Training optimisation with Web based training methodologies for satellite meteorology and related application areas

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The Role of EUMETSAT in Training

- To act as a catalyst, promoting training in use of satellite data in Member & Cooperating States, Africa, the Middle East and parts of South & Central America.
- We work in close coordination, but not in competition, with training Institutes of our Member States (e.g. France, Germany, UK…). We also make use of the capabilities of recognised Centres of Excellence (CoE) in satellite meteorology in Africa, the Middle East and parts of South & Central America.
- Much expertise coming from Member/Cooperating States and other partners (CoEs) is used at EUMETSAT training courses and workshops.
- EUMETSAT often takes on a sponsoring role when the scope of an training activity is too big for one country alone.

Learning methods

Traditionally, activities were carried out via class-room courses and some CAL modules. Now the focus is more on web content (webcasts), distance learning lectures, "blended learning" (full and mini) courses, with maximum use of the Internet because:

- **elements from centrally collected training resources (libraries) can be more easily integrated into courses by trainers**
- **"blended learning" courses (based upon largely virtual classrooms) can be accessed by more persons, re-used and thereby they become more cost effective.**
- **management of the participants and course preparation can be can be handled by a Course Management System (CMS), such as Moodle**
- **all regions of the globe can be reached, albeit with differing degrees of success, via the Internet or other dissemination schemes such as the (EUMETCast "training channel", hard drives, donated laptops, etc.)**

Recipe for Success in Training

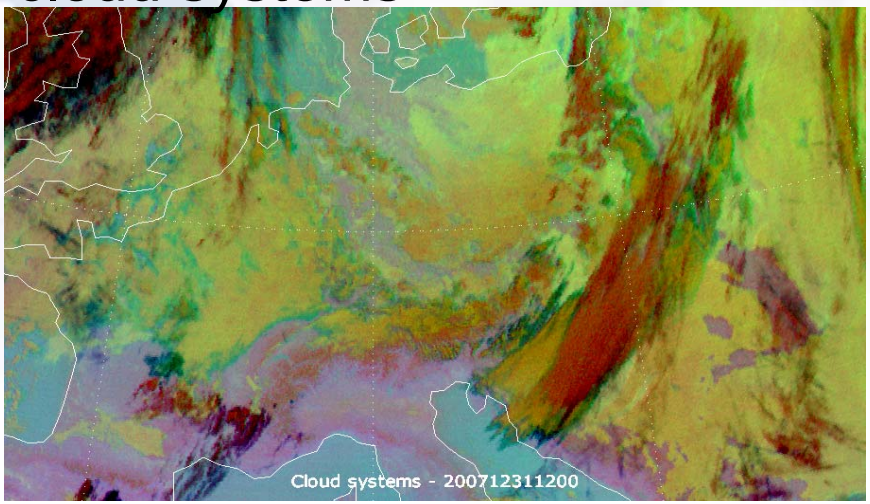
- Integrated Approach to identify where Satellite Data can add value.
- Primarily personnel of Operational Services is trained, but the need exists to go beyond into Universities and schools .
- Networking (EUMETCAL, EUMeTrain, WMO VL)
- Capacity Building ('Community of Practice')
- Sustained Operational Use of Data (Development of 'Best Practices' – Convection Working Group)

