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VLab and SDRs: A Global Collaboration to Strengthen Capacity and utilization of meteorological data

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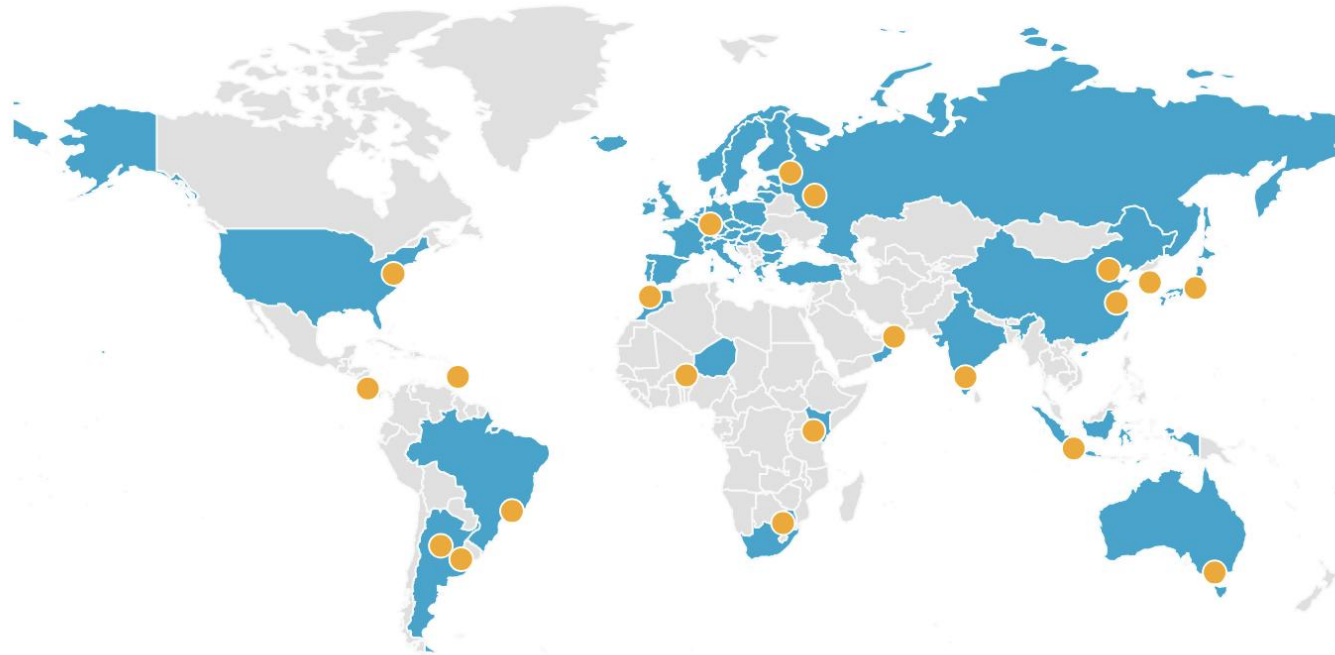
Co-chair WMO RA-IV ET-SDR and

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What is VLab?

is a global network of specialized training centers and meteorological satellite operators working together to improve the utilization of data and products from meteorological and environmental satellites established by the World Meteorological Organization (WMO) and the Coordination Group for Meteorological Satellites (CGMS).



To improve weather, water, climate and related environmental services by enabling WMO Members to utilize satellite data.

MISSION

VISION

Coordinate training centers and satellite operators to provide the best training to users to maximize satellite data utilization.



What is SDR Group?

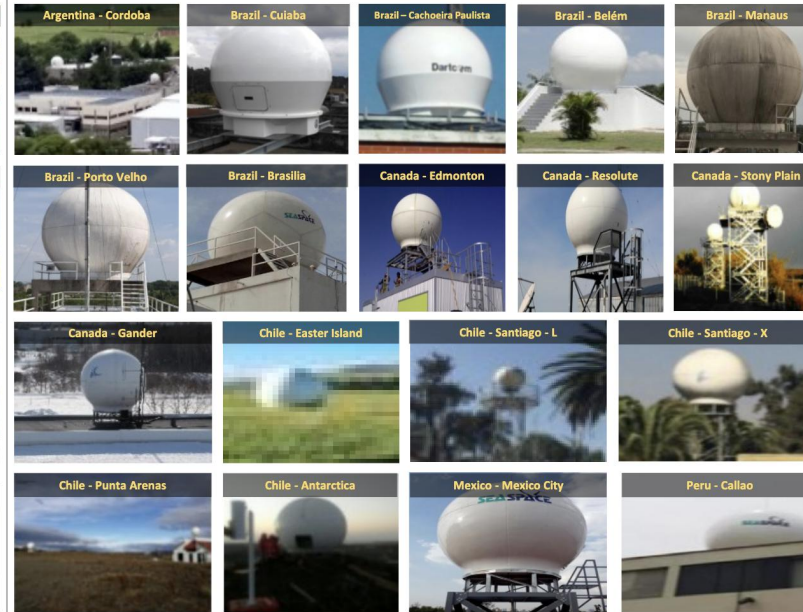
links users of meteorological satellites in the Americas (WMO Region III and IV) to the satellite providers. The Group consists of a representative number of members from the satellite data user community in the Region, joined, as associate members, by satellite data providers and WMO.

WMO Regional Associations are a coordination mechanism for meteorological, hydrological and related activities by Members of WMO.

GRB - GOES REBROADCAST - USERS IN THE REGION



HRD - HIGH RATE DATA & POES - USERS IN THE REGION



Number of GEONETCast-Americas Stations





What is SDR Group?

Core Functions

Connects users, service providers, and satellite operators to match regional needs.

Identifies and prioritizes requirements for data, products, and training.

