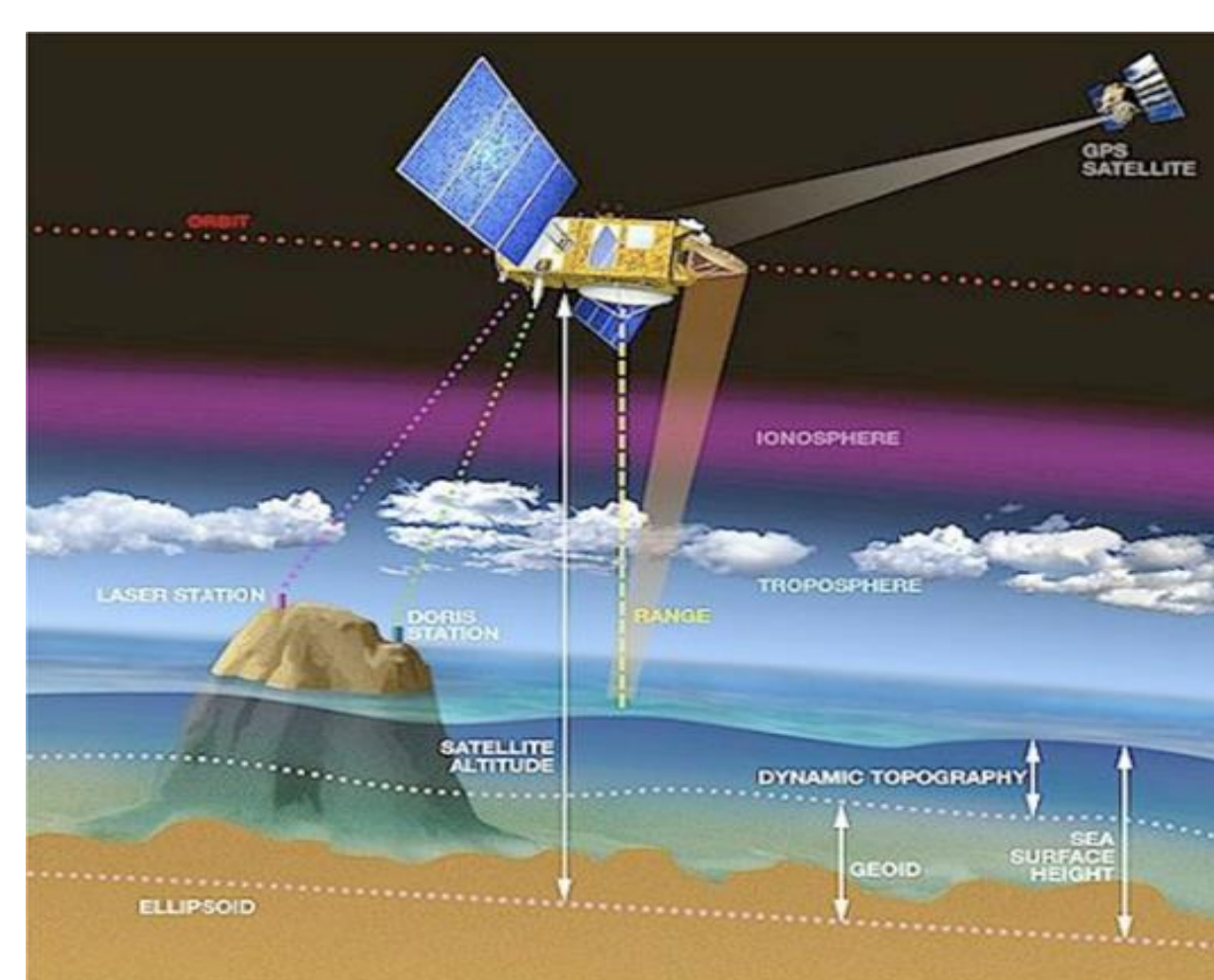


The interagency **Jason-2/Ocean Surface Topography Mission (OSTM)** and **Jason-3** derives sea surface height, wind speed, and significant wave height from altimetry data to help track global sea level rise, ocean currents, open-ocean wind and wave conditions, and upper ocean heat content. Four partner agencies share Jason-2 and Jason-3 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>, <https://www.nodc.noaa.gov/SatelliteData/jason/>, and <https://www.star.nesdis.noaa.gov/sod/lisa/Jason/>

