

## **VIRTUAL LABORATORY AND RELATED MATTERS**

The paper reports on training activities within the Virtual Laboratory for Education and Training in Satellite Meteorology (VLab) along with future plans and directions. Important developments have taken place since GMS-38, including the recognition of the new Centre of Excellence (CoE) in Jincheon, Republic of Korea; the organizing of the Aviation Week; and the launching of the shared online calendar of training events and the new VLab website. The TSO has efficiently supported the various activities and further advanced the objectives of the VLab along the lines of the five-year strategy, but a solution needs to be identified to fund its position in the long run, since funding is currently secured until December 2011 only.

A summary of the annual reports from the CoEs for the period from July 2010 to August 2011 is given in this status report.

CGMS is invited to note the important achievements of the VLab, to provide comments, and to consider the actions and recommendations below.

### Action/Recommendation proposed:

- CGMS Satellite Operators to update their web pages to include the VLab logo and to more clearly show their support to VLab activities and CoEs. The inclusion of links to the VLab Calendar of Events and the ESRC are recommended;
- CGMS Satellite Operators, in the field of their responsibilities, should be ready to make a contribution towards funding of VLab Management Group (VLMG) members to attend the VLMG-6 in Brazil in September 2012;
- CGMS Satellite Operators to report to WMO Space Programme and CGMS Secretariat within 2 weeks, regarding the possibility to financially support the continuity of employment of the VLab Technical Support Officer (TSO).

## VIRTUAL LABORATORY AND RELATED MATTERS

### 1 INTRODUCTION

This report briefly describes the latest activities / achievements of the Virtual Laboratory for Education and Training in Satellite Meteorology (VLab) since July 2010. Besides the various activities which took place in the Centres of Excellence (CoEs) the major achievements are the recognition of the new Centre of Excellence (CoE) in Jincheon, Republic of Korea; the organizing of the Aviation Week; and the launching of the shared online calendar of training events and the new VLab website.

Section two provides a summary and analysis of the annual reports received from the CoEs. In Section three, the activities of the Virtual Laboratory since CGMS-38 are highlighted. Section four gives an outline of the planned activities and projects for the near future. Finally, Section five discusses the proposed strategy towards widening the scope of VLab activities to serve the needs of emerging scientific communities in the developing countries. Section 6 raises the issue of the need for continued funding of the Technical Support Officer (TSO) position and proposes actions to CGMS Members.

### 2 SUMMARY OF ANNUAL REPORTS FOR THE PERIOD FROM JULY 2010 TO AUGUST 2011

The CoEs reported on their training activities for the period from July to December 2010 by completing standard format reports. These reports can be downloaded from the WMO central VLab website <http://vlab.wmo.int> Activities' reports from January to August 2011 were downloaded from the VLab Calendar of Events and data was complemented by CoEs.

CoEs using both, online and classroom resources offered a total of 65 courses during the reporting period. This shows a decrease in the number of courses offered when compared with the previous year. Besides it is well known that CoEs run training events on a best effort basis, a commonality between centres is the lack of personal available to organise such events, a fact that is most probably reflected on the number of courses offered. Another possible reason for the lower number of courses reported is the fact that from January 2011, CoEs were asked to advertise their training events using the VLab Calendar of Events. CoEs are still adapting to this new reporting format and also considering more carefully what training events are linked with their VLab activities.

A variety of course topics were offered during the reporting period and topic choices depended on the expertises and needs of each CoE. A list of course topics can be seen in Appendix I. Course languages included English, French, Portuguese, Spanish, Russian and Chinese.

On the other hand, the number of participants attending the training events, including courses and RFGs, has grown considerably. The reported number of participants for the period from July 2010 to August 2011 was 2168. This is still an incomplete figure,

as data was not available for the complete list of events (see Appendix I), but the number is already higher than in the previous reporting period. One possible reason for this growing number of participants is the higher number of online training events that have been organised. Online events can usually take a higher number of trainees per event. Another reason may be the increased visibility of VLab activities. As seen in the list of course participants' countries of origin (Appendix II), the number of countries engaging in VLab activities has also increased, including 110 countries from all WMO Regions. Adding to those figures, there are also online courses that can be taken at any time, providing ongoing accessible training such as the recorded lectures available from some VLab CoEs and Satellite Operators' websites (e.g. Russian Federation, Brazil, Australia EUMETSAT, JMA, and NOAA), and also VISIT Teletraining (CIRA) and COMET modules.