Coordinates with WMO bodies — *INFCOM, Education & Training, and Research Committees* — ensuring alignment with global frameworks.

Advises on readiness for new-generation satellites (*GOES-R/19, MTG, FY-4*).

Maintains and reviews regional lists of essential products and dissemination pathways (e.g., *EW4ALL*).

Strategic Role

Promotes synergy with **VLab (and more)** — ensuring training follows user needs.

Provides recommendations to **ET-SSU** and **CGMS**, contributing to **WMO**.

SDRG knows the region to better define

what is needed; Together with VLab

and partners work to achieve goals.

Why people join the SDR Group?

1st - Mexico helps Caribbean

2nd – Argentina helps Mexico

Understanding Regional Needs

Identify and synthesize user requirements for satellite data, products, and training.

Facilitate dialogue between users and satellite providers to ensure needs are met.

Enabling Access and Readiness

Promote accessible and cost-effective mechanisms for data access and distribution.

Prepare Members for the operational use of *new-generation meteorological satellites*.

Strengthening Regional Capacity

Support operational services and the development of applications in *weather, water, and climate*.

Foster capacity building and technical collaboration through regional partnerships.

Building Global Synergies

Leverage partnerships with other user communities, *GEO Societal Benefit Areas (SBAs)*, and global initiatives for mutual benefit.

User Needs and Challenges Identified by SDR

Access & Infrastructure

Intermittent connectivity and limited bandwidth restrict real-time product use. Insufficient local data storage and processing capacity hinder full operational exploitation.

Data & Tools

Gaps in documentation, metadata, and standardization. Visualization tools often slow or lack advanced RGB/derived product capability.

Training & Capacity Building

Basic training is widespread, but there's **strong demand for advanced, hazard-focused training** (floods, droughts, tropical cyclones, severe convection). Users prefer **hands-on, Jupyter-based workflows** and **regional case studies**.

Data Adequacy

Persistent challenges with **spatial/temporal resolution** and **latency**, especially for hydrometeorological applications.

Opportunities

GEONETCast-Americas remains a vital dissemination channel. Expansion of **cloud-based services** and **integration of in-situ data (DCS)** can enhance redundancy and coverage.



SDRG

Complementary Roles



VLab



Connects users and satellite operators across RA III & IV.

Converts SDR needs into *targeted, multilingual* training and microlearning.

Collects & prioritizes regional requirements for data, products, and training.

Builds communities of practice via *Centres of Excellence (CoEs)* and *RFGs*.

Coordinates with WMO structures and global frameworks (*EW4ALL*).

Prepares users for *next-generation satellites* and priority hazards.

Tracks progress through actions, product lists, and readiness reviews.

Coordinates & Collaborates with *CONNECT*, *EOTEC DevNet* and others

Feeds insights into *CGMS*, *ET-SSU*, and *VLab planning* to guide global efforts.

Sustains innovation through *evaluation* and *utilization*.

Joint Activities and Governance

Five in-person SDR meetings have shaped regional coordination: *Greenbelt (2015), Curaçao (2016), New York (2018), Boston (2019), Madison (2022)*.

35+ virtual sessions maintain continuity, transparency, and coordination with WMO and CGMS partners.

Joint framework: SDR works in concert with the **VLab Management Group (VLMG)** under the WMO Space Programme. Several of VLab collaborators are part of the SDR Group leaders.

Cross-regional collaboration: Engagement with **RA-I RAIDEG, RA-II, RA-V TT-SU**, and the **EOTEC DevNet** and **CONNECT** networks to share methods and harmonize capacity development.

Example actions & recommendations:

- 4.1 Update and harmonize the Regional Product List.
- 4.5 Promote VLab training and CoE resources in RA III & IV.
- 4.7 Advance a Task Force on Data Processing & Visualization.
- 4.9 Support EW4ALL implementation through joint training initiatives.

→ **Clear and inclusive governance** connects SDR, VLab, and partners to deliver coordinated satellite training and data readiness.

Results and Opportunities

Tangible Results

- The **Regional Focus Group (RFG) of the Americas & Caribbean** has met **monthly since 2004** — a 20-year continuous community of practice, bilingual (EN/ES), connecting >60 countries.
- Joint **training** strengthens regional forecasting and impact-based services.
- **SDR actions and VLab programs (e.g. TtT)** have directly improved the **interpretation and operational use** of satellite products.
- **CoEs and SatOps** jointly developed hands-on exercises and Jupyter workflows for GOES-R/19, MTG, and Himawari data.

Emerging Opportunities

- Implement an **SDR-driven priority list** for future VLab training and EW4ALL hazard modules.
- Expand **VLab** on cloud data access, product interpretation, and hazard analysis.
- Use **shared metrics and dashboards** (via CONECT/VLab monitoring) to track adoption and feedback.
- Encourage **cross-regional exchange and global coordination** through joint sessions.

A mature partnership evolving toward impact-based, data-driven learning for EW4ALL.

The Way Forward

WMO Members & NMHSs

Engage actively through SDR to express data, product, and training needs.
Participate in VLab and Regional Focus Group sessions to strengthen national capacity.

Satellite Operators (SatOps)

Integrate readiness activities and learning modules within new satellite programs.
Share tools, case studies, and open resources to enhance user preparedness.

Centres of Excellence & Regional Training Centres

Co-develop multilingual, region-specific content addressing priority hazards under EW4ALL.
Contribute to innovation through AI, cloud access, and PPE partnerships.

SDR & VLab Jointly

Monitor impact and adoption metrics through shared dashboards.
Continue bridging WHAT users need and HOW capacity is built.

Together, SDR and VLab turn satellite investments into operational capability and societal resilience.



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Thank you! - ¡Gracias!

