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## **REPORT ON EUMETSAT TRAINING ACTIVITIES**

The document describes the status and future plans for training in satellite meteorology provided by EUMETSAT and the Centres of Excellence (CoE) in Africa, the Middle East and Europe.

CGMS 37 is invited to note the current status and future activities for satellite training provided by EUMETSAT and Centres of Excellence in WMO RA I, RA II and RA VI.

## **Report on EUMETSAT training activities**

### **1 INTRODUCTION**

In June 2008 the EUMETSAT Council also approved the EUMETSAT long-term (20 years) training strategy which puts the EUMETSAT training activities on a solid long-term basis. Both documents define the scope of EUMETSAT training activities in the years to come and confirm the continuation of EUMETSAT contributions towards VL activities.

The actual training activities are based on the 5 years training plan (2009-2013), which also had been approved by EUMETSAT Council in June 2008. Like before, in this plan the EUMETSAT Council tasks the User Service Division Training team to conduct a range of training activities in Europe, Africa, the Arabian Gulf and also in parts of South America. Also included within this Plan are the EUMETSAT contributions to WMO Virtual Laboratory (VL).

### **2 EUMETSAT COURSES AND WORKSHOPS**

EUMETSAT training courses, workshops and seminars are essential activities that transfer knowledge and help build capacity. Modern teaching methods (blended courses) and new course management systems (e.g. Moodle) are presented to participants on a regular basis. These subjects optimise training efforts and help to mitigate the impact of a gradual reduction of training resources. In 2008 training events were held in Europe, Africa, South America and the Middle East. EUMETSAT has to address the satellite meteorology training needs of a global user community. This, within the context of the VL will, in turn, lead to closer cooperation with other satellite operators and Centres of Excellence (CoE).

### **3 THE CENTRES OF EXCELLENCE**

#### **3.1 Institute for Meteorological Training and Research (IMTR), Nairobi, Kenya**

The yearly EUMETSAT Satellite Application Course (ESAC) was conducted in August at the IMTR in 2009. Most of the participants attended for the first time a EUMETSAT organised satellite course. The countries represented were: Cameroon, Eritrea, Ethiopia, Ghana, Kenya, Lesotho, Libya, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Rwanda, S-Africa, Sudan, Swaziland, Tanzania, Uganda and Zimbabwe. Much effort was made by the staff of the IMTR to have a good access to the Internet. For the first time Moodle could be used to manage the course. Also for the first time a VisitView presentation was made without any interruptions. The Director, Dr. Mukabana, promised further progress as fiber cables will become available soon in Kenya. The director made also a commitment to nominate new instructors.

In addition to this regular two-week event, an additional week was organised for Regional Focal Group (RFG) activities. ASMET team members from IMTR continued their work with members coming from other CoEs on the development of the ASMET5 module, which is expected to be ready for use by the end of 2009. A new member from the IMTR training team, Mr. Ignatius Gitonga, has joined the ASMET effort. A main concern at IMTR is the access to the internet and the maintenance of the training laboratory. Additionally, training using real time satellite imagery is currently not possible and, furthermore, new Core Trainers will have to be trained in the near future due to likely career development and retirement of some existing trainers. All these matters were recently discussed with the Director of the Kenya Meteorological Department (KMD). The director agreed with these issues and promised to take actions.

### **3.2 Ecole Africaine de la Météorologie et de l'Aviation Civile (EAMAC), Niamey, Niger**

EUMETSAT training policy ensures that anglophone and francophone NMSs in Africa are equally supported. The training needs in satellite meteorology of the francophone NMS community are met via training courses conducted at EAMAC in Niamey. This commitment to one two-week satellite meteorology course per year at IMTR and EAMAC will be continued in the future since this is seen as a very cost-effective way to train relatively large groups.

The seventh ESAC course for the French African community was organised in Nov/Dec 2008. During this two weeks course, the latest developments on satellite meteorology, applications and operations were explained to the participants of the 20 countries. Additional to the participants of the countries also participants from local organisations were invited. The limit of people, which could be accommodation at the training laboratory was reached. Regularly more than 25 participants were packed in the training room.

EAMAC is in the process to nominate new trainers on satellite meteorology. EUMETSAT made the commitments to train new instructions so that they will be able to contribute to the training activities on satellite meteorology, including at the ESAC courses.

