



WMO-CGMS Virtual Laboratory
for Education and Training in Satellite Meteorology

VIRTUAL LABORATORY MANAGEMENT GROUP
Eighth session - VLMG-8
Bridgetown, Barbados
09 – 13 May 2016

FINAL REPORT



Front row, from left: Marcial Garbanzo, Kathy-Ann Caesar, Bernie Connell, Adanna Robertson-Quimby, Wang Yong.

Second row, from left: Stella Aura, Roger Deslandes, Luciane Veeck, Natalia Rudorff Oliveira, Meihua Wang, Mahmood Alkhyari, Grigory Chichasov.

Third row, from left: Eduard Podgaiskii, Mark Higgins, Ana Prados, Graciela Rolon, Nancy Searby, Stephan Bojinski, Hyesook Park, Winifred Jordaan, Noureddine Filali, Bruce Muller, Hama Hamidou.

1. Opening Welcome

The eighth meeting of the WMO/CGMS Virtual Laboratory (VLab) for Education and Training in Satellite Meteorology Management Group (VLMG-8) commenced at 10:00 on Monday 9 May 2016 in the Caribbean Institute for Meteorology and Hydrology (CIMH) in Bridgetown, Barbados.

Dr David Farrell, Principal of CIMH, welcomed the group of participants saying The Institute was pleased to host the colleagues and friends from the Virtual Laboratory Management Group (VLMG). He highlighted that the timing of the meeting was good, as it followed the BRCCC¹ Workshop on Satellite Uses in Climate Monitoring, which illustrated the importance of the VLab network and also the VLMG-8 discussions and decisions to be made during the week. He concluded by wishing all participants a successful meeting and a pleasant stay in Barbados.

Participants of the meeting were also addressed by Dr Stephan Bojinski (WMO Space Programme), Dr. Grigory Chichasov (Roshydromet, VLab Co-Chair) and Ms Kathy-Ann Caesar (CIMH, VLab co-Chair), who stated that the active participation by all partners in the VLab Management Group (VLMG) was essential for a successful meeting and also the continuation of collaboration between VLab members. The importance of the meeting to renew partnerships and improve collaboration was also noted.

After a round of introductions, participants agreed on the proposed agenda without modifications. A list of VLMG-8 participants is shown in Appendix I, and the Agenda in Appendix II.

The meeting was conducted in plenary and in breakout groups. Working documents were made available in electronic form before the meeting, through the VLMG-8 web page at <http://training.eumetsat.int/course/view.php?id=251>

2. Introduction by Host

Kathy-Ann Caesar provided an overview of the main activities and responsibilities of the Caribbean Institute of Meteorology and explained the role played by the Institute within the Caribbean Meteorological Organisation (CMO). Internationally recognised as a Centre of Excellence (CoE) in Satellite Meteorology, the Institute is also a WMO Regional Training Centre (RTC), Regional Climate Centre (RCC) and a Regional Instrument Centre (RIC), providing support to the 16 Member Countries of CMO.

She continued her presentation with a quick assessment of the reasons the Management Group was meeting and highlighted three major expected outcomes: the encouragement of CoEs for increased collaboration, the implementation of VLab Strategy and the further development of an effective governance framework for VLMG, the co-chairs and Technical Support Officer (TSO).

¹ Programme for Building Regional Climate Capacity in the Caribbean.

3. VLab efficiency

Eduard Podgaiskii (assistant to VLab Co-Chair) provided a review of VLab actions from VLMG-7, CGMS-43, IPET- SUP- 2. The status of open actions was clarified and updated.

Luciane Veeck, VLab Technical Support Officer (TSO) presented a quick review of reports submitted by CoEs and Satellite Operators, pointing out that full reports can be found at the meeting web page and VLab web site. The change in the procedure to collect reports, which in 2016 were submitted via Google Forms, was deemed by VLMG as appropriate. CoEs and Satellite Operators that cannot access Google agreed to submit their reports in Word format using templates provided by the TSO.

The coordination for VLab reporting to IPET-SUP and CGMS was also discussed. The need for better communication with VLMG members attending these meetings (prior and after the meetings taking place) was noted.

Action 1: VLab office to organise a VLab online meeting early in the year before the IPET-SUP and CGMS meetings to discuss the report to this sessions and identify a VLab Rapporteur for the meetings.

Actionee(s): VLab TSO

Due: Permanent action

Action 2: VLMG members to contact their representative attending IPET-SUP to brief/debrief (communicate) about VLab and get feedback from the meeting in order to identify useful actions for VLab.

Actionee(s): VLMG

Due: Permanent action

The need for developing a strategy to better communicate VLab achievements to the broader community working in the field of satellite meteorology was identified. This aspect was suggested as one of the themes to be further discussed in the breakout group session on Thursday 12 May 2016. Results of this discussion will be presented in section 15 of this report.

4. Satellite Enabling Skills and Knowledge for operational meteorologists

The document, describing the Satellite (Enabling) Skills and Knowledge for operational meteorologists, was presented at IPET-Sup-2 and received a list of comments and clarification requests. Authors of the document are working on the clarifications required and will accept some final comments from VLMG prior to submitting it to CBS 2016.

Action 3: VLMG to provide final comments on the Enabling Skills document using the Google doc at https://docs.google.com/document/d/1Aeb-2c_s8g6BSsxdZef-cKY7598eGpuoPX4eW8lmyeg/edit?usp=sharing WMO-SP to include this document in the material that will be submitted to CBS in 2016.

Actionee(s): VLMG
Due: 23 May (for comments). The document is to be finalised and sent to WMO-SP by the end of August.

5. Training resources

The Group discussed the need for smaller, "bite-sized" resources to support training, as operational staff are limited by time to participate in training events. The fact that some specific tasks need time for practice within training was noted and considered as a limitation when attempting to produce short training resources. Advantages of using new, online tools available for training were also discussed. The new version of the EUMETSAT e-Port (available at <http://www.eumetrain.org/eport.html>) was provided as an example.

The Group reported different ways VLMG members have been investigating their training needs. The importance of findings from the WMO User Needs Survey 2016 was also noted as a good information source to determine training needs.

Action 4: To circulate the report produced by WMO on the "User Needs Survey"
Actionee(s): TSO and Stephan B.
Due: As soon as the report is available

The advantages of coordinating efforts for the production of training resources were discussed. A group was formed to further discuss ways for more effective collaboration in the breakout group session (Thursday 12 May 2016). Results of this discussion will be presented in section 15 of this report.

The possibility of identifying alternative funding sources as a basis for investment into the production of training resources or more particularly to fund training events delivered by a consortium of COEs working collaboratively was discussed a way forward that the VLMG could investigate.

Action 5: VLMG to identify financial support for training events. CoEs may wish to approach local offices of international agencies. Stephan Bojinski to keep VLMG informed regarding WMO resourcing team and funding opportunities.
Actionee(s): VLMG
Due: Permanent action

6. Poster Session - VLab CoEs

Posters from twelve CoEs were exhibited, showing a wide breadth of regional training activities organised in the past year and also the plans for future training events. The main challenges faced by CoEs were presented as well as the major interests and areas of potential collaboration with other CoEs and international training programmes. All posters are available in the meeting web page.

