

# **CALMet X Conference and Eumetcal Workshop 2013**

**26 - 30 August 2013, Toulouse  
France**



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PROGRAMME

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# Welcome to CALMet Conference and Eumetcal Workshop 2013!



## A. Foreword

### *Welcome to CALMet X and Eumetcal Workshop 2013*

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The CALMet X and Eumetcal Workshop 2013 gathers this year over 80 experts to share experiences and new ideas for applying emerging technologies and strategies for education and training in meteorology and hydrology. This is the first time the CALMet conference and Eumetcal workshop will be held jointly, and the occasion offers considerable synergies with increased learning and networking opportunities for all participants. We hope you will enjoy this year's programme, which includes a spectrum of events that demonstrate the range and complexity of concerns in our work. We thank you for your attendance and for your contributions to making it a success.

We also wish to express our thanks to this year's hosts, Météo-France, for their tremendous hospitality and hard work to allow us to hold the conference at their facilities in the city of Toulouse.

In this booklet you find all presentation abstracts for the sessions, along with a timetable of the programme. Please keep it available as your guide to events.

Best wishes for an enjoyable and productive week,

*Workshop Planning Committee*

## B. List of conference presenters

### ***Presenters***

---

Adityawarman, Indonesia Agency for Meteorology, Climatology and Geophysics (BMKG)

Barroso Carla, Instituto Português do Mar e da Atmosfera

Billerot Jean-Paul, Météo-France/Ecole Nationale de la Météorologie

Borrel Laurent, Météo-France/Ecole Nationale de la Météorologie

Bugeac Paul, ROMATSA

Chiariello Alessandro, FMI

Connell Bernadette, Cooperative Institute for Research in the Atmosphere, Colorado State University

Dyson Liesl, University of Pretoria

Eronn Anna, SMHI

Ghelli Anna, ECMWF

Groenland Rob, KNMI

Gunawan Hendar, Indonesia Agency for Meteorology, Climatology and Geophysics (BMKG)

Haga Lisa, FMI & Eumetcal

Hagemark Erik, Norwegian Meteorological Institute (Met.No)

Hallot Hervé, ENAC

Hama Hamidou, EAMAC

Hewitt Sarah, UK Met Office

Higgins Mark, EUMETSAT

Jacobs Wilfried, DWD

Ji Wenbin, China Meteorological Administration Training Centre

Jordaan Winifred, South African Weather Service

Kagenyi Joseph, KMD\_IMTR\_NAIROBI

Keeley Sarah, ECMWF

Kerkmann Jochen, EUMETSAT

Kilshaw Brendan UK Met Office

Kim Jiyoun, Korea Meteorological Administration

Kuna Maja, EUMETSAT

Laing Arlene, UCAR/COMET

Maas Albert, EUMeTrain/EUMETSAT

Matsudo Cynthia, National Meteorological Service of Argentina

Muller Bruce, UCAR/COMET

Muriuki Edward, Kenya Meteorological Department/Institute for Meteorological Training and Research

Nietosvaara Vesa, EUMETSAT

Nikitna Larisa, Roshydromet

Page Elizabeth, UCAR/COMET

Parrish Patrick, WMO

Petraityte Kristina, LHMS

Podgaiskii Eduard, RSHU/RTC in the Russian Federation

Pologne Lawrence, Caribbean Institute for Meteorology Hydrology and

Prieto Jose, EUMETSAT  
Rolon Graciela Angela, Servicio Meteorologico Nacional  
Santos Ednaldo, Federal Rural University of Rio de Janeiro and UNEMET  
Givaldo, Federal Institute of Alagoas (IFAL)  
Setiowati Ana Oktavia, Indonesia Agency for Meteorology, Climatology and  
Geophysics (BMKG)  
Siili Tero, FMI & Eumetcal  
Simpson Lee-Ann, South African Weather Service  
Smiljanic Ivan, Eumetrain (DHMZ)  
Steyn Stephan, University of the Free State  
Stoll Marco, MeteoSwiss  
ter Pelkwijk Heleen, KNMI  
Wang Yong, WMO Regional Training Center Nanjing China  
Wishnewsky Manfred, University of Bremen  
Zou Liyao, China Meteorological Administration Training Centre

## C. Conference schedule

### *Monday, 26 August 2013*

| Time               | Programme                                                                                      | Presenter                         |
|--------------------|------------------------------------------------------------------------------------------------|-----------------------------------|
| 08:30-09:00        | Registration                                                                                   |                                   |
| 09:00-10:00        | Eumetcal Workshop                                                                              |                                   |
| <b>10:30-11:00</b> | <b>Coffee break</b>                                                                            |                                   |
| 11:00-12:30        | Eumetcal Workshop                                                                              |                                   |
| <b>12:30-13:30</b> | <b>Lunch<br/>Break / Registration</b>                                                          |                                   |
| 13:30-14:15        | CALMet Opening Ceremonies                                                                      |                                   |
| 14:15-14:30        | Bringing training in line with the needs of the organization's users: lessons learned at ECMWF | Anna Ghelli (ECMWF)               |
| 14:30-14:45        | Start of Russian Regional Focus Group                                                          | Larisa Nikitina (Roshydromet)     |
| 14:45-15:00        | Meteorological training in Sweden                                                              | Anna Eronn (SMHI)                 |
| <b>15:00-15:30</b> | <b>Coffee Break</b>                                                                            |                                   |
| 15:30-15:45        | The Finnish Meteorological Institute's TOPMet Programme – status and lessons learned           | Tero Siili (FMI)                  |
| 15:45-16:00        | Distance learning course on Climate Change                                                     | Jean-Paul Billerot (Météo-France) |
| 16:00-16:15        | Implementing new computer based practical sessions in research training courses at ECMWF       | Sarah Keeley (ECMWF)              |
| 16:15-17:00        | Panel discussion: Challenge to train BSc-degree holders for practical weather forecasting      | Wilfried Jacobs (DWD)             |
| <b>Evening</b>     | <b>Icebreaker</b>                                                                              |                                   |

## ***Tuesday Morning, 27 August 2013***

| <b>Time</b>        | <b>Programme</b>                                                                       | <b>Presenter</b>                                |
|--------------------|----------------------------------------------------------------------------------------|-------------------------------------------------|
| 08:00-08:30        | Registration                                                                           |                                                 |
| 08:30-08:45        | The (Probable) Risk Factors of e-Learning Implementation in BMKG                       | Adityawarman (BMKG)                             |
| 08:45-09:00        | Lesson Learned from The Training Activities at BMKG                                    | Hendar Gunawan (BMKG)                           |
| 09:00-09:15        | The challenge of teaching non-meteorological topics to meteorologists                  | Carla Barroso (IPMA)                            |
| 09:15-09:30        | The transition between training and operational forecasting                            | Lee-Ann Simpson (South African Weather Service) |
| 09:30-10:30        | Panel discussion: Tackling Educational inter-Action in Meteorological (TEAM) Training. | Liesl Dyson (South African Weather Service)     |
| <b>10:30-11:00</b> | <b>Coffee Break</b>                                                                    |                                                 |
| 11:00-11:15        | Community of Practice: The urgency of anarchist strategies for our field               | Maja Kuna (EUMETSAT)                            |
| 11:15-11:30        | CALMet Commons: Introduction to a new CALMet community website                         | Patrick Parrish (WMO)                           |
| 11:30-11:45        | The Wikimedia Project: Can it inspire the CALMet Community?                            | Maja Kuna (EUMETSAT) & Alex Barasa              |
| 11:45-12:00        | The application prospects of Cloud Computing in Meteorological Distance Education      | Wenbin Ji (CMA)                                 |
| 12:00-12:15        | E-learning technologies as central tools for trainers and trainees in ENM              | Laurent Borrel (Météo-France/ENM)               |
| 12:15-12:30        | Implementations of e-learning resources Moodle Platform                                | Graciela Angela Rolon (SMN, Argentina)          |
| <b>12:30-13:30</b> | <b>Lunch</b>                                                                           |                                                 |

### ***Tuesday Afternoon, 27 August 2013***

| <b>Time</b>        | <b>Programme</b>                                                                             | <b>Presenter</b>           |
|--------------------|----------------------------------------------------------------------------------------------|----------------------------|
| 13:30-13.45        | International School on Applications with the Newest Multi-spectral Environmental Satellites | Jochen Kerkmann (EUMETSAT) |
| 13:45-14:00        | Communicating – continuous development                                                       | Paul Bugeac (ROMATSA)      |
| 14:00-14:15        | Is the way important?                                                                        | José Prieto (EUMETSAT)     |
| 14:15-14:30        | Classroom Choices for Instructors                                                            | Mark Higgins (EUMETSAT)    |
| 14:30-14:45        | Air Transport Pilot Blended Course Design                                                    | Hervé Hallot (ENAC)        |
| 14:45-15:00        | E-Learning design. Delivering online meteorology training for industry.                      | Brendan Kilshaw (UKMO)     |
| <b>15:00-15:30</b> | <b>Coffee Break</b>                                                                          |                            |
| 15:30-17:00        | Poster viewing                                                                               |                            |

**Wednesday, 28 August 2013**

| <b>Time</b>        | <b>Programme</b>                                                                                                                                        | <b>Presenter</b>                                                                                                 |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 08:30-10:45        | <b>Workshop:</b><br>Case Study Development<br>to Meet Specific Training<br>Needs<br>OR<br>Developing an induction<br>program to prepare new<br>trainers | Elizabeth Page (COMET)<br><br>Pat Parrish & Mark Higgins                                                         |
| <b>10:45-11:15</b> | <b>Coffee Break</b>                                                                                                                                     |                                                                                                                  |
| 11:15-11:30        | An Online Tropical<br>Synoptic Meteorology<br>Course Package                                                                                            | Arlene Laing<br>(UCAR/COMET)                                                                                     |
| 11:30-11:45        | Developing user-friendly<br>study material                                                                                                              | Stephan Steyn (University<br>of the Free State)                                                                  |
| 11:45-12:00        | Adding the personal touch.<br>A renewed look at<br>presentation, complicated<br>information, and the<br>audience                                        | Bernadette Connell<br>(Cooperative Institute for<br>Research in the<br>Atmosphere, Colorado<br>State University) |
| <b>12:00-12:30</b> | <b>Short Break</b>                                                                                                                                      |                                                                                                                  |
| 12:30-18:00        | Excursion to Carcassone                                                                                                                                 |                                                                                                                  |

### Thursday Morning, 29 August 2013

| Time               | Programme                                                                                           | Presenter                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 08:30-11:00        | <b>Workshop:</b><br>Simulators also within reach for me?<br>OR<br>Scenari Workshop                  | Heleen ter Pelkwijk (KNMI)<br><br>Laurent Borrel, Vincent Terol, Didier Costes (Météo-France/ENM) |
| <b>11:00-11:30</b> | <b>Coffee Break</b>                                                                                 |                                                                                                   |
| 11:30-11:45        | NinJo CaseCaptureReplay - a weather simulator for forecaster training. Project overview.            | Marco Stoll (MeteoSwiss)                                                                          |
| 11:45-12:00        | Experiences in using simulator for convection and nowcasting training as a student and as a teacher | Kristina Petraityte (LHMS)                                                                        |
| 12:00-12:15        | Simulation training for aviation meteorologist                                                      | Rob Groenland (KNMI)                                                                              |
| 12:15-12:30        | Using role-play to enhance learning                                                                 | Erik Hagemark (Met.no)                                                                            |
| <b>12:30-13:30</b> | <b>(Lunch Break)</b>                                                                                |                                                                                                   |

### ***Thursday Afternoon, 29 August 2013***

| <b>Time</b>        | <b>Programme</b>                                                                                                   | <b>Presenter</b>                  |
|--------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| 13:30-13:45        | Experiences in Managing Virtual Teams                                                                              | Vesa Nietosvaara (EUMETSAT)       |
| 13:45-14:00        | Conceptual Models for Southern Hemisphere as training tools                                                        | Albert Maas, (the Netherlands)    |
| 14:00-14:15        | Conceptual Models for RAIII: A resource for trainers and forecasters                                               | Cynthia Matsudo, (SMA, Argentina) |
| 14:15-14:30        | Improving knowledge and skills of aeronautical meteorological forecasters in the Caribbean using Distance Learning | Lawrence Pologne, CIMH            |
| 14:30-14:45        | The Challenges of Competency Based Assessment - Can Online Learning Help?                                          | Sarah Hewitt (UKMO)               |
| 14:45-15:30        | Panel discussion: International Coordination of Training to Meet Aeronautical Forecaster Competencies              | Elizabeth Page (COMET)            |
| <b>15:30-15:45</b> | <b>Short Break</b>                                                                                                 |                                   |
| 15:45-17:30        | Site Visit                                                                                                         |                                   |
| <b>19:00-</b>      | <b>Gala Dinner</b>                                                                                                 | <b>Hotel d'Assezat</b>            |

