

Outreach Sessions Summary

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The aim of Outreach is to develop, encourage and raise awareness of the achievements of space, science and technology programs, in this specific case, radar altimetry programs and missions. We do this, by 1) informing persons likely to use and exploit results especially decision-makers and elected representatives, 2) communicating to scientists working in related disciplines the usefulness and availability of ocean altimetry data, 3) developing and promoting the societal benefits of ocean altimetry data, and 4) providing oceanography content for educational uses.

The symposium included two sessions and numerous discussions dealing with outreach. More than the summary of one specific session, this article provides the conclusion of all outreach-related sessions and discussions that occurred during the week of the meeting.

For more than 15 years, much has been done in altimetry outreach (“(Nearly) Fifteen years of Altimetry Outreach at CNES and NASA/JPL”, V. Rosmorduc, CLS). During that time, leaflets, brochures and CD-ROMs were produced, but a real “break-through” was the utilization of the internet and World Wide Web, which enabled reaching virtually anybody with a computer. However, this electronic medium doesn’t erase the need for face-to-face meetings between scientists and the public, if only to show that scientists don’t always fit the ‘mad scientist’ stereotype commonly used (“Introducing the Real Scientist: Using Outreach to Change Your Persona” poster, A. Richardson, NASA/JPL).

In terms of outreach, after nearly 15 years there are still ample opportunities to reach out to educators, decision makers, data users, and the general public. Altimetry is not the easiest Earth observing technique to explain – at any level. For the general public, media outlets, students and educators visible imagery of Earth is often preferred over data images. Since visible images look more like photographs, they are easier to interpret for a non-specialist, and a beautiful image is, perhaps, more easily processed from data. At the end-user level, examples of the great diversity of what can be done with altimetry have to be publicized (Societal Benefits of Ocean Altimetry Data, M. Srinivasan, NASA/JPL). At the scientist level, the data processing requirements may not be straightforward or easy to use.

For these reasons, altimetry outreach needs extra attention, and extra imagination! Outreach focus is often on education at the primary and/or secondary school level. During the outreach session several presentations focused on reaching these audiences (“Developing Ocean Awareness: The Argonautica Educational Project”, D. De Staerke, CNES, A. Richardson, NASA/JPL; “Outreach at CIOSS – The Cooperative Institute for Oceanographic Satellite Studies” poster, P.T. Strub, Oregon State University); and on media relations (“Keeping Ocean Altimetry in the Public Eye”, R. Sullivant, NASA/JPL). In particular, the fact that scientists may not be fully prepared for the demands of intense media attention was illustrated (“Satellite Altimetry Outreach During Hurricane Rita: Lessons Learned”, R. Leben, CCAR).

Other sessions (Data Services) included discussions on the Altimetry Tutorial and Toolbox, BRAT and RAT. The BRAT toolbox, developed by ESA and CNES, is also an outreach project but focused on a different audience: graduate students, PhD students, scientists beginning or considering beginning in altimetry research, professors, and altimetry users. The demonstration of this toolbox in workshops and summer schools could be a strong incentive for young scientists to use altimetry. BILKO, a UNESCO program to visualize satellite images is another user-oriented project that was presented (“African Capacity Building in Satellite Altimetry with the UNESCO-Bilko Programme” poster, V. Byfield, NOC, Southampton), with a goal of helping developing countries gain the capacity to use satellite data.

In general, the fact that resources for easy-to-use data are available to these users was mentioned during numerous sessions. AVISO SSALTO/DUACS, The University of Colorado CCAR (Colorado Center for Astrodynamics Research), NOAA-OSCAR, and the Naval Research Laboratory (NRL) Global Ocean Analysis Model are a few examples of organizations that provide high-level, easy-to-use, data, in near real- or delayed-time to users.

An important outreach focus area is the use of the data by operational and recreational users as well as by researchers and weather/climate organizations. Several new applications were highlighted in the presentations. Some examples include new developments in monitoring and forecasting hurricanes, enhanced support of ocean races, ocean warming estimates, and forecasting ocean currents for commercial uses. In addition, several talks in the “New Applications” sessions support outreach efforts.

Valuable discussions with ESA, in particular with J. Benveniste, took place outside of scheduled session time. A recommendation from the OST/ST session was the development of more partnerships in outreach and applications efforts. ESA is a logical partner for the outreach efforts. Closer collaboration could lend more focus on and support of the altimeter onboard Envisat, and could strengthen the case for multiple missions – also a strong recommendation from the OST/ST. More partnering opportunities with Eumetsat and NOAA will emerge as we approach the launch of Jason-2/OSTM.

The main recommendation of all participants, especially made during the round table discussions was that they wanted to see more highlights on the importance of the continued time series, and the need for multi-satellite observations. Some potential examples include the connection between physical and biological oceanography, the heating/cooling of the ocean, ocean circulation with respect to improved geoid measurements from GRACE, and the enhancement of coastal tide models. The important media impact of publications in *Nature* or *Science* was stressed: scientific results published in these two journals provide an important and central resource for the press.