7. Evaluation of Training impact

Mark Higgins and Stella Aura informed the Group that the evaluation of training impacts in East Africa (as per Action VLMG7.02) was not completed because of budget constraints. The Group then discussed what others are doing in order to evaluate the impact of training in their own regions. Noureddine Filali described the process followed in Morocco, using “indicators” to measure the training impact. The process involves immediate post-event survey with the trainees as well as continuous observation of performance improvements, which are observed by the line manager of staff trained. Roger Deslandes explained that in Australia competency assessment programs are used to measure whether the (in-service) training has been absorbed by the attendees and that the principles can be applied in a real-time, operational environment. Evaluation of training programs is usually conducted by post event surveys. Meihua Wang reported that in China trained staff and supervisors are interviewed after training. She mentioned that some description of the process might be available in English, and it could be shared. Hama Hamidou commented on the importance of the evaluation of training impacts, highlighting the responsibility of trainers on the way training impacts are communicated to management levels. Failing people in the evaluation of impact may cause loss of jobs, with the possibility of the training institution being held responsible.

8. Self-assessment of VLab CoEs

CoEs and Satellite Operators submitted a self-assessment form prior the meeting. The form was prepared in the same way as in 2014, when VLab used the self-assessment process for the first time. The results of this self-assessment were grouped in order to show the combined assessment for all CoEs and also all the Satellite Operators in the VLab network.

A comparison of self-assessment results from 2014 and 2016 was presented to the Group. It was clear that whilst small improvements were seen in most of the five areas assessed, these improvements were very far from the improvements anticipated for 2016 (from intentions reported in the assessment in 2014). Also interesting was that the improvements intended for 2018 (reported in 2016) match the level of improvements already intended to have been achieved in 2016 (reported in 2014).

This was the first time VLab has had the opportunity to compare results of self-assessments and the process was considered appropriate and insightful. The Group decided that this format of self-assessment should be kept by VLab and should take place every two years, with results being discussed in the VLMG meetings. It was also decided that the results of VLab assessment should be presented in the VLab reports to IPET-SUP and CGMS.

Improvements to the assessment process were suggested and a group was formed to further discuss the improvements in the breakout group session (Thursday 12 May 2016). Results of this discussion will be presented in section 15 of this report.

Action 6: TSO to send the self-assessment forms completed in 2014 and 2016 back to each CoE and Satellite Operator.

Actionee(s): TSO

Due: September 2016

9. User readiness

Stephan Bojinski gave an overview of information in the document “Best Practices for Achieving User readiness for new meteorological satellites”. Bernie Connell briefly presented the “Satellite Training Plan” for GOES-R and Roger Deslandes also explained the way training in the use of the new Himawari-8 satellite data and products has been approached in Australia. Mark Higgins showed the EUMetView (available at <http://eumetview.eumetsat.int>) and the e-Port (available at <http://www.eumetrain.org/eport.html>), mentioning that data from Himawari-8 is now being provided through the e-Port too.

A discussion followed, regarding the differences between competency and skills used in the application of knowledge. The need for a “Train the trainer for satellite trainers” was considered. The Group also discussed the pros and cons of using different approaches when training for the use of RGBs. It was decided that a workshop is needed to discuss lessons learned from applying the WMO/EUMETSAT RGB standard to new-generation imagers (Himawari-8 AHI, GOES-R ABI, and the upcoming FY-4A AGRI) and implications for operational forecasting and training. The workshop should build upon results of the 2012 Seeheim (Germany) workshop hosted by EUMETSAT.

Action 7: Organise an expert workshop on RGB composites derived from multi-spectral imagery.

Actionee(s): Stephan B.

Due: 2017

Action 8: VLab to organise a Global Train the Trainer event in RGBs. This should be a series of online events. The first stage of the organisation should include a survey to conduct a needs analysis.

Actionee(s): Bodo Z., Roger D., Bruce M., Hama H., EUMETSAT TSO, Mark H., Bernie C., Nouredine F., Lee-Ann S., Joseph K. and VLab TSO.

Due: September 2016 for the survey (use the forum in Africa, Asia-Oceanian Forum and extended audience). Data collected by November and analysed by December 2016. Course to be offered in 2017.

Action 9: Circulate a survey within VLab members to investigate “what have we learned about training for use of RGBs?”

Actionee(s): Mark H. to prepare survey and VLMG to respond.

Due: Survey to be prepared and circulated by Mark H. by end of June 2016.
Responses to be collected until October 2016.

The role VLab plays in helping Lesser Developed States gain access to the new data was discussed. It was noted that whilst VLab does play a role in this aspect, it is not possible to set a benchmark to measure this. Satellite Operators provide information on data format and access. The training to access and use the data is

highly dependent on regional circumstances. VLab could help to create courses on how to gather data.

VLab support to user preparation in the Indian Ocean region (in connection with the IODC CGMS roadmap) was discussed by the Group. Given the evolution of the regional geostationary satellite coverage over the Indian Ocean as described in the IODC CGMS roadmap (CGMS-43, EUMETSAT-WP-14), VLab CoEs planned the following activities in 2016 and 2017 to support the use of the operational data and products:

- CoEs will establish user training requirements through the African and Asia-Oceanic user forums;
- The African Island states receive and have experience of the MSG and FY data already. No new additional readiness requirements are identified. The MSG-IODC data will be used in training from the Kenya and South African CoEs;
- The Russian CoE will explore the possibility of a blended course for the CIS countries covering the application of the FY and MSG data. Ideally this will also include INSAT and Electro-L data if relevant training resources are available;
- The Omani CoE will continue to host blended courses on MSG applications for the Middle East area, this will include the application of MSG, INSAT and FY Indian Ocean data;
- The China CoE will continue to promote the application of the FY, MSG and potentially INSAT data in their international courses which draw participants from across the region. This includes participants from countries not covered by the CoE's in Oman and Russia.

The training centres will work with the resources and data they have available and currently have less experiences and visibility on INSAT data. At this time, the VLab training centres do not address Elektro-L N1 data; it is envisaged to consider data from Elektro-L N2 once such data are operationally available.

Action 10: Report to CGMS what actions VLab will take in order to help on user preparation for the Indian Ocean.

Actionee(s): TSO and Stephan B.

Due: CGMS-44

CGMS members will be invited to share product information, dissemination information and training resources with the CoEs and users to support the training activities highlighted above. Training will be conducted in English, Arabic and Russian. CGMS members will be invited to support the translation of information materials and training resources to enable wider adoption of the products and data.

A group was formed to further discuss best practices in preparing for user readiness during the breakout group session (Thursday 12 May 2016). Results of this discussion will be presented in section 15 of this report.

10. Poster Session - Partner Programmes

Six posters were exhibited from COMET, COSPAR, EUMeTrain, NASA/ARSET and WMO-SP. Posters provided up to date information regarding training resources, plans and news, with this session offering a great opportunity for conversations about ways to further collaboration between VLMG and partner programmes. All posters are available in the meeting web page.

11. Coordination with Partner Programmes and efforts for translation of training resources

Opportunities to enhance sharing and collaboration between VLab partners were discussed. The need for training resources to be available in the native language of trainees was once again highlighted by VLab members, reinforcing the importance of collaboration within the VLab network to effectively coordinate efforts. Bruce Muller communicated that as part of COMET's support to the Global Campus, the possibility of implementing a Translation Resource Centre is being explored. The Group expressed interest in collaborating in this initiative.

Action 11: VLMG Members to look for existing training resources that address the satellite skills described in the "Enabling skills document" and send to the VLab TSO.