ASECNA, located in Dakar Senegal, the parent organisation of EAMAC, is fully involved in these activities, which eases the decision process on related subjects.

### **3.3 Oman**

The CoE in Oman is developing rapidly. The CoE is a joint activity of the Directorate General of Civil Aviation and Meteorology (DGCAM) and the University of Oman, where the CoE is located. The CoE is managed by the Remote Sensing Faculty of the University, which also brings expertise from other satellite systems and applications such as land surface applications. The first Agreement with Oman on joint training activities ended at the end of 2008. However, a new arrangement is in place now for a continued cooperation in training.

A one week ESAC course was organised at the Sultan Qaboos University in March 2009. Additional to this course the EUMETSAT representative participated at the EUMETSAT's conference on Indian Ocean Tropical Cyclones and Climate change. He made a presentation on the importance on having adequate satellite capability available over this part of the world.

### **3.4 SAWS**

The South African Weather Service (SAWS) in Pretoria has upgraded its status from a regular training institute to the level of CoE in satellite meteorology by conforming to the necessary requirements of WMO and getting the committed support from EUMETSAT. Over recent years EUMETSAT has supported SAWS in the development of satellite meteorology training resources, satellite product applications and presentations at some SAWS regional training courses. There are excellent facilities at the centre and the required level of knowledge to carry out effective training. Since SAWS already cooperates closely with many countries in southern Africa, then given its specific location in the southern hemisphere and the vulnerability of several countries in the region to tropical cyclones, it is expected that this future CoE will contribute significantly to the training activities of the VL in this part of Africa.

For 2010 and 2011 it is envisaged to tailor the EUMETSAT face to face training activities in Africa such that a maximum of synergy with the EU funded AMESD training courses can be achieved. EUMETSAT will play an important role in the application training sessions.

### **3.5 DNM Casablanca**

Following initial discussions with the Moroccan Met. Service in Casablanca, a first EUMETSAT supported training course on satellite meteorology and land applications is held in Casablanca from 26 to 30 October 2009. This will provide further training opportunities for northern African countries.

## **4 COURSES IN SOUTH AMERICA**

The Seminar on the Applications of Meteorological Satellites to the Monitoring of Land, took place last December in Brasilia, Brazil. This event was supported by IM and it was the start of a series of events in coming years for land applications of satellite data. CPTEC was the main organiser and service provider, whereas the land SAF presented the main block of training and practical exercises. This year this training course will take place in Maputo, Mozambique.

EUMETSAT participated at the Brazilian Symposium of Remote Sensing (SBSR) that took place this year in Natal, Brazil, with the aim to do public relations for EUMETCast and to organise a first training for operators of EUMETCast receiving stations in Brazil. In coordination with CPTEC and INMET, a series of actions were agreed to establish a Brazilian net for mutual support among EUMETCast operators,

including the provision by CPTEC of a portal and domain. This portal will host tutorials, tools for download and free software, translations of Eumetsat pages and information on resources from similar projects, in particular DevCoCast.

A first training for operators of EUMETCast receiving stations was held from 1-5 June 2009, in João Pessoa-PB, Brazil, organized by EUMETSAT and the Laboratory for Analyzing and Processing Satellite Images (LAPIS) of the University of Alagoas (UFAL) in collaboration with the Executive Agency for Water Resource Management, of the state of Paraíba (AESAs). There were a total of 20 operators of 20 institutions from the government and academia. The objectives of this workshop were to bring together Brazilian representatives from the EUMETCast data-receiving stations to support weather operations in Brazil and to provide a techno-scientific exchange in environmental and atmospheric sciences between various Brazilian research institutes, at the same time as they broaden the knowledge about their applications. These two objectives were closely related and successfully met. A fundamental point of the gathering was the exchange of user knowledge of the EUMETCast reception system between the various segments of Brazilian users that were present.

Following previous courses, this year's Iberoamerican course was held in Cartagena, Colombia. It was characterised by an increase in the participants' activity. They prepared power points with their learnt lessons first week, which were in turn discussed in plenary, providing a good measure on how much they learnt. Additionally, each of them presented the analysis of the weather situation as they do in their job, and a final presentation on the weather and climate in their respective areas.

