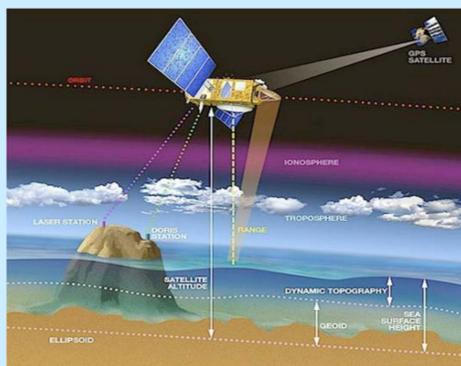


The interagency **Jason-2/Ocean Surface Topography Mission (OSTM)** derives sea surface height, wind speed, and significant wave height from Jason-2 altimetry data to help track global sea level rise, ocean currents, open-ocean wind and wave conditions, and upper ocean heat content. Four partner agencies share OSTM mission responsibilities. NOAA's roles include satellite command and control, operational data processing, operational data distribution, and archive of data, processing software, and documentation. See more at <http://www.ospo.noaa.gov/Products/ocean/ostm/index.html> and <http://www.nodc.noaa.gov/SatelliteData/Jason2>.

THE ALTIMETRIC SYSTEM



For Sea Surface Height:

$$\text{Range} = \text{travel_time} * c / 2$$

$$\text{SSH} = \text{orbit_altitude} - \text{range}$$

Small Δ out of ~1300 km

$$\text{Dyn. Topo.} = \text{SSH} - \text{geoid}$$

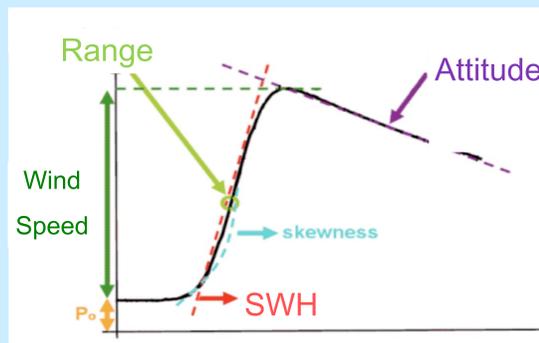
~1 m out of ± 120 m

Path Delay Corrections:

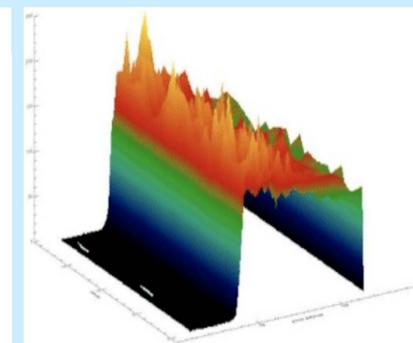
- Wet Troposphere
- Dry Troposphere
- Ionosphere

Primary Jason-2 measurement is range (distance between the satellite and the ocean surface) Uses travel time of a radar pulse from satellite to ocean surface and back, requiring a high degree of precision, calculation, and additional corrections. Accurate measurement of satellite altitude required to compute sea surface height (SSH)

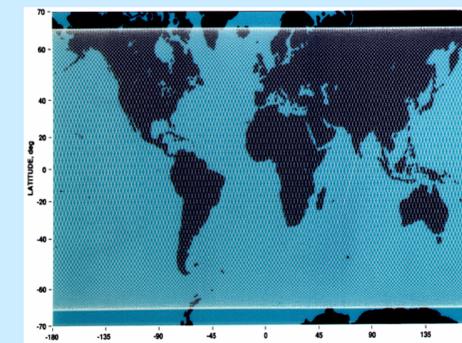
ALTIMETRY DATA COLLECTION



- 105 radar pulses averaged to create each 20Hz waveform
- Comprised of 128 bins of ~3 nanosec duration (45 cm)
- 4 values determined by fitting
- 20Hz values averaged to create 1 Hz record



Jason-1 waveforms show open-ocean variability

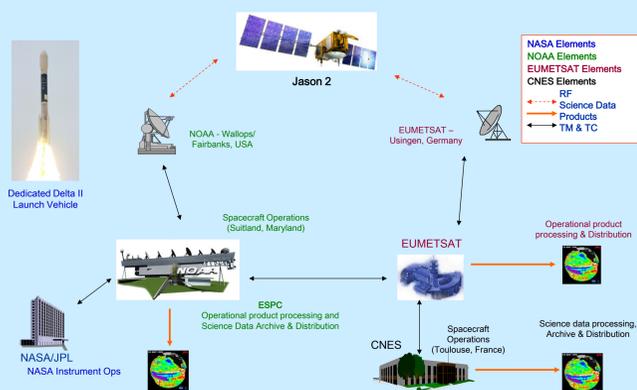


OSTM/Jason-2 ground track coverage every 10 days

At the satellite, travel time of radar pulse and return strength (or power) are measured. X-axis displays time, Y-axis displays power. Range travel time for Sea Surface Height (SSH) obtained by projecting 50% power value on leading edge of curve onto time axis. Wind speed is inversely related to return power. Significant Wave Height (SWH) related to slope of leading edge of return power.