Actionee(s): VLMG

Due: Final version of the Enabling skills document to be ready in July. VLMG to complete this action in preparation for next VLMG online meeting (September)

A group was formed to further discuss coordination of efforts for translation during the breakout group session (Thursday 12 May 2016). Results of this discussion will be presented in section 15 of this report.

12. Poster Session - Supporting Satellite Operators and Agencies

Posters from three Satellite Operators were exhibited: CONAE, KMA and NOAA. Posters presented the training activities done in support to VLab CoEs, future plans and also some suggestions for more collaboration between partners. All posters presented during the meeting stayed on exhibition for the whole week, providing plenty of opportunity for individual exchange of ideas. Posters are available in the meeting web page.

13. Climate Services

The session started with two short presentations by CIMH staff working with climate services: Cedric Van Meerbeeck and Roché Mohan. Stephan Bojinski followed up by presenting some case studies for establishment of climate monitoring from space.

The Group discussed the role of VLab in preparing NMHS's for Climate Services, including questions such as "What is the VLab mandate in relation to Climate Services and who is asking for assistance?" The group discussed whether the role of the VLab should be to support forecasters in understanding climate science and the application of satellite data and products within the context of their forecasting roles or whether the group should aim to support more specialist climatologist roles. The Group felt that forecasters require a depth of knowledge and application that is a subset of the full range of knowledge and competencies for climatologists. The group noted that in many countries climatologists are from universities and not embedded in NMHS. Marcial Garbanzo confirmed this to be the case in Costa Rica, where six climatologists are based at the university and one at the NMHS.

Mark Higgins asked the Group to think about and identify the satellite capabilities that will help staff working with climate services and who would need to be trained? Hama Hamidou added that competency articulation should be based on the services that NMHS provide.

Bruce Muller advised the Group that competencies in climate services only mention satellites in one place. He asked if there was a need to wait for Climate Service competencies to be further defined before a plan for support was considered.

Roger Deslandes noted the roles of the NMHS are changing, with forecast and warning services in the future being directed to impacts and decision support. He added that forecaster climate awareness was fundamental in order to improve climate awareness. He also asked if the Group foresaw an expanded mandate for the VLab in the near future to include climate services.

Kathy-Ann Caesar stated that she sees VLab having a role in raising awareness regarding the importance of satellite data in monitoring the climate. Bruce Muller emphasized the importance of VLMG in being aware of how climate services competencies (currently being developed under the WMO Commission for Climatology) are progressing and how the satellite enabling skills will link and support those competencies.

Mark Higgins asked the Group if VLab would be the correct group to raise awareness of this issue. He suggested VLMG to identify other groups already working on raising awareness to make sure that any information presented by VLab is well aligned with existing efforts on the subject.

Kathy-Ann C. asked what CoEs are doing to inform and discuss climate monitoring in their regions. Stella Aura overviewed how climate change and variability forms part of the student curriculum in Kenya. Winifred Jordan within South Africa that best efforts are done to provide some information within the service, but there is no formal information session planned. Mark Higgins informed that ESA would be offering a course on climate monitoring in June. The Group viewed a presentation CIMH is developing in order to work on raising awareness about climate change and the role of satellites in monitoring it. CIMH's effort was acknowledged by the Group and the idea of using this resource in the virtual climate roundtable that is being planned by CoE Barbados for late 2016, was supported.

Action 12: CoE Barbados to finalize the informative presentation (Climate) and coordinate translation and presentation with volunteers from VLab.
Actionnee(s): Kathy-Ann and VLab TSO. Volunteers for translations: Eduard P. (Russian), Marcial G. and COMET(Spanish), Mahmood A. (Arabic), Meihua W. (Chinese), Noureddine F. and Hama H. (French), and Natalia R. (Portuguese).
Due: Presentation to be ready by the end of July. VLab TSO to prepare the spread sheets to facilitate translation. Translations to be ready by September 2016. Translating Group to report on progress of this action by next VLMG online.

Action 13: Request access to the catalogue of Level II data (ECV inventory), which is being developed by CGMS. This request should be added to the VLab report to CGMS-44. CGMS to communicate VLab when the ECV inventory becomes available.
Actionnee(s): Stephan B., VLab TSO, CGMS Secretariat.
Due: Request to be made in June 2016 (CGMS-44). VLab to be informed once the inventory is completed.

14. Global Campus

Winifred Jordan chaired this session, starting with a brief update on the status and plans of the WMO Global Campus (GC). David Farrell was also present in this session and Jeff Wilson joined online. The Group discussed how VLab could support GC plans. Special attention was given to the GC calendar, which is planned to be operational by the end of 2016. Mark Higgins asked how the current VLab online calendar (hosted by EUMETSAT) would fit around the establishment and use of a GC calendar. The Group decided that VLab should keep using the online calendar as usual. As additional fields of information (other than the fields in the EUMETSAT calendar) have to be entered as part of the GC calendar metadata requirement, VLMG proposed to pilot the use of the GC calendar for six months, trying to the best of their abilities to provide the extra (metadata) information required. At the end of six months, a report on experiences will be provided to the working group responsible for the GC calendar. The VLab TSO will be responsible for transferring the data from EUMETSAT calendar to GC calendar during the pilot period. Mark Higgins confirmed that EUMETSAT calendar fields and output could be reworked to facilitate the transfer of data from the current calendar to the GC calendar.

Action 14: Contact the WMO Global Campus calendar working group to propose that the extra metadata (not existent in the EUMETSAT calendar) are made “optional” for submitting events to the GC calendar during the first six months of the calendar being operational and agree on the procedure for data transfer.

Actionnee(s): VLab TSO
Due: June 2016

Action 15: VLab members to submit all their training events to the online calendar as usual, but try to include the additional information required (guidelines to be

provided once available).VLab members to provide feedback on their experience after six months.

Actionee(s): VLMG

Due: Detailed schedule and information to be provided once the GC calendar is operational.

Luciane Veeck highlighted that for this proposal to work, VLMG should commit to make effective use of the online calendar. She added that only approximately half of the training events conducted by the CoEs and Satellite operators (as per reports submitted prior the meeting) were advertised in the online calendar during the year of 2015.

Action 16: VLMG to check with their personnel who hold responsibility for submitting their events to the online calendar and contact the VLab TSO in case new calendar accounts need to be created for their offices.

Actionee(s): VLMG and VLab TSO

Due: July 2016

15. Weather Ready Nations

Roger Deslandes provided an overview of the U.S NWS Ready Weather Nation principle and the current status of the implementation in the U.S. Additionally he informed the Group of the Weather Ready Nations paradigm being supported by the NWS International Affairs Office to spread impact-based decision support services to other countries, particularly Developing, Least Developed Countries and Small Island Developing States. Roger discussed the outcomes of a meeting of the Weather Ready Nations Best Practices Working Group held in Geneva in March 2016 and made the group aware of the WMO Guidelines on Multi-Hazard Impact-based Forecast and Warning services recently published by the WMO Commission for Basic systems.

16. Group Work at Sunbury Gardens

Group 1 – Communicating VLab achievements

Group members: Stephan B., Roger D., Stella A. and Nancy S.

Group 1 worked on the idea of producing a dashboard to communicate the VLab achievements. The first draft of ideas can be seen in Appendix III. The Group agreed on the concept and formed a larger WG to go forward with the preparation: Nancy, Winifred, Eduard, Noureddine, EUMETSAT, Roger, Stephan and the TSO will form this group.

