



# Newsletter

[www.globwave.info](http://www.globwave.info)

2011

## August

### NRT and Delayed Mode Satellite Data

GlobWave data is comprised of a harmonised set of wave products, built from SAR and Altimeter data, with a uniform error characterisation.

The full historical archive from each satellite is made available via GlobWave as a series of delayed mode products, consisting of 11 data streams from 8 satellites, stretching back as far as 1985 with GEOSAT.

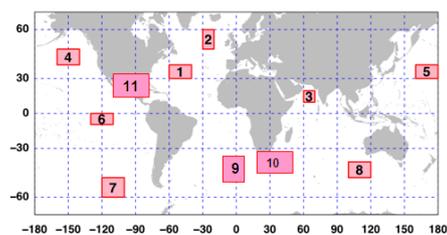
Also, we have 4 Near Real Time (NRT) data streams from 3 satellites, which are available an impressive 1-4 hours after the actual observation from space!

The [Product User Guide](#) should be consulted for a detailed listing of all product content.

This Delayed Mode and Near Real Time data is freely available **right now!** Simply mail the [CERSAT Help Desk](#) with "GlobWave Data Access" in the subject line to get your easy-to-use satellite wave data!

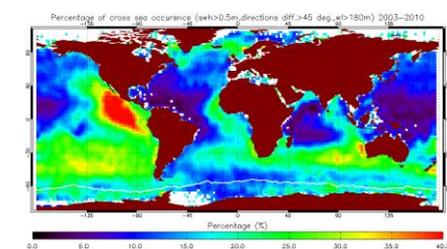
### Global Wave Statistics

A comprehensive [Global Wave Statistics](#) analysis has been completed in various regions of interest.



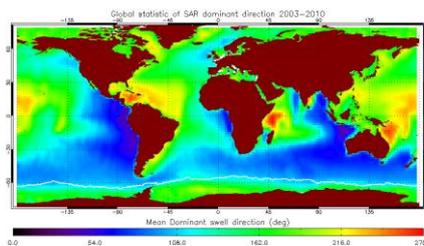
This gives real transparency to the users as to the differences and biases present between the various data streams.

For the SAR analysis some very interesting effects has been found such as the existence of cross seas, which are of interest from a safety perspective to the maritime community.

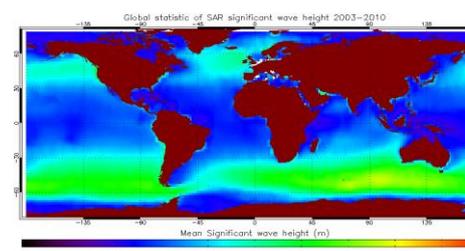


The preceding plot shows the prevalent cross sea effects in the eastern equatorial Pacific between 2003 and 2010, where distant swells from southern and northern mid latitude storms are overlapping. The white line indicates the maximum extent of Antarctic sea ice.

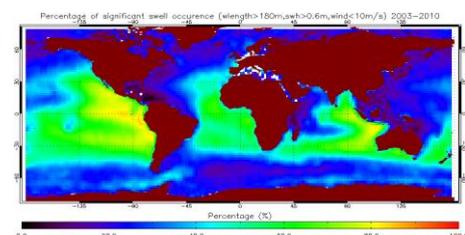
Also, the swell mean direction is shown below. The blue areas indicate receipt of swell from the south west, whereas the Caribbean islands receive swell mostly from the north east. Some interesting patterns appear e.g. in the north Mozambique channel or Argentina, where direction is mostly from the east or south east because of large island sheltering



Similarly, a map portraying mean significant long wave height from 2003 to 2010 portrays the predominance of long wave energy in the southern ocean, and to a lesser extent in the northern mid-latitudes.

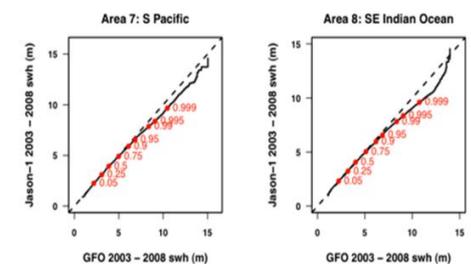


The global SAR statistical analyses has also included significant swell occurrence between 2003 and 2010, via constraining of dominant wavelength and wind speed, which has portrayed swell regions as located mostly in the tropical and equatorial regions.



In the case of Altimetry statistics, comparisons on significant wave height (Hs) measurements were assessed, the main

vehicle for altimeter statistical comparison being quantile-quantile (QQ) plots of Hs percentile values.



The Altimetry analysis illustrates a lower proportion of high waves measured by Jason-I in comparison to other altimeters, as depicted below for GFO versus Jason-I across areas 7 and 8, respectively.

In the context of Envisat and Jason-I, further analysis has revealed that the Jason-I validation process flags a lower proportion of data as being of good quality, suggesting that over cautiousness in Jason-I validation may be prevalent. Additionally, the possibility of calibration at high wave height was considered, but not deemed a contributing factor.