### Friday Morning, 30 August 2013

| Time               | Programme                                                                                                        | Presenter                                           |
|--------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| 08:30-09:15        | Designing learning events:<br>Learning from worst<br>practice                                                    | Mark Higgins (EUMETSAT)                             |
| 09:15-09:30        | CALMet Online: 2012 &<br>2014                                                                                    | Patrick Parrish (WMO)                               |
| 09:30-10:30        | <b>Demonstrations:</b><br>AMP Competency Training<br>Mapping Database                                            | Paul Bugeac (ROMATSA)                               |
|                    | Reaching online audience<br>with your classroom<br>lecture: a tool to<br>broadcast yourself<br>whenever you talk | Eduard Podgaiskii (RSHU)                            |
|                    | Meeting Aviation<br>Forecaster Competencies<br>through Distance Learning                                         | Elizabeth Page (COMET)                              |
| <b>10.30-11:00</b> | <b>Coffee Break</b>                                                                                              |                                                     |
| 11:00-11:30        | KMA's approaches to more<br>effective international<br>education and training                                    | Jiyoun Kim (KMA)                                    |
| 11:30-11:45        | South African Educational<br>Plan For Weather and<br>Climate                                                     | Winifred Jordaan (South<br>African Weather Service) |
| 11:45-12:00        | Online Delivery of Courses<br>at IMTR: A First Time<br>Experience                                                | Edward Muriuki (IMTR,<br>Kenya)                     |
| 12:00-12:15        | Adopting new Teaching<br>Strategies and Innovations<br>at IMTR-WMO RTC-<br>NAIROBI                               | Joseph Kagenyi (IMTR,<br>Kenya)                     |
| 12:15-12:30        | Convective Weather and<br>Aviation in West and<br>Central Africa                                                 | Hamidou Hama,<br>(EAMAC)                            |
| <b>12:15-13:30</b> | <b>Lunch Break</b>                                                                                               |                                                     |

### ***Friday Afternoon, 30 August 2013***

| <b>Time</b>        | <b>Programme</b>                                                                                                                      | <b>Presenter</b>                                                |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 13:30-13:45        | Experience with Sakai CLE in the framework of international educational TEMPUS project eMaris in the field of applied marine sciences | Manfred Wishnewsky ( University of Bremen)                      |
| 13:45-14:00        | The developing strategies, practices and challenges of Meteorological Distance Education in China                                     | Liyao Zou (China Meteorological Administration Training Centre) |
| 14:00-14.15        | Rapid changes/developments in training IT environment                                                                                 | Ivan Smiljani (DHMZ)                                            |
| 14:15-14:30        | Experiences in using Comet templates and HTML coding “from a scratch”                                                                 | Kristina Petraityte (LMHS)                                      |
| 14:30-14:45        | Weather Satellite Imagery Management Operational Guidelines in BMKG - INDONESIA                                                       | Ana Oktavia Setiowati (BMKG)                                    |
| <b>14:45-15:15</b> | <b>Coffee Break</b>                                                                                                                   |                                                                 |
| 15:45-16:15        | Closing Activities                                                                                                                    |                                                                 |

# Monday 26 August 2013



## A. Lisa Haga, Tero Siili and Alessandro Chiariello (FMI)

### *Contact:*

[eumetcal.tso@fmi.fi](mailto:eumetcal.tso@fmi.fi)

### *Eumetcal Workshop 2013*

The Eumetcal Monday morning session will focus on planning the next training activities for Eumetcal Phase IV. A core purpose of this workshop-style session is to collect input from Eumetcal Participant NMSs and other stakeholders for Eumetcal's 2014 Education & Training Activity plan — in other words, needs, views, ideas, suggestions on what themes, emphases and foci the Eumetcal activities should prioritise in 2014. The outcomes of this session will be available on the Eumetcal Moodle website where all participants can register.

## B. Anna Ghelli (ECMWF)

### *Contact:*

[anna.ghelli@ecmwf.int](mailto:anna.ghelli@ecmwf.int)

### *Bringing training in line with the needs of the organization's users: lessons learned at ECMWF*

Over the years the needs of ECMWF users have changed incredibly. These changes are due to the economic crisis, which has affected and still affects most of the European countries, to the evolution of duties in the National Meteorological Services and to the generation change in the forecasting units.

In the last couple of years the face-to-face ECMWF training programme has been complemented with e-learning sessions. Moreover, remote lectures and tutorials have been piloted to reach out for a wider audience and allow interested people to attend training sessions with little to no strain on financial resources.

This short presentation highlights the issues encountered in the renovation process of the training activities at ECMWF and the solutions implemented so far to make the change viable

## C. Larisa Nikitina (Roshydromet)

### *Contact:*

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nikfia@mail.ru

### *Start of Russian Regional Focus Group*

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12 July 2013 Russian CoE Vlab started the first on-line session of Russian Regional Focus group. Having more than 60 sites connecting in the first session is a big success. At the same time it shows a big interest in Russia for this type of meetings and for e-learning. There are some lessons learned from the very first session.

## D. Anna Eronn (SMHI)

### *Co-author(s):*

---

Paulina Larsson also SMHI Sweden (also presenter).

### *Contact:*

---

anna.eronn@smhi.se

### *Meteorological training in Sweden*

---

Meteorological education and training at SMHI. About every third to fourth year SMHI and the Swedish Armed Forces (SAF) arrange together a course where all Swedish forecasters participate (the MKU course). The goal of this course is to improve the competence of our forecasters. Lectures are tailored to cover the Swedish forecasters needs. Teachers are both meteorologists from the research and development department and from the forecaster department.

This presentation gives an overview of the course; how Sweden trains our forecasters. But also what we experience to work smoothly and not. Next year it is the fifth time SMHI and SAF arranges our MKU course together.

## E. Tero Siili (FMI)

### *Contact:*

---

tero.siili@fmi.fi

### *The Finnish Meteorological Institute's TOpMet Programme – status and lessons learned*

---

In 2011 need for focus on Education and Training (E & T) of forecasters was identified at the Finnish Meteorological Institute (FMI). After preparations during the second half of 2011 the two-year programme called (in Finnish) Taitava Operatiivinen Meteorologi (TOpMet; in English: Proficient Operational Meteorologist) was started in the beginning of 2012. The programme was seen as one of the tools and methods to further improve and develop meteorological services provided by FMI as well as to ensure and refine the quality and accuracy of the products and information delivered to various users and customers. The programme is now past its midpoint, the last quarter starting in the autumn of 2013. This presentation will describe several aspects of and lessons learned from the programme – including goals and approaches, subject foci, evolution, issues encountered, other

experiences as well as plans for FMI forecaster E & T activities post-TOPMet.

## F. Jean-Paul Billerot (Météo-France, ENM)

### *Co-author(s):*

---

Thierry Michel - Meteo France/ENM

David Pollack - Meteo France/ENM

### *Contact*

---

jean-paul.billerot@meteo.fr

### *Distance learning course on Climate Change*

---

At ENM, beginning in 2010, we built a distance learning course on Climate Change. Our third session of this course just ended and we thought we could share with you some information and lessons learned from this experiment.

We used an existing conference cycle on the same theme. Submitting material to our students in as many forms as possible has been a ubiquitous strategy. Shifting activity types was another idea. We've been using SPEECHI to mix presentations with their authors' comments; SCENARI to build online courses from scratch, as well as paper handouts. Prompting social dynamics among our students was another aim, through web conferences, forums, individual telephone calls; the course ending with a formal debate involving our experts. Challenges and issues discussed in this presentation will include:

- ) the tutors do not know it all on the subject matter
- ) the students must have zero technical difficulty
- ) how to get in touch with our students – at a distance
- ) time spent to build the course, to be renewed with Assessment Report 5 from IPCC
- ) how to reach 50 people at a time instead of 12.

## G. Sarah Keeley (ECMWF)

### *Contact:*

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Sarah.Keeley@ecmwf.int

### *Implementing new computer based practical sessions in research training courses at ECMWF*

---

The numerical weather prediction training courses at ECMWF focus on the details of the model used for forecasting. The parametrisation course, in particular, covers a broad range of topics and the students have very different levels of background knowledge. This year we implemented new practical sessions, which made use of a simplified model that the students could "play" with, within a structured set of questions. These sessions were run with a group discussion element to try to foster collaborative learning and make the session memorable.

In this short presentation we will reflect of worked well and what didn't and how we plan to improve things in the future.

## H. Wilfried Jacobs (DWD)

### *Workshop: Challenge to train BSc-degree holders for practical weather forecasting*

---

Since 2 years, the DWD is employing BSc-degree holders for practical forecasting. In order to enable them to work successfully in routine weather forecasting the BScs are trained for 6 months at the Meteorological Training Centre in Langen followed by one year training on the job before the BSc-degree holders are examined for getting a license. During a short introduction I will give a brief insight in our training strategy and training methods.

However, there remain several unsolved problems. I would like to learn from other participants in this conference by discussing about the following questions:

- Which main working areas are the BSc-degree holder in your service/institute dealing with (e.g., forecasting, scientific investigations, IT)?
- Which experiences do you have in relation to the pre-knowledge of the BSc-degree holders?
- How do you perform the training:
  - Where (training centre, on the job)?
  - How long?
  - Which topics?
- Which training methods do you use (e.g., in to what extend E-Learning)?
  - Which ratio do you have (self study / online or presence phase)?
  - Do you perform projects?
- Which examinations do you have?
  - How often (e.g., after each training segment, intermediate testing)?
  - Which form do you use (e.g., online, written and/or oral examinations)?
- What do you plan for the future?
- Do you have additional ideas/topics?

# Tuesday 27 August 2013



## A. Adityawarman (BMKG)

### *Co-author(s):*

Rr. Yulianan Purwanti (BMKG Center for Education and Training)

### *Contact:*

adityawarman@bmkg.go.id

### *The (Probable) Risk Factors of e-Learning Implementation in BMKG*

Recently, BMKG as other NMHS all around the world, are facing the same reality. To meet the need of user, the organization is required to keep learning and developing. With this recent condition BMKG must be able to overcome challenges occur in organization development process and seek the best way to deal with barriers to achieve the goal. E-Learning as one alternative solution has a huge potential to solve the problem in learning. In the contrary, as a change, it could also be another problem if BMKG fails to make it as “joint needs”. The quantity of resources used in e-Learning development is the main reason why it has to gain a successful implementation. Thus, awareness of the risk factors must kept in mind to anticipate for what could happen. This paper is intend to initiate those awareness.

Factor #1 that could make BMKG e-Learning fail is preparation. E-Learning strategy as a part of organizational learning strategy which is embedded in organization strategy must be well planned and must link clearly to organization vision and mission. Goal setting, action plan and comprehensive evaluation must be clearly defined before e-Learning is implemented.

Factor #2 is procedure. E-Learning as a form of change is the most difficult part to deal with. This change include people, tools and processes. The Standard Operational Procedure has to be established. This part also involves human resource information, system integration, where every learning activity will be recorded, and will be used for a decision support system. All of these gives direct impact in employees motivation to get involved in e-Learning.

Factor #3 is support. As a program that relatively new, e-Learning will require full support in every aspect. BMKG disabilities in providing a comprehensive support in e-Learning will only make it like a sudden breakthrough, which gradually fade out and is left behind.

Factor #4 is a comfortable learning environment. E-learning needs to be creative, challenging and relevant. E-Learning must have a strong appeal for user, until at certain stage it could self sustain. Skills and knowledge in learning management is a key element here.

e-Learning implementation strategy should be aware about all these factors. Continuous monitoring and evaluation should be done thoroughly. In this second phase of BMKG e-Learning development the e-Learning is actually beginning. As a part of organization, Education and training center is responsible for learning activities. It has multiple roles and is certainly a key player in successful BMKG e-Learning implementation.

