

Meeting Summary
National IOOS HF Radar Technical Steering Team Annual Meeting
16-17 April 2013
NCAR Center Green Offices
Boulder, Colorado

The Steering Team (ST) is presently composed of the following individuals:

Jack Harlan (IOOS Program Office) <Jack.Harlan@noaa.gov>

The following members were selected by the Regional Associations

Eric Terrill (SCCOOS) <eterrill@ucsd.edu>
Jeffrey Paduan (CeNCOOS) <paduan@nps.edu>
Nick Shay (SECOORA) <nick@rsmas.miami.edu>
Pierre Flament (PacIOOS) <pflament@hawaii.edu>
Scott Glenn (MARACOOS) <glenn@marine.rutgers.edu>

The following were selected by the IOOS Program Office as experts in HF radar or in operational oceanography.

Mike Kosro (Oregon State University) <kosro@coas.oregonstate.edu>
Art Allen (USCG) <Arthur.A.Allen@uscg.mil>
Ming Ji (NWS Ocean Prediction Center) <ming.ji@noaa.gov>,
Patrick Burke (NOS CO-OPS) <pat.burke@noaa.gov>
Chris Paternostro (NOS CO-OPS) <Christopher.paternostro@noaa.gov>
Bob Jensen (USACE) <Robert.E.Jensen@usace.army.mil>
Rex Hervey (NWS NDBC) <rex.hervey@noaa.gov>,
Don Barrick (CODAR Ocean Sensors, Ltd.) <don@codar.com>

Attendees to the April 2013 Meeting:

Jack Harlan
Eric Terrill
Jeffrey Paduan (via phone)
Nick Shay
Scott Glenn
Mike Kosro
Don Barrick
Bob Jensen
Pierre Flament (via phone)
Art Allen (via phone)
Chris Paternostro (via phone)
Rex Hervey (via phone)

Agenda Topics

Revisit the topics from July 2012 meeting

- **Freshwater Tiger Team:**

- The report is complete and has been posted on the IOOS HF radar web page for several months.

- **Annual Report for HF Radar Program**

- From 2012: Consensus opinion that ST create an annual report. Example items to include are: national metrics, including budget levels versus last year and versus national network plan. Also include region association inputs. Suggest that the ST make suggestions on format to the regions so it will be easy to extract those sections from the regional reports and make a coherent HF report. Include some assessment of non-IOOS funding levels and sources for HF radar.

No activity has occurred since last meeting. ST still believes this is an important task and a Tiger Team should be formed to implement. Best time would be in Q1 of the FY. Important to note progress toward National HF radar plan.

- **Modeling & Data Assimilation Tiger Team:**

- Mike Kosro has been compiling information on existing modeling uses of HFR and other ST members will be working with him to continue that effort.

ITU Frequency Management

Jack Harlan and Don Barrick gave a brief update.

We expect there to be an ongoing need for the present experimental licenses, aka "4.4 licenses", for research purposes worldwide. The upcoming ITU Working Party 5B meeting (May 15-31) may have outcomes that will be significant for HFR operators. NOAA and FCC both will have representatives at the meeting.

- **GEO Global HFR Effort**

- Jack Harlan gave a short update on the upcoming meeting in Bergen, Norway. Approximately 27 attendees from 14 countries have indicated their intent to attend so far.

- **NWS Interface**

Jack Harlan and Rex Hervey gave a status update on the AWIPS and NCEP projects. The AWIPS project is still awaiting the decision of NWS SREC as to funding for the

project. NDBC has completed the implementation of GRIB2 for the GTS and total vector data will flow over GTS by end of May.

- **Action Item** (Harlan; CLOSED): Find out what entities in NCEP are interested in HF radar data.
- From email conversation with NWS Science & Technology office after the ST meeting (lead office for this project):
 - o At NCEP, Hendrik Tolman is the main POC and Andre van der Westhuysen is the lead developer. The data is supposed to help validate the Nearshore Wave Prediction System. At NOS Coast Survey Development Lab, there are plans to eventually assimilate the HFR data; Frank Aikman is the POC.
- I made the point to NWS S&T that the IOOS HFR community will want to be engaged with NCEP and CSDL as plans progress to use the HFR data.