Action 17: Preparation of an “Action Dashboard” to show how VLab is addressing the Strategy 2015-2019.

Actionee(s): Roger D., Nancy S., Winifred J., Eduard P., Noureddine F., Stephan B., EUMETSAT (Mark to indicate the staff that works on similar matters in EUMETSAT) and VLab TSO.

Due: Present the first draft of the dashboard in the VLMG online meeting in Dec/2016

Group 2 - Coordinating efforts for collaboration in training resources

Group members: Graciela R., Hama H., Bruce M., Mahmood A., Yong W.

Group 2 discussed many aspects related to building more effective collaboration between partners and also coordinating efforts for the production of training resources. Details of the discussion are available in Appendix IV and also as a Google doc at

https://docs.google.com/document/d/1DUMGYj9QpX1TRqRNQsW_zAaFP-k1_XDyg9GMqgWQOSA/edit#

The actions and recommendations from this working group follow below.

Action 18: Include target skill level and prerequisite knowledge/skills needed to successfully use a training resource/attend a workshop

Actionee(s): All CoEs and Satellite Operators

Due: Permanent action

Recommendation 1:

Training resources and workshops provided by satellite operators should be made available in all official languages as defined by the satellite operator's charter. Translation of all formal training efforts should be prioritised as a continuous, ongoing effort. Satellite operators without multiple official languages should consider coordinating translation efforts through in-kind contributions by user institutions.

Action 19: Include the above recommendation in the VLab report to CGMS-44

Actionee(s): VLab TSO and Stephan B.

Due: CGMS-44

Action 20: Create a demonstration of a searchable catalogue of all satellite training workshops, virtual courses, and resources that includes fields to indicate reuse policy and its language.

Actionee(s): Hama H., Mark H., Bruce M., Meihua W., Marcial G., Mahmood A., Nancy S., Ana P., Stella A., Kathy-Ann C., Eduard P. and VLab TSO.

Due: VLMG online in March 2017

Action 21: VLab to contribute with ideas and in-kind resources towards exploring the implementation of a translation resource centre as part of COMET's effort.

Actionee(s): VLMG

Due: Permanent Action

Group 3 - Climate

Group members: Eduard P., Mark, Kathy-Ann C., Ana P., Grigory C., Meihua W.

Group 3 proceeded to define the target audience for training in the use of Level II data and related products. They include: Researchers who utilize climate satellite

data such as cloud climatology; Environmental scientists and Advisers to disaster risk managers; and persons who utilize climate products and plots within the Weather Services.

The actions and recommendations from this working group follow below.

Action 22: Ensure that any climate related training provided by VLab is in line with the Commission for Climatology (CCI) competencies.

Actionee(s): CoEs and Satellite Operators

Due: Permanent Action

Action 23: Keep WMO Commission on Climate (CCI) informed of VLab training activities and resources related to Climate Services Competencies (Climate Services Competencies - draft document - available at <http://www.wmo.int/pages/prog/dra/etrp/competencies.php>). CoEs and Satellite Operators to inform VLab TSO of any new climate related resources produced.

Actionee(s): VLMG to inform TSO of any new climate related resources produced.
TSO to send info to Secretariat of CCI

Due: Permanent Action

Action 24: VLab members to provide a list of tools they currently use for data manipulation, data analysis and data visualisation (including tools used in training).

Actionee(s): Sat Ops and CoEs

Due: December 2016

Action 25: VLab to organise a collaborative online training event on the climate-agriculture nexus.

Actionee(s): Kathy-Ann C., Mark H., Winifred J. and Ana P.

Due: update on this planning to be given in March 2017 at the VLMG online

Group 4 - VLab self-assessment

Group member(s): Winifred J., Marcial G., Nouredine F., Luciane V.

Group 4 discussed improvements that could be made to the self-assessment process. These included changes in form to be submitted by VLab members as well as accompanying documentation to be sent and the timing for the assessment. Changes proposed are described in the actions below.

Action 26: Make changes in the Self-assessment form as described in the Summary provided by Working Group 4. (See changes below).

Actionee(s): VLab TSO

Due: VLMG-9

- Add box at the end of descriptors “What are the improvements I intend to make in order to achieve the scores I predict to achieve in two years?”.
- Add a comments box at the end of the whole assessment, and add: “This is the place to mention if you need help from VLMG to implement the improvements above. Please specify.”
- Add a “Give reason” space after each question.

Action 27: TSO to include “Results of the VLab Group previous self-assessment” (pdf and data) as accompanying documents when sending the self-assessment forms to CoEs and Satellite Operators every two years.

Actionee(s): VLab TSO
Due: Permanent action

Action 28: CoEs/Sat. Operators to complete their self-assessments and compare with previous years in order to identify area(s) that are not improving as planned. Any difficulty identified should be communicated to co-chairs and the TSO. In the case difficulties are communicated, Co-chairs/TSO/WMO should meet CoEs to discuss ways to better support the CoE to overcome the difficulty. This may include the possibility of mentoring.

Actionee(s): VLMG
Due: Permanent action

Action 29: Self-assessment should be completed at least one month before VLMG face-to-face meetings.

Actionee(s): VLMG
Due: Permanent action

Action 30: Co-chairs will be responsible for comparing “VLab Group assessment” with previous years and identifying the areas that need to be discussed by VLMG. This should be an item in the Agenda of every VLMG meeting (face to face).

Actionee(s): Co-chairs to prepare VLab Group assessment, VLMG to discuss results.
Due: Permanent action

Group 5 - Best practices in preparing for user readiness

Group members: Bernie C., Stephan B., Hyesook P., Natalia R.

Group 5 reviewed the document "Best Practices for User Readiness" that IPET-SUP prepared and that is to be presented at CGMS-44. Brazil and Korea reported their experiences with preparations for GOES-R and Himawari-8 from the

perspective of the CoE. In general, the training timelines recommended are good. The group discussed the approach of the US in preparing for GOES-R readiness. The document "Satellite Training Advisory Team (STAT) Report" was reviewed. This document outlines the 8.5 hour online Satellite Foundational Course for GOES-R (SatFC-G) that will be ready in October 2016 and is directed at forecasters. This will serve as a template for others to utilize.

The group also discussed awareness information (both for forecasters as well as partner organizations) versus training. It was agreed that training on all aspects of user readiness from setting up receive stations, receiving data, utilizing software to display and probe data and products, to interpretation of those data and products be covered. CoEs are to be encouraged to utilize the Satellite Data Requirements (SDR) Group as a vehicle to communicate with satellite operators.

Group 5 also recommended VLab to adopt the document "Best Practices for User Readiness."

Action 31: Inform CGMS that VLab supports the User Readiness document. In particular, we ask that CGMS members support the development of training material and assist in coordination and delivery of training in relevant languages for WMO regions affected.

Actionee(s): VLab TSO and Stephan B.
Due: CGMS-44

Action 32: CMA to host an international training event for FY-3E and FY-4A and translate those training materials into English.

Actionee(s): CoE China Beijing
Due: June 2017

Group 5 recommended that VLab trainers be aware 4-5 years before launch instead of the recommended 3-4 years, particularly if there is a major change in satellite characteristics such as going from a 5 channel imager to a 16 channel imager. They will need the time to widen awareness, do background research, and plan an approach.