## B. Hendar Gunawan (BMKG)

### *Co-author(s):*

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Roro Yuliana Purwanti (Center for Education and Training, BMKG)

### *Contact:*

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ry.purwanti@gmail.com

### *Lesson Learned from The Training Activities at BMKG*

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The Center for Education and Training - BMKG (The Agency for Meteorology, Climatology and Geophysics) conducts 30 - 35 training courses every year. In this two years, more than 1300 employees from 178 stations, 5 regional centers all around Indonesia as well as the BMKG Head Office staff, has been trained. Each course has 80 – 90 hours of lecture. Around 10 – 15 hour is delivered by BMKG High Level Management on the material related to the recent issue and policies of BMKG, in order to update the participant knowledge regarding the present status of BMKG development. In this part, the material on character building/personal development also been delivered. This is to strengthen the capacity of participants in order to provide the better performance, in technical – operational and management skills, as well as to have the good specific attitude that is required as the government employee.

The training course could be divided into 2 (two) main topics: Managerial/Administrative Training and Technical Skill Training. In technical skill training, the selection process of participants involves the technical/operational units, in line with the task and function of each unit. The course is a combination of theoretical study and practical exercise which is split to 40 % theory and 60 % practical. In managerial/administrative training, it covers wide range of managerial topics, from general administrative, finance to leadership. Recently, the courses trend is to be more specific in its topics, so it could specifically meet the need of the personnel and organization.

The evaluation is the activity that is scheduled after the course. In this activity, both the Center for Education and Training and the operational unit evaluate the conduct of the course in terms of material, the lecturers, the supporting infrastructure (venue, practical equipments, etc) and the significance of the course for the operational unit.

Through these two types of training course as the main core business of Center for Education and Training, it is expected that the Center could support BMKG for capacity building. The assessment result also shows that training is a significant solution to improve the performance of the staff.

## C. Carla Barroso (IPMA)

### *Contact:*

carla.barroso@impa.pt

### *The challenge of teaching non-meteorological topics to meteorologists*

The LSA SAF (Satellite Application Facility for Land Surface Analysis) is one of EUMETSAT decentralized processing units of satellite data. It is dedicated to the estimation of land surface parameters related to the energy balance, vegetation and wild fires detection and monitoring. Several training activities have been conducted by the LSA SAF group, namely classroom courses carried out in collaboration with EUMETSAT (mainly directed to the Portuguese Speaking Countries in Africa and Brasil), periodic User Workshops, in which users of the LSA SAF products are invited to participate disclosing the use they make of the data products. Lately LSA SAF has started a close cooperation with EUMETRAIN programme, and in this aim a Computed Aided Learning (CAL) module on vegetation has been developed and is now available at [http://www.eumetrain.org/resources/monitoring\\_vegetation.html](http://www.eumetrain.org/resources/monitoring_vegetation.html). The module is designed for self-learning and in this sense the student is conducted through it by answering to questions/exercises, in addition to the presented background theory, favouring the student motivation and the learning consolidation. Also within the scope of the collaboration with EUMETRAIN an on-line training event was organized in November 2011, during which 9 online sessions were transmitted during a week to more than 30 participants from Europe, Africa and Brasil. The lectures were given by members of the LSA SAF consortium from several different countries/institutions. The SABA Centra platform was used, and students were able to actively participate with the trainers. The contents of this event are available as powerpoint files and also as recordings for further consultation, both at [http://eumetrain.org/events/lasaf\\_week\\_2011.html](http://eumetrain.org/events/lasaf_week_2011.html).

## D. Lee-Ann Simpson (South African Weather Service)

### *Contact*

lee-ann.simpson@weathersa.co.za

### *The transition between training and operational forecasting*

Receiving training as an operational forecaster, be it in Aviation, Marine or Short Term forecasting, is an intense and often overwhelming process. Once a student has been found competent as a forecaster and is deployed to a forecasting office, the tools they have at their disposal and the level of detail expected in the forecast is often different from being in the training environment. Receiving feedback from students once they have been in operations for a few months gives the training staff a much better understanding of what material needs to be supplemented or even removed entirely from the forecasting course. It has also been found however, that in the operational environment, the overwhelming amount of information available at ones finger tips can in fact pressurize new forecasters to lapse into habits which rely on using only the bare minimum of information available. In this discussion I will present accounts from students who have recently joined the operational environments, and I will also present the challenges that trainers face in keeping up to date with changes in operational systems.

## E. Liesl Dyson (University of Pretoria)

### *Workshop: Tackling Educational inter-Action in Meteorological (TEAM) Training.*

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The University of Pretoria (UP) and the South African Weather Service (SAWS) has a long history of collaboration in training meteorologists. In the 1960's and 1970's, long before at least one of the authors were born, the then South African Weather Bureau was housed on the campus of the University of Pretoria. In the early 1990's Meteorology at UP moved from the faculty of Engineering to Natural Sciences and meteorology subjects were opened to all students (not only meteorologists). During the same time the Weather Bureau became a Weather Service. During all these changes, often spurred by economic consideration, the collaboration in the training of meteorologists has been maintained. There are official agreements between the two organizations which ensure the institutional collaboration but the day to day cooperation takes place on an interpersonal level. The common goal is to train professional meteorologists for South Africa and Africa but there is a difference in emphasis between the training which the two institutions provide. These differences have led to some friction and defining the training roles of the two institutions were important. The interaction between academic and operational institutions improves the quality of training in both institutions. In this discussion we will share some practical examples of how we developed some of our fourth year meteorology subjects

## F. Maja Kuna (EUMETSAT)

### *Co-author:*

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Alex Barasa

### *Contact*

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maja.kuna@eumetsat.int

### *Community of Practice: The urgency of anarchist strategies for our field*

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Do we need instructors to learn? Do we need classrooms to experience learning? Learning does not happen exclusively in educational institutions or training centres. Learning is ubiquitous. Community of practice (Wenger 1998), a concept that supports these propositions, is a progressive and subversive answer that expands professional learning into a process of collective knowledge sharing that is contrary to conservative approaches. Although a community of practice (CoP) may exist autonomously from organizations, it is not typically self-sustaining. In order to grow it needs a group of engaged people, sharing a common domain and willing to learn from each other by exchanging practices and experiences. This presentation aims to destabilize the most common strategies used in our field and inspire more radical solutions, which already bring value in many contemporary professions.

## G. Patrick Parrish (WMO)

### *Co-authors:*

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Maja Kuna, EUMETSAT  
Bruce Muller, COMET

### *Contact:*

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pparrish@wmo.int

### *CALMet Commons: Introduction to a new CALMet community website*

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This presentation discusses the origins and development of the CALMet Commons, a Website/Blog/Forum designed to serve our community needs for information sharing and learning. The presentation will discuss how we identified the site needs and goals, the research for possible tools, and the state of its current implementation. We will be asking the CALMet audience about their input on ideas for putting it to best use.

## H. Maja Kuna ( EUMETSAT)

### *Co-author:*

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Patrick Parrish, WMO

### *Contact:*

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maja.kuna@eumetsat.int

### *The Wikimedia Project: Can it inspire the CALMet Community?*

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The evolution of the Wikipedia project from being highly questioned as a valid reference for academics to a pervasive and valuable resource containing overviews of an immense range of topics, proves that a community of volunteers can release a quality product that fills a critical need. Wikipedia, as it exists today, includes editorial oversight, rigorous scholarly references, and the opportunity for community talk back to ensure the validity of its content. What many do not realize is that Wikipedia is only a part of the global open Wikimedia movement containing other projects such as Wikisource, Wikidata and Wikibooks. The aim of this presentation is to review the different projects, strategies and tactics used in the Wikimedia movement for expanding communities of practice in a variety of ways. It will focus especially on issues like quality control, authorship, copyrights, and open access. Wikimedia will be suggested as a possible platform for expanding the reach and scope of treatment of topics of interest to the CALMet community of educators and trainers in meteorology and related sciences.

## I. Wenbin Ji (China Meteorological Administration Training Centre)

*Contact:*

jiwenbin@cma.gov.cn

### *The application prospects of Cloud Computing in Meteorological Distance Education*

Open source e-learning tools such as Moodle and Sakai which are available for synchronous and asynchronous activities are widely adopted in Meteorological Distance Education (MDE). However, new devices, modules and other international training resources are developed rapidly, thus unifying or connecting each other on platform and application could be complicated. Therefore, online course delivering, resource sharing, teach organizing and administrating are inefficient worldwide. Cloud Computing (CC), whose core concept is to unify management, schedule massive network computing resources, constitute virtualized computing resource pools and provide required services, is a more globalized approach to eliminate the gaps. It provides services in software, platform and infrastructure levels, featuring in high accessibility, adaptability, affordability, durability, interoperability and reusability, which fully meet SCORM Standard. Cloud-Based Education (CLE) can be the infrastructure of future e-learning and it virtualizes all the software and hardware in education field as services of computing resources. Educators develop teaching websites by the unified API, as if writing blogs or managing spaces. Besides, they can also get powerful computing ability, large storage and huge network throughput with little payment, which has more benefits to developing and less-developed countries. Cloud-Based Learning (CLB) provides learners software maintenance and dynamical storage services and learners can get e-learning resources just by standard browser terminals. Nowadays, IT companies such as Google, IBM, Amazon and Microsoft have set up their own CC platforms. Furthermore, open source e-learning tools can develop practically in MDE and can be transplanted flexibly from old systems.

## J. Laurent Borrel,(Météo-France, ENM)

### *Co-author(s):*

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Anne Gouvine-Birrer, Météo-France, ENM

Annie Carnus, Météo-France, ENM

Vincent Terol, Météo-France, ENM

Didier Costes, Météo-France, ENM

### *Contact*

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Laurent.Borrel@meteo.fr

### *e-learning technologies as central tools for trainers and trainees in ENM*

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Météo-France, Ecole Nationale de la Météorologie (ENM) has been involved in e-learning technologies since the end of the nineties. Since then, it has developed and adapted softwares and experimented training methods sharing all the more results and efforts with Eumetcal program.

At the present time, the school uses Scenari and Speechi software to produce material, a repository to store and deliver material, Moodle (Learning management System) and web conference tools to deliver training.

In the near future, one important goal for ENM is to reduce the number of traditional lessons and increase the part of personal work achieved by students with appropriate supervision from the teacher. E-learning tools are very important a lever to reach this goal, provided we manage to improve their efficiency and ergonomics. The following actions have been started or scheduled :

- Configure a new repository, lying on Nuxeo software, in order to offer both library function, help to manage a distance working community and to cooperate on new documents production. In addition, this software will afford links to the LMS, in order to reach a clear organisation : original training material stored and reviewed in the library, courses in the LMS built with links to the content of the library,
- Establish a link between training material and other resources available as books and reviews. In this way, cooperation with INPT (Polytechnic National Institute from Toulouse) helped to increase the number of electronic titles available. In addition, ENM plans to transform its traditional library into a "Learning Center" that will offer both access to books and different types of material, and small rooms in which students will be able to work on projects.

## K. Graciela Angela Rolon (Servicio Meteorologico Nacional Argentina)

### *Contact:*

grolon@smn.gov.ar

### *Implementations of e-learning resources Moodle Platform*

NMS personnel in the country and the region have been trained for decades with technical courses in various areas: Surface Observer, Radiosonde, Ozonesonde, Analysis and interpretation of satellite imagery, Antarctic Meteorology, Aeronautical Meteorology, Meteorologist Inspector, Maintenance and calibration of meteorological instruments . Most of these courses were conducted on-campus. In 2010 some of them could be carried out in a mixed form, the theory began to be delivered by internet and the practice was performed at the different weather stations of the country. All these activities were coordinated by the Training department.

In 2012-2013 meteorologists and experts joined the Professional Training Department to implement training courses and activities in virtual mode in the recently installed Moodle. In March 2013 the first course of SMO was mounted . It addresses 54 students from around the country. The chiefs of station were also designated as tutors in this new type of course , thus they were required to acquire a new teaching methodology and at the same time professional update.

We plan to diversify the range of courses available on the platform. We have began by working on the training needs assessment of the various areas and the adaptation and redesign of traditional courses to virtual form.