Internet connectivity and speed is still posing a problem in some CoEs and has to be improved significantly to allow optimum and smooth use for online training courses.

### **3 ACTIVITIES IN THE VIRTUAL LABORATORY SINCE CGMS-38**

The VLab community has literally grown since CGMS-38. This is observed not only by the addition of the new CoE in the Republic of Korea, but also by the widening of training and outreach of activities taking place in the various CoEs. The conducted VLab activities within the last 12 months comply with WMO document 258 as well as the five-year VLab training strategy.

#### **3.1 New Centre of Excellence in the Republic of Korea**

After endorsement by CBS, the Korea Meteorological Administration (KMA) has become an official VL CoE for Training in Satellite Meteorology and related environmental remote sensing. This new CoE will significantly enhance the education and training capabilities of countries in WMO Region II. KMA's commitment to regional satellite training was already noticed by its contribution to VLab partner, the RA-II Pilot Project.

#### **3.2 Aviation Week**

The Australian Bureau of Meteorology Training Centre (BMTC) has organised its first "Event Week" as part of its VLab activities. The first week of the Advanced Forecaster Course (30 May to 10 June) was delivered entirely online to forecasters around Australia as well as to international participants as the "Aviation Week". The week commenced with a welcome address by Alasdair Hainsworth, BMTC Assistant Director of Services, followed by a session on Aviation Competencies with particular reference to relevant WMO documents and standards. Twenty additional online sessions were presented during the Aviation Week. Topics included the use of satellite imagery to detect turbulence, icing, severe thunderstorms, fog and low cloud and volcanic ash. A presentation by the Japan Meteorological Agency on future plans for launching the multi-channel geostationary satellites Himawari(s) 8 and 9 were of particular interest, as the data would make possible to generate RGB products similar to those used by EUMETSAT. The "Forecast Simulator", as used by the Koninklijk Nederlands Meteorologisch Instituut (KNMI), and the "Project

Phoenix”, the “Back to Basics” meteorology strategy of the Meteorological Service of Canada, were also presented.

Presenters included staff from the Australian Bureau of Meteorology, from the Japan Meteorological Agency, from the South African Weather Service, from Met Service New Zealand and from European centres such as the Koninklijk Nederlands Meteorologisch Instituut and Meteo Romania.

During this training event, over 49 participants from Australasia, Asia, Europe, the Americas and Africa, attended the various online sessions and contributed actively to the discussions.

The use of the web conferencing tool Webinar for these online sessions enabled free and easy access for the registered participants. All the sessions were recorded and remain available for download, and can be accessed via the VLab website.

The lectures presented during the Aviation Week were of great help to other VLab CoEs, which are benefiting from the availability of these resources to organise future courses in this topic.

### **3.3 Regional Focus Groups**

One kind of training activity that has been particularly successful during this reporting period is the Regional Focus Group discussions (RFG). More than 400 participants have been involved in RFG activities; including students, trainers, researchers and practitioners. The benefits of this kind of event are numerous, with the most important being that this activity is representative of a practice-based culture, providing trainees the opportunity to interact with professionals and work on developing their own practices.

The most active RFGs are the “Americas and Caribbean” (English and Spanish) and the “South African Satrep Online” (English), with monthly sessions organised. The Australian RFG (English) has also offered a number of sessions and has regular collaboration from New Zealand. Efforts have been made to include Indonesia and other surrounding countries to further the activities of the Australian RFG. Three successful sessions have also been organised by VLab in the Russian Federation, with plans to hold more frequent events.

It is noted that many VLab CoEs participate in online national weather discussions that are part of their “on the job” training and continuous professional development, but these are not reported as part of their VLab activities. With RFG sessions now advertised in the VLab Calendar of Events, this kind of training activity has had much wider visibility and raised interest.