It was recommend that VLab members make new satellite information available to partner organizations, including but not limited to agriculture, marine, environmental and disaster management groups, 3-4 years before launch. As a follow up to this, it was also recommend that VLab members reconnect with the partners every year to update information. VLab members should pay particular attention to recommended timelines for purchasing new equipment. It was heard from Australia and Brazil that delays in the procurement process have occurred and have impacted timelines.

Action 33: The US will notify the CoEs when the Sat FC-G content is available (October 2016).

Actionee(s): Bernie C.
Due: As soon as material is available

Action 34: CoEs is to verify that they have effective representation on the SDR group.
Actionee(s): All VLab CoEs
Due: December 2016

17. VLab Outlook

VLMG was reminded of the expectations described in the documents for VLab CoEs and Satellite Operators. A discussion of how well VLab members are meeting these expectations took place, with some CoEs identifying the need to initiate a process to obtain reconfirmation of interest for support from their VLab sponsors and interest from the institutes hosting the CoE.

Action 35: Reconfirmation of interest to be part of VLab. Process to be initiated for reconfirmation in CoEs Argentina and Russian Federation.

Actionee(s): CoEs Argentina and Russian Federation, Stephan B. and VLab TSO
Due: CoEs to confirm names and contacts of people to be contacted by the end of May. Whole process to take place by December 2016

The importance of having representatives from partner programmes COMET and NASA/ARSET in VLMG was acknowledged, and the representatives accepted to participate also in VLMG online meetings.

Action 36: Include Bruce M., Nancy S. and Ana P. in the invitations to participate in the VLMG online meetings.

Actionee(s): VLab TSO
Due: Next VLMG online (September 2016)

Stephan B. and Luciane V. informed that the VLMG Terms of Reference (ToR) were updated. The Group was invited to revise the document and send comments and suggestions to the TSO.

Action 37: VLMG to revise the updates drafted for the VLMG ToR. Comments and suggestions to be sent to the TSO.

Actionee(s): VLMG
Due: Comments due next VLMG online meeting. TSO to send a reminder.

Action 38: VLMG to revise and update the contacts list (available in the Documents folder of Session 17 – VLMG-8 site) and send any updates to the TSO.

Actionee(s): VLMG
Due: By the end of May 2017

Action 39: Include representatives of the CGMS Science Teams in the list of invitations for VLMG meetings (face to face).

Actionee(s): VLab TSO and Co-chairs

Due: Permanent Action

18 Project: Conceptual Models for Southern Hemisphere - possibilities for continuation and expansion

There was a unanimous agreement within VLMG that this project was very productive and that the 15 resources designed during these two years of project are of great value for training and education in satellite meteorology. In addition, the project fostered unprecedented collaboration and communication among different institutes and research group, especially in the Southern Hemisphere, which resulted in the identification of new case studies to be prepared. Such studies would be highly valued on the training of forecasters and warning services. VLMG also acknowledged that this format of collaboration project should be considered when preparing users for the new generation of satellites.

Action 40: TSO to contact Vesa Nietosvaara and organize that Bruce M. receives the information about the new case studies developed in phase 2 of CM4SH, so that they can be added to METed.

Actionee(s): VLab TSO

Due: July 2016

Action 41: VLMG to recommend CGMS to join efforts with VLab to investigate ways to fund the continuation of the Project CM4SH and also extend the initiative to other topics, such as case studies related to new generation of satellites, for example.

Actionee(s): TSO and Stephan B.

Due: CGMS-44

Action 42: CoE Brazil and Argentina to send an announcement about the case studies written for CM4SH to Bernie C.

Actionee(s): CoEs Brazil and Argentina

Due: end of July 2016

19. Review of actions and recommendations

All actions and recommendations made by the Group were revised and complemented at the end of the meeting. A complete list of actions and recommendations is included in Appendix V. This list is also available at <https://docs.google.com/document/d/1rJIP4mlw-f-OYrPAS3egW1oCNBgV4kLLjiMGr9j2LI/edit?usp=sharing> where updates on progress are noted.

20. Closure of meeting and organization of VLMG-9

The VLMG co-chairs and WMO thanked CIMH for hosting the meeting, COM for the full support, and also the local organising team for the excellent organisation of VLMG-8 meeting. The meeting was closed with the wish for a continued good cooperation within all VLab partners in the years to come.

Action 43: VLMG members interested in hosting the next face to face meeting (2018) to investigate the possibility and to communicate their interest via email to co-chairs and TSO.

Actionee(s): All VLMG members

Due: September 2016

APPENDIX I
List of VLMG-8 participants

	Name	Institution		e-mail
1	Graciela Rolon	SNM	CoE Argentina	grolon@smn.gov.ar
2	Roger Deslandes	BMTC	CoE Australia	R.Deslandes@bom.gov.au
3	Kathy-Ann Caesar	CIMH	CoE Barbados	kacaesar@cimh.edu.bb
4	Natalia Rudorff Oliveira	CPTEC	CoE Brazil	natalia.rudorff@cptec.inpe.br
5	Meihua Wang	CMATC	CoE China-Beijing	wangmh@cma.gov.cn
6	Wang Yong	NUIST	CoE China-Nanjing	wangyong@nuist.edu.cn
7	Marcial Garbanzo	UCR	CoE Costa Rica	marcial.garbanzo@ucr.ac.cr
8	Stella Aura	IMTR	CoE Kenya	aura@meteo.go.ke
9	Hama Hamidou	EAMAC	CoE Niger	hama_hamid@yahoo.com
10	Mahmood AlKhyari	Oman Met. Office	CoE Oman	mahmwood@gmail.com
11	Hyesook Park	KMA	CoE Republic of Korea	hyesookpark@korea.kr
12	Grigory N. Chichasov	ROSHYDROMET	CoE Russian Federation	ipkchich@mecom.ru
13	Eduard Podgaiskii	RSHU	CoE Russian Federation	podgaisky@rshu.ru
14	Winifred Jordaan	SAWS	CoE South Africa	winifred.jordaan@weathersa.co.za
15	Noureddine Filali	DMN	CoE Morocco	nour.filali@gmail.com
16	Luciane Veeck	CIRA/NOAA	Vlab office	luveeck@googlemail.com
17	Bernadette Connell	CIRA	Collaborator	Bernie.Connell@colostate.edu
18	Mark Higgins	EUMETSAT	Supporting Sat. Op.	Mark.Higgins@eumetsat.int
19	Stephan Bojinski	WMO-SP	WMO	sbojinski@wmo.int
20	Bruce Muller	COMET	Collaborator	bmuller@comet.ucar.edu
21	Nancy Searby	NASA	Collaborator	nancy.d.searby@nasa.gov
22	Ana Prados	NASA/ARSET	Collaborator	aprados@umbc.edu