The department faces a number of challenges in implementing a comprehensive training policy such as: the differences in the educational level of the participants, the diversity of instruments available at each station and technological and logistical difficulties of the country's most isolated stations . As a regional training center, a challenge identified is the unification of observation criteria in the workshops, for which a possible strategy is to send our experts to train future trainers in the region.

We are ready to provide new activities which could be useful to other Members of Region III, particularly training courses on Solar radiation and Energy Use, Earth's Magnetic Field and Space Weather Interaction. We are preparing other courses on the following topics: Hydrology, Agrometeorology and Meteorological Data Management.

## L. Jochen Kerkmann (EUMETSAT)

### *Co-author(s):*

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Hans Peter Roesli (EUMETSAT),  
Steven Ackerman, Ralf Bennartz (University of Wisconsin)

### *Contact:*

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jochen.kerkmann@eumetsat.int

### *International School on Applications with the Newest Multi-spectral Environmental Satellites*

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In September 2011 and June 2012, the Centro Nazionale per la Meteorologia e la Climatologia Aerospaziale (CNMCA) of the Italian Airforce and EUMETSAT organised the 10th and 11th edition of the “International Summer School on Applications with the Newest Multi-spectral Environmental Satellites”. The objective of the course is an in depth explanation of methods and techniques used to extract information from environmental satellite data, with emphasis on the latest measuring technologies.

The summer school was completely rebuilt following a new logic and structure, more microwave lectures/labs and new pre- and post-course tests. The structure of the lectures/labs does not follow the traditional instruments or electromagnetic spectrum approach (from VIS, NIR to IR and MW) but follows the scattering/absorption properties from very small particles (atmospheric gases) to aerosols, cloud droplets to much larger precipitation particles. Instead of a block of labs in the afternoon, the labs are distributed in the morning and afternoon hours so that participants can immediately apply and test their new knowledge on specific case studies.

As regards labs, in the beginning it was planned to use Hydra for the labs (Hydra is simple and easy to use). But after some McIDAS testing, the University of Wisconsin proposed McIDAS-V which offers much more data exploration tools than Hydra. In 2012, McIDAS-V version 1.2 was used very successfully.

To measure the knowledge of the participants before, during and after the course, a question bank of 96 remote sensing knowledge questions was built up in Moodle covering all the lectures of the course. From this question bank, an opening test (45 minutes), five daily 20-minute tests and a Final Test (45 minutes) were created. The final test was identical to the opening test (40 questions selected randomly from the question bank). The average grade improved from 51% (opening test) to 83% (final test), which shows a clear increase in knowledge in remote sensing. In the final test, one participant even reached 100% correct answers (40/40)!

## M. Paul Bugeac (ROMATSA)

### *Co-author(s):*

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Alexandru Hozoc, ROMATSA

### *Contact:*

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paul.bugeac@gmail.com

### *Communicating – continuous development*

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The proper way of communicating meteorological information to aeronautical users is one of the competencies for aviation meteorologists that have to be developed and assessed till 2014. The online sessions dedicated to the development of communication competencies started by EUMETCAL in 2011 were continued by the 2012 course. In this respect, even if it seems quite difficult, a new approach in distance learning was successfully implemented last year by a group of enthusiasts. It was a difficult task but, with some help from Aviation and PATT workgroups, the second communication course was held and was highly appreciated.

In the presentation, two of the members of the Task Team that was responsible for this course will share with you not only the structure and feedback of the course but also their experience in developing and delivering it. They will try to get you in the mood, to contaminate you with the excitement they experienced when a module was close to be ready. Do not expect from them to be purely scientific, do not expect from them to show you only some dry diagrams and tables.

## N. José Prieto (EUMETSAT)

### *Contact:*

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jose.prieto@eumetsat.int

### *Is the way important?*

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Are there good presenters and bad presenters? Do good presenters have a good presentation style, or could they have a bad style? Style is usually considered a hard skill, which we cannot modify in ourselves. Even less we believe that we can adapt our style to the topic, the audience or the environment.

The short presentation suggests that a dynamic style tuning is possible and effective in improving the impact of a presentation.

## O. Mark Higgins (EUMETSAT)

### *Contact:*

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mark.higgins@eumetsat.int

### *Classroom Choices for Instructors*

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This presentation introduces a simple idea to help instructors think about the choices they make in the classroom.

The idea comes from the work of the British educator John Heron, and covers:

1) the balance between what the instructor does and what the class do (instructor led, class led or co-operation).

2) the different levels of decision making from small class activity to course design.

If the way we teach is more effective if we match the style of teaching to the learning objective then being more aware of the choices we make can help us be better teachers.

This model can be useful at all stages in the learning cycle, in this session I will pay most attention to:

- delivery and options available for class interaction
- matching the style of interaction/choice to the learning objective

## P. Hervé Hallot (ENAC)

### *Co-author(s):*

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Vincent Jegourel, Ecole Nationale de l'Aviation Civile, France

### *Contact:*

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herve.hallot@enac.fr

### *Air transport pilot blended course design*

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CALMET 2013 offers the opportunity to expose a learning project we develop at ENAC (French university for civil aviation) in order to realize a blended course.

This course aims to prepare the theoretical Air Transport Pilot License (ATPL) exam, keeping in sight the professional feature of the training.

This course shall include 14 items as different as flight mechanics or air traffic laws.

The meteorological item has been chosen as a prototype topic. The reason is not only guided by the circumstances, but also because the meteorological part of this exam is one of the most substantial part and one of the most challenging when you refer to the uncertain aspect of the weather information the future pilots shall have to cope with.

So, a short presentation of the learning approach will be done.

Competencies have been reformulated or peer reviewed and reordered at first and second levels.

We will expose how we have issued a thematic structure for this meteorology course.

The course design is based on a close collaboration between the domain expert and e-learning instructional designer. It has been developed around three scenarios:

tasks, organization and communication. So, a lot of aspects of the learning have been considered. Some of them are specific to a blended course and shall be emphasized.

We have near deadlines and therefore this project will include successive implementations.

Eventually, we further will aim to share our experience when considering the results and feedback of the learners.

## Q. Brendan Kilshaw (UK Met Office)

### *Contact:*

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brendan.kilshaw@metoffice.gov.uk

### *e-Learning design. Delivering online meteorology training for industry.*

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Delivering meteorological training to learners without a specific meteorological background can be challenging however you choose to deliver that training, but when the training is delivered online there are extra challenges which need to be taken into account.

In the classroom you can gauge the level of understanding of your learners and respond accordingly, but how can you design a static e-Learning module to deliver key learning outcomes to a varied group of learners? Similarly, how can you successfully engage your learners and maintain their interest when the topic area may not be their primary profession? Finally, how do you measure the success of your training with such a varied group of learners?

The Met Office College recently designed and delivered an e-Learning module for the road maintenance industry with the aim of bringing the learner up to speed on the effects different weather can have on road treatment decisions.

This short presentation will briefly summarise the requirements gathering process, design methodology, implementation and evaluation of the e-Learning module.

# Poster Session

  
  
**IV**

## A. Ivan Smiljanic (Eumetrain, DHMZ)

### *Co-author:*

Lisa Haga, FMI

### *Contact:*

smiljanic@cirus.dhz.hr

### *Project EUMeTrain*

EUMeTrain is EUMETSAT's largest international training project which develops training material and supports training in the field of satellite meteorology in combination with other meteorological data sources. EUMeTrain's main goal is training and providing training material, supporting the EUMETSAT programs with special weight on hazardous weather events.

The project responds to training requirements expressed over recent years by European national meteorological services and from direct contact with meteorological trainers and operational forecasters. The principle goal of EUMeTrain is to provide users of EUMETSAT satellite data and products with training resources that will assist them to make more effective use of this satellite data, either as stand-alone material or in combination with other meteorological data sources.

The training material provided by EUMeTrain complements EUMETSAT satellite programs with special emphasis on high impact weather. Training material on the use of satellite data in support of climate monitoring, land surface, ocean and hydrological applications are also addressed.

## B. Yong Wang (WMO Regional Training Centre Nanjing, China)

### *Contact*

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wy92380@163.com

### *The Features and Development Program of International Training of WMO Regional Training Center Nanjing*

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#### 1. Features of International Training

- (1) Making full use of disciplinary advantage to enhance the targeted of international training
- (2) Enriching training forms to improve the effectiveness of international training
- (3) Strengthening training cooperation to attain collaborative innovation and to expand new ways of international training
- (4) Updating the training ideology to broaden communication and exchange of cultures
- (5) Focusing on Computer-Aided Instruction and exploiting practice platform to improve the participants' ability of practice

#### 2. Development Program of International Training

- (1) We'll focus on promoting the exchange with WMO and member countries, especially the exchange with other regional training centers.
- (2) We'll focus on obtaining all sorts of resources to enhance the modern distance training level based on the Internet.
- (3) We'll focus on developing a series of meteorological training softwares specialized in human-computer interaction function, which can offer different learning repository for participants choosing by their own knowledge condition.
- (4) We'll focus on improving the proportion of practical teaching of meteorological numerical model application as well as analysis of meteorological radar & satellite data.

## C. Joseph Kangeyi (KMD\_IMTR\_NAIROBI)

### *Co-author(s):*

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Stella Aura, IMTR-NAIROBI KENYA

Mark Higgins, EUMETSAT

### *Contact:*

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kagenyijn@gmail.com

### *Principal Meteorologist / Instructor*

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Adopting New Teaching Strategies and Innovation at IMTR/WMO RTC- NAIROBI

Joseph Kagenyi<sup>1</sup> Mark Higgins<sup>2</sup> Stella Aura<sup>1</sup>

1. Institute for Meteorological Training and Research/WMO Regional Training Centre (IMTR/WMO-RTC)
2. European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)

Abstract

The Institute for Meteorological Training and Research (IMTR), is a designated World Meteorological Organisation (WMO) Regional Training Centre (RTC) for RA 1 (Africa); a Centre of Excellence in African Meteorology, Education and Training (ASMET); and, one of the thirteen training Centres – called Centres of Excellence (CoEs) – around the world, working closely with one or more of the satellite operators, established in all WMO Regions to meet user needs for increased skills and knowledge in using satellite data within their Region. The IMTR/WMO-RTC is also a component of the WMO-CGMS (Coordination Group for Meteorological Satellites) Virtual Laboratory for Training and Education in Satellite Meteorology (VLab), a global network of specialized training centres and meteorological satellite operators working together to improve the utilisation of data and products from meteorological and environmental satellites.

IMTR has faced challenges with regard to training in the area of Satellite Meteorology applications. As a centre of excellence, IMTR focuses on continental training of over 3000 meteorological personnel. This is a great task intended to upgrade the level of Satellite data applications in weather forecasting, and other related applications, within the National Meteorological and Hydrological services (NMHSs) for all technical personnel.

It is our expectation that training materials availed to workshop participants should be easily shared with colleagues. It is for this purpose that during training, IMTR provides backup of training materials in the form of computer aided learning (CAL) modules on CD-ROM or DVD-ROM. This approach has had a limited degree of success for most African countries with no Internet access. However, some installation challenges have arisen with regard to differences in software design and development.

As a training institution, IMTR has partnered with the EUMETSAT Training Division with the aim of: making available training materials by hosting it on the Eumetsat Computer Servers for easy access via MOODLE; providing participants sponsorship to the face-to-face ESAC course by Eumetsat; and provision of skilled human resources for the implementation of the Satellite Application course as well as hosting of the face-to-face course annually, by IMTR.

Currently, the IMTR-EUMETSAT Satellite application course (IESAC) has been split into two phases; the first phase is via e-learning (e-IESAC) and lasts for four weeks and the second phase is face-to face (f-IESAC) that is planned for one week. Activities involved transforming CD-DVD ROM-based training material that required Installation, to web-based material that does not need installation and is hence easy to access. It has taken efforts by the EUMETSAT Training Division and experts and has been tested by IMTR instructors. The training materials will be accessed through the Internet on registration. The number of online students is increasing.

The benefits of this approach are that it is student centred and hence provides opportunities for the participants to share skills in forecasting among themselves. It also enables more students to be trained and to share skills amongst themselves. Another aspect is that the Instructors are able to monitor the participants' progress. However, the trainer has to be prepared to attend to a heavier load as they must attend to all the participants and sometimes you respond to correct or to encourage or to emphasize a point.

