GlobWave Sustainability

We are delighted to announce that the GlobWave data products and portal will continue to be maintained by Ifremer for the foreseeable future. It is great news that the GlobWave service will continue, which will give further users re-assurance to invest effort in using the products.

GlobWave User Meeting: Abstract Call

The 3rd GlobWave User Meeting will take place on the 7th & 8th November at the European Maritime Safety Agency (ESMA) Headquarters, in Lisbon, Portugal. This will be a great opportunity to present and hear how satellite wave data is being used in science, commercial and operational user communities. The abstract call opened on 11th July with the submission deadline on **18th September, 2012.** Registration is free and, in addition to the talks, tours of the ESMA facilities will be provided along with a free evening of networking, dinner and drinks.

For detailed information about organization, abstract submission and registration, please visit the conference website.

EMSA is a European Union agency charged with reducing the risks of maritime accidents, marine pollution from ships and loss of human life at sea by helping to enforce pertinent EU legislation.

Projects Using GlobWave Data

I. Validating Global wave model data offshore of Uruguay. HR Wallingford provides specialist research and consultancy studies, including offshore MetOcean and wave modelling studies located all over the world, often in places with little *in-situ* measurements.

In one such study, GlobWave data was used to validate global NOAA WAVEWATCH III (WW3) model data offshore of Uruguay. A particular advantage of satellite data is its high spatial resolution compared to the global models, which are typically 50 to 100km. As the figures below the GlobWave data provides useful information about spatial variability in a region. The upper figure shows the locations of the satellite track relative to the coast and the available WW3 grid points in the area. The lower figure shows the comparisons as a function of distance from the coast, and shows good agreement between the model and the satellite data.
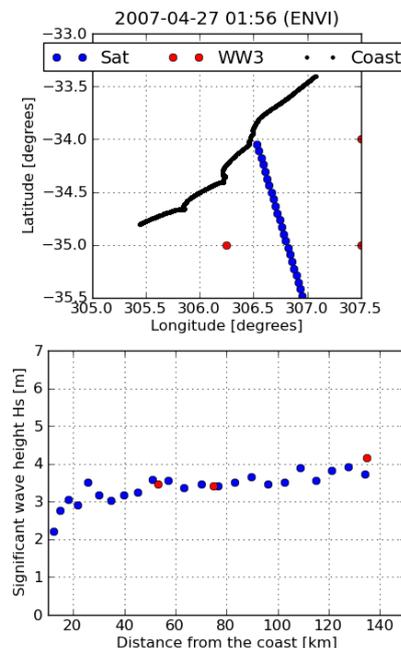
In summary, this study shows GlobWave data can both validate global wave model data and also provide information of the spatial variability of wave heights in a region. Laure Grignon from HR Wallingford said: "GlobWave has provided additional data to validate offshore conditions estimated from global and regional wind and wave models, representative of an average in space and time rather than an instantaneous measure of the wind or wave height. Due to the success of these results, we will continue to use GlobWave data to calibrate and validate global and regional wind and wave models."

II. Wave Model Hindcast Assessment. This study by the National Autonomous University of Mexico examined critical issues in assessing the accuracy of numerical wave models. It used GlobWave Topex/POSEIDON altimeter data as a benchmark for comparison of various wave model results covered the Gulf of Mexico and Caribbean Sea, forced with the North American Regional Reanalysis (NARR) data. While the model was run from 1979 to 2008, only data overlapping with the GlobWave data was used, i.e. 1992 – 2008.

This study was performed by creating and executing a number of Matlab scripts. The first script extracts and processes daily GlobWave data to produce H_s values. A second script produces a matrix which combines these measured H_s values with corresponding collocated H_s values from the hindcast.

Statistical analysis is then performed to determine the correlation between the measured and hindcast values. To ensure a suitable comparison is achieved any matrix cell with less than 3000 observations were removed for the comparison. A 1-cell buffer was also applied around coast areas, where altimeter measurements were know to be less reliable.