Training Example 1: Meteosat Second Generation

Combining channels → enhancing features

cloud and surface in daylight

cloud systems



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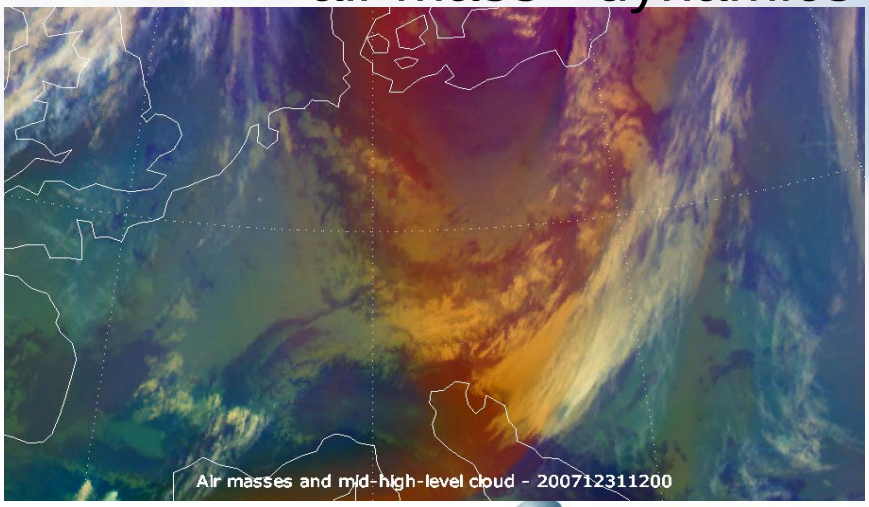
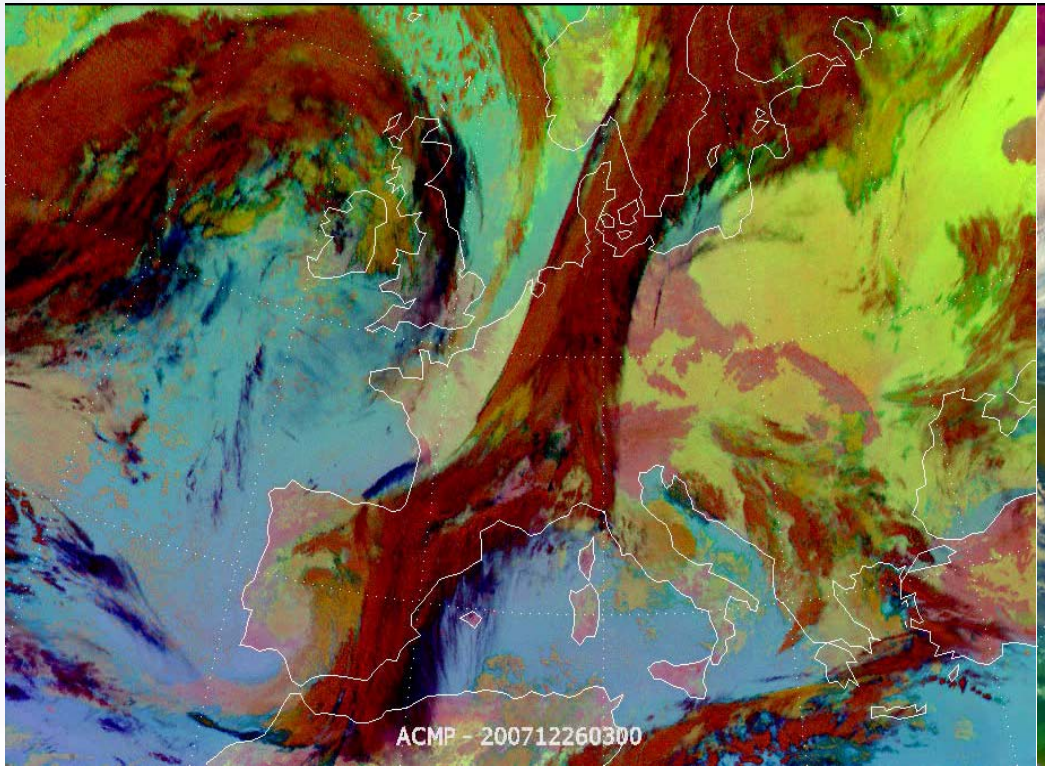
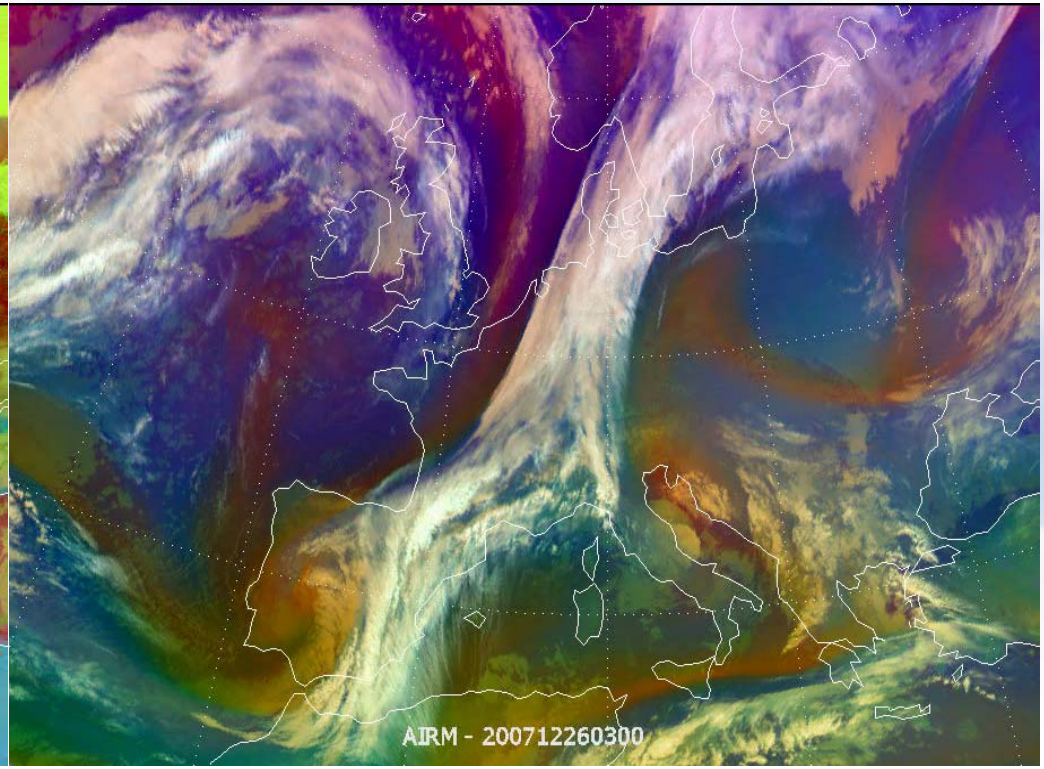
air mass - dynamics