Remote participation - VLMG-8

	Name	Institution		e-mail
1	Jeff Wilson	WMO-ETRP	WMO	JWilson@wmo.int

APPENDIX II

VLMG-8 AGENDA Monday, 09 May 2016

Time	Sessions	
09:30-10:00		Registration and information
10:00-10:30	1.	Opening Welcome
10:30-10:45		News/Announcements
10:45-11:05	2.	Introduction by Host
11:05-11:30		Coffee break
11:30-12:50	3.	<p>VLab efficiency</p> <p>a. Review of VLab actions (from VLMG-7, CGMS-43, IPET- SUP- 2 and web-meetings) and summary of relevant meetings</p> <p>b. Working well with the VLab Office:</p> <ul style="list-style-type: none"> - How the VLab Office has been responding to CoEs needs reported in the last two years - Challenges and requests reported in 2016 - how can VLab office and VLMG help? <p>c) Working well with WMO-SP, CGMS and IPET-SUP:</p> <ul style="list-style-type: none"> - Are we getting the most of our partnerships? <p>d) VLab Strategy:</p> <ul style="list-style-type: none"> - How do we know we are implementing the Strategy? What are the milestones and measures that we should use? <p>d) Communicating VLab training and achievements:</p> <ul style="list-style-type: none"> - The need to improve communication of the training activities of VLab - Are there key messages from the VLab Strategy that need to be communicated? If so, who should receive the key messages? - How to take the best from VLab Website, Calendar, Facebook, Newsletter, Mailing list, YouTube channel. - Do we need to consider translating the Newsletter?
13:00-14:00		Lunch break
14:00-14:45	4.	<p>Satellite Skills and Knowledge for operational meteorologists</p> <ul style="list-style-type: none"> - Inform the group on the way this document will fit into WMO Tech. Req. structure - Discussion of ways to implement the content of this document into VLab training

14:45-15:30	5.	Training resources <ul style="list-style-type: none"> - How do we know what training resources have been produced and/or translated by VLab members? - Are there drivers for change in the kind and type of training resources we have been producing? What are they? - Are there changes in requirements and audiences? Is there a requirement for more job aids rather than big lessons? - How can we coordinate the production of training resources to increase effectiveness and sharing?
15:30-16:00		Coffee break
16:00-16:40	6.	Poster Session - VLab CoEs
16:40-17:10	7.	Evaluation of Training impact <ul style="list-style-type: none"> - Do we have more examples of evaluation of training impact in the group (adding to the example provided by action VLMG7.02)? - Should we include this aspect in the "Expectations" documents? - Should it be part of the self-assessment? - Do Satellite Operators perform this evaluation?
17:10-17:40	8.	Self-assessment of VLab CoEs <ul style="list-style-type: none"> - Brief comparison of Maturity Model results (2014 vs 2016) - Are we happy with the self-assessment we have followed 2014/2016 (Maturity Model) or do we want to implement the use of WMO-ETR self-assessment form? - How often should we run the self-assessment? - Who do we report the results of the self-assessment to?
17:40 -18:00		Summary of the day
18:00		ICE BREAKER

VLMG-8 AGENDA
Tuesday, 10 May 2016

Time	Sessions	
09:30-09:40		News/Announcements
09:40-11:00	9.	User readiness <ol style="list-style-type: none"> a. Status report on user readiness (Data access and training) b. What are the VLab partners' mandates? c. Who will act if there is a readiness gap? d. How does the VLab 'lead' in the training of new products? e. How does the CoEs plan to integrate NextGen into their training programs? f. What events can the CoEs plan and or collaborate in developing training

		<p>events.</p> <p>g. What should the timeline of training be?</p> <p>h. What are the data access issues?</p> <p>i. Does VLab have a role in helping Lesser Developed States gain access to the new data?</p> <p>j. User preparation for Indian Ocean</p>
11:00-11:30		Coffee break
11:30-12:50		Feedback from group discussions in Agenda item 9.
13:00-14:00		Lunch break
14:00-14:30	10.	Poster Session - Partner Programmes
14:30-15:30	11.	<p>Coordination with Partner Programmes and efforts for translation of training resources</p> <ul style="list-style-type: none"> - Opportunities to enhance sharing and collaboration - Efforts for translation - what would be useful to translate and localise? - Is funding available to support translation?
15:30-16:00		Coffee break
16:00-16:30	12.	Poster Session - Supporting Satellite Operators and Agencies
16:30-17:00		Summary of the day

VLMG-8 AGENDA
Wednesday, 11 May 2016

Time	Sessions	
09:30-09:40		News/Announcements
09:40-11:00	13.	<p>Climate Services</p> <p>a. What does the term "Climate Services" encompass?</p> <p>b. Who else is acting (CCI, SCOPE, GFCS, maybe others)?</p> <p>c. The role of VLab in preparing NMS for Climate Services: what is the VLab mandate and who is asking for assistance?</p> <p>d. What training and information is available at this moment and what is still needed?</p> <p>e. What is VLab doing now and what do we need to do next?</p>
11:00-11:30		Coffee break
11:30-12:50		Feedback from group discussions in Agenda item 13.

13:00-14:00		Lunch break
14:00-15:30	14.	Global Campus <ul style="list-style-type: none"> - Short update on GC status and plans. - How do these plans affect the way VLab does business today?
15:30-16:00		Coffee break
16:00-16:30	15.	Weather Ready Nations <ul style="list-style-type: none"> - Briefing about WMO Weather Ready Nations
16:30-17:00		Summary of the day

VLMG-8 AGENDA
Thursday, 12 May 2016

Time	Sessions	
Morning		Island tour
13:00-14:30		Lunch break at the Sunbury Plantation Great House
14:30-16:00	16.	Group Work at Sunbury Gardens WG1 - VLab Self assessment document and procedure for evaluation of training impact WG2 - Coordination with Partner Programmes and efforts for translation Other Working Groups may be formed depending on the outcomes of previous sessions.
16:00-16:30		Return to the hotel
16:30-18:00		Continuation of working groups as needed. Suggestion: Regional networking & coordination - Group work done by CoEs and respective supporting satellite operators to reinforce regional coordination.

VLMG-8 AGENDA
Friday, 13 May 2016

Time	Sessions	
09:30-09:40		News/Announcements
09:40-11:00	16.	Feedback from Thursday's Working Groups

11:00-11:30		Coffee break
11:30-13:00	17.	VLab Outlook <ul style="list-style-type: none"> - Budget - TSO position - Expectations from VLab Members - Updating VLab Terms of Reference
13:00-14:00		Lunch break
14:00-15:00	18.	VLab Projects - possibilities for continuation and expansion <ul style="list-style-type: none"> - Short introduction about CM4SH achievements - Discussion of funding possibilities for continuation of CM4SH
15:00-15:30		Coffee break
15:30-16:30	19.	Review of actions and recommendations
16:30-17:00	20.	Organization of future VLMG meetings
17:00-17:15		Closure of the Meeting

APPENDIX III
Group 1 – Communicating VLab achievements

ACTION DASHBOARD See Bureau Annual Report dashboard				
Strategic Themes	KPI	Strategy for 2015-2019	VLMG Actions items	VLMG Performance
User Readiness	WMO survey results			
Accessibility	# entries in GC calendar % of CoE's with web-site % of CoE's conducting RFG	Creation central resource repository Visibility of online resources Support online capability in classroom events Availability of resources in WMO official languages		
Collaboration	# Collaboration events with operators # collaborative events with other CoEs # of collaborations on training resource development	Engaging with other international entities providing training		
Build maturity of CoE's	Maturity scores # Needs analysis # Training events	High-quality training, tools and methods		

	# Regional focus Groups # Training materials # Proficiency online training	Evaluation of effectiveness of training		
Delivery	# F2F training-days # remote training days	Active support new satellites Delivery RFG sessions Organisation of Event Weeks		
Enabling Skills	# Identify surface features # identify cloud types # identify/interpret broad, synoptic., mesoscale systems # identify/interpret atmospheric phenomena # interpret derived fields / products # identify / interpret oceanic features			

APPENDIX IV

Group 2 - Coordinating efforts for collaboration in training resources

Resources and Collaboration Notes and Recommendations
12 May 2016

Wang Yong
Mahmood Rashid Al Khayari
Hamidou Hama
Graciela Rolon
Bruce Muller

Discussion Item

How do countries that are not CoEs make their resources available to the community?
The CoE should act as a bridge between the regional institutions, the CoE, and the broader CoE network.