### GlobWave User Meeting: Abstract Call

The GlobWave User Meeting will be a fantastic opportunity to hear exciting talks about how satellite wave data is being used in science, commercial and operational user communities. The deadline for abstracts and discounted hotel room rates is **16th August, 2011**. Registration is free and, in addition to exciting talks, tours of the NMCI 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](#).



The National Maritime College of Ireland (NMCI) will host the meeting, which is a facility providing marine-based education and training to the Irish Naval service. Its facilities include a marine simulator and wave tank.



## Globwave – The world’s ocean waves in one place

A very interesting [news story](#) about GlobWave was recently published on ESA’s website.

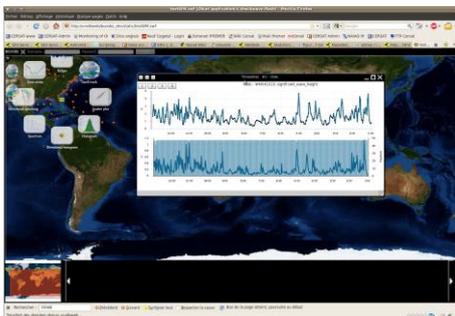
In this publication the UK Met Office, who use GlobWave data to check the Met Office’s wave forecasts, said:



"As a provider of global operational wave forecasts, the Met Office places a very high value on any observation sources that reliably provide a baseline against which we can validate our predictive models. The role played by GlobWave in providing a one-stop shop for data from multiple satellite missions, ensuring quality standards in the data and generating regular verification reports demonstrates an excellent step forward in the provision of satellite-based observations. This should allow us to exploit such data readily and with confidence in the future".

## Satellite vs Buoy Online Query Tool

Look out for an announcement in the next two weeks, as GlobWave will be releasing a fantastic online query tool! This will allow powerful search and visualisation of overlapping satellite and buoy observations spanning a wealth of wave parameters.



## Past Events & Forthcoming Schedule

**4th Coastal Altimetry Workshop** (Porto, Portugal) – 14th to 15th October 2010 – A poster presentation was delivered on the GlobWave Pilot Spatial Wave Forecast Verification Scheme.

**GlobWave Progress Meeting 4** (ESRIN) – 4th May 2011

**MARCDAT-III Workshop** (ESRIN) – 2nd to 6th May 2011 – An oral presentation was given on GlobWave.

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

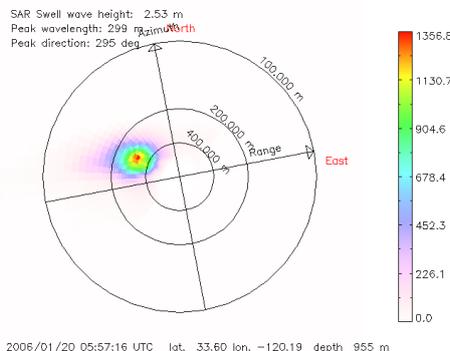
## Quality Control

The [Satellite Wave Data Quality Report](#), is a fantastic resource for comparisons between satellite and *in situ* buoy measurements. The reports contains: (i) an analysis of the quality levels of the delayed mode L2P data set, (ii) an analysis of L2P error characterisation through collocation measurements with *in situ* buoys, offering an estimate of significant wave height standard error, and (iii) analysis of L2P inter-comparison via satellite crossover measurements.

With regards to the first of these, the quality analysis illustrates different results for different sensors, with the most modern instruments generally being associated with the highest quality levels.

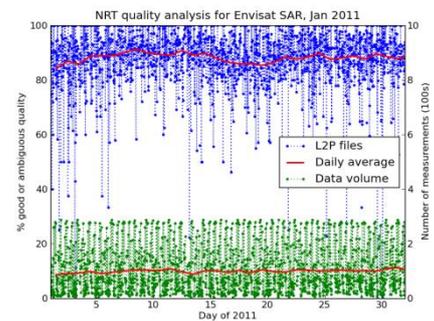
For the error characterisation analysis, the assessment for Altimetry illustrates that wave heights greater than 1m follow a linear function of the significant wave height that varies with sensor, whereas for wave heights less than 1m the errors are less certain. For SAR, the bias on the significant wave height was found to be a function of dominant wavelength as well as the usual increase with swell height with wind speed.

SAR analysis can also be performed where directional wave spectra can be analysed and compared to buoy measurements (see below)



The satellite crossover analysis shows generally good agreement across sensors, with two exceptions which warrant further investigation – nonlinearity between Topex and ERSI at high significant wave heights, and an anomalous relationship between GFO and Jason-1 during 2008.

Aside from the [Satellite Wave Data Quality Report](#), also delivered has been the first [Quarterly Quality Control Report](#) for January to March 2011, which contains a summary of the quality levels of the Near Real Time L2P data sets. The below plot shows the quality levels of ASAR data during January 2011, with the red line illustrating the mean percentage of good or ambiguous data.



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

Development of the Pilot Extension to the WFVS has progressed well with operations commencing. Reports are now automatically generated daily and monthly for the UKMO, SHOM and ECMWF. NOC are working to incorporate the other participating centres in the next few months.

## 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.