- **Archiving**

- Jack Harlan indicated that he expects the FY13 budget to have funds to begin development of archiving at Scripps CORDC and NODC.
- Archiving was discussed in the context of a best-available data set. An annual reprocessing is probably sufficient.
- The topic of metadata will be a challenge as to how to implement.
- Modelers often want ~1 year of data
- Funds may be needed at the operator level to implement reprocessing of radials.
- For reprocessing data to achieve a best-available data set, what tools are needed?

- **Trajectory Tools**

- From 2012, the ST agreed on the following language for the Modeling Testbed which did not appear in the final FFO.
- *Recommend the development of a Lagrangian trajectory and visualization toolkit that enables the use of multiple particle trajectory algorithms with a range of dispersion parameterizations to be deployed in surface current fields produced by both ocean models and by HF radar.*
- The ST is still interested in an effort to assess the performance of various trajectory models. Scott Glenn has agreed to kick off a new effort to explore this topic in more depth, possible Tiger Team.

- **IOOS Wayne Ave Offices Display**

- From 2012: *the Steering Team recommends that a large display monitor in the Wayne Avenue offices of the IOOS Program Office be dedicated to displaying the status of the IOOS HFR network. A number of real-time display programs have been, and are being, developed by IOOS regional partners that would provide an interesting and intuitive experience for Wayne Avenue visitors. The display would rotate through several*

different views of the national network such as maps, statistical health displays and detailed regional statistics views.

Jack Harlan reported that no movement had occurred on this request and that, due to the upcoming move of the IOOS Program Office, it will likely be deferred for several months.

New Items for 2013:

- **Performance Metric**
- The largest portion of the meeting was devoted to discussion of the new metric developed by Scripps CORDC in cooperation with the IOOS Program Office. A presentation via readytalk was given by Lisa Hazard and Tom Cook (CORDC) on the current draft of the metric.

Some of the comments from ST members:

Probably the most significant and problematic item is: How to account for seasonality in the coverage for the “optimal” grid? (NOTE: Suggestions to rename “optimal”; one suggestion is “appropriate local grid”.)

Suggestions to have CORDC explore statistics of maximum range so that some other measure, rather than “max range”, might be used. A “mean outer range” is one suggestion for a different statistical parameter.

Also, for CODARs, calculate from the diagnostic files the standard deviation of mean outer range, as a function of day/night and seasonal variations, due to environmental factors. Make this a part of performance metrics in addition to mean outer range.

Other items noted:

- For 5 MHz radars, be sure to exclude regions that are too shallow for linear dispersion to be applicable.
- Account for planned and known downtime e.g. a major component has been damaged and the operator is awaiting a replacement.
- Pierre Flament indicated that range-bearing radial velocity files have been an option with WERA software for many years.

Action Item: Explore this option for all WERA (and Hawaii) radars. Jack Harlan will follow up with Pierre.

Action Item: Eric will follow up with Lisa and Tom on the items discussed by the ST relevant to the computation of the statistics.

Update on HFR Data into CO-OPS PORTS

Chris Paternostro (via phone) updated the ST.

Primary focus is on Chesapeake Bay for prototyping with strong interest in NY Harbor and San Francisco Bay. (NY Harbor had been the prototype region due to strong interest from the NY Harbor Pilots but Hurricane Sandy destroyed the radars that were providing input.)

CO-OPS had a meeting with the Maryland Pilots in March. Generally, the feedback was positive. They pilots had some issue with the hourly updating of HFR data. However, CO-OPS is providing a harmonically-derived prediction at shorter intervals. They also display a time series of the HFR data at key navigation points. Target date is September 30 for Chesapeake Bay product.

Update on SAROPS

Art Allen (via phone) updated the ST.

Hawaii data has been coming into the EDS.

All long-range data on west coast is also in the EDS. STPS is also produced for the west coast.

Both data and STPS for the Mid-Atlantic are being produced.

Art is working on getting Puerto Rico data into EDS.

Art provided a link for the “Cooperative Maritime Strategy” document which was completed by agreement between NOAA and USCG.

Action Item: Art agreed to produce a one-pager for both HFR operators and local USCG personnel.

Steering Team Membership

The ST discussed the current composition and size of the ST. There was unanimous consensus that the team composition and size is appropriate as it now stands. Jeff Paduan (via email) raised the question of whether the ST terms of reference are still appropriate. This was not discussed but will be in later telecons and emails.