### **3.4 VLab Calendar of Events**

The VLab calendar of Events was launched in February 2011, and has become the major advertising means for VLab training events. This tool was developed and is hosted by EUMETSAT. The calendar is web-based and is shared by VLab, EUMeTrain, Eumetcal and WMO Education and Training, giving much wider visibility to training events from all these Programmes.

### **3.5 New VLab central website**

The VLab central website, which is hosted by WMO, has been given a major makeover (Appendix III). The VLab TSO working together with the IT personal from

the WMO Satellite Programme, modified the website and is responsible for its maintenance and update. The new website includes links to all VLab CoEs individual pages, Satellite Operators, VLab collaborators and partners. VLab news are posted in the website as well as emailed to VLab members. The ‘Publications’ session makes documents, newsletters and reports accessible to general public. The VLab central website also works as a portal for members wanting to submit their training events to the online calendar and login to the VLab Moodle site and the ESRC. The URL was kept the same <http://vlab.wmo.int> and the website is clearly identified by the VLab logo.

### **3.6 VLab Newsletter**

The latest VLab Newsletter was released in September 2011, and was well received by members of the VLab Management Group (VLMG). The newsletter can be read online or downloaded from the VLab website. In addition, VLab members also receive their copies via email. The VLab Newsletter serves as an important tool to inform the VLMG members and other interested parties about the activities of the VLab and also give CoEs the sense of being part of this Learning Community that the VLab is. The newsletter should be aimed at being issued every 6 months.

### **3.7 VLMG Web meetings**

The Virtual Laboratory Management Group (VLMG) conducted 3 web meetings within this reporting period. Each online meeting is held twice, with one session for the Western hemisphere and another for the Eastern hemisphere. All meetings were conducted using Centra as the web conferencing tool (provided by EUMETSAT). Since the organisation of the web meetings proved to be very successful, it was agreed to conduct these online meetings every 3 months to keep the Group updated about the ongoing and planned activities of the VLab.

### **3.8 VLab Fact Sheet updated**

Last year, an additional Marketing tool was created in the form of a fact sheet, explaining the global network of the VLab. The fact sheet was printed by EUMETSAT and distributed at conferences in order to help promoting the VLab. With the addition of a new CoE, the VLab fact sheet was updated (electronic version only), and can be accessed via VLab website.

## **4 OUTLOOK**

### **4.1 Planned activities**

- Collaboration with EUMETSAT to organise the “Dust and Ash Week”. This event will take place in October 2011;
- The organising of an “Aviation Week” for Spanish and Portuguese speakers. This event will be similar to the one organised by the VLab Australia;
- Further development of the VLab Calendar of Events, to include post-event reporting tools.
- More regular and continuous RFG discussions to be encouraged in all CoEs.

#### **4.2 User preparedness plan for the transition to new satellite generations**

Volker Gaertner (VLab co-chair) and Luciane Veeck (VLab TSO) participated in the Satellite Proving Ground and User Readiness Meeting (Boulder, May 2011) to learn more about the GOES-R proving ground activities. The lessons learnt from the GOES-R proving ground have led to the agreed consensus that a more generalised satellite proving ground is required. Taking note of this need, VLab is preparing a document with general requirements that could be applicable to all operational

CGMS satellite partners and CoEs. Bernie Connell (CIRA) has prepared the first draft, which should be presented to VLMG members in the next web meeting (October 2011) for discussion.

#### **4.3 VLMG-6 in Brazil**

The next face-to-face meeting of the VLMG (VLMG-6) will take place in Brazil, in September 2012. The National Institute for Space Research (INPE) will be hosting the event in its main campus, in São José dos Campos, state of São Paulo. The official exchange of letters between Brazil and WMO is already taking place, and the organizing of the meeting has already started.

#### **4.4 Continued need for funding the Technical Support Officer**

The VLab Technical Support Officer has been financially supported by NOAA/CIRA since March 2010. This financial support will cease on December 2011. This issue is still open and until today there is no funding available.

However, further employing a TSO is crucial to keep the progress of the ongoing and planned activities.