Training Example 2: MSG

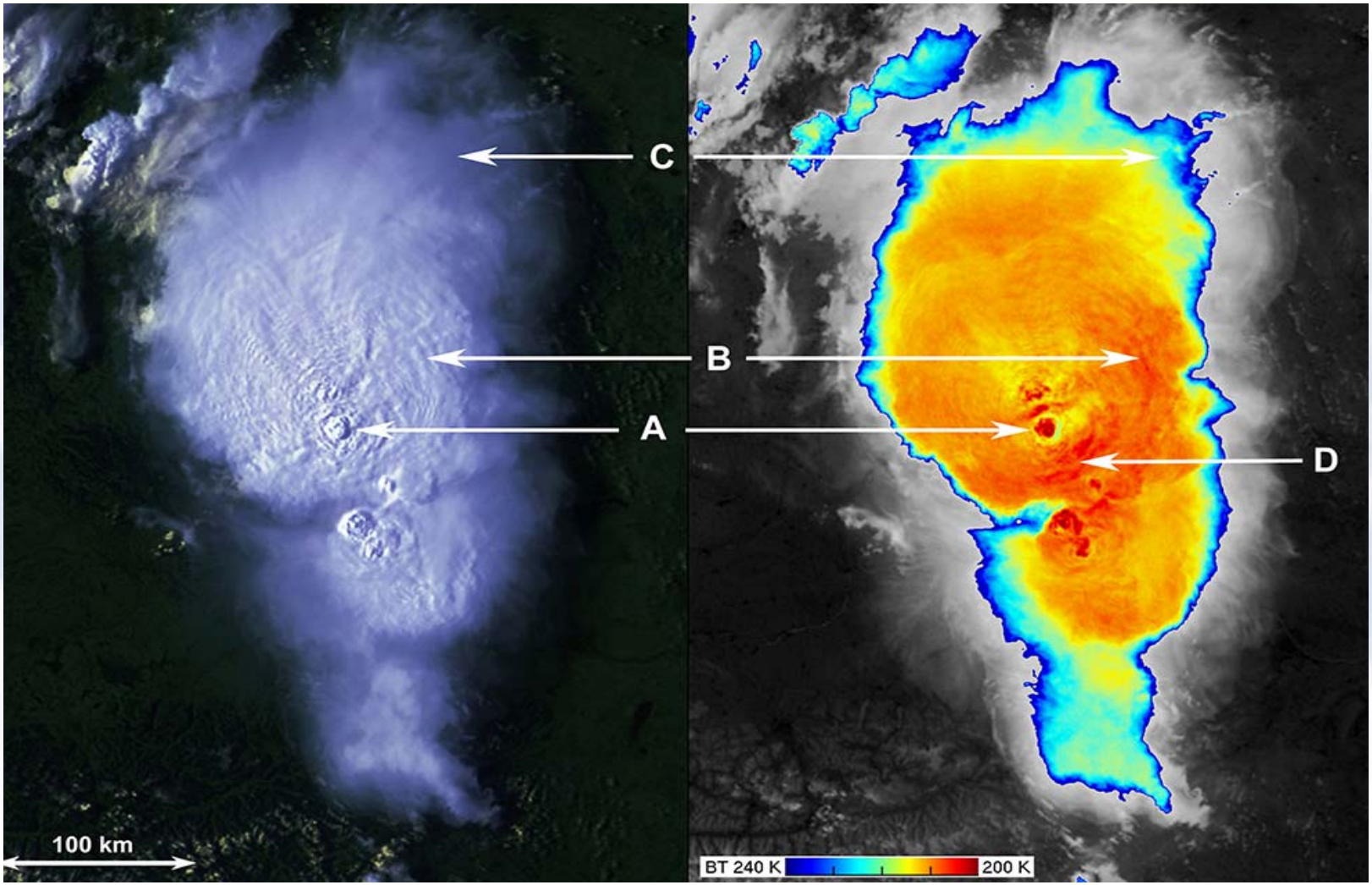
All-day multi-spectral imagery → cloud systems and air mass – atmospheric dynamics





