GLOBWAVE

Newsletter

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2012

February

2nd GlobWave User Meeting

An enjoyable and dynamic User Meeting was held on 5th and 6th October at the National Marine College of Ireland, in Cork. The meeting allowed participants to present how GlobWave data is being used.

Presentation themes comprised calibration and validation, applications, future concepts, and wave data inter-comparisons. The meeting was concluded with a lively panel discussion, which allowed GlobWave users to provide much valued feedback to the panel of key GlobWave team members.

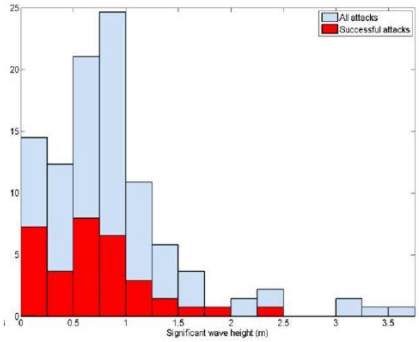
In addition, there was an opportunity to tour the NMCI facilities (including a Marine Simulator and Wave Tank) and a free evening networking event with dinner and drinks. A report on the User Meeting and all Phase 2 activities is available in the 2nd Annual User Assessment.

We now enter the final phase of the project and the focus is to work closely with users and advise on the GlobWave services to ensure maximal uptake of satellite wave data. Please do let us know how you are using the data and services – we give some real project examples below.

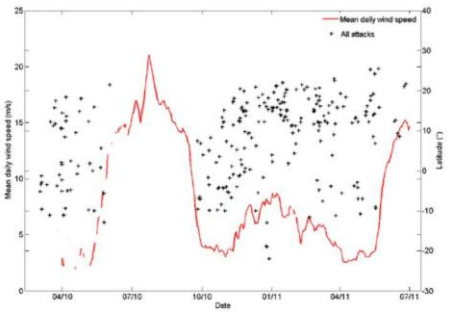
Projects Using GlobWave Data

I. Climatic Controls on Piracy. This is a study by the New Zealand Defence Force (NZDF) using GlobWave data to examine the climatic factors affecting piracy in the Indian Ocean. Due to the security problems in the region, no *in situ* measurements were possible; meaning GlobWave data was uniquely placed to provide the regular accurate wind and wave height information needed. This study found a strong correlation between successful pirate activity and both wind speed and wave height, as seen in the figures below.

Sally Garrett, who co-authored the paper said: "What we like about the GlobWave database is that it provides different data from a number of altimeters all in the same format with a very short turnaround time between collection and being available online. In the NZDF we have very small teams of people work on projects, so the ability to access an external database (rather than develop one is house), enables us to include data from a greater number of platforms and analyse a longer time series".

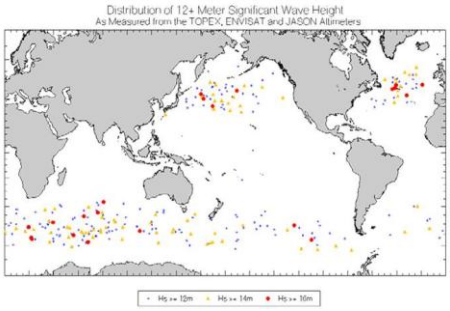


This study was presented in December at the International Congress of Biometeorology in Auckland, New Zealand. Further information and a link to the paper can be found on the GlobWave portal.

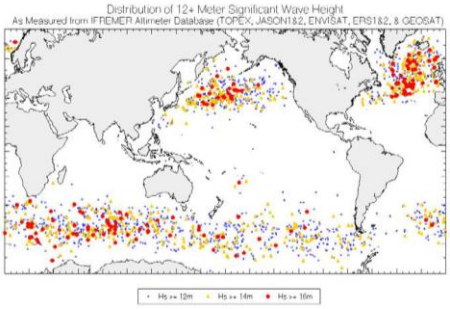


II. Specification of Unbiased and Homogeneous Marine Wind Analyses. This is a study from Oceanweather, Inc and looked at critical issues for the specification of unbiased and homogenous marine wind analysis. This study used GlobWave altimeter data to scan for global occurrences of storm peaks, where significant wave height was above 12m. GlobWave data was used in the second pass of this study and compared to a first pass using only TOPEX, Jason-1 and ENVISAT data. The main advantage of using GlobWave data was the large increase in data available and the ease of analysing the homogenous data.

This can be seen in the two figures, with the first figure showing the swell events identified from the first past, whereas the second figure below shows significantly more swell events identified in the second pass using GlobWave data.



Other identified advantages of using the GlobWave data were virtually no spurious spikes, an increased dynamic range of altimeter winds and radical increase in Envisat high sea state occurrences.



Vince Cardone, who conducted the study said: "GlobWave appears to have captured very nearly the full dynamic range of naturally occurring sea states over the global oceans and, therefore, it is proving to be uniquely invaluable for testing the limits of skill under extreme forcing of current advanced ocean wave prediction models and for assessment of rare (~10^{-4} probabilities) sea state driven design criteria for ships and offshore infrastructure".