Activities under the responsibility of the VLab TSO include:

- Assisting in the establishment of more Regional Focus Groups (RFG) and the building up of user communities;
- Assisting the existing RFGs and coordinate activities between them;
- Assisting technically in the set up and use of tools such as MOODLE, Visitview, CENTRA, web-casts;
- Keeping continually updated regarding evolving training technologies;
- Preparing the VLab newsletters;
- Establishing constant communication with people involved;
- Assisting the RFG coordinators with the distance sessions;
- Maintaining the centralized web page;
- Maintaining the training and RFG discussion groups schedules;
- Managing the VLab Calendar of Events users;
- Maintaining and organising the VLab Moodle site;
- Updating relevant VLab documents and fact sheet;
- Assisting the VLMG Co-chairs monitoring activities;
- Producing relevant reports for use by CGMS, ET-SUP, VLMG;
- Helping in the organization of training events in coordination with WMO;
- Producing assessments based on the annual reports of the CoEs;
- Helping in the analysis of the personnel (the training component);

- Ensuring that training events have a virtual component for people who want to participate and cannot travel;
- Carrying out and reporting on the evaluation of training events;
- Providing advice on future VLab developments;
- Collaborating with partner Training Programmes such as EUMeTrain, Eumetcal and the WMO Education and Training.

## **5 WIDENING THE SCOPE OF THE VLAB TO SERVE TRAINING NEEDS OF EMERGING SCIENTIFIC COMMUNITIES IN DEVELOPING COUNTRIES**

There is a general awareness that bringing more universities to collaborate with CoEs would widen the scope of the VLab. This would further the training activities beyond the operational meteorology, attending also the needs of local scientific communities that may be isolated in their research and use of remote sensing products.

Widening the scope of VLab in this way will also help to leverage resources needed to locate human resources required to coordinate this wider international network.

The implementation of this plan should be discussed with VLMG next year, in the VLMG-6 in Brazil.

## **6 CONCLUSIONS AND PROPOSED ACTIONS**

This paper reports a growing participation in VLab training activities, highlighting the addition of a new CoE, the increase in online activities – including courses, RFGs and the organising of “Event Weeks” such as the Aviation Week, and finally, the importance of the increased visibility of VLab activities to countries in all WMO Regions.

It also shows how crucial the continuity of the employment of a Support Officer is, to keep the progress of the ongoing and planned activities of the VLab.

CGMS is invited to note the important achievements of the VLab, to provide comments, and to consider the following actions:

- CGMS Satellite Operators to update their web pages to include the VLab logo and to more clearly show their support to VLab activities and CoEs. The inclusion of links to the VLab Calendar of Events and the ESRC are recommended;
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### Course Topics for the period from July 2010 to August 2011

Name of training event	Date	Location	Number of Participants
ESAC-IX-E	Aug-11	Nairobi, KE	22
PUMA Application software Training Course	Mar-11	Nairobi, KE	24
PUMA/AMESD System Administration	Apr-11	Nairobi, KE	27
PUMA/AMESD System Administration - Session III	Aug-10	Nairobi, KE	22
Satellite Application Course ESAC-ME-VII	Feb-11	Muscat, OM	17
Applied Meteorology Course for Forecasters	Mar-Jun 2011	Nanjing, CN	*
International Training Seminar on Methods for Short-term Climate Prediction	Mar-Apr 2011	Nanjing, CN	*
International Training Course on Satellite Meteorology	Apr-11	Nanjing, CN	*
Training Seminar on Meteorological Hazards Early Warning for Developing Countries	May-11	Nanjing, CN	*
Training Course on McIDAS-V Software Application in Satellite Meteorology	Jun-11	Beijing, CN	*
Training Seminar on Management for Meteorological Officials from Developing Countries	Jun-July 2011	Nanjing, CN	*
Training Course on Weather Modification	Aug-Sept 2011	Beijing, CN	*
Training Seminar on Climate Change and Climate Information Service for Developing Countries	Aug-Sept 2011	Nanjing, CN	*
Forecaster training	July-Dec-10	Beijing, CN	500
Training course on Fundamental Meteorology	Oct-10-Jan-11	Beijing, CN	150
The international training course on Meteorological Information Service	Jun-July 2010	Nanjing, CN	22
The Seventh International Seminar on Climate System and Climate Change	Jul-10	Nanjing, CN	15
International Training Course on Numerical Weather Prediction	Sep-10	Nanjing, CN	17
Training Seminar on Management for Meteorological Officials from Developing Countries	Oct-Nov-2010	Nanjing, CN	22
The international training seminar on "South-South" Cooperation on Weather and Climate	Nov-10	Nanjing, CN	23
Training Course for Manager and Producer of TV Weather Forecast Program	Dec-10	Nanjing, CN	15
Basic Course on Satellite Meteorology	Feb-11	Cachoeira Paulista, BR**	100
The applications of GEONETCast	Jun-11	Cachoeira Paulista, BR	30
Aviation Satellite Meteorology	Jul-11	Cachoeira Paulista, BR**	36
Hydrology Applications of Meteorological Satellite Products	Jul-11	Cachoeira Paulista, BR**	67
Land-Surface products	Oct-10	Belem, BR	43
Aviation competencies	May-June 2011	Melbourne, AU**	22
SAWS: RGB enhancements – fog and low cloud, MTWs, TS	May-June 2011	Melbourne, AU**	27
Water vapour imagery and aviation hazards	May-June 2011	Melbourne, AU**	25
Detecting and nowcasting aviation Icing	May-June 2011	Melbourne, AU**	27
Turbulence	May-June 2011	Melbourne, AU**	25
Fog and low cloud identification	May-June 2011	Melbourne, AU**	25
Forecaster simulator	May-June 2011	Melbourne, AU**	28