The paper aims to address ways in which IMTR/WMO-RTC, Nairobi can introduce new teaching strategies and innovation in its programmes to meet the training needs of her area of responsibility at minimum cost to the NMHSs.

## D. Ednaldo dos Santos (Federal Rural University of Rio de Janeiro and UNEMET)

### *Co-authors:*

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José de Lima Filho, UNEMET  
Daniel Carlos de Menezes, UNEMET  
Rodrigo Santos Costa, UNEMET  
José Francisco de Oliveira, UFRRJ  
Josiclea Pereira Rogéro, UNEMET

### *Contact:*

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ed.unemet@gmail.com

### *The future of meteorological education brazilian : A proposal for creation of meteorological courses in dirstance learning by open university of Brazil.*

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The history of the Brazilian meteorological education began in 1958 with the creation of the first course in Brazil, at the technician level, which took place at the Federal Technical School Celso Suckow da Fonseca, in Rio de Janeiro. Five years later, in 1963, was created the first graduate degree in Meteorology at the Federal University of Rio de Janeiro. The implementation of this Course was supported by Brazilian National Institute of Meteorology (INMET) and World Meteorological Organization (WMO). Over 50 years, were created only 10 graduate courses in Meteorology, little by size of the country and by great importance of this science to Brazilian society. This is mainly due to administrative problems, infrastructure and government indifferences.

Current trends in professional training at a higher level in Meteorology have indicated toward graduate courses with flexible structures, allowing that professional future has a philosophical basis focusing on competence, student-centered pedagogical approach, emphasis on synthesis and in multidisciplinary and strong link between theory and practice. Additionally, in Brazil the challenge that presents itself for Meteorology is a large demand for intensive use of science and technology and highly qualified professionals. Thus, currently the only viable way and short and medium term to increase the number of courses in Brazil and to attend the national demand is from distance learning, using the successful experience and consolidated of the Open University of Brazil (UAB). Therefore, this paper presents a proposal for creation of graduation course in Meteorology at distance learning according to the Brazilian guidelines in this modality, especially to be installed in places where there are not, difficult to access and that have few financial resources and structural.

## E. Givaldo dos Santos (Federal Rural University of Rio de Janeiro and UNEMET)

### *Co-author:*

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Ranieri Carlos Ferreira de Amorim, Federal Institute of Alagoas (IFAL)

### *Contact:*

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givaldoead@gmail.com

### *Development Bank of Climate data for the state of Alagoas simulants based climate data and method interpolation for application in management studies natural resources and models of nature and agronomic hydrologic*

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The research project linked to the scholarship DCR/CNPq/FAPEAL entitled "Development of climatic database for the state of Alagoas simulants based on climatic data and interpolation method for use in studies of natural resource management and models agronomic and hydrological nature "was to evaluate the performance of the models PGECLIMA\_R and LARS-WG WG in the simulation data daily air temperature in order to provide information for planning in agroclimatic regions where there is no weather data. Thus, various mathematical simulation models that describe climate data, has been applied in order to predict the behavior of the probability distributions of these climatic components (SEDIYAMA et al., 1978). Knowing the influence of climatic variables on agricultural activities, water resources and environmental resources, this study aimed to develop a database consistent and reliable climate for the state of Alagoas, but also for application in studies and environmental management models agronomic and hydrological nature, since agricultural activities are dependent on the air temperature, precipitation, relative humidity, solar radiation and wind speed. Therefore, a system was developed consistency of the data collected in meteorological stations BDMEP / INMET and ANA, through filling gaps in data series, grouping test for choosing climatically homogeneous areas within the state and statistical analysis of data distributions historical weather air temperature, precipitation, relative humidity and odds ratios for each climate variable.

## F. Sarah Keeley (ECMWF)

### *Contact:*

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Sarah.Keeley@ecmwf.int

### *ECMWF Training*

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We outline the current training courses from ECMWF and feedback from recent students.

Are there any subject areas missing?

Is the training at the right level for the attendees?

What would you like to see more or less of?

Come and give us your feedback.

## G. Elizabeth Page (COMET / UCAR)

### *Contact:*

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epage@comet.ucar.edu

### *Safe Skies for Africa*

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To facilitate the creation of interactive training material with possibility to integrate both presentations and different types of exercises (drag and drop, click on a map, multiple choices exercise etc).,

## H. Bruce Muller (UCAR / COMET)

### *Contact:*

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bmuller@comet.ucar.edu

### *Recent Modules by ASMET, the African Satellite Meteorology Education and Training Group*

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This poster describes the ASMET (African Satellite Meteorology Education and Training Group) project and its recent training modules. The ASMET team produces online and CD-based modules that teach African forecasters how to enhance their forecasts by making better use of satellite images and products. The modules are produced by instructors from the South African Weather Service and the Regional Training Centers in Kenya and Niger, under the guidance of EUMETSAT and COMET. The project is funded by EUMETSAT.

Since 1997, the team has produced modules on topics ranging from the basics of remote sensing and the integration of satellite imagery and model output, to the forecasting of tropical cyclones, drought, flooding, dust storms, cloud clusters, the ITCZ, and secondary lows behind frontal systems. The team is currently working on aviation weather topics, including convection, fog, and turbulence.

For more information, visit the ASMET website at <http://www.meted.ucar.edu/communities/asmet/>.

## I. Arlene Laing (UCAR/COMET)

### *Co-author:*

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Bruce Muller, UCAR/COMET

### *Contact:*

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laing@ucar.edu

### *An Online Tropical Synoptic Meteorology Course Package*

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The rapid evolution of delivery technology for distance learning materials has enabled the COMET Program, under a multi-agency cooperative agreement, to develop cutting edge training in such a way that it not only serves our core sponsors, but also is freely available to the academic community and general public via the MetEd Website (<http://www.meted.ucar.edu/>).

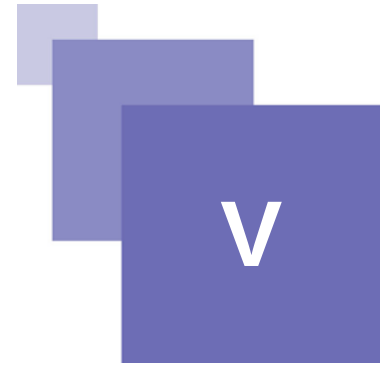
COMET has developed Tropical Synoptic Meteorology, a university-level, online meteorology course package. The course package is freely distributed to interested institutions that are expanding their course offerings, particularly their online offerings. The course fulfills the synoptic and mesoscale meteorology requirements for the World Meteorological Organization (WMO) Basic Instruction Package for Meteorology (BIP-M), but with an emphasis on the tropics to provide focus for those working or planning to work in tropical regions. The course utilizes existing and newly developed resources, including the online textbook, Introduction to Tropical Meteorology ([http://www.meted.ucar.edu/tropical/textbook\\_2nd\\_edition/](http://www.meted.ucar.edu/tropical/textbook_2nd_edition/)).

The course package includes an instructor's guide and model syllabus with learning objectives, free online instructional resources, introductory slides for faculty use, case examples, questions for review or discussion, student assignments, quizzes, learning activities, and guidance for online course delivery.

An adoption and implementation plan to ensure successful use is being developed. Part of this plan will include a faculty workshop to introduce the course, teach about online delivery, and provide an overview of the curriculum and course topics.

This paper was funded, in part, by the University Corporation for Atmospheric Research under the cooperative agreement award #NA11NWS4670004 from the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The statements, findings, conclusions, and recommendations expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its sub-agencies.

# Wednesday 28 August 2013



## A. Elizabeth Page (UCAR/COMET)

### *Co-authors:*

Tsvetomir Ross-Lazarov UCAR/COMET  
Bruce Muller UCAR/COMET

### *Contact:*

[epage@comet.ucar.edu](mailto:epage@comet.ucar.edu)

### *Workshop: Case Study Development to Meet Specific Training Needs*

The COMET Program has developed a case study template, applicable to a variety of weather events and data types. This flexible tool can be used to create case study exercises that illustrate forecasting challenges associated with a particular weather event. The goals of this workshop will be to help trainers develop and focus case study content using this template to meet training needs. We will cover how to identify those needs based on forecaster performance and how to use the template to build an example forecast exercise that illustrates the performance objectives to be taught. The workshop exercise will illustrate how a short, focused case study can effectively meet learning objectives in order to take full advantage of available training time.

## B. Patrick Parrish (WMO) & Mark Higgins (EUMETSAT)

### Contact:

pparrish@wmo.int

### Workshop: Developing an induction program to prepare new trainers

"Where do new trainers come from?"

Most often, full-time trainers come from the ranks of those in operational positions who have demonstrated their mastery, are recognized as those with good communication skills and a desire to help others learn, and then recruited into training. Part-time trainers are recruited in similar ways.

Often the driving criterion for selecting them is content area expertise, rather than operational skill, and a desire to help others learn is secondary to a willingness and ability to share what they know (which differs from helping others learn).

How do new trainers become skilled in their new roles? This question is often even more problematic. In many cases, induction programs are non-existent, and trainers (and university teachers as well), are merely given assignments and expected to learn on the job.

This workshop will ask participants to think about how they would design an induction program for a new trainer or educator to help them develop into effective trainers more quickly. After a short brainstorming session in which the full group develops a list of critical knowledge and skills for new trainers, participants then compare these to the new WMO Training Competencies to look for agreement and potential gaps. Then, given parameters such as 1 year duration, 10 dedicated training days, and 3 course delivery experiences, participants will work in small groups to decide how they would best use these to design an effective induction program for new full-time trainers. Solutions might include formal courses, mentoring, on-the-job experience, apprenticeship, self-study, etc.

In a second exercise, participants will decide how they can draw from their plans to create a very short duration program for part-time trainers."

## C. Arlene Laing (UCAR/COMET)

### *Co-author:*

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Bruce Muller, UCAR/COMET

### *Contact:*

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laing@ucar.edu

### *An Online Tropical Synoptic Meteorology Course Package*

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The rapid evolution of delivery technology for distance learning materials has enabled the COMET Program, under a multi-agency cooperative agreement, to develop cutting edge training in such a way that it not only serves our core sponsors, but also is freely available to the academic community and general public via the MetEd Website (<http://www.meted.ucar.edu/>).

COMET has developed Tropical Synoptic Meteorology, a university-level, online meteorology course package. The course package is freely distributed to interested institutions that are expanding their course offerings, particularly their online offerings. The course fulfills the synoptic and mesoscale meteorology requirements for the World Meteorological Organization (WMO) Basic Instruction Package for Meteorology (BIP-M), but with an emphasis on the tropics to provide focus for those working or planning to work in tropical regions. The course utilizes existing and newly developed resources, including the online textbook, Introduction to Tropical Meteorology ([http://www.meted.ucar.edu/tropical/textbook\\_2nd\\_edition/](http://www.meted.ucar.edu/tropical/textbook_2nd_edition/)).

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This paper was funded, in part, by the University Corporation for Atmospheric Research under the cooperative agreement award #NA11NWS4670004 from the National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce. The statements, findings, conclusions, and recommendations expressed herein are those of the authors and do not necessarily reflect the views of NOAA or any of its sub-agencies.

## D. Stephan Steyn (University of the Free State)

### *Contact:*

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steynas@ufs.ac.za

### *Developing user-friendly study material*

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As instructors, everything we do must be clearly focused on what we want students to ultimately be able to do successfully (clarity of focus). Therefore the starting point for all curriculum design must be a clear definition of the significant learning that students are to achieve by the end of their formal education. All instructional decisions are then made by tracking back from this desired end result and identifying the “building blocks” of learning that students must achieve in order to eventually reach the long-term outcomes (designing back). Not all students can learn the same thing in the same way and in the same time, so we should also strive to provide expanded opportunities for all students. However, designing the study material to cater for various learning styles are no trivial task. In this presentation a simple logical layout combined with the use of icons are proposed to make study material more user-friendly for most students. It incorporates the principles of outcomes-based education (OBE) and has been adopted with reasonable success in most Agrometeorology modules at the University of the Free State.