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

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

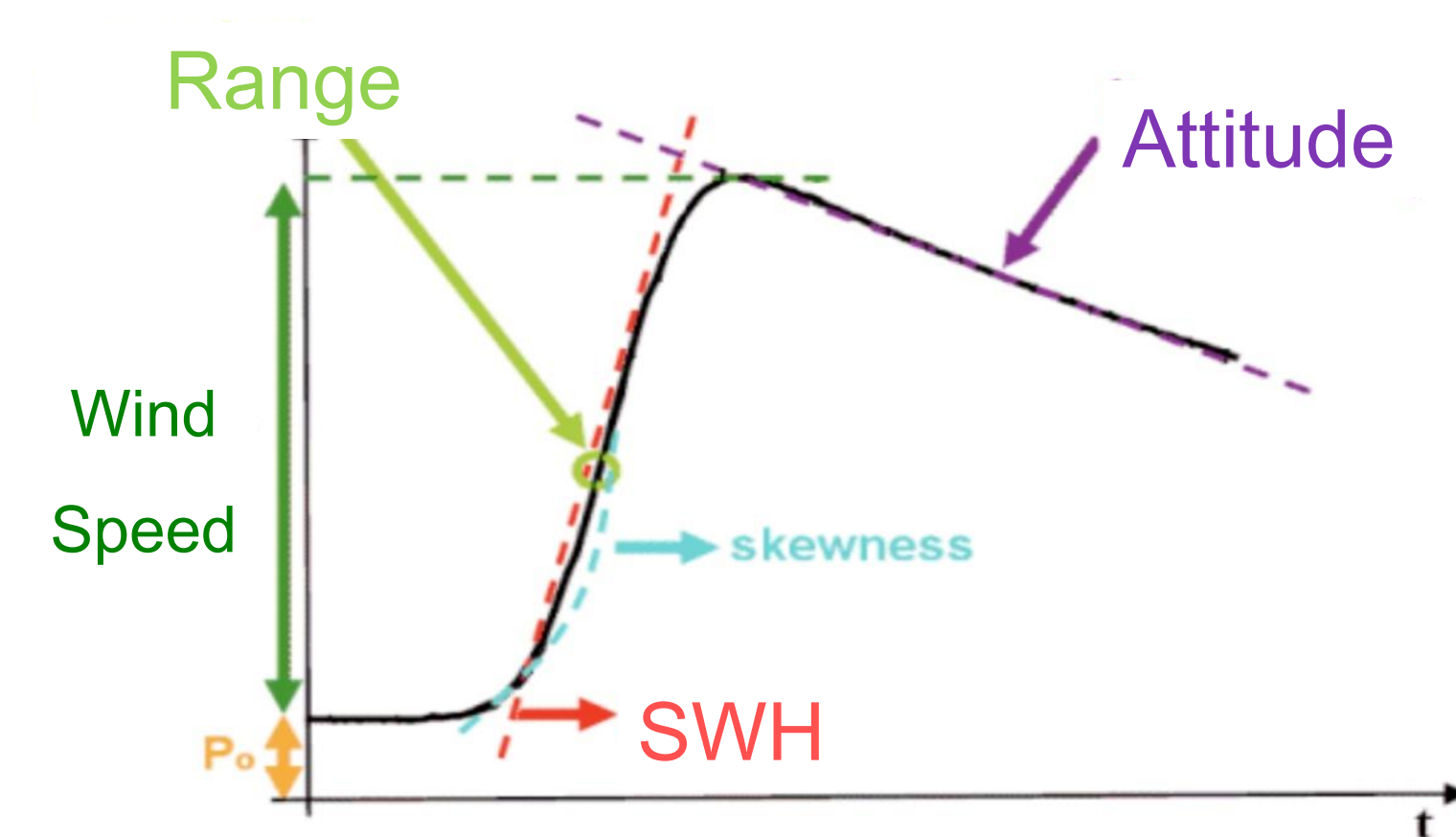
~ 1 m out of ± 120 m

Path Delay Corrections:

- Wet Troposphere
- Dry Troposphere
- Ionosphere

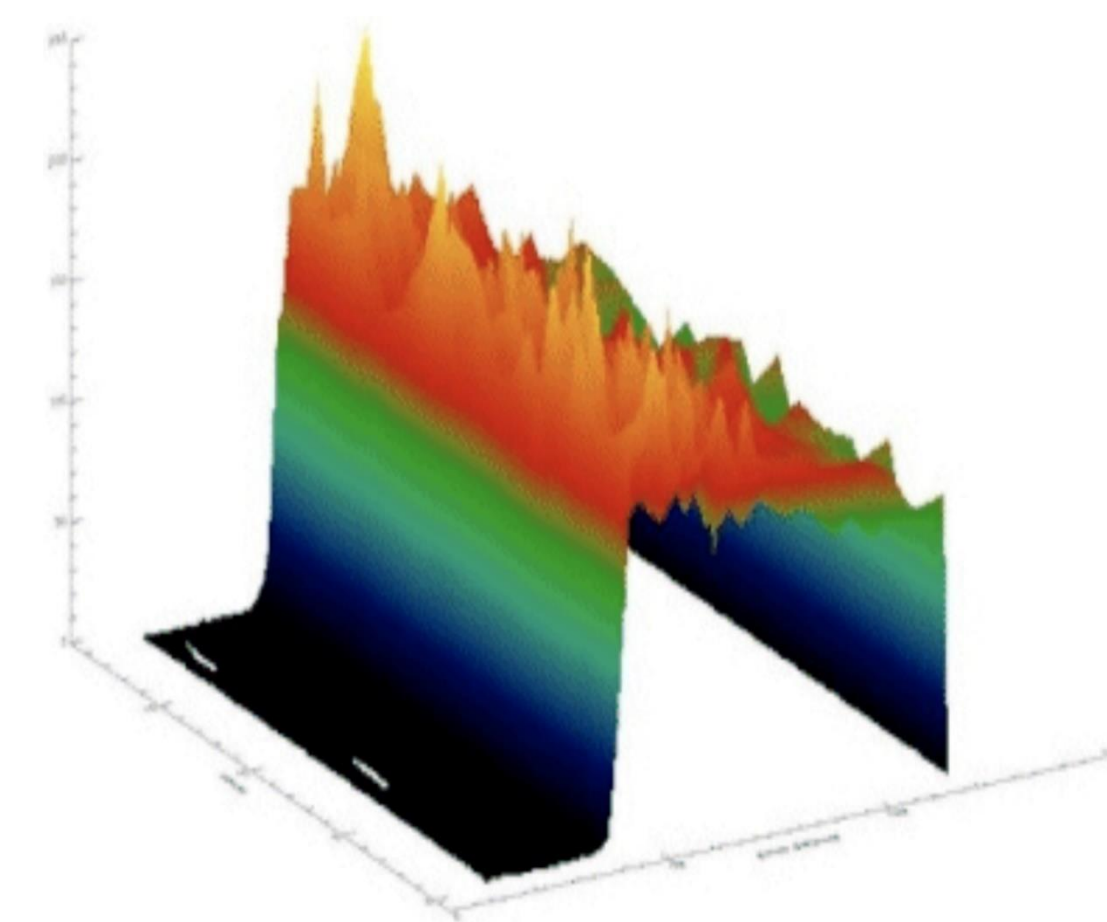
Primary Jason-2 measurement is range (distance between the satellite and the ocean surface). Uses travel time of a radar pulse from satellite to ocean surface and back, requiring a high degree of precision, calculation, and additional corrections. Accurate measurement of satellite altitude required to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

