Splinter Session 7: International Training and Outreach

Chair: Mark Higgins (EUMETSAT).

This session was attended by 16 people and focused on training for the ocean colour research community, with particular emphasis on scientists at the early stages of their career. In some sense this was the first meeting of a ''training coordination group''. The group was aware of a bias towards developed countries in our representation and discussion - the specific needs of other countries was less well represented.

A small survey was conducted prior to the conference to gauge [qualitative] interest in various training areas. 56 people responded to the survey. From that survey some themes emerge:

- The survey confirmed a priority for training in data access, manipulation and visualisation, with BEAM and SEADAS being commonly used software.
- There is inconsistent awareness of the training available to the community
- There is an awareness of the importance of training for policy makers and managers

State of play today

There are a number of ocean colour training activities already in place: University of Maine **Ocean Optics course**: http://misclab.umeoce.maine.edu/~optics/. This course has been funded in the past by NASA. *This is an intensive three-week, cross-disciplinary, graduate-level course in optical oceanography and ocean color remote sensing. The major theme of this year's [2012] course is vicarious calibration of satellite-based ocean color radiometers using Earth-based measurements and the use of in-situ optical sensors for validation of products derived from ocean color remote sensing. [from the Ocean optics site]*. There are more international applicants than this course is able to support. This course has supported the initiation of an online Ocean Optics book – accessible to all: http://www.oceanopticsbook.info/. Contribution to this resource and wide use is very welcome.

The Summer Lecture Series, run by IOCCG, in 2012, *was a 2-week intensive course that took place from July 2nd – 14th at the Laboratoire d'Océanographie de Villefranche (LOV), Villefranche-sur-mer, France. A total of 13 renowned lecturers were invited to teach at the course and 17 students from 13 different countries took part in the course. More than 100 students had applied to participate in the course and the 17 remaining applicants were primarily chosen with respect to their motivation and on the basis of their academic background.* [http://www.ioccg.org/training/SLS_2012.html]. The Summer Lecture Series will take place every two years (next course in Summer 2014). IOCCG can sponsor [to a limited extent] students to attend other training courses endorsed by IOCCG for example

JRC training courses, or those conducted by NOWPAP CEARAC (http://cearac.nowpap.org/monitoring/4thRST/1st_Announcement.html). IOCCG also provides information on past training courses though the site: http://www.ioccg.org/training_ioccg.html

The Partnership for Observation of the Global Oceans (POGO) [http://www.ocean-partners.org/] offers a range of training interventions including fellowships and research cruise support. POGO has also developed a network of alumni (NANO Network) to foster information and experience sharing, supported by the Nippon Foundation. POGO also contributes to the GEO Blue Planet initiative. POGO stressed the importance of having a strategic direction (not just training for the sake of it). They noticed a strong regional imbalance in applications and wanted to make a wider group of people aware of what is available. POGO looks at various ways of evaluating how successful the programme is, including looking for pull though – what difference are the alumni making?

Within the Nordic-Baltic states there are some outreach activities. http://www.nordbaltrems.org/background.html

EUMETSAT introduced its training approach. EUMETSAT finds it important to work through networks such as VLab [http://www.wmo-sat.info/vlab/] and EUMeTrain [http://eumetrain.org] to increase accessibility to different groups. There is also a high utilisation of online resources such as Moodle [http://training.eumetsat.int] and online tools for synchronous events such as WebEx and SabaCentra. EUMETSAT is also a partner with COMET in providing online resources [http://meted.ucar.edu]. These online resources are currently used by 250,000 meteorologists around the world in their training.

Common themes

- Resourcing courses was a common theme: for any course there are the costs associated with participation for instructors and participants, and more recently, investment in sustainable training resources that can be used more widely (e.g. websites, online modules, videos of lectures). There are limited funds available for training, and funding partners often have particular restrictions of the levels, activities or geographical areas they are able to support. The group noted the importance (and current low level) of funding for coordination activities, such as those currently undertaken by IOCCG. Coordination and awareness raising of capacity development – IOCCG requests input from organizers of training initiatives to improve coordination and awareness raising of capacity development.
- Accessibility: there is a desire across the group to make training more accessible to a wider group. This is seen in two ways: making the classrooms available to a wider community and making more of online opportunities. The limits on classrooms can come about due to partial sponsorship where students are expected to find a portion of the required support from a rage of different sponsors. This can lead to non-participation. It

is preferable that multiple sponsors support the event so that students can be fully supported. Increasing the use of online technologies can also greatly increase access. This can include online lectures that take place at a moment in time and are recorded for later use, and with online courses or modules that are more asynchronous in nature.

- Students want more practical work: the group noted that learning objectives might be about what someone needs to "*know"* or *"do"*. The request for more practical work may be a request to meet the "do" type of learning objective.
- Need for training on both graphical user interface and satellite data processing software
- Copernicus: the group expressed a desire to know more about the user preparation that will be undertaken as part of the ocean component of Sentinel-3. There is an assumption that Sentinel-3 data will fit into people existing worlds (for example software).
- There is interest in using Wikipedia for outreach and information provision, to provide more information on ocean colour and ocean colour training.
- Not discussed in detail but considered important was outreach activities aimed at the policy / decision making level. There may be some effort at this as part of the African Union – European Union supported MESA project in Africa, but the requirement is global. How are administrators educated – this may be a good question for the GEO forum to consider. The group also noted that ocean colour is sometimes used with school groups, for example using the Giovanni tools/site.

For the future

- We will have an online follow up meeting toward the end of the year.
- There is space for more online / distance resources. The ocean optics book is a great start. Additions might include more material with interactions and quizzes and the use of online lectures.
- Training will be required on software and tools to support use of VIIRS and OLCI data (and other new missions)
- In the operational environment, competencies and certification of courses is an interesting theme. This talks to value of science in real world. Potential areas of interest are: fisheries management, coastal (shore to 200nm) resource management, aquaculture.
- EUMETSAT's role in training may be best focused on the operational users and potentially those involved in the management / decision making processes.