Training Example 3: MSG

R&D, e.g. in convective development

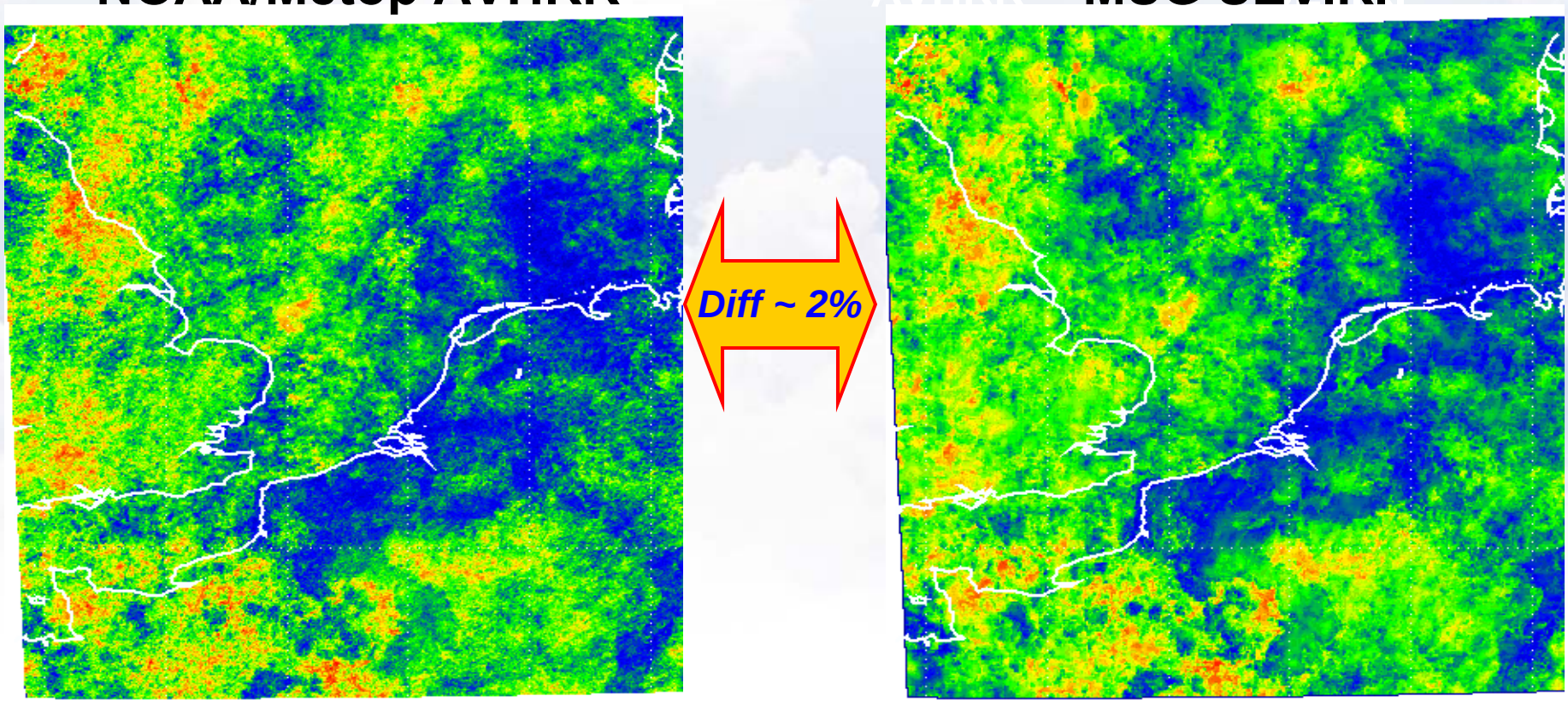


Training Example 4: MSG & Metop

Climate monitoring – Satellite intercalibration

Cloud Properties

NOAA/Metop AVHRR **MSG SEVIRI**



The strategy

EUMETSAT CENTRAL TRAINING UNIT

Working in partnership to develop training

Core benefit application areas

- Meteorology, NWC & NWP
- Climatology
- Ocean applics
- Land applics
- Atmos. comp.
- Hydrol. & water mangmnt
- others.

Contributing satellites

Meteosat, MTG, Metop, Post EPS, Jason, Sentinel-3, other sats, e.g. GOES, NOAA, GEO and LEO FY series, MTSAT Series, COMS, MODIS,……

Core Partnerships

NMHS TCs, SAFs, WMO VL, other TCs, NOAA (COMET), CMA, Russia, other Satmet projects, e.g. Eumetcal, EUMETrain

GEO and GMES partners

User communities

Priority 1 – Member & Cooperating States NMHSs
