

ACTIVITIES RELATING TO THE IMPLEMENTATION PLAN FOR THE VIRTUAL LABORATORY

This Working Paper reports on the various activities carried out by EUMETSAT relating to the implementation plan for the Virtual Laboratory and responds to CGMS action 31.12.

CGMS Members are invited to take note.

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1 INTRODUCTION

This Working Paper reports on the various activities carried out by EUMETSAT relating to the implementation plan for the Virtual Laboratory and responds to CGMS action 31.12.

2 ACTIVITIES & EVALUATIONS SINCE VL-1

In June 2003, the EUMETSAT Council accepted a new 5 years training plan (for the period 2004-2008), which mandates the Secretariat to continue training support for Member and Cooperating States and Africa. It will be recalled that the training effort in Africa is focused on the two WMO training centres in Nairobi and Niamey. One element of this support is to further develop the VL for the benefit of African NMSs.

2.1 EAMAC Niamey

Following VL-1, a prototype Virtual Resource Library (VRL) was developed by EUMETSAT and hosted on a server in Darmstadt, Germany. Experts from ASECNA, the hosting Agency for RMTTC Niamey, visited EUMETSAT in 2003 and studied the requirements for an ASECNA hosted VRL. As a result of these activities, ASECNA staff have since installed a dedicated server at EAMAC in Niamey. Indeed, this was a logical step following the requested upgrade of Internet access at EAMAC. In January 2004, EAMAC personnel carried out a major upgrade of the opening page (now in French and English) and provided additional links to external useful web sites.

Of special interest was a presentation made by Jeff Wilson (BoM Training Centre, Melbourne). This was a “distance-learning” presentation, delivered from Melbourne, in real time, to the participants and management at a EUMETSAT Satellite Application course which took place in Niamey in July 2003. The concept of distance training was a new and important element of this particular course. Whilst tools such as VISITView have been available for some time, it was only the recent improvement of Internet bandwidth at the EAMAC centre that made the demonstration realistically possible.

The benefit of this type of training was greatly appreciated by all. For example, Dr. M’Piè Diarra, Principle of the Meteorological Training School at EAMAC assisted with this session and is now one of the ASECNA experts familiar in the use of VisitView software. A second session with Jeff is planned for the ASECNA MP-1 course, being held in EAMAC from 13-

23 April 2004. Additionally, Emmanuel Kplogede, instructor at EAMAC, is also now familiar with this package, following his participation in a WMO VisitView workshop held in Geneva in 2003.

2.2 IMTR Nairobi

At IMTR, Joseph Kagenyi, core trainer, was trained in the use of RAMSDIS software. He used these tools to prepare images for the ASMET4 project, which will deliver a CAL module on Tropical Hurricanes in the southwest Indian Ocean. This module was produced using new “MeteoCAL” tools, developed by EUMETSAT, and will be ready by early 2004.

With regard to improve effectiveness and efficiency of its education and training programmes, IMTR has suggested this could be achieved through the greater utilisation of the e-learning approach and that the Institute must have good Internet connectivity. Whilst the bandwidth was only 64 kbps at the time of VL-2, KMD is now installing a VSAT link with a proposed bandwidth of 512 Kb/s or more depending on requirements. It was commissioned mid-December, 2003. Although there exists some restrictive policies concerning the connection of a VSAT to the backbone, IMTR are optimistic that the government of Kenya would exempt KMD and provide the authorisation immediately after commissioning.

Additionally, through the current Meteorological Transition in Africa (MTA) Project, also known as the PUMA Project, IMTR is in the process of establishing a “Meteosat Second Generation (MSG) Laboratory” fully installed with 12-networked PCs, a web server, and satellite receiving equipment early in 2004. IMTR will then have capabilities to receive near real-time data (satellite and conventional data) for training purposes. The Laboratory will be connected to the Global Telecommunications System (GTS) Regional Telecommunication Hub (RTH) through the LAN. These facilities will clearly enhance the IMTR learning environment and associated VL activities. Additionally, IMTR has plans to create a new computer laboratory specifically for VL activities.

2.3 Other VL-Related Training Activities

EUMETSAT has collaborated with Jeff Wilson on establishing a taxonomy to support the cataloguing of entries in the VRL. A set of meta-data, which allows a common approach on search for training data and material by users at the VRL's has also been established.

3 OTHER TRAINING PROJECTS AND ACTIVITIES OF INTEREST

3.1 EUMetrain

EUMetrain is a new five-year training project recently approved by the EUMETSAT Council. This project will be conducted under the leadership of the NMS of Austria (ZAMG) and is scheduled to start later in 2004. A set of updated user training requirements have been established and a key objective of EUMetrain will be a standardised e-learning “training system”, accessible by the user community and providing several training resources, including:

- Preparation of training modules based upon the use of meteorological case studies, with emphasis on severe weather situations, and making full use of data from MSG and EPS;
- Analysis of distance learning techniques available and selection of a preferred system for more general use;
- Identification and preparation of training material and courses suitable for presentation using distance learning techniques;
- Archive of training material in an easy access networked storage infrastructure;
- Maintenance and enhancement of existing CAL material;

3.2 MSG Interpretation Guide.

There is an urgent need for Meteorologists to be trained on the use, applications and benefits of the new MSG (Meteosat-8) data and products. The Austrian NMS, with the support of EUMETSAT, has agreed to coordinate inputs from several sources leading to the creation of an MSG Interpretation Guide. A key objective of the Guide is the provision of Power Point presentations suitable for both traditional lectures and e-learning, and which will show forecasters how to interpret satellite imagery and to combine channels to optimise the use of the data. A first set of training material was delivered in February 2004, and is available on the EUMETSAT Web site www.eumetsat.de. Some of this material was used for the first time recently at a EUMETSAT sponsored Satellite Application Course for countries in the Middle East.