This study was presented at the 3rd International Workshop on Advances in the Use of Historic Marine Climate Data (MARCDAT-III) in ESRIN, Italy in May 2011. The presentation can be accessed here.

Online GlobWave Lesson

Murray Brown from the UNESCO/IOC Intergovernmental Oceanographic Data and Information Exchange's (IODE) OceanTeacher program has developed an online tutorial using GlobWave data. The lesson teaches users how to access the GlobWave portal and download near real-time Envisat and Jason

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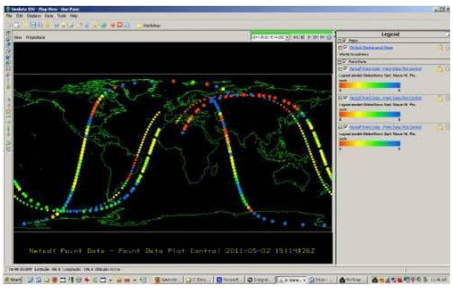
1&2 Altimeter data, open the netCDF files using the Integrated Data Viewer, and display multiple datasets of altimeter point data with a range of visualisations



Merged Altimeter Database

Ifremer have just released a new merged altimeter database, containing altimeter Significant Wave Height (SWH) measurements collected almost continuously over a 20-year time period from seven altimeter missions; ERS-1 & 2, TOPEX-Poseidon, GEOSAT Follow-ON (GFO), Jason-1 & 2 and ENVISAT. This new database contains additional calibration information and recalibrated and reprocessed datasets, which have been collated into homogenous daily data files to aid usage.

The new database and documentation can be found on the Ifremer ftp site.

GlobWave Outreach Activities

As a continued effort to improve outreach we have created both a Wikipedia page and a LinkedIn User Group. The latter will be regularly updated informing members of GlobWave news and activities.

Online Matchup Query Tool Update!

In September 2011, GlobWave released their fantastic online query tool, which contains a powerful search engine to find buoy / satellite overlaps based on a range of criteria including sensor / measurement, date, depth and distance to shore.

The tool also contains extensive visualisation tools to help understand the relationships between data sets. Such visualisations include time series, histograms, directional histograms, scatterplots and time / frequency plots.

This tool was successfully demonstrated at the recent User Meeting in Cork. To access the tool and for further details on its capabilities please visit the GlobWave portal.

Quality Control Reports

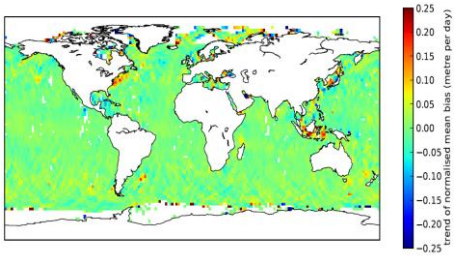
There are two kinds of quality reports:

I. Annual Quality Control Report. We have just published an Annual Quality Control Report which uses the delayed mode GlobWave data to perform crossover analysis and comparisons with *in situ* buoys. It uses 2010 GlobWave data and follows on from the Satellite Wave Data Quality Report released last year, which analysed the 1985-2009 archives of GlobWave data. It also performed interesting comparisons of delayed mode vs near real-time significant wave height measurements for Envisat, Jason-1 and Jason-2.

II. Quarterly Quality Control Reports. Whereas the Annual QC Report focuses on delayed mode data, the Quarterly Quality Control Reports analyse near real-time data and are made available on the portal shortly after each quarter. They contain a summary of the quality levels of the GlobWave data sets.

Pilot Extension to the JCOMM Wave Forecast Verification Scheme (WFVS)

The Pilot Extension to the WFVS has completed 1 year of operations. Reports showing intercomparisons between wave models and satellite observations are automatically generated daily and monthly for UKMO, SHOM/ PREVIMER and ECMWF.



Report plots can also be viewed online with the graph and the data downloaded in multiple formats. We are working to incorporate other participating centres in the next few months.

The plot shows the map of trend of mean bias of UKMO's Hs (total partition) vs. Hs from Ku band (calibrated) (total partition)

Past Events & Forthcoming Schedule

2nd GlobWave User Meeting (Cork, Ireland) – 5th to 6th October 2011

CFOSAT Science Meeting (Brest, France) – 14th to 16th November 2011 – An oral presentation was given on GlobWave.

GlobCurrent User Consultation Meeting (Brest, France) – 7th to 9th March 2012

Challenger Wind Waves Special Interest Group (Liverpool, UK) – 22nd March

SeaSAR 2012 (Tromso, Norway) – 18th to 22nd June 2012

GlobWave 3rd User Meeting (TBD) October/November 2012 – if your organisation is interested in hosting this meeting then please do get in contact with the GlobWave Team.

GlobWave – An ESA Initiative

GlobWave is funded by ESA and CNES and is improving the uptake of satellite-derived wind-wave and swell data by the scientific, operational and commercial user communities. The project, running from January 2009 – December 2012, covers the development of an integrated set of information services based on satellite wave data, and the operation and maintenance of these services for a demonstration period.

GlobWave is led by Logica, with key expertise provided from SatOC, CLS, Ifremer and NOC.

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