Priority 2 – Broader Europe (EUMETNET) NMHSs - this is Eumetcal
Priority 3 – WMO Virtual Lab (includes African, Arabian, S American, NMHSs & partner institutes

User groups of the GMES Euro services, African GMES services, SAFs, and other GEO and GMES Communities as they evolve,

Training activities

- Promote satmet, hydrology, ocean, land, climate applications based upon EUM products & services (incl. EUMETCast)
- Support development of resources and their delivery - this is the role of EUMETTrain
- Support goals of Eumetcal
- Encourage applications development
- Training support to AMESD

- Promote GEO/GMES products & services
- Encourage GEO/GMES applications development
- Derive max benefit of data for GMES & other user communities

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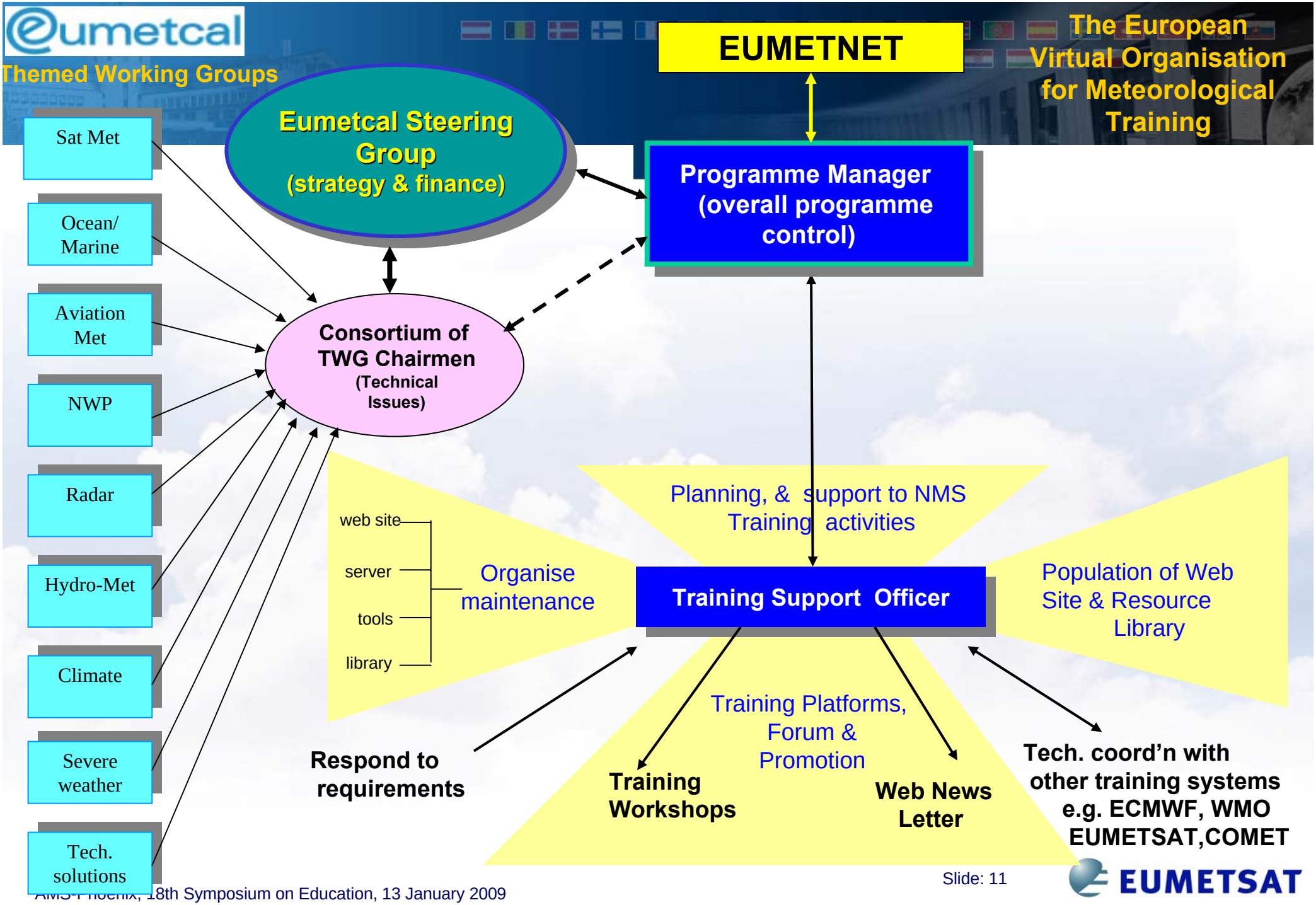
International cooperation

