting**
- **RA III and RA IV Survey 2022**
- **Examples of Regional Engagement**

WEATHER CLIMATE WATER

WORLD METEOROLOGICAL ORGANIZATION

COMMISSION FOR OBSERVATION, INFRASTRUCTURE AND INFORMATION SYSTEMS

Coordination Group on Satellite Data Requirements for RA III and RA IV (RA-III-IV-SDR-Group)

SDR TIMELINE

13 Teleconferences

2009 - 2011

Task Team on Satellite Data Requirements (TT-SDR)

Main Achievements:

- Development of an initial set of requirements
- Its work led to improved & tailored dissemination of satellite data products in RA-III and RA-IV

2012

WMO 2012 Survey on the Use of Satellite Data

Key issues identified:

- Resource constraints
- Limited access to NRT Data
- Data Processing issues
- The overal use of satellite data was increasing over time for most users, requiring user readiness

2013

Preparatory Meeting of the SDR-Group

8 April 2013
College Park, MD, USA

Main Achievements:

- The meeting recommended that future sessions of RA-III and RA-IV endorse the establishment of the SDR-Group.
- Future working arrangements
- Several recommendations

Formal endorsement by WMO RA-III and RA-IV
(RA-IV-16: 12-19 April 2013, Curaçao)
(RA-III-16: March 2014, Asunción, Paraguay)

2014

WMO 2014 Survey on the Use of Satellite Data

Key aspects identified:

- Overview of how users receive and access satellite data
- How users would like to receive satellite data in the future
- Data latency requirements
- Future data access and distribution mechanisms

2015

1st Meeting of the SDR-Group

27 - 28 April 2015
Greenbelt, MD, USA

Main Achievements:

- GOES-13 preferred scanning options
- Evolution of user requirements
- Framework for user provider interaction
- Clear training needs (especially regarding the new generation of satellites)
- Definition of tasks and several actions / recommendations

6 Teleconferences

2015

WMO 2015 Survey on the Use of Satellite Data

Key aspects identified:

- Priorities in satellite data types to be disseminated
- Capacity building and training needs.
- The Regional Survey results have been useful for NOAA briefings

3 Teleconferences

2016

2nd Meeting of the SDR-Group

5 - 8 September 2016
Willemstad, Curaçao

Main Achievements:

- Preparation to GOES-R and JPSS
- Roadmap for Regional Satellite Data Distribution
- Associated priorities for GNC-A extra bandwidth use
- Switch-over from EUMETCast-Americas to GNC-A
- Other data types required

4 Teleconferences

2017

3rd Meeting of the SDR-Group

16 and 19 July 2017
New York City, NY, USA

Main Achievements:

- Several actions to support the transition to GOES-16, which was recently launched at the time
- Review the SDR requirements list in light of forthcoming JPSS data and products

4 Teleconferences

2019

4th Meeting of the SDR-Group

29 Sep. and 3 Oct. 2019
Boston, MA, USA

Main Achievements:

- Follow-up on previous actions
- Assess the status of satellite data and utilization in the Region
- Updates on GNC-A data dissemination plans
- GOES-R and JPSS updates
- Approaches for future updates of user requirements

2022

WMO 2022 Survey on the Use of Satellite Data & 5th Meeting of the SDR-G

Main Achievements:

- 16 countries presented their requirements, challenges and needs
- Regional survey results served as reference for NOAA
- Follow-up on GeoXO communication service plans
- Several actions and recommendations

39
Actions and Recommendations
resulting from
5
Face-to-Face Meetings
and discussed in
31
Teleconferences
analyzing up-to-date information from
4
Regional Surveys

Key Satellite Launches

- **GOES-16 Launched** November 19 2016
- **NOAA-20 Launched** November 18 2017
- **GOES-17 Launched** 1 March 2018
- **GOES-18 Launched** March 1 2022
- **JPSS-2 Launch** Coming November 1 2022

Contributors: SDR Members - Compiled by Diego Souza (INPE / Brazil), Marcial Garbanzo (University of Costa Rica) - SDR RA-III RA-IV Co-Chairs

| webpage: sdr.ucr.ac.cr | September 2022

For detailed information on the SDR history and achievements: sdr.ucr.ac.cr/meetings