ALTIMETRY DATA COLLECTION

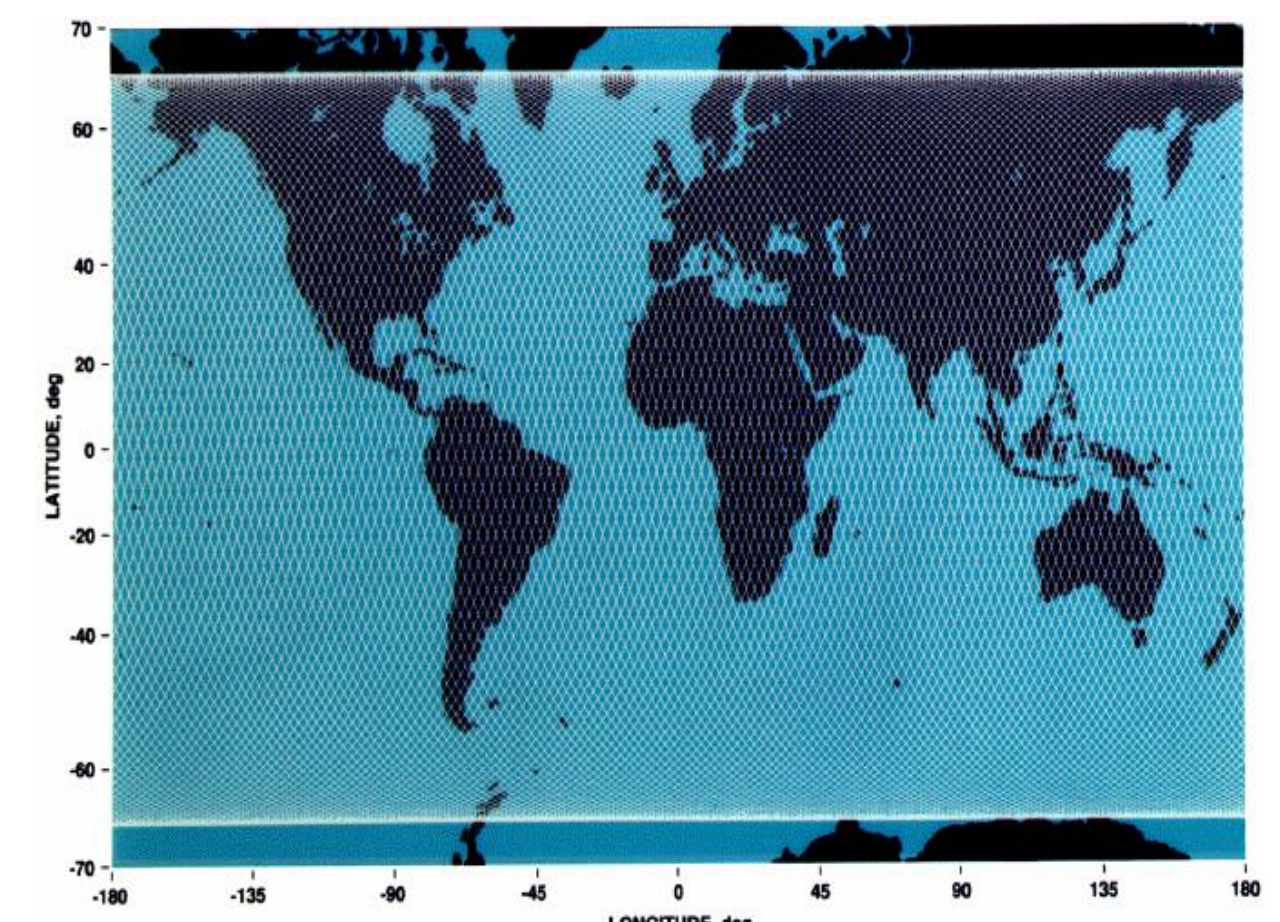


At the satellite, travel time of radar pulse and return strength (or power) are measured. X-axis displays time, Y-axis displays power. Range travel time for Sea Surface Height (SSH) obtained by projecting 50% power value on leading edge of curve onto time axis. Wind speed is inversely related to return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