To optimize the training efforts regionally and globally EUMETSAT aligns its training efforts with those of partner Organisations:

- **EUMETCAL**
- **EUMeTrain**
- **WMO (Virtual Laboratory)**
- **Bilateral Cooperation Partners (e.g. NOAA and COMET, Russia (Moscow & St. Petersburg), China (Beijing and Nanjing)**

eumetcal

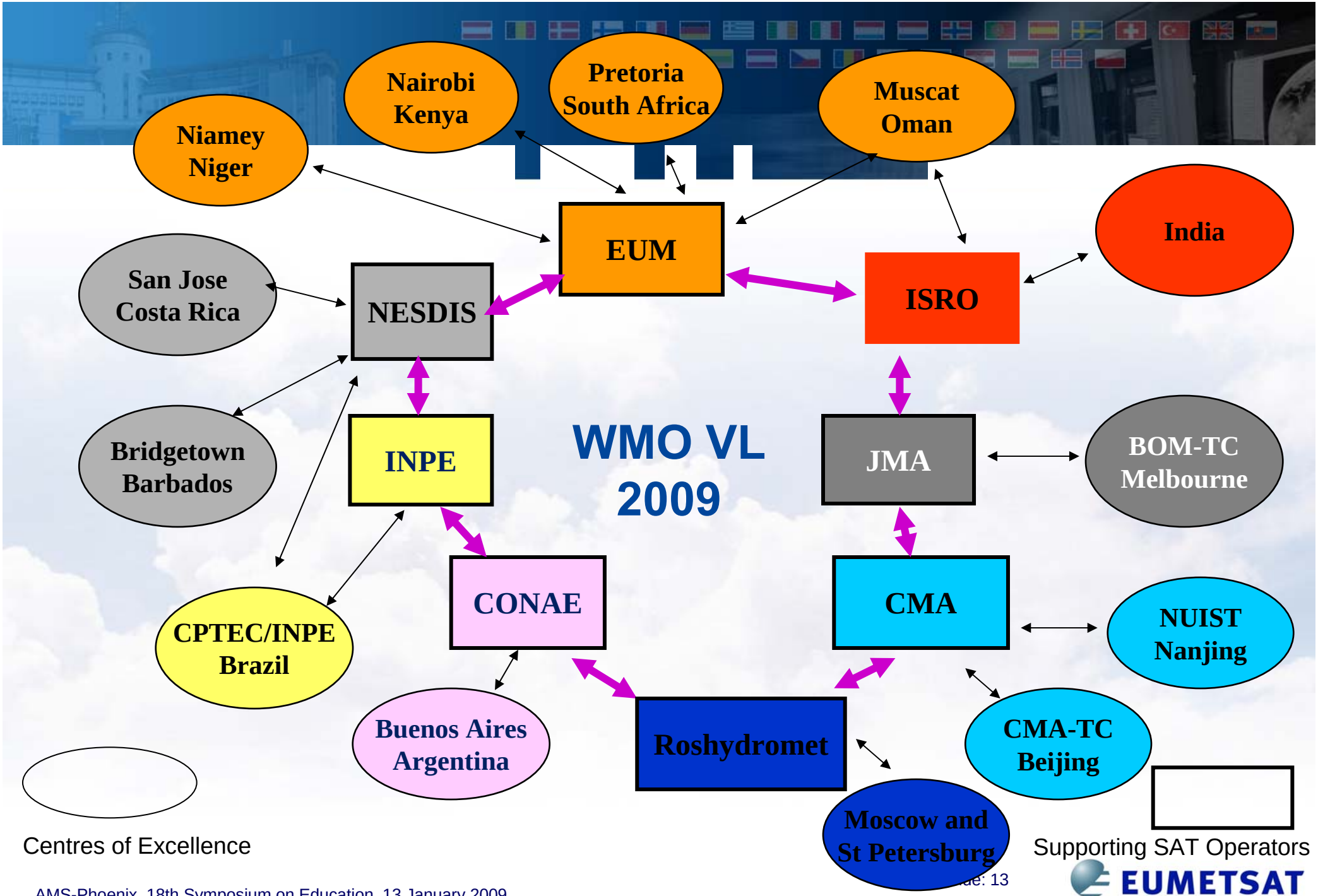
The European Virtual Organisation for Meteorological Training



