WMO-CGMS Virtual Laboratory for Education and Training in Satellite Meteorology (VLab):
Who are we and what do we do?

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WMO-CGMS VLab - established in 2000

Satellite Agencies

CMA, CONAE, EUMETSAT, INPE, JMA, KMA, NOAA, ROSHYDROMET, IRSO

Centres of Excellence

Costa Rica, Barbados, Brazil, Argentina, Morocco, Niger, Oman, Kenya, South Africa, Russian Federation, Republic of Korea, China, Australia

The Virtual Laboratory for Training and Education in Satellite Meteorology (VLab)

Candidate as a New Centre of Excellence: BMKG Indonesia

Coordination Group for Meteorological Satellites (CGMS) and World Meteorological Organization (WMO)
Our Mission

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

What we do:

We provide training that promotes the interdisciplinary application of satellite data for user services.

We share knowledge, experience, methods, and tools related to access and usage of satellite data, especially in support of WMO Members that have limited resources.

Our audience:

Mainly operational meteorologists: those performing the duties of analysis, diagnosis, prognosis and forecasting of the weather.

...and includes students, researchers, trainers, managers, and others spanning related disciplines that use weather and climate information.
Satellite Skills

• Recognition and inclusion of lightning measurements

Review of additional skills:

• Skill 8: Apply satellite-based climate data records for Meteorological Services

• Skill 9: Apply satellite-based products for Agricultural monitoring

Poster hung in Lab: Students are found checking the list to see what skills they need to improve.

https://library.wmo.int/index.php?lvl=notice_display&id=19843
How do we implement competency-based training?

1. Include Satellite Skills in the training plan
   • Identify the skills that will be addressed
   • State the skills in the course description
   • Add the skills to the back of the certificates

2. Link the training to the existing WMO competency framework
   • In Calendar announcements
   • In the Library of training resources

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Challenge
- Reaching wide adoption of the Satellite Skills in training.

Solution tried
- Awareness campaign.

Reported Benefits
- Skills helped Trainers to write clearer learning objectives;
- Skills helped professionals to identify gaps in their skill sets.
A total of 126 training events were organized by VLab partners in 2021.
About 4,250 learners participated from all WMO Regional Associations (RA).
Training offered in 7 languages; some events were bilingual.
Continuous Professional Development

1. Promote initiatives
   - CoE Courses
   - Themed events
   - Internships
   - Regional Workshops
   - Hackathons
   - Regional Focus Groups

2. Train the Trainers and Gather Input and Feedback
   - Offer regional training of trainers
   - User Conferences & Surveys
   - Adopt WMO Education & Training guidelines

3. Global Campus
   Sharing of
   - Training materials
   - Instructional innovations
   - Assessment methods

Challenges
- Maintaining up to date knowledge and skills of operational personnel and trainers;
- Raising awareness of developments in satellite meteorology.

Approaches
- Work closely with subject matter expertise;
- Foster communities of practice;
- Encourage sharing of training resources.
What is a Focus Group?

- A long term Community of Practice that brings together diverse stakeholders
- Informal learning (no participation certificates are offered)

Too many topics to address during this session:

- Dec 30: Fires in Colorado
- Dec 23 - Jan 11: Extreme Rainfall in Brasil, persistent SACZ events
- Jan 10-17: Heat wave amid drought in the Parana/La Plata Basin
- Jan 11-12: Subtropical Cyclone off the coast of Chile
- Jan 15: Tonga Volcano Explosion

Synoptic Overview

Review of significant events over the past month

Climate Indices & Summaries
Continued Engagement through Virtual Monthly Regional Focus Group Weather and Climate Discussions
Example for the Americas and the Caribbean

http://rammb.cira.colostate.edu/training/rmtc/focusgroup.asp
Building Capacity and Community

RFG session participation March 2004 - June 2022

- Percentage of Participants (# of individuals)
  - 4% (60) 21-148 sessions
  - 11% (169) 7-20 sessions
  - 34% (526) 2-6 sessions
  - 51% (803) 1 session

Total # of participants: 1558

WMO-CGMS VLab RFG Session Participation
Mar 2004 - Jun 2022
228 Sessions
Other Monthly Regional Focus Groups Discussions

- Australian VLab CoE: October 2013 – 2022 >>> 9 years

  - Africa
  - Indonesia
Make the information stick with blended learning approaches

Coordination Group for Meteorological Satellites (CGMS) and World Meteorological Organization (WMO)

Application, peer networking, mentoring, reference online materials...
Collaborations = Successes

• Increased Country, Organizations, and Individual Participation = Community of Practice

• Colleagues and Previous Participants as Facilitators and Instructors of sessions.

• Students and early career professionals have moved into forecaster, instructor/trainer, researchers, manager, and senior professional roles.

• Promotion of:
  o Peer to peer interaction
  o Communication across boundaries
  o Continuing Professional Development
  o Interdisciplinary Linkages
Collaborations for enhancing training

Community for the Advancement of Learning in Meteorology and related disciplines

- The CALMet XIV Conference: “Bringing Together the Best of Online to Learning”
- Host: Servicio Meteorológico Nacional, Argentina (VLab CoE)
- 56 contributors from all Regional Associations of WMO.
- 260 educators, trainers and managers from universities, research institutions, and National Meteorological and Hydrological Service registered for the event.

http://www.calmet.org/
WMO Education & Training Program and the Global Campus Initiative

- WMO Global Campus: Library of resources & Calendar
- WMO Capacity Development Strategy
  - Promote Impact based forecast messaging

https://community.wmo.int/calendars-and-resources

Coordination Group for Meteorological Satellites (CGMS) and World Meteorological Organization (WMO)
We are finding our place among other Global Efforts

The Committee on Earth Observation Satellites (CEOS)
Earth Observation Training, Education, and Capacity Development Network

https://ceos.org/ourwork/other-ceos-activities/eotec-devnet/

Coordination Group for Meteorological Satellites (CGMS) and World Meteorological Organization (WMO)
Thank You!

WMO-CGMS VLab  https://www.wmo-sat.info/vlab/

CIRA/NOAA/VLab
https://rammb2.cira.colostate.edu/training/rmtc/

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