RA-III-IV-SDR-Group Member Countries and Webpage

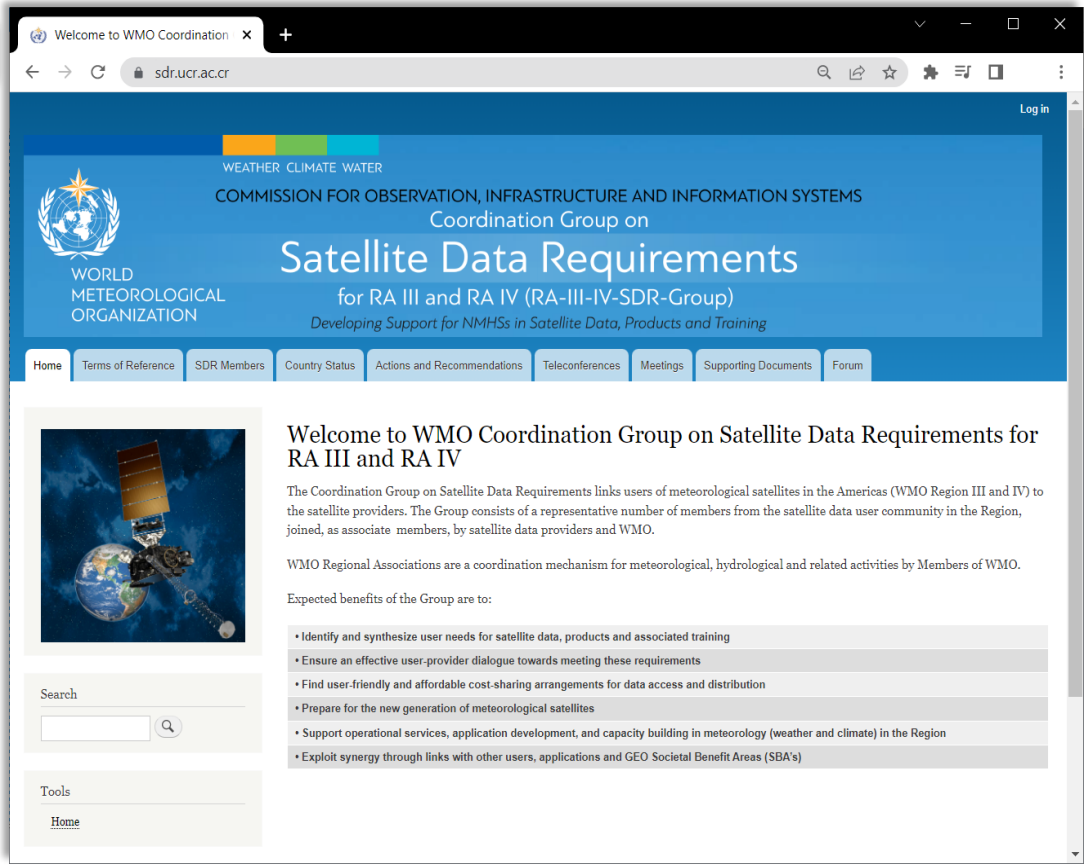
SDR Members

The current SDR Members are (Ago 2022):

Argentina, Brazil, British Caribbean Territories (BCT), Canada, Chile, Colombia, Costa Rica, Curaçao, Ecuador, El Salvador, Guatemala, Mexico, Peru, Trinidad and Tobago, Venezuela and USA.

Centers of Excellence (CoE) for Training in Satellite Meteorology

Argentina (UBA and SMN), Barbados (CIMH), Brazil (INPE) and Costa Rica (UCR).



sdr.ucr.ac.cr

- Terms of Reference
- SDR Members
- Country Status (Data Access)
- Actions and Recommendations
- Teleconferences
- Meetings
- Supporting Documents

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SDR Group Face to Face Meetings, Achievements and Actions

The SDR Group meets in person at least every two years, and, to ensure continuity, works through collaborative tools during the intersessional period

1st SDR Meeting - Greenbelt, MD, USA - 27-28 April 2015

Achievements during the period:

- GOES-13 Scanning Options
- Evolution of User Requirements
- Framework for user provider interaction
- Clear training needs
- Definition of tasks and several actions and recommendations

2nd SDR Meeting - Willemstad, Curaçao 5-8 September 2016

Achievements during the period:

- Preparation to GOES-R and JPSS
- Roadmap for Regional Satellite Data Distribution
- Associated priorities for GNC extra bandwidth use
- Switch-over from EUM-Americas to GNC-Americas
- Other data types required

3rd SDR Meeting - New York City, New York, USA, 16 and 19 July 2017

Achievements during the period:

- Several actions to support the transition to GOES-16, which was recently launched at the time
- Review the SDR requirements list in light of forthcoming JPSS data and products5

4th SDR Meeting - Boston, USA - 29 Sep and 3 Oct 2019

Achievements during the period:

- Follow-up on previous actions
- Access the status of satellite data utilization in the Region
- Update on GNC-A data dissemination plans
- GOES-R and JPSS updates
- Approaches for future updates and requirements

Madison, WI, USA - 06-07 August 2022

31 participants (25 in person, 6 remote) from 19 countries

Recording: https://www.youtube.com/watch?v=vK8lThzLKeU

GEO-XO Communication Service Plans

GEONETCast Product Additions and Support to new Installations

Training on LEO Data Access, Products and Applications

Creation of New Task Forces

New Product Requirements

Data Processing Issues

Interaction with other Regional Initiatives

Follow up on the creation of the Latin America Meteorological Satellite providing necessary advisory

Raise awareness on Training Resources

For more information on SDR meetings: sdr.ucr.ac.cr/meetings | For more information on SDR Teleconferences: sdr.ucr.ac.cr/teleconferences

2022 SDR Updates and Action Plan

Common Challenges, Requirements and Needs (as reported by SDR Members)

Challenges	**Data Assimilation** (Argentina, Brazil, Canada, El Salvador)	**Storage / Archive** (Brazil, Ecuador, El Salvador, Guatemala, Mexico)	**Data Processing** (Argentina, Brazil, Cayman Islands, Canada, Chile, Curaçao, Ecuador, El Salvador, Guatemala, Mexico)
	Human Resources (Ecuador, Guatemala, Mexico, Trinidad and Tobago, Venezuela)	**Budget Constraints** (Cayman Islands, Chile, Ecuador, Mexico, Trinidad and Tobago)	**Internet Capabilities** (Cayman Islands, Chile [Easter Island], Mexico, Trinidad and Tobago)
Requirements	**Sargassum Products** (Cayman Islands, Mexico)	**GEONETCast-Americas (New Products and Installation)** (Curaçao, El Salvador, Guatemala, Peru, Venezuela)	**Data for Forecasting** (Cayman Islands, Canada, Colombia, El Salvador, Mexico, Trinidad and Tobago)
	GOES-East / West Data (Cayman Islands, Curaçao, Ecuador, Mexico, Venezuela)	**LEO Data** (Argentina, Brazil, Cayman Islands, Canada, Chile, Curaçao, Ecuador, Mexico)	**Other Missions** (CALIPSO, Copernicus, Aura, Aeolus, MSG, TIMED, Megha-Tropiques, GeoOptics, GNSS-RO, PlanetIQ/GNOMES)
Needs	**Training** (Argentina, Cayman Islands, Canada, Chile, Curaçao, Ecuador, El Salvador, Guatemala, Mexico, Venezuela)	Technical Staff, Python, RGBs, Acquisition, Data Processing, Data Analytics, Deep Learning, Interpretation, Applications, GNC-A	**Other SDR Member Needs:** Data Transfer and Exchange, MDS Requests, Hardware and Software Updates, Support for Installation

GeoXO Communication Service Plans	• **Started** • Details sent to SDR Members - To be discussed during the next SDR teleconference (Sept. 20th)
GEONETCast-Americas Product Additions	• **Pending** • Waiting for new GNC-A Broadcast Manager
New **GEONETCast-Americas** Installations	• **Started** • DVB-S2 receivers donated by NOAA and specifications sent to SDR Members
Training (**LEO** Products and Applications)	• **Started** • Preliminary discussions and planning started during the Satellite Conference
Task Forces (ToR and Definitions)	• **Started** • Draft ToR and ideas presented on the 5th SDR Meeting - To be discussed during the next SDR calls
Sargassum Products	• **Started** • One of the SDR Members (LANOT - Mexico) is planning to produce products for the Caribbean
Operational Use of **McIDAS-V**	• **Started** • SSEC is helping in the creation of a procedure to use McIDAS-V in operations
Periodical Meetings with **other SDR Initiatives**	• **Started** • Updates from RA I, II, III, IV and V presented during the ET-SSU-5