Action Item/Recommendation

None.

Discussion Item

What is a good resource?

Consensus:

- High quality content aligned with a strategic training need
- Accessible media type
- Appropriate for the skill level it is meant to address

Action Item/Recommendation

- Define skill levels (ala MetEd but with better definition)
- Include target skill level and prerequisite knowledge/skills needed to successfully use the resource/attend the workshop (**Action from VLMG-8**)

Discussion Item

Who are focal points/contacts at CoEs?

It is not always clear who to contact for what information. Contacting the PR is not always productive and having a peer-level/horizontal contact would be more appropriate for most inquiries.

Action Item/Recommendation

Each CoE website should list a focal point/point of contact for inquiries.

Note: how the focal point is appointment and what level they are within the parent organization is up to the CoE institution.

Discussion Item

The WMO user needs survey may contain relevant information that can be used to help determine training needs.

Action Item/Recommendation

Provide a distilled version of the results to the CoEs.

Discussion Item

Coordination and collaboration for development and sharing of resources.

A key problem: cross language collaboration. For example: training offered by EAMAC in French could benefit from expert contributors/resources from non-French speaking institutions. There seem to be many barriers in place for making these cross-language collaborations happen.

Action Item/Recommendation

Satellite operators should act as brokers of expertise and resources.

Action Item/Recommendation

Training resources and workshops provided by satellite operators should be made available in all official languages as defined by the satellite operator's charter. They should include consideration for translation in all formal training efforts, prioritize it as a continuous, ongoing effort. Satellite operators without multiple official languages should consider coordinating translation efforts through in-kind contributions by user institutions.

Action Item/Recommendation

Create a searchable catalog of all satellite training workshops, virtual courses, and resources that includes fields to indicate reuse policy and its language. WG: Hama, Mark, Bruce, Meyhua, Marcial, Mahmood, Nancy, Ana, Stella

Action Item/Recommendation

VLab contributes ideas and in-kind resources towards exploring the implementation of a translation resource center.

Discussion Item

Visualization and other software used in workshops is not always available in participants' home institution.

Action Item/Recommendation

Make every effort possible to use the same software tools in workshops as used by participant's home institution.

Discussion Item

Regionalization: many resources and workshops make use of cases and data products that are not relevant to participants' region. For instance, nighttime fog in mid-latitudes manifests itself differently than in more tropical latitudes.

Action Item/Recommendation

Trainers and resource authors need to take into consideration regional impacts on data interpretation broaden the number of examples used in their material.

APPENDIX V
VLMG-8 Actions and Recommendations

- Action 1:** VLab office to organise a VLab online meeting early in the year before the IPET-SUP and CGMS meetings to discuss the report to this sessions and identify a VLab Rapporteur for the meetings.
Actionee(s): VLab TSO
Due: Permanent action
- Action 2:** VLMG members to contact their representative attending IPET-SUP to brief/debrief (communicate) about VLab and get feedback from the meeting in order to identify useful actions for VLab.
Actionee(s): VLMG
Due: Permanent action
- Action 3:** VLMG to provide final comments on the Enabling Skills document using the Google doc at https://docs.google.com/document/d/1Aeb-2c_s8g6BSsxdZef-cKY7598eGpuoPX4eW8lmyeg/edit?usp=sharing WMO-SP to include this document in the material that will be submitted to CBS in 2016.
Actionee(s): VLMG
Due: 23 May (for comments). The document is to be finalised and sent to WMO-SP by the end of August.
- Action 4:** To circulate the report produced by WMO on the “User Needs Survey”
Actionee(s): TSO and Stephan B.
Due: As soon as the report is available
- Action 5:** VLMG to identify financial support for training events. CoEs may wish to approach local offices of international agencies. Stephan Bojinski to keep VLMG informed regarding WMO resourcing team and funding opportunities.
Actionee(s): VLMG
Due: Permanent action
- Action 6:** TSO to send the self-assessment forms completed in 2014 and 2016 back to each CoE and Satellite Operator.
Actionee(s): TSO
Due: September 2016
- Action 7:** Organise an expert workshop on RGB composites derived from multi-spectral imagery.
Actionee(s): Stephan B.
Due: 2017

- Action 8:** VLab to organise a Global Train the Trainer event in RGBs. This should be a series of online events. The first stage of the organisation should include a survey to conduct a needs analysis.
- Actionee(s): Bodo Z., Roger D., Bruce M., Hama H., EUMETSAT TSO, Mark H., Bernie C., Nouredine F., Lee-Ann S., Joseph K. and VLab TSO.
- Due: September 2016 for the survey (use the forum in Africa, Asia-Oceanian Forum and extended audience). Data collected by November and analysed by December 2016. Course to be offered in 2017.
- Action 9:** Circulate a survey within VLab members to investigate “what have we learned about training for use of RGBs?”
- Actionee(s): Mark H. to prepare survey and VLMG to respond.
- Due: Survey to be prepared and circulated by Mark H. by end of June 2016. Responses to be collected until October 2016.
- Action 10:** Report to CGMS what actions VLab will take in order to help on user preparation for the Indian Ocean.
- Actionee(s): TSO and Stephan B.
- Due: CGMS-44
- Action 11:** VLMG Members to look for existing training resources that address the satellite skills described in the “Enabling skills document” and send to the VLab TSO.
- Actionee(s): VLMG
- Due: Final version of the Enabling skills document to be ready in July. VLMG to complete this action in preparation for next VLMG online meeting (September)
- Action 12:** CoE Barbados to finalize the informative presentation (Climate) and coordinate translation and presentation with volunteers from VLab.
- Actionee(s): Kathy-Ann and VLab TSO. Volunteers for translations: Eduard P. (Russian), Marcial G. and COMET(Spanish), Mahmood A. (Arabic), Meihua W. (Chinese), Nouredine F. and Hama H. (French), and Natalia R. (Portuguese).
- Due: Presentation to be ready by the end of July. VLab TSO to prepare the spread sheets to facilitate translation. Translations to be ready by September 2016. Translating Group to report on progress of this action by next VLMG online.
- Action 13:** Request access to the catalogue of Level II data (ECV inventory), which is being developed by CGMS. This request should be added to the VLab report to CGMS-44. CGMS to communicate VLab when the ECV inventory becomes available.
- Actionee(s): Stephan B., VLab TSO, CGMS Secretariat.

Due: Request to be made in June 2016 (CGMS-44). VLab to be informed once the inventory is completed.

Action 14: Contact the WMO Global Campus calendar working group to propose that the extra metadata (not existent in the EUMETSAT calendar) are made “optional” for submitting events to the GC calendar during the first six months of the calendar being operational and agree on the procedure for data transfer.

Actionee(s): VLab TSO

Due: June 2016

Action 15: VLab members to submit all their training events to the online calendar as usual, but try to include the additional information required (guidelines to be provided once available). VLab members to provide feedback on their experience after six months.