The figure below shows the calculated RMS between the measured and hindcast data for 1993. The low RMS between these values indicating a high correlation between the two measurements.
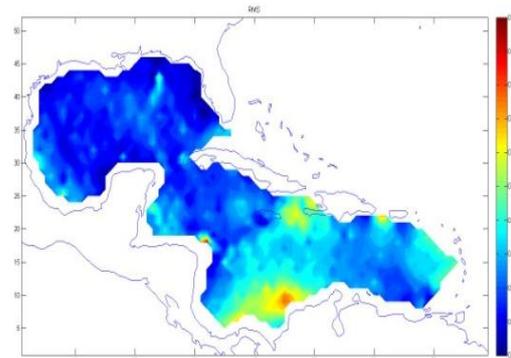
Christian Appendini, who conducted the study said: "We have done a 30-year wave hindcast for the Gulf of Mexico and Caribbean Sea, which we have validated with buoys, but this data is sparse in time and space, so we wanted to use the GlobWave data for such purposes. As this is our first time using satellite data it has taken us some time to get what we need. On the other hand, if GlobWave data is unavailable we wouldn't have the opportunity to use satellite data."

These case studies are been converted into tutorials to allow others to replicate their work. To access these tutorials and other case studies please visit the Case Study section of the GlobWave Portal.

www.GlobWave.info

Loss of Envisat Satellite Wave Data

Envisat has provided GlobWave with 17 months of near real-time SAR and Altimeter data but unfortunately contact was lost with the satellite on April 8, with attempts to restore communications unsuccessful. The SAR data streams are a big loss, but there is still near real-time Altimeter data streams from Jason-1 and Jason-2, as well as the new GlobWave Cryosat data product. Looking forward, the news that the Sentinel-1 satellite has been booked for launch in 2013 is very positive.

Updated Online Query Tool

In February 2012, GlobWave released an updated latest version of their 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. Recent updates enable the display on ancillary data such as wind fields, storm paths and currents.

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. New display features include display along a section, virtual buoys, intercomparisons and areal statistics.

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. Each year we publish an Annual Quality Control Report which uses the delayed mode GlobWave data to perform crossover analysis and comparisons with *in situ* buoys. It also performs 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 by month of the quality levels of the GlobWave near real-time data sets.

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

The Pilot Extension to the WFVS has now been operational for over a year. Reports showing intercomparisons between wave models and satellite observations are automatically generated daily and monthly for UKMO, SHOM/ PREVIMER FNMOC, NOAA and ECMWF.

The reports highlight discrepancies between the different models and satellite observations, as well as showing any systematic issues with forecasts for the model domains.

The following plots show a specific region in the north Atlantic, with the normalised mean bias and the scatter index of the SWH from the UKMO model vs the satellite altimeter (Ku band) SWH values during June.
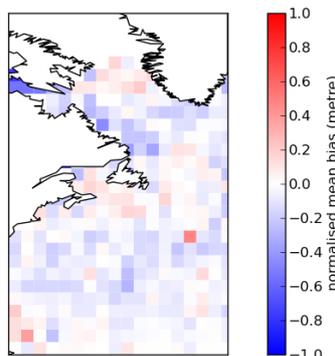
The reports are configured for each participant, with participants able to elect which sections of the report they wish to

have generated. Specific regional plots are being included for some participants. All the generated reports contain links to where the figures can be viewed online and each figure, together with its underlying data, can be downloaded in a range of formats. Users are also able to generate specific figures online to investigate particular time periods or diagnostics, even if they are not included in the regular reports.
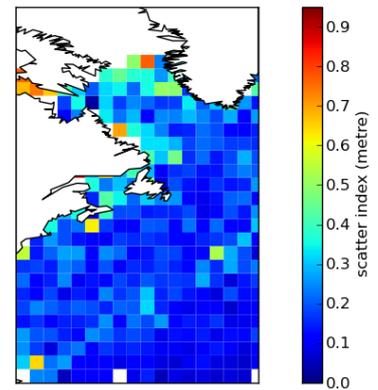
We are working to incorporate other participating centres in the next few months.

Satellites and Piracy on the high seas

A very interesting news story about how the NZDF used GlobWave data can help understand pirate activities in the Indian Ocean was recently published on ESA's website.

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. GlobWave 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.