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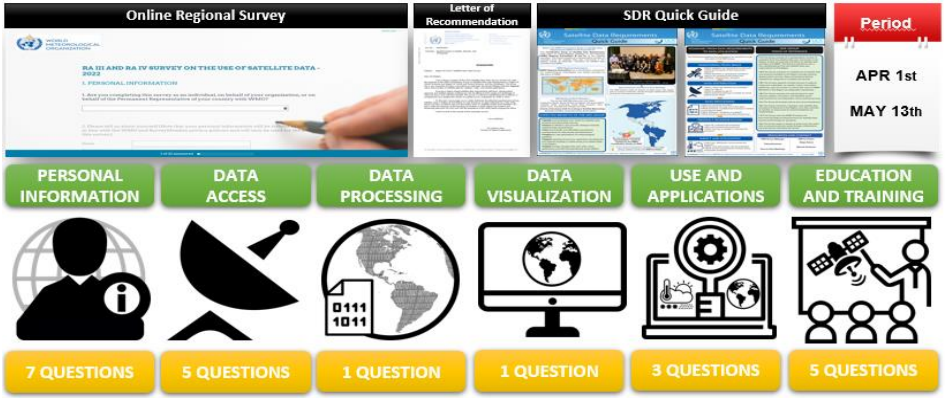
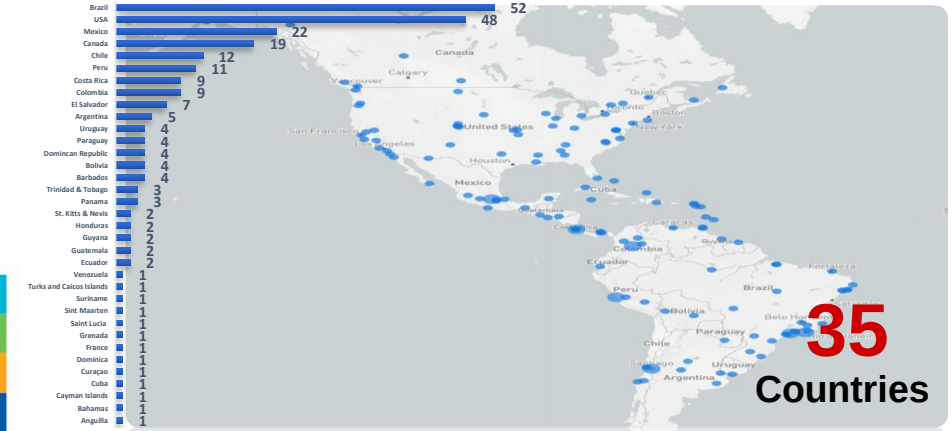
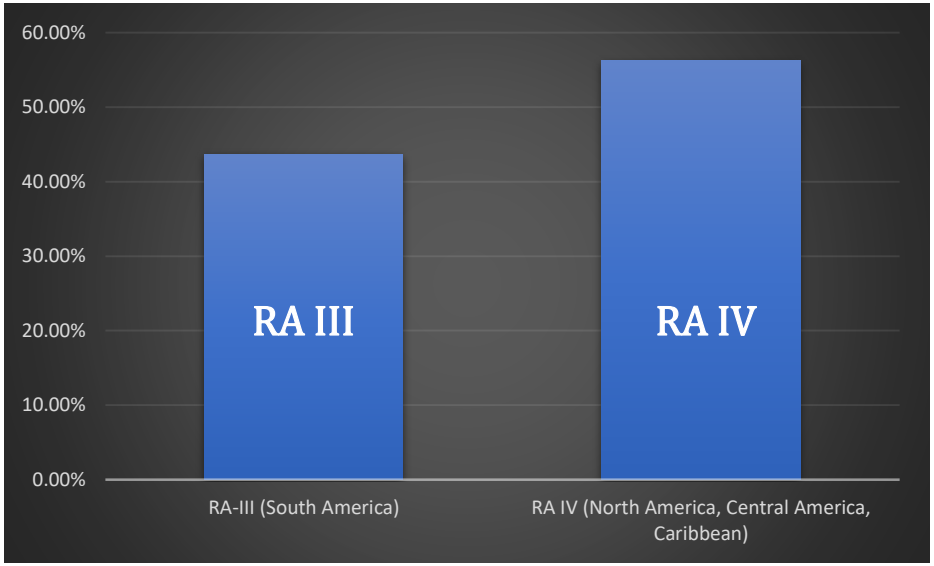
WMO RA III and RA IV Survey 2022: Overview