- 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

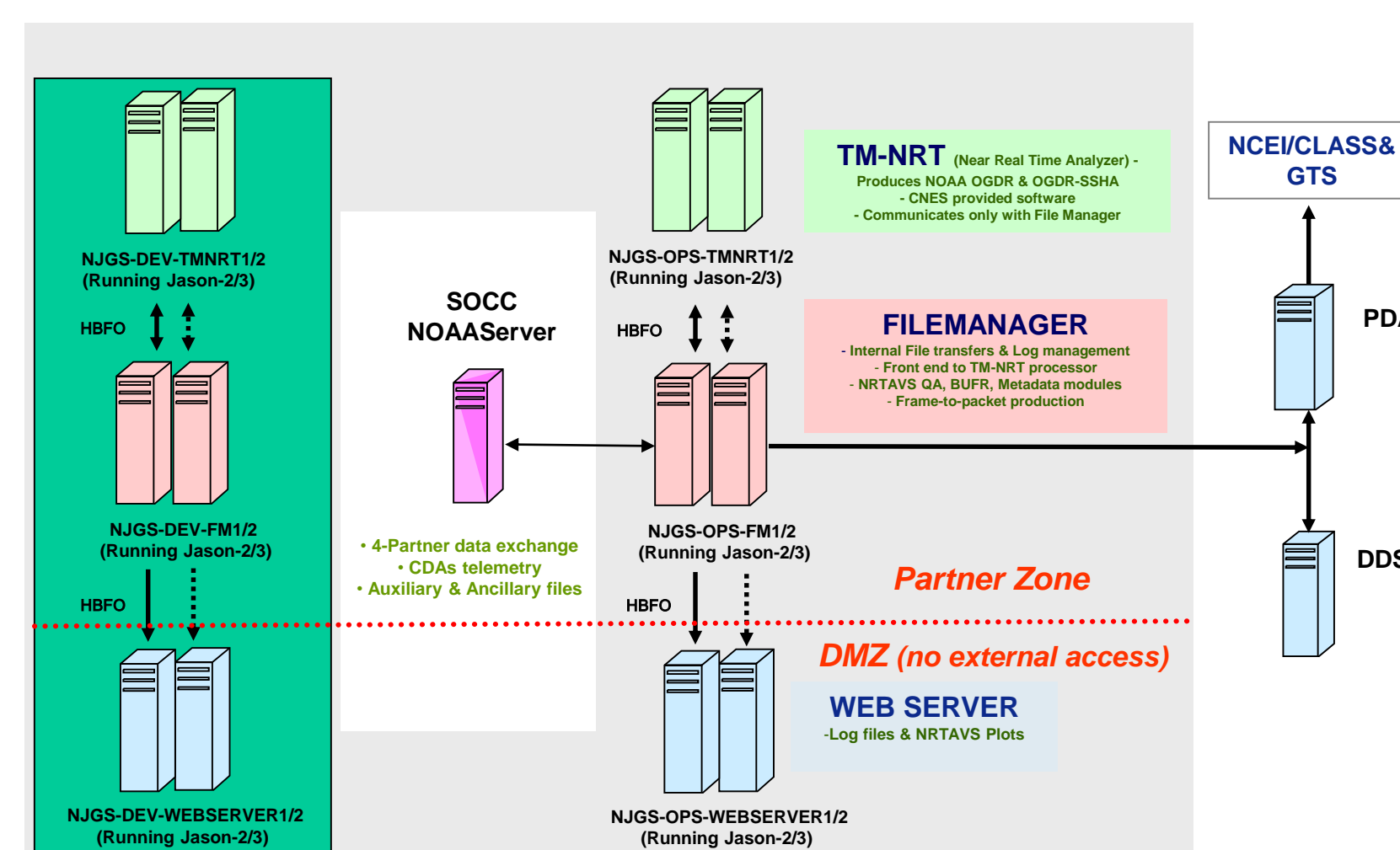


Waveforms show open-ocean variability



Jason-3 ground track coverage every 10 days which is the same orbital path as Jason-2 before 2-Oct-2016

ESPC PROCESSING



NOAA's Environmental Satellite Processing Center (ESPC) generates Jason-2 and Jason-3 near-real-time operational geophysical data records (OGDRs) from data collected at NOAA's Wallops and Fairbanks ground stations and delivered through the SOCC NOAA Server. ESPC also distributes OGDRs generated by EUMETSAT from the European Usingen ground station.