Name of training event	Date	Location	Number of Participants
Future satellite systems	May-June 2011	Melbourne, AU**	27
Volcanic Ash	May-June 2011	Melbourne, AU**	27
Thunderstorm initiation	May-June 2011	Melbourne, AU**	28
Meteorologist Course Number 57	Feb-Nov 2011	Melbourne, AU	32
Advanced Forecaster Course	Jun-11	Melbourne, AU	23
Fire Weather Users Needs	Jun-11	Melbourne, AU**	17
Fire Weather Competencies	Jun-11	Melbourne, AU**	18
Fire behaviour, Indices and Stability	Jun-11	Melbourne, AU**	18
Area based Forecasting Services	Jun-11	Melbourne, AU**	18
X-band information seminar	Sep-10	Melbourne, AU**	17
Advanced Tropical Meteorology Lectures	Sept-Nov 2010	Melbourne, AU	6
Advanced Satellite Meteorology	Sept-Oct 2010	Melbourne, AU	32
Principios y aplicaciones de los datos obtenidos con satelites	Aug-Dec 2010	Buenos Aires, AR	8
MSG interpretation	Dec-10	Pretoria, SA	20
Methods of hydrological forecasts	Jan-10	Moscow, RU	4
Methods of short-term, medium-term and long-term weather forecasting.	Feb-10	Moscow, RU	23
Processing and use of the satellite data at drawing up the hydro-meteorological forecasts	Mar-10	Moscow, RU	2
Organization of aviation meteorological service	Mar-10	Moscow, RU	19
Meteorological forecasting for aviation service	Mar-10	Moscow, RU	50
Methods and facilities of agro meteorological observations	Apr-10	Moscow, RU	12
Digital stations of reception and data processing	Sep-10	Moscow, RU	*
Large-scale and mezo-scale feature synoptic of processes above Eurasia	Sep-10	Moscow, RU	*
Desertification	From 2011	Online***	*
Microwave Remote Sensing: Land and Ocean Surface Applications	From 2011	Online***	*
Satellite methods of research of mesometeorological processes.	From 2011	Online***	*
Recognition convective circulation in space pictures of overcast.	From 2011	Online***	*
Mesoscale systems of cyclonic circulation according to meteorological satellites.	From 2011	Online***	*
Identification and the forecast of not frontal curls on satellite pictures.	From 2011	Online***	*
The diagnosis orographical mesoscale systems under the satellite information.	From 2011	Online***	*
Influence of a spreading surface on clouds distribution under the satellite information.	From 2011	Online***	*
Research of anthropogenous loading of territory according to the satellite sounding.	From 2011	Online***	*
Geoinformation systems of satellite ecological monitoring	From 2011	Online***	*
VLab RFGs	Jun10-Aug11	Online	436
VISIT Teletraining (Live and recorded)	Continuous	Ft. Collins and Madison	*
COMET Modules (English, Spanish and some in French)	Continuous	Boulder, US	*



CGMS-39 WMO-WP-14  
20 September 2011

- \* No information available.
- \*\* Course offered online.
- \*\*\* Training material available from VLab CoEs' websites from the date stated.