Q4. Please select your geographic region (if your organization is active in more than one WMO Region, please choose the region for which you wish to submit this survey)

Answer Choices	Responses	
RA-III (South America)	43,70%	111
RA IV (North America, Central America, Caribbean)	56,30%	143
	Answered	254
	Skipped	5



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For complete survey results, analysis and all questions please access: sdr.ucr.ac.cr/meetings

WMO RA III and RA IV Survey 2022: Preliminary Conclusions

1. Good participation of the RA III and RA IV communities, with **111 answers from RA III** and **143 answers for RA IV**.
2. Most of the responses indicate that it is **unknown** if countries have **formal representation in the SDR-G**.

3. Internet is still the most used means of accessing data even when other mechanisms are now available.
4. GEONETCast-Americas and the **Cloud Services (Big Data Project)** are favored for **future solutions** for gathering data.

5. The biggest problems for getting satellite data are (in no particular order): **Local networking problems, Lack of documentation, Infrastructure** (reception, storage and processing), **Funding resources, Latency issues, Maintenance, Capacity Building** and **Training**.

6. The base bands are still used heavily while RGBs or derived products could provide more information. **More training should go into better utilization of products, including gathering and generating the product**.
7. Partially met or not met training is seen everywhere regarding LEO and GEO data access, meaning that a large portion of the users still need more training or are still waiting for it.

8. Most of the responses indicate that **users are not aware of training resources** and hence they are **rarely used or not used at all**.

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For complete survey results, analysis and all questions please access: sdr.ucr.ac.cr/meetings

Recent Example of Regional Engagement (Member to Member)

Requirement

Sargassum Products

3. High-resolution Lower Earth Orbit (LEO) polar satellite products- Caribbean Sector- are needed to monitor & track Sargassum mats, and provide an overview of the risk of Sargassum coastal inundation in the Caribbean area, and as input in Sargassum trajectory modeling at the regional scale.

Reason: Sargassum mats have increasingly become a hazard with significant negative socio-economic consequences for the tourism-dependent Caribbean economies. Since 2011, massive amounts of Sargassum mats have been disrupting tourism, fishing & marine activities, industry, and coastal ecosystem services in the Cayman Islands and the Caribbean.

Reported by

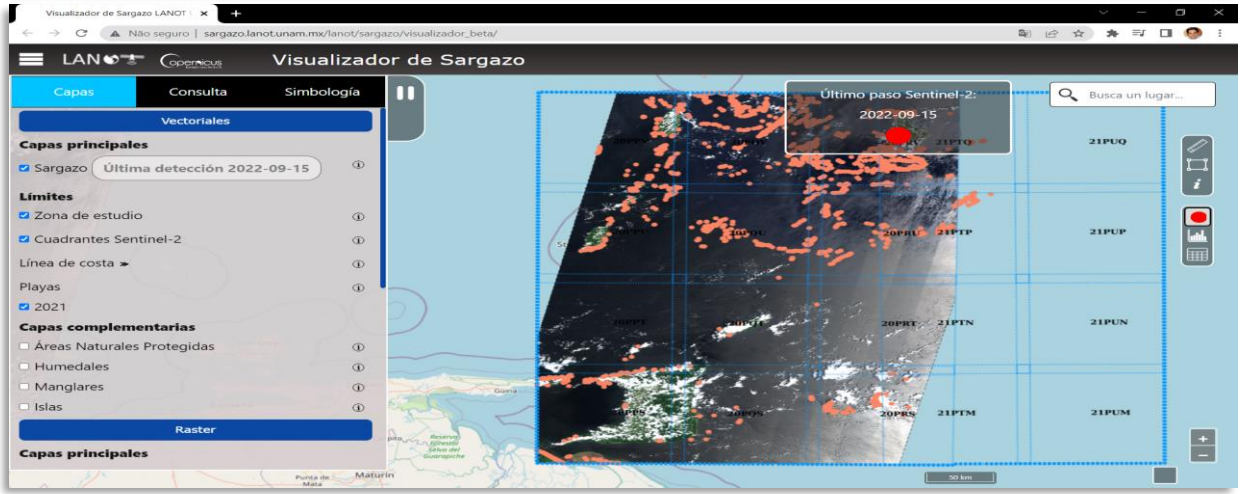
Cayman Islands (BCT)