Jason-2/OSTM and Jason-3 Level-2 Products

	OGDR Family	IGDR Family	GDR Family
Reduced 1Hz	OGDR-SSHA	IGDR-SSHA	GDR-SSHA
1 Hz + 20Hz	OGDR OGDR-BUFR*	IGDR	GDR
1Hz + 20Hz Waveform		S-IGDR	S-GDR
Latency	3-5 Hours	1-2 Days	~ 90 Days

* 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

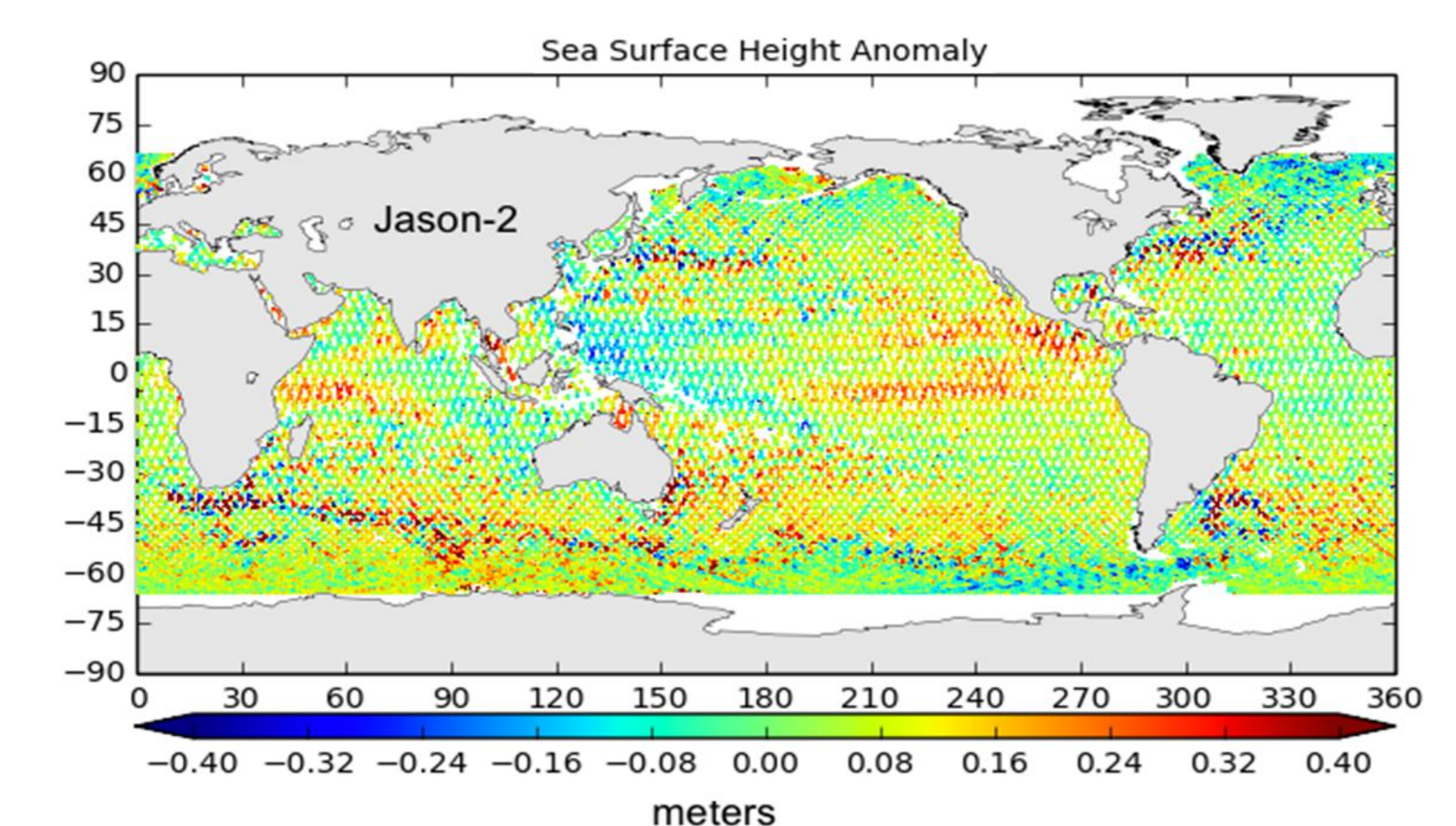
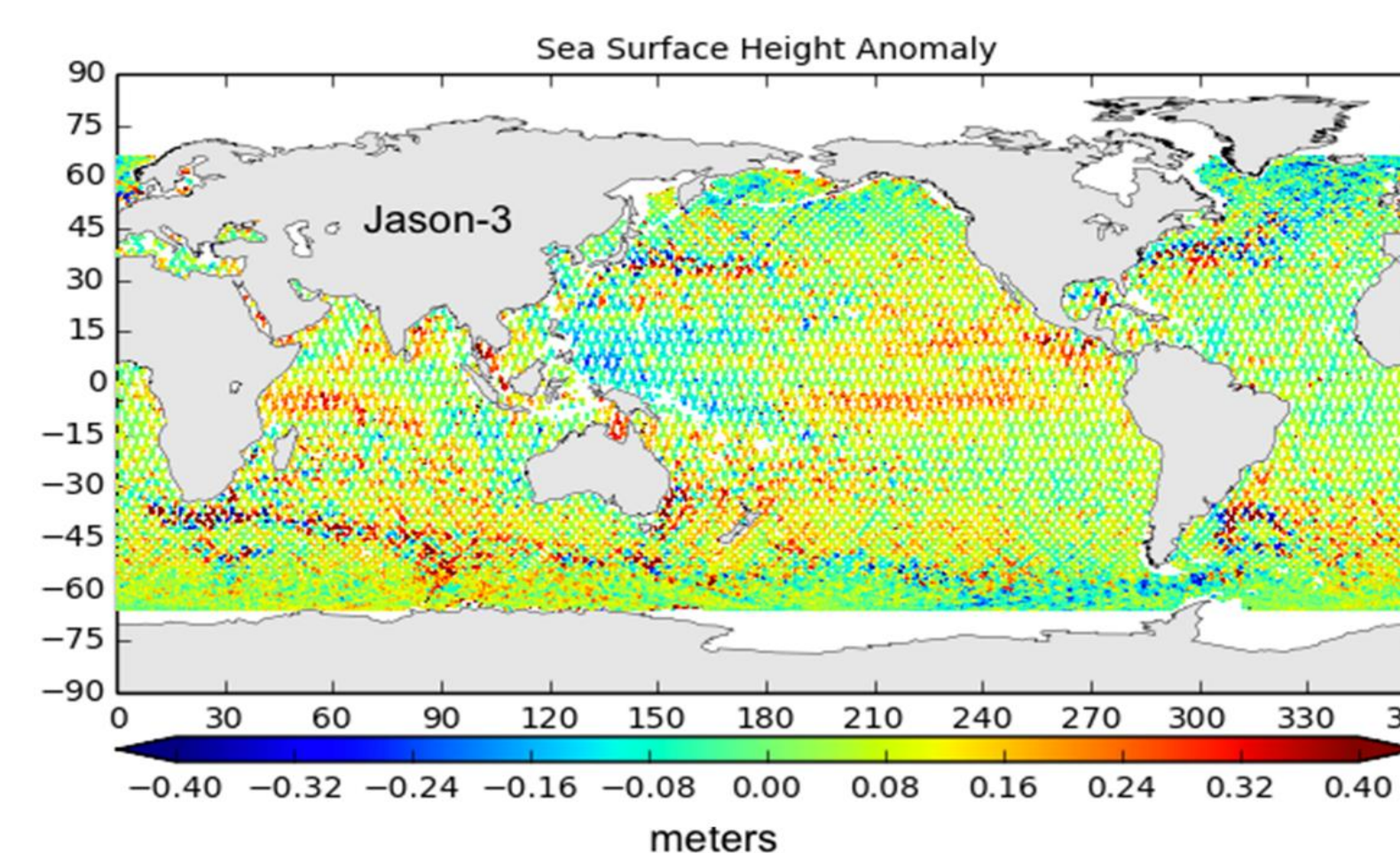
See the **Jason-2 /OSTM and Jason-3 Handbook** for additional product information at

https://www.nodc.noaa.gov/media/pdf/jason2/j2_user_handbook.pdf

https://www.nodc.noaa.gov/media/pdf/jason2/j3_user_handbook.pdf

National Centers for Environmental Information (NCEI) 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>

PRODUCT INFORMATION



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). (Inter-comparison of Jason-2 to Jason-3 Sea Surface Height Anomaly (SSHA) from the Near Real-Time Verification Workshop 21-June-2016)

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*)

(4) All level-2 X-GDRs can be downloaded through http, ftp, OPeNDAPS and THREDDs servers from NCEI: <https://www.nodc.noaa.gov/SatelliteData/jason/>
To submit a request for ESPC data distribution server access, contact ESPCOperations@noaa.gov.