Actionee(s): VLMG

Due: Detailed schedule and information to be provided once the GC calendar is operational.

Action 16: VLMG to check with their personnel who hold responsibility for submitting their events to the online calendar and contact the VLab TSO in case new calendar accounts need to be created for their offices.

Actionee(s): VLMG and VLab TSO

Due: July 2016

Action 17: Preparation of an “Action Dashboard” to show how VLab is addressing the Strategy 2015-2019.

Actionee(s): Roger D., Nancy S., Winifred J., Eduard P., Nouredine F., Stephan B., EUMETSAT (Mark to indicate the staff that works on similar matters in EUMETSAT) and VLab TSO.

Due: Present the first draft of the dashboard in the VLMG online meeting in Dec/2016

Action 18: Include target skill level and prerequisite knowledge/skills needed to successfully use a training resource/attend a workshop

Actionee(s): All CoEs and Satellite Operators

Due: Permanent action

Action 19: Include the above recommendation in the VLab report to CGMS-44

Actionee(s): VLab TSO and Stephan B.

Due: CGMS-44

Action 20: Create a demonstration of a searchable catalogue of all satellite training workshops, virtual courses, and resources that includes fields to indicate reuse policy and its language.

Actionee(s): Hama H., Mark H., Bruce M., Meihua W., Marcial G., Mahmood A., Nancy S., Ana P., Stella A., Kathy-Ann C., Eduard P. and VLab TSO.
Due: VLMG online in March 2017

Action 21: VLab to contribute with ideas and in-kind resources towards exploring the implementation of a translation resource centre as part of COMET's effort.

Actionee(s): VLMG

Due: Permanent Action

Action 22: Ensure that any climate related training provided by VLab is in line with the Commission for Climatology (CCI) competencies.

Actionee(s): CoEs and Satellite Operators

Due: Permanent Action

Action 23: Keep WMO Commission on Climate (CCI) informed of VLab training activities and resources related to Climate Services Competencies (Climate Services Competencies - draft document - available at <http://www.wmo.int/pages/prog/dra/etrp/competencies.php>). CoEs and Satellite Operators to inform VLab TSO of any new climate related resources produced.

Actionee(s): VLMG to inform TSO of any new climate related resources produced.
TSO to send info to Secretariat of CCI

Due: Permanent Action

Action 24: VLab members to provide a list of tools they currently use for data manipulation, data analysis and data visualisation (including tools used in training).

Actionee(s): Sat Ops and CoEs

Due: December 2016

Action 25: VLab to organise a collaborative online training event on the climate-agriculture nexus.

Actionee(s): Kathy-Ann C., Mark H., Winifred J. and Ana P.

Due: update on this planning to be given in March 2017 at the VLMG online

Action 26: Make changes in the Self-assessment form as described in the Summary provided by Working Group 4. (See changes below).

Actionee(s): VLab TSO

Due: VLMG-9

- Add box at the end of descriptors "What are the improvements I intend to make in order to achieve the scores I predict to achieve in two years?".
- Add a comments box at the end of the whole assessment, and add: "This is the place to mention if you need help from VLMG to implement the improvements above. Please specify."

- Add a “Give reason” space after each question.

Action 27: TSO to include “Results of the VLab Group previous self-assessment” (pdf and data) as accompanying documents when sending the self-assessment forms to CoEs and Satellite Operators every two years.

Actionee(s): VLab TSO
Due: Permanent action

Action 28: CoEs/Sat. Operators to complete their self-assessments and compare with previous years in order to identify area(s) that are not improving as planned. Any difficulty identified should be communicated to co-chairs and the TSO. In the case difficulties are communicated, Co-chairs/TSO/WMO should meet CoEs to discuss ways to better support the CoE to overcome the difficulty. This may include the possibility of mentoring.

Actionee(s): VLMG
Due: Permanent action

Action 29: Self-assessment should be completed at least one month before VLMG face-to-face meetings.

Actionee(s): VLMG
Due: Permanent action

Action 30: Co-chairs will be responsible for comparing “VLab Group assessment” with previous years and identifying the areas that need to be discussed by VLMG. This should be an item in the Agenda of every VLMG meeting (face to face).

Actionee(s): Co-chairs to prepare VLab Group assessment, VLMG to discuss results.
Due: Permanent action

Action 31: Inform CGMS that VLab supports the User Readiness document. In particular, we ask that CGMS members support the development of training material and assist in coordination and delivery of training in relevant languages for WMO regions affected.

Actionee(s): VLab TSO and Stephan B.
Due: CGMS-44

Action 32: CMA to host an international training event for FY-3E and FY-4A and translate those training materials into English.

Actionee(s): CoE China Beijing
Due: June 2017

- Action 33:** The US will notify the CoEs when the Sat FC-G content is available (October 2016).
 Actionee(s): Bernie C.
 Due: As soon as material is available
- Action 34:** CoEs is to verify that they have effective representation on the SDR group.
 Actionee(s): All VLab CoEs
 Due: December 2016
- Action 35:** Reconfirmation of interest to be part of VLab. Process to be initiated for reconfirmation in CoEs Argentina and Russian Federation.
 Actionee(s): CoEs Argentina and Russian Federation, Stephan B. and VLab TSO
 Due: CoEs to confirm names and contacts of people to be contacted by the end of May. Whole process to take place by December 2016
- Action 36:** Include Bruce M., Nancy S. and Ana P. in the invitations to participate in the VLMG online meetings.
 Actionee(s): VLab TSO
 Due: Next VLMG online (September 2016)
- Action 37:** VLMG to revise the updates drafted for the VLMG ToR. Comments and suggestions to be sent to the TSO.
 Actionee(s): VLMG
 Due: Comments due next VLMG online meeting. TSO to send a reminder.
- Action 38:** VLMG to revise and update the contacts list (available in the Documents folder of Session 17 – VLMG-8 site) and send any updates to the TSO.
 Actionee(s): VLMG
 Due: By the end of May 2017
- Action 39:** Include representatives of the CGMS Science Teams in the list of invitations for VLMG meetings (face to face).
 Actionee(s): VLab TSO and Co-chairs
 Due: Permanent Action
- Action 40:** TSO to contact Vesa Nietosvaara and organize that Bruce M. receives the information about the new case studies developed in phase 2 of CM4SH, so that they can be added to METed.
 Actionee(s): VLab TSO
 Due: July 2016

Action 41: VLMG to recommend CGMS to join efforts with VLab to investigate ways to fund the continuation of the Project CM4SH and also extend the initiative to other topics, such as case studies related to new generation of satellites, for example.

Actionee(s): TSO and Stephan B.

Due: CGMS-44

Action 42: CoE Brazil and Argentina to send an announcement about the case studies written for CM4SH to Bernie C.

Actionee(s): CoEs Brazil and Argentina

Due: end of July 2016

Action 43: VLMG members interested in hosting the next face to face meeting (2018) to investigate the possibility and to communicate their interest via email to co-chairs and TSO.

Actionee(s): All VLMG members

Due: September 2016

Recommendation 1:

Training resources and workshops provided by satellite operators should be made available in all official languages as defined by the satellite operator's charter. Translation of all formal training efforts should be prioritised as a continuous, ongoing effort. Satellite operators without multiple official languages should consider coordinating translation efforts through in-kind contributions by user institutions.