EUMETSAT

The WMO Virtual Laboratory for Education and Training in Satellite Meteorology

- THE WMO VL is an activity coordinated by the WMO Space Program and the Coordination Group for Meteorological Satellites (CGMS).
- It has established a global network of satellite operators which sponsor training activities through cooperation with Centres of Excellence (CoEs)
- It is aiming to demonstrate where satellite data can make a contribution to application areas like meteorology, but also to related areas.
- It has been identified that the WMO VL can make contributions to almost all Societal Benefit areas of GEO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Kenya
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South Africa
Muscat
Oman
Niamey
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India
San Jose
Costa Rica
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Barbados
INPE
WMO VL
2009
JMA
BOM-TC
Melbourne
CONAE
CMA
CPTEC/INPE
Brazil
NUIST
Nanjing
Buenos Aires
Argentina
Roshydromet
CMA-TC
Beijing
Moscow and
St Petersburg
Centres of Excellence
Supporting SAT Operators

Recipe for Success – Community of Practice

- It is commonly agreed in the training arena that it is not sufficient anymore to just provide new products and training.
- The step to demonstrate that new products can make a benefit is cumbersome and requires a lot of effort.
- Therefore Capacity Building and setting up 'Communities of Practice' is a way forward. In these groups algorithm developers discuss and work together with operational people.
- Products and data which are not used are a waste of resources.
- This method is essential to introduce the data and products of EUMETSAT's new programmes as well.

Conclusion 1

With increased Internet availability and specialised broadcasts such as EUMETCast, there are now real possibilities to reach the global audience:

- **As a global satellite operator, EUMETSAT needs the new technologies to satisfy its global training needs**
- **To conduct courses globally, a Course Management System is very desirable, as it permits the total management of courses, from initial participant selection through to final course assessment**
- **Language difficulties are more easily overcome through global training partnerships**
- **The task of preparation and delivery of training resources can be shared between partners, thus making training more efficient and much more cost effective.**

Conclusion 2
The New Training Strategy

- The new strategy defines EUMETSAT training Activities for the next 20 years.
- The strategy builds upon existing successes, whilst taking account of new future exciting satellite programmes with a wealth of new types of data.
- It will fully take into account the significant influence of e-learning on the style and scope of training activities.
- The Strategy proposes a continuation of training support to many parts of the world, in particular, the developing countries, and will increasingly focus upon the development of data applications responding to the needs of several GEO Societal Benefit Areas (the EUMETSAT Core Benefit Areas).

Thank you very much for your attention !!!