PRODUCT INFORMATION

ESPC PROCESSING



NOAA's Environmental Satellite Processing Center (ESPC) generates Jason-2 near-real-time operational geophysical data records (OGDRs) from data collected at NOAA's Wallops and Fairbanks ground stations. ESPC also distributes OGDRs generated by EUMETSAT from the European Usingen ground station.

Jason-2/OSTM Level-2 Products

	OGDR Family	IGDR Family	GDR Family	Size & Complexity
Reduced 1Hz	OGDR-SSHA	IGDR-SSHA	GDR-SSHA	
1Hz + 20Hz	OGDR-OGDR-BUFR*	IGDR	GDR	
1Hz + 20Hz + Waveforms		S-IGDR	S-GDR	
Latency:	3-5 Hours	1-2 Days	~ 60 Days	

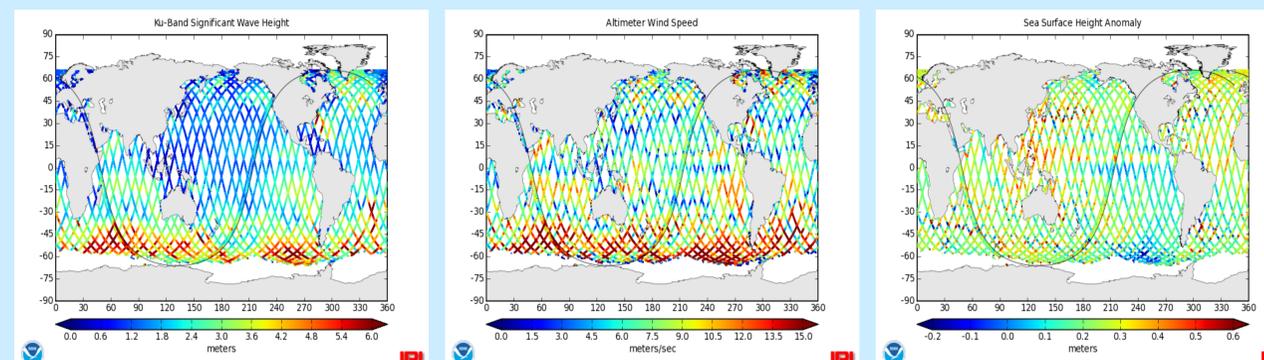
Latency Accuracy

* All files in NetCDF format except OGDR-BUFR, which contains no 20-Hz data

- OGDR = operational geophysical data record
- IGDR = interim geophysical data record
- GDR = (final, science quality) geophysical data record

See the **Jason-2 Handbook** for additional product information at http://www.ospo.noaa.gov/Products/documents/J2_handbook_v1-8_no_rev.pdf

The National Oceanographic Data Center (NODC) has established a data quality monitoring system for users to access graphic and numeric quality statistics and attributes for selected parameters in GDR or IGDR, which is available on the web at: <http://www.nodc.noaa.gov/SatelliteData/jason/qa.html>. Real-time plots of OGDRs can be found at http://data.nodc.noaa.gov/jason2/QA_assurance/OGDRs_png/.



The Near Real Time Altimeter Validation System (NRTAVS) software package is an automated quality assurance system for satellite altimeter data products. It was developed at the Jet Propulsion Laboratory (JPL), California Institute of Technology through sponsorship by the National Oceanic and Atmospheric Administration (NOAA). (Data displayed spans ~2010-09-01 to 2010-09-03; Hurricane Earl is visible off S. Atlantic Bight.)

PRODUCT ACCESS

- (1) Via Comprehensive Large Array-data Stewardship System (CLASS): <http://www.class.noaa.gov> (all file types including orbit, auxiliary) See the **CLASS Tutorial** at http://www.nsof.class.noaa.gov/release/data_available/jason/jason2tutorial.html
 - (2) Via WMO Gateway (GTS) in BUFR format (OGDR-BUFR only) - Anyone with a GTS link should look for the following two WMO headers: NOAA (ISZX01 KNES) and EUMETSAT (ISZX01 EUMS) for Jason-2 OGDR-BUFR data in WMO/GTS bulletins/messages.
 - (3) Via ESPC data distribution server (OGDR, OGDR-BUFR, & OGDR-SSHA)
- To submit a request for ESPC data distribution server access, contact ESPCoperations@noaa.gov.