## E. Bernadette Connell (Cooperative Institute for Research in the Atmosphere, Colorado State University)

### *Co-author(s):*

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Luciane Veeck, CIRA and WMO

Kathy-Ann Caesar, Caribbean Institute for Meteorology and Hydrology (CIMH), Barbados

### *Contact:*

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bernie.connell@colostate.edu

### *Adding the personal touch. A renewed look at presentation, complicated information, and the audience*

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The ideas presented here draw on observations of focus groups and training courses, the pitfalls and successes of getting research information to operational users, curiosity about hyperspectral information, and a presentation software that is like a concept map. A few common themes to the first three topics that emerge include “native” language, repetition (with and without variations), and listening and adapting to feedback and the audience. The themes will be used to build a satellite product example that will be demonstrated.

# Thursday 29 August 2013

  
  
**VI**

## A. Heleen ter Pelkwijk (KNMI)

### *Co-author:*

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Nicolien Kroon (KLu)  
Rob Groenland (KNMI)  
Vesa Nietosvaara (EUMETSAT)

### *Contact:*

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pelkwijk@knmi.nl

### *Workshop: Simulators also within reach for me?*

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More than once I got the question: A simulator training for forecasters: How does it work in reality? Can we come to have a look during one of your simulator sessions at KNMI?

Unfortunately not everyone has enough time and money to visit the Netherlands for one day to join us for a simulator session. Reason enough for me to think about another solution to share my experiences with you all too.

So during this workshop I hope to inspire you with the fact that simulator sessions are very useful for both training and assessment goals and within reach of everyone who is interested. We will show you how you are able to do simulator sessions at home in a very simple and inexpensive way in a simulator setting. But don't worry in depth knowledge of meteorology is not needed.

## B. Laurent Borrel, Vincent Terol and Didier Costes (ENM / Météo-France)

### *Co-authors:*

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Vincent Terol, Didier Costes

### *Contact:*

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laurent.borrel@meteo.fr

### *Scenari Workshop*

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Scenari is a free licence software whose targets are :

- To facilitate the creation of interactive training material with possibility to integrate both presentations and different types of exercises (drag and drop, click on a map, multiple choices exercise etc).,
- To allow publication of the material on different supports (Web, paper, classroom-presentation) without any effort of the trainer

The main characteristic of the software is that it separates the content and the form: the author just has to deliver the content and indicate its function (title, text, exercise, map etc) and the software builds the training material according to the chosen model.

The session will start by a description of the software, presentation of examples with main types of interactions. Then participants will have possibility to create their first training material and leave with indications in order to go ahead.

## C. Marco Stoll (MeteoSwiss)

### *Contact:*

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marco.stoll@meteoswiss.ch

### *NinJo CaseCaptureReplay - a weather simulator for forecaster training. Project overview.*

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Forecasting and nowcasting skills in handling exceptional weather situations as well as the evergrowing number and complexity of tools and procedures vary considerably among forecasters for a number of reasons. At the same time it is difficult to create an training environment, both technically as well as psychologically, that can reproduce the working reality at forecasting desks in those special and often rare situations.

The only way to gain experience in handling exceptional weather situations "offline" is regular training under conditions that are as close to the real production environment as possible. For this purpose MeteoSwiss is currently planning a weather simulator that will be able to play weather situations from archived data in a quasi-realtime manner. Forecasters shall use the NinJo meteorological workstation to visualize archived data as well as the production and verification tools to simulate certain weather situations and get used to handle those.

The presentation gives a conceptual overview of some technical aspects of the system in an early phase of the project, as well as possible ways how to apply them optimally.



## F. Erik Hagemark (Met.No)

### *Co-author(s):*

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Vibeke Kristensen, Sofia Windjusveen (Met.no)

### *Contact:*

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erik.hagemark@met.no

### *Using role-play to enhance learning*

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At the Norwegian Meteorological Institute, we are planning a set of internal three-day courses on the theme Climate and climate change. The participants are active in responding to questions from the public, media and collaborating institutions on climate related issues. The main goal of the course is to increase the knowledge on climate issues so that the participants can more confidently address and answer inquiries by the public, media and others. We have identified the course topics, and invited experts to give presentations. Our twist is that we plan to kick off each course with a role-play, in which each participant will be challenged to play a role in a setting similar to a debate program on television. The roles are carefully chosen to represent a wide range of potential angles and issues related to climate and climate change.

Our presentation will show how we have set up the course, how we plan to simulate a debate program, and more importantly, explain how we intend to use the role-play to enhance the learning of each topic of the subsequent course. Since two of the three courses are planned for the beginning of June, by the end of August we will also have results and feedback to share as well.

## G. Vesa Nietosvaara (EUMETSAT)

### *Contact:*

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vsa.nietosvaara@eumetsat.int

### *Experiences in Managing Virtual Teams*

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Distance managing or managing virtual teams is challenging. The lack of face-to-face contact with team members puts the team manager in tough situation: how to keep in contact and guide the team from distance?

Lot of technical innovations exist for tracking the progress and enabling the communications with teams around the world, but the biggest challenge is not a technical one: more challenging is to keep the teams inspired and motivated from afar, to build trust despite the distance and to encourage the team members to speak up and communicate. On top of this the virtual team leader needs to keep the project on track and meet the deadlines.

I will show two examples of current virtual team projects that I manage, and give a summary of what has been working well and what could have done differently.

## H. Albert Maas (the Netherlands)

### *Contact:*

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a\_maas@planet.nl

### *Conceptual Models for Southern Hemisphere as training tools*

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Working together in a totally virtual environment is not an easy thing. Never the less a team of experienced European trainers/meteorologists in combination with colleagues from the Southern Hemisphere took the challenge. They started a project with the support of WMO and Eumetsat on Conceptual Models for the Southern Hemisphere (CM4SH). The aim of the project is to develop Case Studies and Conceptual Models applicable to training purposes and in a manual for forecasters.

## I. Cynthia Matsudo (National Meteorological Service of Argentina)

### *Co-authors:*

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Silvina Righetti, National Meteorological Service of Argentina and Department of Atmosphere and Ocean Sciences.

M. Inés Campos, National Meteorological Service of Argentina.

Luciano Vidal, National Meteorological Service of Argentina.

Claudia Campetella, National Meteorological Service of Argentina and Department of Atmosphere and Ocean Sciences.

### *Contact:*

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matsudo@smn.gov.ar

### *Conceptual Models for RAIII: A resource for trainers and forecasters*

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The National Meteorological Service of Argentina (NMS) and the Department of Atmosphere and Ocean Sciences, representing VLab Argentina, take part in the project of Conceptual Models for the Southern Hemisphere (CMforSH). In this presentation we show the learning process involved in developing of this project and how this initiative fosters the activities of CoE Argentina for the region.

The NMS joined the project of CMforSH expecting to fulfill two main goals: to produce tools to help forecasting important meteorological phenomena for the region and to develop training material, based on satellite information, to be used in training forecasters. In the academic field there has always been a demand of Southern Hemisphere (SH) representation of the atmosphere. Therefore, on behalf of the educational community, this project promotes the development of teaching material to be used for academic and operational forecasting purposes.

The SH V Labs participating in this project are given the opportunity to interact with experts by online training and benefit from all their experience in developing conceptual models (CMs) for the Northern Hemisphere. The expected outcome is to build full CMs for the region; working towards a Sat Manu for the Southern Hemisphere in a Spanish version. Our challenge is to integrate theoretical knowledge on weather systems and build regional CMs. Our first step is to complete a CM related to the formation of mesoscale convective systems within a low level jet environment.

The next step is to “Deliver training and manage the learning experience” applying this new resource. Some spin-offs are already evident: gaps in knowledge, skills and technical support are being taken care of; links between the NMS, University and the international community are reinforced; communication skills have become effective; knowledge transfer from documented studies to forecasting tools is becoming real.

## J. Lawrence Pologne (CIMH)

### *Co-author:*

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Kathy-Ann Caesar, CIMH

### *Contact*

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lpologne@cimh.edu.bb

### *Improving knowledge and skills of aeronautical meteorological forecasters in the Caribbean using Distance Learning*

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The Caribbean Institute of Meteorology and Hydrology (CIMH) have just completed their second offering of the Aeronautical Continuing Professional Development (AeroCPD-02); an online course for Aeronautical Meteorological Forecasters (AMF) in the Caribbean. The course lead by Ms. Kathy-Ann Caesar from CIMH is based upon the need to ensure that the forecasters in the region can meet the recommended competency standards, introduce new technology and improve their overall performance.

AeroCPD02 saw a greater number of registered participants of 17 from eleven Caribbean territories. The success of the first course encouraged the regional directors to submit more names and pursued some forecasters to register on their own.

The course was structured around five Units namely Review of Tropical Meteorology Fundamentals; Satellite Interpretation in the tropics; Radar Interpretation in the Tropics; Interpretation and use of NWP Mesoscale Models; and Operational Aeronautical Meteorology.

Oral assessments were added to the assessment to allow the forecasters to demonstrate directly what they had learnt over the course.

One of the glaring lessons learnt, is that there is a need for courses such as AeroCPD. Many AMFs have had few additional training opportunities that test their operational skills beyond their initial training. There are also those who fail to understand the importance of their roles in assuring the safety of life and property in the aeronautical community. The AeorCPD course and other such courses being identified are now essential to fill this need for good competency standards.

## K. Sarah Hewitt (UKMO)

### *Contact:*

sarah.hewitt@metoffice.gov.uk

### *The Challenges of Competency Based Assessment - Can Online Learning Help?*

For several years the UK Met Office has operated a competency based assessment programme for new forecasters, refining this process to overcome any challenges along the way. With the introduction of the World Meteorological Organisation (WMO) standards for Aviation Meteorological Personnel, it has been recognised that regular re-assessment will present further challenges in the future. The most significant of these will be the time commitments required to fulfil competency checks of both operational staff and assessors, who are spread across different parts of the country. To try and limit the impact of these difficulties, the UK Met Office is currently investigating and developing ways to incorporate online learning, training and assessment into its competency programme. For example, can online case studies play a part?

This presentation will give an overview of the current methods of competency based assessment at the UK Met Office and briefly investigate how practice has developed over time. It will then cover how we envisage our assessment process evolving through the use of online learning techniques.

## L. Elizabeth Page (UCAR/COMET)

### *Panel discussion: International Coordination of Training to Meet Aeronautical Forecaster Competencies.*

All aeronautical meteorological forecasters must meet the ICAO/WMO competencies by the end of November 2013. Many different groups are developing and administering training to help forecasters achieve and maintain these competencies. The WMO Commission for Aeronautical Meteorology (CAeM) has published a toolkit for competency assessment and has collected and organized training by the competencies each item supports. The Caribbean Institute of Meteorology and Hydrology has offered a blended learning course that provides dynamic adjustments to course content based on the needs of the forecasters involved. The COMET Program has developed the Review of Aeronautical Meteorology Distance Learning course which has also been adapted for African and Caribbean forecasters. The members of this panel will share best practices and lessons learned during their training efforts and the potential application of similar practices to other National Meteorological Services to support forecaster competency achievement.

# Friday 30 August 2013



## VII



### A. Mark Higgins (EUMETSAT)

#### Workshop: Designing learning events: Learning from worst practice

"What can we learn from bad practice? in this session we will learn more about course design by valuing our mistakes.

WMO ETR has published guidelines for trainers in meteorology and hydrology. These guidelines cover the whole training cycle from understanding the training context to intervention evaluation. They capture good practice a large amount of good practice.

This will be a discussion session, focusing on course design. We will take some real examples of course design that were not helpful. We will discuss what the impact of those design choices might be and what we might do differently (drawing on the guidelines and our own good practice).

If you have ever started to design a course by writing down a list of teachers this may be a helpful session for you.

The session will be interactive and fun. If you wish you are very welcome to share bad practice examples, but plenty will be provided. We will share our recommendations for good practice after the event.

## B. Patrick Parrish (WMO)

### *Contact:*

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pparrish@wmo.int

### *CALMet Online 2012 & 2014*

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CALMet Online is a fully online workshop-based conference held each year between the biennial CALMet Conferences. CALMet 2012 took place during the last 4 months of 2012, kicking off by uniting with the annual EUMETSAT conference in Sopot, Poland, and offering a total of 11 different multi-day workshops. It also offered a rich body of resource materials and generated a significant amount of discussion within the CALMet community of trainers and educators—resources and discussions that are still available on the CALMet Online website at <http://training.eumetsat.int/course/view.php?id=174>.