Note: Appendix I is based on the information received from CoEs.

**Countries of origin of RFG and course participants\***

<b>Country</b>	<b>WMO Region</b>
Angola	I
Argentina	III
Armenia	VI
Antigua and Barbuda	IV
Australia	V
Bahrain	II
Bahamas	IV
Barbados	IV
Belarus	VI
Belize	IV
Benin	I
Bhutan	II
Bolivia	III
Botswana	I
Brazil	III
Burundi	I
Cambodia	II
Canada	IV
Cayman Islands	IV
Central African Republic	I
Chad	I
Chile	III
China	II
Colombia	III
Congo	I
Costa Rica	IV
Cote d'Ivoire	I
Cuba	IV
Djibouti	I
Dominica	IV
Dominican Republic	IV
Ecuador	III
Egypt	I
El Salvador	IV
Equatorial Guinea	Not a WMO member yet
Ethiopia	I
Federation of Saint Kitts and Nevis	IV
Fiji	V
Finland	VI
Gabon	I
Gambia	I
Germany	VI

Ghana	I
Greece	VI
Grenada	Not a WMO member yet
Guatemala	IV
Guinea	I
Guinea Bissau	I
Guyana	III
Honduras	IV
Hungary	VI
Hong Kong	II
India	II
Indonesia	V
Iraq	II
Japan	II
Jordan	VI
Kenya	I
Kazakhstan	II
Korea	II
Kyrgyzstan	II
Lao People's Democratic Republic	II
Lesotho	I
Liberia	I
Malaysia	V
Malawi	I
Mali	I
Mauritania	I
Mauritius	I
Morocco	I
Mozambique	I
Myanmar	II
Namibia	I
Netherlands	VI
New Zealand	V
Niger	I
Nigeria	I
Oman	II
Pakistan	II
Panama	IV
Peru	III
Portugal	VI
Puerto Rico	IV
Romania	VI
Russian Federation	II
Rwanda	I
Samoa	V
Sao Tome and Principe	I
Senegal	I

Serbia	VI
Seychelles	I
Sierra Leone	I
Singapore	V
South Africa	I
Sudan	I
Swaziland	I
Tajikistan	II
Thailand	II
Togo	I
Trinidad and Tobago	III
Uganda	I
United Arab Emirates	II
United Republic of Tanzania	I
United States of America	IV
Uruguay	III
Uzbekistan	II
Venezuela	III
Yemen	II
Zambia	I
Zimbabwe	I

\* This list is based on the information received from CoEs.

## New look of VLab Website



### Home

Established by the World Meteorological Organization (WMO) and the Coordination Group for Meteorological Satellites (CGMS), the **Virtual Laboratory for Training and Education in Satellite Meteorology (VLab)** is a global network of specialized training centres and meteorological satellite operators working together to improve the utilisation of data and products from meteorological and environmental satellites.

Eight satellite operators are involved: CMA, CONAE, EUMETSAT, INPE, JMA, KMA, NOAA and ROSHYDROMET, and twelve training centres – called Centres of Excellence (CoEs) – located in Argentina (Buenos Aires and Cordoba), Australia (Melbourne), Barbados (Bridgetown), Brazil (Cachoeira Paulista), China (Beijing and Nanjing), Costa Rica (San Jose), Kenya (Nairobi), Niger (Niamey), Oman (Muscat), Republic of Korea (Jincheon), the Russian Federation (Moscow and St Petersburg)



### CoE: Moodle Login

username

### Recent News

- [Dust and Ash Week – 24 to 28 October 2011](#)
- [Americas & Caribbean RFG – next session 14 September 2011, 18 UTC](#)
- [New RA-II Pilot Project Newsletter released](#)

### Links to Centres of Excellence

- [Argentina](#)
- [Australia](#)
- [Brazil](#)
- [China – Nanjing](#)
- [Oman](#)
- [Russian Federation](#)

### Links to Satellite Operators