Already being produced by

Mexico

Feedback

Existing solution adapted -> Demonstration provided -> Feedback requested



ENGAGEMENT → **VISIBILITY**

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Recent Example of Regional Engagement (SatOp to Members)

Discussion

GeoXO Communication Service Plans

Shared and Presented by

NOAA

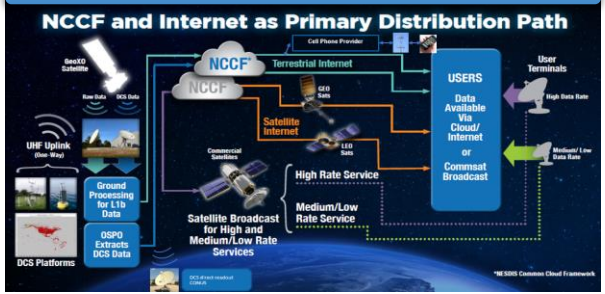
Discussed by

SDR Group

Feedback

Early user engagement - Explanation provided - Feedback requested

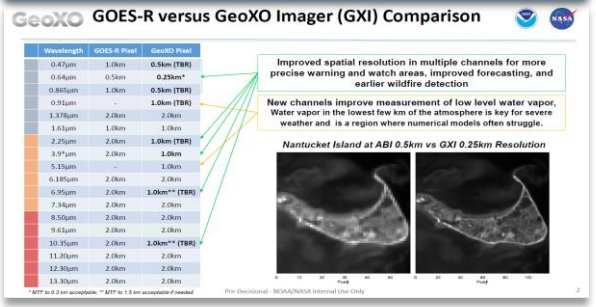
1. GeoXO Data Distribution Plans



2. Discussion with Co-Chairs

3. Q&A with SDR Members

4. GeoXO Program Overview



⬆ ENGAGEMENT ⬆ VISIBILITY

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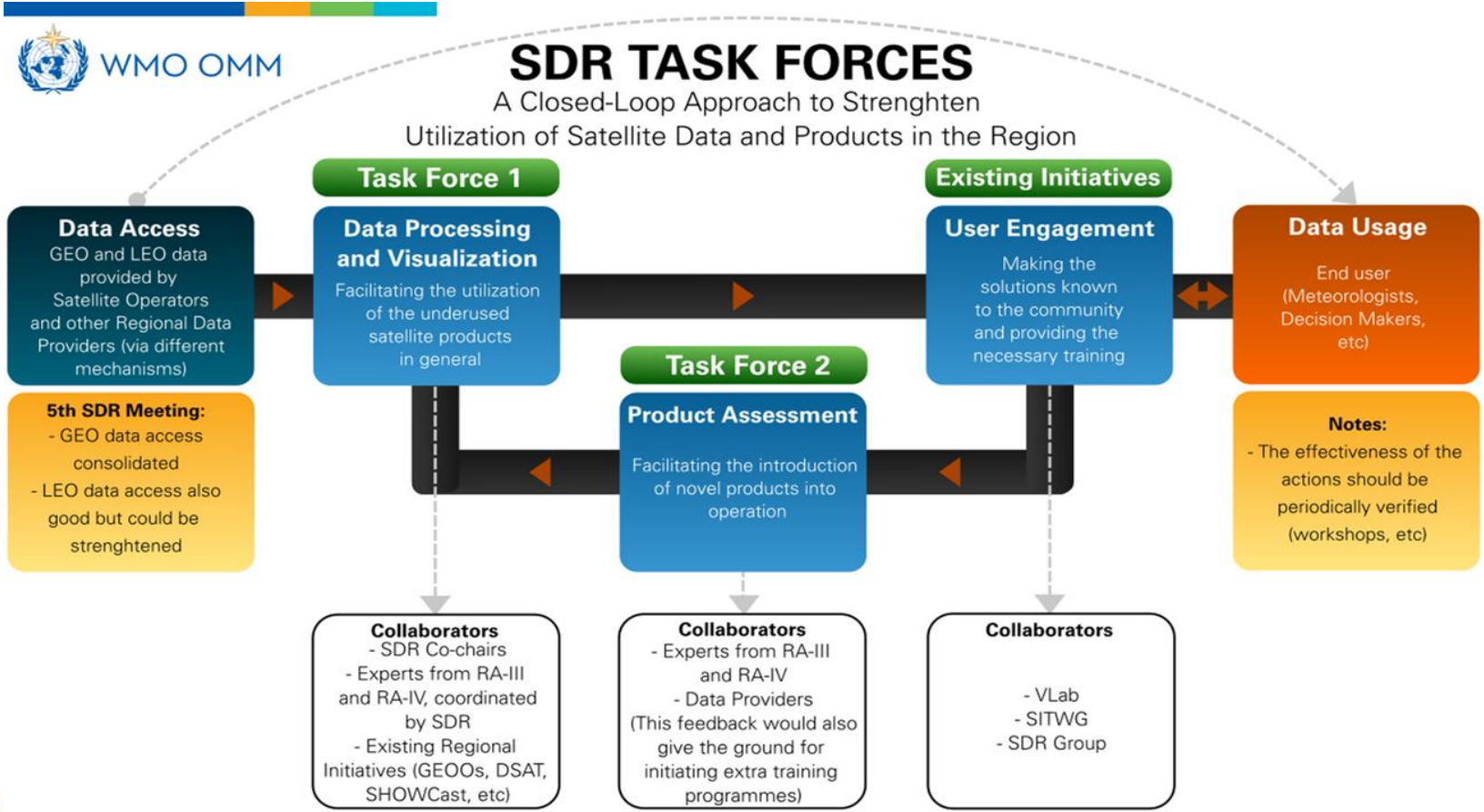
GeoXO GEOSTATIONARY EXTENDED OBSERVATIONS