It is hard to quantify participation in such a long-term, virtual event. However, the conference had 129 participants registered on the site, and the Moodle logs show over 5000 actions taken. These actions included views of resources, attending live events, reading discussion posts, making new discussion posts, accessing surveys and other interactions, viewing recordings, and instructors offering new resources and stimulating discussions. What this number doesn't include are the many more people who monitored the discussions via emails generated by the forums without visiting the site!

Next year, we plan another CALMet Online, but we need new ideas for sessions and commitments to participate from CALMet 2013 participants to ensure its success.

## C. Paul Bugeac (ROMATSA)

### *Contact:*

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paul.bugeac@gmail.com

### *AMP Competency Training Mapping Database*

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The support delivered by WMO in order to ensure the proper implementation of the new requirements regarding the competencies of aviation meteorologists has a new component. Based on the first and secondary level competencies, a detailed database of training tools was developed by the CAeM Expert Team – Education, Training and Competencies.

The presenter will demonstrate how trainers and operational staff can use the database to assist them to document and implement their competency assessment processes.

## D. Eduard Podgaiskii (RHSU)

### *Co-author:*

Prof. Grigory Chichasov, Roshydromet Advanced Training Institute, Moscow region/RTC in the Russian Federation

### *Contact:*

podgaisky@gmail.com

### *Reaching online audience with your classroom lecture: a tool to broadcast yourself whenever you talk*

Live broadcasting and recording of traditional classroom lectures is getting popular worldwide. Indeed, with little efforts, the education and training institutions can build up a collection of videos or webcasts to be used later by their students or by a wider community online. This becomes the basis for their online training resources library, and often the first step in developing truly virtual university.

Normally, the setting for recording a lecture requires at least two people, a speaker and a camera man, and at least two pieces of equipment: a camera, and a microphone. The camera built-in microphone usually doesn't provide the best quality for lecture recording, given the number of people in the room and the distance to the speaker, so one may need either the sound mixing console to be able to substitute the camera's audio channel with the voice coming from the microphone close to the speaker, or some additional efforts from audio- or/and video-editors after the event. With additional hardware and post-production, the whole process resembles professional movie-making, and production costs go up, accordingly.

In 2012, a Moscow-based software company Colorpen Research Ltd developed Penxy presenter, an iPad application that enables the lecturer to broadcast one's presentation during the classroom event. To do that, one piece of equipment is needed, the iPad, and one person. The application allows to navigate through slides wirelessly over Internet, shows the slide notes on the iPad screen (these are normally hidden when you use PPT presentations), and moreover, records the speaker's voice and broadcasts it over Internet synching with the slide being on air at the moment. The presentation to be broadcasted needs to be uploaded to Penxy server in advance, as it is the case with webinar presentations. The lecturer then receives the weblink to the presentation which he or she may share with potential online audience. By accessing the link, online students will be able to see the slides change and hear the voice broadcasted by the iPad held in lecturer's hands in the classroom. The same weblink is used in the classroom to show the presentation on projector screen. It is that simple. Just don't wave your iPad too much when talking, as this may decrease the sound quality! Try it out at [www.penxy.com](http://www.penxy.com).

## E. Elizabeth Page (COMET / UCAR)

### Contact:

[epage@comet.ucar.edu](mailto:epage@comet.ucar.edu)

### Meeting Aviation Forecaster Competencies through Distance Learning

The COMET Program has developed the Review of Aeronautical Meteorology Distance Learning (RAMDL) - Africa course. This course provides access to learning resources for aeronautical forecasters working to meet the WMO approved Aeronautical Meteorological Personnel Competence Standards. Included are over 65 hours of distance learning modules that have been mapped to the WMO Competencies to provide targeted instruction that addresses the needs of individual forecasters. The course is available free of charge through the MetEd website, a collection of learning resources for the geoscience community. COMET has used the Aeronautical Continuing Professional Development (AeroCPD) course developed at the Caribbean Institute of Meteorology and Hydrology as a model for this online course. Enhancements to this course being developed in 2013 include African adaptations of several modules and new modules dealing with applications of the WRF/EMS mesoscale model, nowcasting and enroute hazards. Although this course is being tailored to Africa, many other locations, especially in the tropics, will find the material applicable for their aeronautical forecasters. In addition, some of the modules included in the course provide helpful background material for aeronautical meteorological observers. Additional resources within the course site includes links to documents mapping the modules in the course to the WMO competencies, other helpful training links, and a case study template, which can be used as a guide to develop local cases for training and for assessing competency of forecasters.

## F. Jiyoun Kim (Korea Meteorological Administration)

### *Co-author(s):*

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Sang Jin LYU, Korea Meteorological Administration

### *Contact:*

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wldusk@korea.kr

### *KMA's approaches to more effective international education and training*

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The Korea Meteorological Administration, KMA, has delivered various short term(two to four weeks) international training courses such as 'ICT for meteorological services', 'Satellite data analysis', and 'Radar data analysis'. Up to 569 persons from 60 countries have participated in KMA's training courses since 1998, and recent annual average participants are about 75 persons. KMA is planning to keep and expand international education and training activities as Korea became a member of OECD DAC(Development Assistance Committee) in 2009.

However, these short term training courses have limits in terms of effectiveness. Most of courses are one-time and separate courses, and there are gaps between real needs and provided training contents. There is little continuous support for on-site application. Another problem is that the curriculum is focused on advanced meteorological technology overlooking the lack of basic educational opportunity in LDCs, while WMO highlights qualification and competence standard of meteorologist and meteorological technician.

KMA is faced with new challenges to improve its training effectiveness. From this year, the training course on 'ICT for meteorological services', which used to be delivered as a short term course, change to be a three-year continuous course targeting three Asian countries. This program is composed of on-site survey, training invitation, and local workshop for 3 years and every event is connected to one another. The curriculum is designed by needs assessment from on-site survey in the first year and the training invitation is offered in phases every year. In the second and third year, there will be local workshop to support on-site implementation and share any best practice. The on-site survey was conducted in early June this year.

Another direction is developing distance learning courses. KMA has been providing a bachelor degree level distance learning program in Meteorology, which was officially accredited by the Ministry of Education in 1998 and is open to any Korean citizens. On-line self-paced learning contents of twenty subjects satisfying BIP-M according to WMO No.1083 are used in this program. KMA is planning to develop distance learning contents in English as well reflecting WMO's requirements of BIP-M or competency enhancement. And these contents will be adapted to international training as blended learning method. The distance learning could be used to supplement before or after the residence learning. It will not only reduce the relevant cost but increase the effectiveness of residence learning.

## G. Winifred Jordaan (South African Weather Service)

### *Co-authors:*

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Hannes Rautenbach, University of Pretoria

Coleen Vogel, University of Pretoria

Themba Dube, South African Weather Service

Lindani Gcwensa, South African Weather Service

Mnikeli Ndabambi, South African Weather Service

### *Contact:*

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winifred.jordaan@weathersa.co.za

### *South African Educational Plan For Weather and Climate*

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Worldwide economic and population growth is resulting in more sectors becoming exposed and influenced by both weather and climate, including associated events (e.g. floods, droughts, extreme heat days, diseases etc.). Weather patterns and climate (both climate change and climate variability), for example, are projected to change in the near future as a result of anthropogenic changes including global warming.

For South Africa and the Southern African region, it has therefore become essential to not only focus on the long-term climate in order to facilitate adaptation, but also on daily weather patterns, which in some cases have a more direct influence on the economy and social society. In most cases, these influences exacerbate existing stresses (e.g. through floods, structural damage, agricultural disasters, disease outbreaks etc.) Skill shortages in the region compel the South African Weather Service to relook at the education and training of scientists.

The discussion is about an education development plan, that integrates national resources for South Africa to address the identified shortages of skills in weather, climate impact and climate risk reduction and air quality sciences critical to the country and beyond. It is an ambitious plan that can take up to 10/15 years to complete.

## H. Edward Muriuki (Kenya Meteorological Department / Institute for Meteorological Training and Research)

### *Co-author:*

Stella M. Aura, Kenya Meteorological Department/Institute for Meteorological Training and Research

### *Contact:*

emuriuki@meteo.go.ke, edmuriuki@gmail.com

### *Online Delivery of Courses at IMTR: A First Time Experience*

The Institute for Meteorological Training and Research (IMTR) was established in 1964. It was designated a World Meteorological Organization Regional Training Center (WMO-RTC) for English-speaking RAI (Africa) in 1965. WMO-RTC, Nairobi has two components namely; IMTR and the Department of Meteorology, University of Nairobi. It offers certificate, diploma, degree and post-graduate courses in the field of meteorology, operational hydrology and related sciences.

The Institute has been offering all its courses through face to face training but we realize that there is need to adopt modern approaches in course delivery. It is with this concept in mind that IMTR has taken the first steps towards initiating online course delivery.

In January to May this year IMTR was involved in the development and teaching of two online courses: First Distance Learning Course - Basic Hydrologic Sciences for the African Region and Online phase of the EUMETSAT Satellite Application Course (ESAC). The Hydrologic Science Course had 52 participants but only 42 have completed so far. ESAC has 25 participants.

This paper seeks to assess the progress made by the Institute in the development of computer aided learning materials. It also highlights IMTR's experiences in online course design and delivery, challenges faced in its implementation and recommendations that may be used to improve the teaching of online courses in future.

## I. Joseph Kagenyi (IMTR-WMO RTC-NAIROBI)

### *Co-author(s):*

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Joseph Kagenyi and Stella Aura, Institute for Meteorological Training and Research/WMO Regional Training Centre (IMTR/WMO-RTC)  
Mark Higgins (EUMETSAT)

### *Contact:*

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kagenyijn@gmail.com

### *Adopting new Teaching Strategies and Innovations at IMTR-WMO RTC-NAIROBI*

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Adopting New Teaching Strategies and Innovation at IMTR-WMO RTC- NAIROBI

By Joseph Kagenyi (IMTR), Mark Higgins (EUMETSAT), Stella Aura (IMTR)

#### Abstract

The Institute for Meteorological Training and Research IMTR-NAIROBI is a WMO Regional Training Centre in RA 1. This institution has had to face challenges on training in the area of Satellite Meteorology applications. As a centre of excellence it focuses on continental training of over 2000 meteorological personnel. This is a great task to upgrade the level of Satellite data applications in weather forecasting within the National Meteorological services (NMS) for all technical personnel.

During the training we did provide backup of training materials in form of computer aided learning (CAL) modules on CD-ROM or DVD-ROM however this approach had a degree of success but there were some installation challenges due to software and hardware developments. It was our expectation that to address more people the participant would share the training materials with colleagues or their forecasters.

We, as a training institution have partnered with EUMETSAT Training Division where the partnership provides Computer Servers (hosting Computers), sponsorship of participants and skilled human resources for the implementation of the Satellite Application course annually. The IMTR-EUMETSAT Satellite application course (IESAC) has been split into two phases, one on an e-IESAC Phase that lasts for four weeks and the other a face-to face IESAC phase that is planned for one week.

Activities involved transforming CD-DVD ROM based training material that required Installation, to web based that does not need installations. It has taken efforts by EUMETSAT Training division and experts and has been tested by IMTR instructors. The training materials will be accessed through the internet by registration.

## J. Hamidou Hama (EAMAC)

### *Co-author(s):*

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Emmanuel Kploguede, EAMAC

### *Contact:*

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hama\_hamid@yahoo.com

### *Convective Weather and Aviation in West and Central Africa*

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The African College of Meteorology and Civil Aviation (EAMAC) is a specialized school of the Agency for the Safety of Air Navigation in Africa and Madagascar. The school is in charge of the training of air traffic controllers, technicians and engineers in the field of meteorology, civil aviation and electronics and computer science for the seventeen (17) member States of ASECNA for almost forty years. In the field of meteorology, EAMAC is a WMO RTC and CoE in Satellite Meteorology, and as such is engaged in training satellite meteorology for all French speaking countries in Africa, in close collaboration with EUMETSAT. EAMAC is also an active member of the ASMET team, which is in charge of producing valuable learning resources in the field of satellite meteorology for African meteorological professionals, scientists, students and the user communities.

