



Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology
Commission technique mixte OMM-COI d'océanographie et de météorologie maritime
<http://www.jcomm.info>

JCOMM Technical Workshop on Wave Measurements from Buoys

2 - 3 October 2008, New York, United States

PROPOSAL FOR PILOT PROJECT

– DBCP Pilot Project on Wave Measurements from Drifters (DBCP PP-WMD) –

Objectives of a Pilot Project for the measurement of waves from drifting buoys

- Evaluate feasibility of wave measurement from drifters
- Explore in particular use of GPS as the cost-effective means of yielding 2-dimensional wave spectra
- Prove the technology by measurements and intercomparison with existing trusted wave measurement technologies
- Subsequently deploy up to 50 wave measurement drifters within the framework of the pilot project
- Establish confidence in user community in the validity of wave measurements from drifters

Methodology

- Establish a Pilot Project Steering Team comprising a wide representation from end-users, wave experts, buoy manufacturers, and buoy operators
- Draw up a work programme (see draft later in this document) that
 - Evaluates the potential of GPS for wave measurements from drifters
 - Verifies the performance of GPS-equipped drifters against industry standards
 - Leads to the deployment of a fleet of up to 50 prototype drifters
 - Analyses and reports on the data
- Consult with potential end-users (e.g. global wave modellers, satellite operators, forecasters e.g. for extreme events such as hurricanes, etc.) to decide on the deployment area(s)
- Engage with buoy manufacturers to build up to 50 prototype wave measurement drifters to be deployed as part of the pilot project.
- Ensure free access to data via the DBCP servers
- Engage with other operators and end-users to seek contributions (cash and in-kind)
- Present results (written reports, conference presentations, scientific publications)

**Draft Terms of Reference for the Steering Team of the
DBCP Pilot Project on Wave Measurements from Drifters
(DBCP PP-WMD)**

The Pilot Project will a) evaluate the feasibility of making wave spectral measurements from GPS-equipped drifting buoys and b) if successful, proceed to the deployment of a network of up to 50 GPS-equipped drifting buoys.

The Pilot Project will run for an initial three-year period from November 2008 and will report to the DBCP on progress at its annual sessions.

The Pilot Project will seek to evaluate the feasibility of GPS wave technology for drifters in terms of:

- 1) Data quality in comparison to established industry references;
- 2) Sensor reliability and survivability;
- 3) Limitations of sensor validity as a function of sea state;
- 4) Data throughput in terms of quantity and timeliness;
- 5) Data management, especially data formatting and insertion on the GTS;
- 6) Operational shipment and deployment, including rapid response options;
- 7) Cooperation with developing countries in terms of drifter deployment and technology transfer;
- 8) Collaboration with manufacturers to promote availability of GPS-equipped wave drifters;
- 9) Overall cost effectiveness (manufacturing, transmission, data processing, life-time);

The Steering Team is tasked to guide the Pilot Project in achieving the tasks described above.

Draft Steering Team Membership – please add/delete your name if interested/uninterested

The Steering Team is comprised of the following individuals:

- David Meldrum (Chair) (David.Meldrum@sams.ac.uk)
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Secretariat support will be provided by WMO and IOC. Contact points:

- Etienne Charpentier, WMO, Switzerland (echarpentier@wmo.int)
- Boram Lee, IOC, France (b.lee@unesco.org)

DBCP Pilot Project on Wave Measurements from Drifters (DBCP PP-WMD)**– Draft workplan –****Year 1 – analysis of available technologies**

1. Establish what potentially low-cost technologies (GPS or otherwise) exist for making wave measurements from drifters, and establish links with the developers of these technologies
2. Undertake lab and field trials of selected systems; field trials to take place at an established wave measurement facility (e.g. Scripps or Duck)
3. Analyse intercomparison data in terms of quality, reliability and performance limitations
4. Examine options for improving data quality, reliability and performance envelope
5. Present results to DBCP-XXV
6. Decide if the technology is good enough to warrant a more extensive trial in Year 2, or if further development is needed

Year 2 – proceed to larger deployment if results are encouraging

1. Engage with buoy manufacturers to develop a common specification for prototype drifters
2. Develop a cost-sharing mechanism for the construction and deployment of up to 50 wave drifters within available resource limitations
3. Consult with end users to draw up a deployment strategy that might best demonstrate the viability of the technique or otherwise
4. Commence deployments
5. Analyse results and present to DBCP-XXVI and other fora
6. Decide if modifications are needed to the plan or the technologies for year 3

Year 3 – continue with development and deployments

1. Invoke any technology changes deemed desirable
 2. Continue with deployments within funding limitations
 3. Analyse and publish results as widely as possible
 4. Decide if a case can be made to continue the pilot project for a further year and investigate follow-on mechanisms
 5. Report to DBCP-XXVII
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