Satellite Data Requirement Task Forces



SDR Data Processing and Visualization Task Force

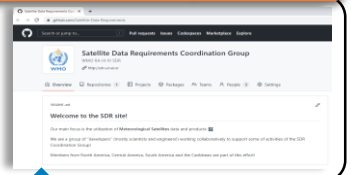
Target Satellite Products

Interaction and Development

GitHub

Discord

Telegram



Scripts and Open Source Solutions

Suggestions from Experts

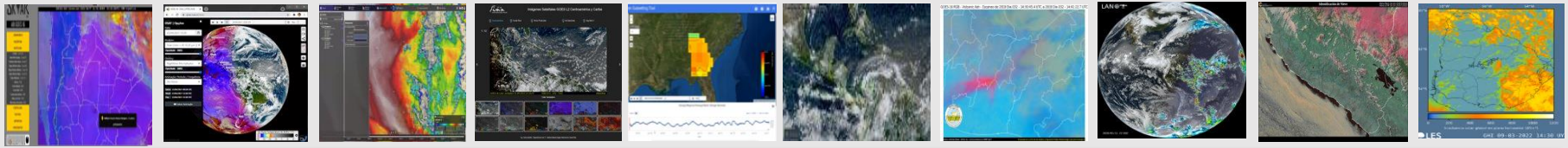
Capacity Building Event 1

Capacity Building Event 2

Capacity Building Event "X"

General Users

Argentina | Brazil | Chile | Costa Rica | Ecuador | El Salvador | Guatemala | Mexico | Peru | Uruguay



Downstream Users

RA-III-IV-SDR-Group in 2022

10th VLMG

RGB Workshop 2022

Collective Madison Meeting 2022

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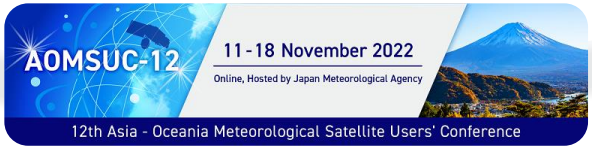
5th ET-SSU

6th DBNet-CG



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The 32nd SDR Teleconference is scheduled for the next Tuesday, November 22, 14:00 UTC

WMO Coordination Group on
Satellite Data Requirements for RA III and RA IV

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Thank you - Gracias - Obrigado

ACTIVITIES OF THE COORDINATION GROUP ON SATELLITE DATA REQUIREMENTS FOR RA III AND RA IV (RA-III-IV-SDR-GROUP)

Diego Souza and Marcial Garbanzo

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