Many ASMET modules dealing with various subject matters, from satellite remote sensing to the use of satellite imagery and products in various fields of meteorology (synoptic meteorology; dust, flood and drought forecasting; hydrology, etc.) have been produced in collaboration with EUMETSAT, COMET and the CoEs of Nairobi and Pretoria. As a contribution to the “Safe Skies Africa” Program created by the USA to promote sustainable improvements in aviation safety and security in Africa, and to create the environment necessary to foster the growth of aviation services between Africa and the United States, ASMET7 will focus on the use of satellite data in aviation meteorology, particularly on how to integrate satellite imagery and other derived products (e.g. MPEF) in the process of monitoring and forecasting hazardous weather phenomena to aviation, in the context of Africa. The West African module will focus on convective activities, one of the most dangerous weather and most frequently observed weather phenomenon in West and Central Africa.

## K. Manfred Wishnewsky (University of Bremen)

### *Co-authors:*

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Igor Novopashenny, Jun Zhao, Yildiray Ogurol (University of Bremen),  
Angel del Valls Casillas ( University of Cadiz),  
Inga Dailidienė (Klaipėda University),  
Tatiana Eremina, Svetlana Gordeeva (Russian State Hydrometeorological University),  
Vladimir Ryzhov (St. Petersburg State Marine Technical University),  
Vladimir Gritsenko (Immanuel Kant State University of Russia),  
Eduard Podgaiskii (Academic Association of RF Universities in Hydrometeorology),  
Vladimir Ryabchenko (P.P. Shirshov Institute of Oceanology)

### *Contact:*

---

mwi@escience.uni-bremen.de

### *Experience with Sakai CLE in the framework of international educational TEMPUS project eMaris in the field of applied marine sciences*

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"The collaboration environment is being developed to support the scientific and educational activities within the scope of the ongoing project «eMaris - Enhanced three-level competency-based curricula in Applied Marine Sciences», funded by EU Tempus programme. The project consortium includes universities and research centres from Germany, Lithuania, Russia and Spain.

One of the project goals is to develop an integrated platform for teaching and learning which is also capable to support collaborative research processes within the joint projects.

Nowadays students raise the demand for technology-enabled education as a whole, and for e-/m-learning in particular, looking for quality and innovation approaches to studying in e-/m-learning systems. These high expectations are partly grounded in specific psychological features of the "digital natives" generation and their attitude to information technology.

In this regard, the educational paradigms developed should unavoidably be oriented towards the active usage of state-of-the-art information & communication technologies.

Another goal of the project is to create the international specialized network in the field of applied marine sciences, eMarisNet, that would populate the collaborative platform, through the usage of shared educational resource base, its blended learning (including e-/m-learning), monitoring and knowledge control systems. This solution should also promote the harmonization of European universities' and partner countries universities' educational approaches.

The open source LMS - Sakai CLE was chosen as a base for achieving the goals . That is why the paper raises some questions related to Sakai usage for supporting of multilingual educational project, oriented on three-level education (bachelor, master, doctor) and based on student-centered paradigm.

Didactic approaches for online educational resources in the field of applied marine sciences are piloted in learning content development for such specialization as Applied Hydrometeorology.

Specific features of learning resources and methodologies being developed are:

- content adaptation for students of different levels and specialties;
- realization of step-by-step approach that enables student to use one's own pace of learning depending on individual habits;
- continuous monitoring of student knowledge;
- the use of blended learning approach (traditional and interactive learning methodologies);
- enabling an effective interaction between all participants of the learning process aimed at achieving the competences required;
- inspiring creative independent work of students and introducing the methods of engagement into the learning process.

The paper explores the issues related to the platform customization, preliminary analysis of it's national versions localization completeness (in particular, in Russian language ), adaptation methods, learning content development technology, platform usage for collaborative work of different network users: students, professors, scientists and other stakeholders.

Such issues as eScience tools development for supporting academic master and doctoral projects are raised. The variety of tasks is considered to support learning and research activities of doctoral students, in the framework of the ongoing project and beyond. Challenges that are faced by project participants while introducing Sakai CLE are pointed, adaptation complexity is analyzed, ideas on versatility enhancement of the latest Sakai CLE set of instruments are proposed.

The questions of the eMarisNet potential expansion by involvement of other interested universities and scientific organizations, aiming at integration and effective usage of accumulated educational & scientific materials in the field of applied marine sciences, are raised."

## L. Liyao Zou (China Meteorological Administration Training Centre)

### *Co-author:*

Ji Wenbin, China Meteorological Administration Training Centre

### *Contact:*

zouliyao1964@yahoo.cn

### *The developing strategies, practices and challenges of Meteorological Distance Education in China*

With the rapid development of meteorological modernization, the knowledge and skill foundation of Chinese staff becomes relatively weak. Because of the highly dispersed weather stations and the large staff number, Meteorological Education and Training of China (METC) require the applications of modern information technology to overcome the defects of traditional classroom teaching and disadvantages of early correspondence course, radio or TV education.

China Meteorological Administration training center (CMATC) has been exploring effective ways of distance education based on Internet. The goals are to enhance the ability and effect of training, provide professional services to meteorological staff, modern services and international cooperation. Accordingly, the general strategies for its development are as follows: closely investigate the demands, establish and improve teaching management and evaluation model constantly,

optimize platforms of teaching and learning services, improve courseware developing tools, enrich resources and strengthen its pertinence and openness, promote education equality and guide to form long-term mechanism of learning.

After ten years practices, METC has been developing continuously, mainly in:

Firstly, CMATC has built the distance education training and resource sharing platform, guided its branches the construction of distance education system. A three-level distance education and training system has formed, which is composed of national and provincial training centers and county local learning points, besides, another platform in English has also been established, which makes METC more internationalized.

Secondly, CMATC has established and improved the distance education class system in accordance with characteristics of modern meteorological services, organized to develop a series of elaborate training courses such as weather forecast method, weather radar application technology, weather station service etc. The online platform provides free training materials, courseware and cases developed by CMATC, on the other hand, it has also strengthened the development and introduction of English courseware, for example, from CALmet.

Thirdly, CMATC has established the collaboratively developing system of multimedia courseware, which makes the meteorological knowledge expressed visually by multimedia technology, and also a virtual network teaching laboratory, which provides interactive, experiential learning simulation environment for meteorological staff. In addition, an example of forecaster training courseware is introduced as an actual effect demo.

Finally, in order to effectively manage the national in-service training, timely know the on-job training and manage the overall training plan and pertinence, a staff training record and registration system has been developed which is used as recording staff training behaviors, such as time, location, form, contents and evaluation etc.

Science development and technology innovation in meteorology, expansion of meteorological service fields, connection with higher education and international training standards have brought new challenges for modern METC.

Nowadays, Expanding teaching faculty and improving their abilities, constructing knowledge, course and material systems, upgrading the content and level of METC, improving training quality and internationalizing are urgent tasks to CMATC. Tacking the development of distance education and the international advanced IT technology, CMATC will further improve the platforms, and make learning more flexible and personalized.

## M. Ivan Smiljanic (DHMZ)

### *Co-author:*

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Kristina Petraityte (LHMS)

### *Contact:*

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smiljanic@cirus.dhz.hr

### *Rapid changes/developments in training IT environment*

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JOINT PRESENTATION: Kristina Petraityte & Ivan Smiljanic

Rapid changes/developments in training IT environment

(by Ivan Smiljanic)

Following the latest developments and improvements in hardware capabilities and performance of today's machines (PC's, servers, smart phones, touch screens,.. ), the face of today's software, overall, is changing rapidly. New possibilities provide us with wide range of new tools and options we can use in everyday training activities. On the other hand, new restrictions and main-stream developments can force us, unwillingly , to change and to follow different types of learning tools and templates.

Most of the EUMetrain/EUMETSAT training materials (for instance, training modules and webcasts) are based on the HTML and Flash. Like all other IT fields, both of them are affected by everyday changes and at this moment HTML5, with it's advanced features, is overtaking Flash. That brings us also to the question - is Flash dead?

This presentation will serve as a short overview of following topics:

- changes and new developments in hardware technologies
- changes and new developments in software technologies
- browsers - types, capabilities and usage statistics
- is Flash dead?
- alternatives to HTML and Flash based training materials.

## N. Kristina Petraityte (LHMS)

### *Co-author:*

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Ivan Smiljanic, TSO for EUMeTrain (EUMETSAT)

### *Contact:*

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kristina@bctiketa.lt

### *Experiences in using Comet templates and HTML coding “from a scratch”*

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Information technology changes very quickly these days, but the content on it often requires few, or even no, updates. This is why it is vital to have the capability to reuse important material from previous or smaller technologies.

The ASMET (African Satellite Meteorology Education and Training) training module ASMET 1: Satellite Meteorology in Africa is a perfect case in point. Created in 1998 and, until recently, only available on a CD, this module has now been put online.

The ASMET 1 module presents the scientific and technical basis for using satellite imagery. Forecasters and other users can use it to develop useful techniques for observing and forecasting the behaviour of the atmosphere.

I would like to share my personal experience on putting this module online:

1. Discussions among the experts about which information should be retained and which had to be updated or marked as less important. Originally the plan was to only redo the most important chapters (ASMET 1 has six chapters).
2. How the information from a CD was retrieved and what software was used. The technology used to create the original CD version was no longer readable.
3. Using Comet templates and HTML coding (Adobe Dreamweaver CS5.5) for the first time.
4. Difficulties I have faced updating the technical side of ASMET1 CD version due to changes in information technologies. The main question was should the flash (.flv) format of video files (.flv) be changed to other formats, such as mp4.
5. What problems had to be solved when running a new version of ASMET 1 online.

## O. Ana Oktavia Setiowati (Indonesia Agency for Meteorology, Climatology and Geophysics (BMKG))

### *Co-author:*

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Riris Adriyanto - BMKG

Mulyono R. Prabowo - BMKG

### *Contact:*

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ana\_via32@yahoo.com

### *Weather Satellite Imagery Management Operational Guidelines in BMKG - INDONESIA*

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Meteorological satellite observations are very important to monitor meso-scale atmospheric dynamics, synoptic and global with high temporal resolution that is useful to improve the accuracy of short-term weather forecasting (nowcasting and short range weather forecast). BMKG satellite data receiving system is one of major component in Meteorological Early Warning System (MEWS) BMKG, based on the advantages of this remote sensing technique which is able to identify meteorological event and their impact on the areas that there are not observed by conventional observing station. In addition, the ongoing collection of the satellite data in long period of time can support Climatological Early Warning System (CEWS). Statistical methods applied to the satellite data can be used to predict climatology and learning climate change on a wide scale.

Operational guideline is structured to provide guidance to operational officers in their duties performance in of satellite imagery management at national center and region stations. Operations set out in the guidelines for the management of satellite imagery was covering Routine and Specific Operational. Routine operations are a routine activity for checking the reception, processing, storage, and dissemination of satellite data and imagery that can be used for the purposes of operational users in national and regional Center of BMKG,. Specific operations are operations conducted based on the occurrence of the specific events, in order to support the operations in national and region center of MEWS BMKG. the analysis and or forecasts of significant weather events is based on satellite imagery and other supporting data. Operational guidelines for the management of satellite imagery is dynamic, and it can be updated in accordance with the system development , satellite image analysis methods and adapt to the current meteorological satellite technology.

Activities for socialization operational guideline are conducted for forecasters in each regional center and stations throughout Indonesia. To update the forecaster with the recent technology, in Satellite workshop and training BMKG involved speakers from the leading institutions as EUMETSAT (2012) and BMTC (2013). This activity is to evaluate and review the operational guidelines to be more customized and updated in order to meet the needs of forecaster. Some distance learning activities are also being developed, such as the provision of materials relating to the development and use of data and satellite imagery through the medium of file transfer protocol (ftp). Ftp can be accessed by forecasters who are interested to know and learn more about weather satellites. Some online activities like weather briefing were attended and disseminated to the forecasters in BMKG to open their minds and give insights on how satellite imagery is used in the other countries. Having a unique characteristics as a country in equatorial tropical area, providing a challenge for BMKG in updating the guidelines. Various efforts have to be conducted

to foster and improve the understanding of the forecasters on the use of satellite imagery, to support operational forecaster in the framework of the MEWS.

**Hope to see you again at the CALMet XI in 2015!**