## **5 REGIONAL FOCAL GROUP (RFG) ACTIVITIES**

Since the concept of the RFG for regional coordination is very promising, this subject is regularly encouraged at all training courses for the developing countries and the Middle East. In this concept, it is foreseen that all RFG members will communicate effectively and regularly on subjects of common interest that will increase the level of knowledge generally within the region. The concept facilitates real-time weather briefings, the presentation of case studies, the organisation of training sessions and the coordination of other activities such as maintenance, software exchange and training. EUMETSAT has supported the establishment of four RFGs; at EAMAC, IMTR, Oman and Pretoria. Whilst the RFG activities are developing, further support will be provided by EUMETSAT to ensure the best possible deployment and exploitation of this new infrastructure. A major issue remains the access to the Internet at many NMSs. In the meantime, the establishment of the RFGs has been greatly assisted thanks to the generous support of the Eumetsat management team, which has provided its server to host the activities of these RFGs.

The RFG concept, based on Moodle, offers the possibility for chat and the creation of fora addressing specific subjects such as maintenance, software applications and weather discussions. Another possibility is the creation of databases containing interesting regional meteorological phenomena and which might be used for case study development.

In March 2009 a five days workshop was organised for the members of the Regional Focal Group of West Africa. At this workshop, also managed with Moodle, presentations were prepared for real time presentation. After return to their home countries these presentations were delivered to the other members of the group. The RFG of W-Africa has now enough knowledge to organise regular sessions. However the access to the internet in W- Africa is still an area of concern.

Due to the work load and schedule problems the plans for RFG workshops in Oman and Pretoria could not yet be realised. It is the intention to organise workshops at these locations in 2010. The successful concept of developing VisitView material for presentations from their home offices, as applied at the workshop at EAMAC, will be proposed for these CoE as well.

## **6 COURSE MANAGEMENT TOOLS**

In order to ease the management of training activities, Course Management Software, called Moodle, is available to the teaching and learning community free of charge. Additionally, within the framework of Eumetcal, Moodle is made available to the European meteorological community as it is a very effective tool for the organisation of training courses. Eumetcal is one of many organisations with a dedicated Moodle server used for the management of training activities. EUMETSAT is operating its own Moodle server (<http://training.eumetsat.int> ) and a Moodle pages have been created for some courses.

Since one year the EUMETSAT training activities are managed with the Moodle software. An external service provider was contracted to avoid conflicts with internal procedures. Experience shows that this is a good solution. Also the decision to contract on-line support from a Moodle expert in Nairobi is very effective. The one year experience with this concept was presented at the CALMET2009 conference in St. Petersburg.

## **7 PLANNING FOR A REGIONAL TRAINING EVENTS**

Much experience was gathered from the very successful High Profile Training Event (HPTE) of the WMO VL event in October 2006. Recommendations were made on how to continue the momentum generated by this type of activity. EUMETSAT felt that a regional event, covering roughly the field of view of its Meteosat satellites would be more appropriate to address the training needs of the users of these regions

It is also foreseen that the EUMeTrain community and some members of Eumetcal will play active roles in the running of this RTE.

## **8 TRAINING MATERIAL DEVELOPMENT AND DISTRIBUTION**

The training effort needed to introduce and demonstrate the applications of satellite data is significant. In parallel, the demand for such training material is large. With the current level of human and financial resources insufficient training material is being developed. However, material development groups are active in Europe and in Africa, but this task can only be carried out on a part time basis, alongside regular daily activities. EUMeTrain and ASMET are examples of groups producing satellite meteorology training resources. EUMeTrain has just started its second 5 year project phase. The African ASMET team is currently finalising the 5<sup>th</sup> ASMET module, with 3 case studies describing African phenomena. A EUMETSAT workshop will be held soon to plan the next ASMET project, ASMET-6.

EUMETSAT continued to provide the training material on hard-discs at training events in Europe and Africa. Also this year some 250 hard discs were distributed. Due to the technical developments it might be possible to distribute USB sticks, with some 30GB of information in the future, which will further ease the distribution of training material to participants with a limited access to the internet.

## **9 CONCLUSION**

CGMS 37 is invited to note the current status and future activities for satellite training provided by EUMETSAT and Centres of Excellence in WMO RA I, RA II and RA VI.