3.3 EUMETSAT “Archive Direct” Service

This service will allow improved accessibility to the EUMETSAT image and product archive. Considering the amount of data flowing from the new MSG satellite, retrieval via this service will be limited to the LRIT data. However, HRIT data sets can be made available off-line from the Archive. This new Service has been available since the 2nd quarter of 2004. Currently, only 7 days of first generation Meteosat data can be made available on-line.

The reader should also note that some Meteosat 5 and 7 data is now also available at the VISIT/CIMSS Collaboration pages:

<http://www.ssec.wisc.edu/visit/met5.html>

<http://www.ssec.wisc.edu/visit/met7.html>

3.4 Rapid Scan Service

This Service provides 10-minute sequences of images taken by Meteosat-6. This data is distributed via the EUMETCast dissemination service (CGMSXXXII-EUM-WP-20) and from the archive. Further instructions can be found within the *Products and Services* section of the EUMETSAT web site www.eumetsat.de.

3.5 EUMETSAT-NOAA Cooperation on Training Resource Development

A recent initiative is collaboration on the development of satellite meteorology training resources by NOAA and EUMETSAT. Training resources will address, in particular, the use of data from the polar orbiting meteorological satellites. Given the commonality of

instruments to be flown on future systems, it seemed appropriate that efforts should be coordinated to optimise the use of available resources and the development of new resources.

EUMETSAT Head of User Service, Dr. V. Gärtner, and EPS Programme Scientist Dr. D. Klaes visited NOAA and COMET in March 2004 to initiate the collaboration. Further follow-up activities are already planned for 2004 and 2005.

3.6 Cooperation with the South African Weather Service (SAWS)

Following closer cooperation with SAWS in satellite meteorology training, resulting from the PUMA initiative, EUMETSAT is providing some training support (resources and lecturers) in the use of MSG data and products at local satellite meteorology courses for SAWS and neighbouring country NMS forecasters. SAWS is very interested in becoming a third African node of the VL.

4 RECOMMENDATIONS FROM VL-2 FOR THE 2003 – 2006 TIMEFRAME

- (a) EUMETSAT should transfer the software of the prototype VRL currently hosted on its server to the EAMAC and IMTR servers as soon as feasible. IMTR and EAMAC should consider themselves as owners of this facility, maintain it and update the software as required, including protection against threats of viruses and misuse. **Comment:** Niamey now supports a French-language new-format VL entry page.
- (b) A “What’s new” bulletin should be developed centrally to keep the centres of excellence and other trainers and organisations aware of new developments and new training material. **Comment:** Ongoing activity. Further enhancement to the training area of the EUMETSAT and VL node web pages addressing training being considered.
- (c) To be eligible for the role of “Centre of Excellence”, a minimum set of requirements should be agreed. These will give management of these centres guidelines for further development of the infrastructure. For example, currently access to the Internet at IMTR is inadequate to support VL activity. IMTR should set a goal of achieving a minimum speed of 1 Mb/s as soon as possible. **Comment:** The Communication Commission of Kenya apply strict rules and acts as a monopoly for access to the Internet using Vsat technology. This official stance poses big communication problems for the Kenya Meteorological Department and the PUMA project.
- (d) Further training in the use of tools such as VisitView, SATAID, Ramsdis, EumetCAL etc. should be arranged locally on a regular basis. **Comment:** a EUMETSAT Training Officer will spend a month at COMET in July 2004 to become familiar with the VisitView s/w and distance learning methods. Also, a representative from JMA will assist EUMETSAT make use of SATAID for the display of Meteosat imagery in July 2004. Additionally, EUMETSAT supports EUMETCAL with regular CAL tools training courses.

- (e) Actively promote the VL concept and its use at conferences, seminars and courses.
- (f) Investigate the feasibility of disseminating training material by operational meteorological dissemination services such as EUMETCast. This would match the requirement set at VL-1 to directly insert data acquired at a ground receiving station into the VL servers. **Comment:** A study of the feasibility of using EUMETCast channel capacity to transfer larger training data sets has been initiated.
- (g) Encourage the use of “distance-learning” techniques at training events held at centres of excellence. These presentations serve two objectives:
- i. To demonstrate the potential of distance learning
 - ii. To increase knowledge of satellite meteorology
- Comment:** Output and recommendations from the EUMetrain and the EUMETSAT/NOAA collaboration projects will be made available to the VL user community. EUMETSAT also supported the participation of two African meteorologists in a distance learning Remote Sensing course offered on-line by ITC in The Netherlands (www.itc.nl).
- (h) As soon as feasible, to organise a “remote conference” meeting with the centres of excellence to build up experience in these techniques –Goal 2005. **Comment:** The Centres have been asked to initiate this activity.
- (i) Too few CAL development groups are currently trained. A Working Panel should address this need. **Comment:** EUMETSAT provides CAL training to trainers from Nairobi and Niamey from time to time.
- (j) Investigate the feasibility of making near real-time data available to the VL from sources such as archives, the Internet and via direct broadcast. **Comment:** see reference to “Archive Direct” Service (section 3.3).

5 CONCLUSION

The EUMETSAT Council has accepted a new 5- year Training Plan (2004 – 2008), which allows EUMETSAT to continue supporting the training centres in Nairobi and Niamey, and includes the further development of VL activities. VL related projects, such as the 5-year EUMETTrain project, the MSG Interpretation Guide are already initiated. A new cooperation with NOAA will be formalised in 2004, aiming at the joint production of satellite meteorology training resources addressing Polar Satellite Systems.

Additionally, recommendations are made in this document for the enhancement of VL-related activities at the EUMETSAT sponsored training centres (VL-nodes) in Africa.