

HY-2 Altimeter Products Quality Assessment

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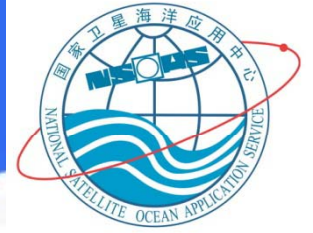
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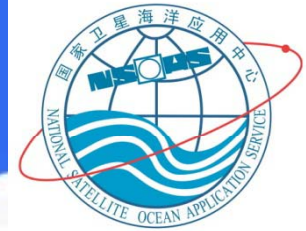
OSTST 2012: HY-2 altimeter products Quality Assessment

Overview



- 1. HY-2 satellite overview
- 2. HY-2 altimeter performance
- 4. HY-2 altimeter parameters statistics
- 5. Summary

HY-2 Satellite Overview



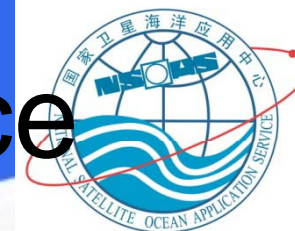
The HY-2 Satellite Main Payload :

- Dual frequency Radar Altimeter
- nadir 3-frequency Radiometer
- 5-frequency Microwave Scanning Radiometer
- Scanning Microwave Scattermeter

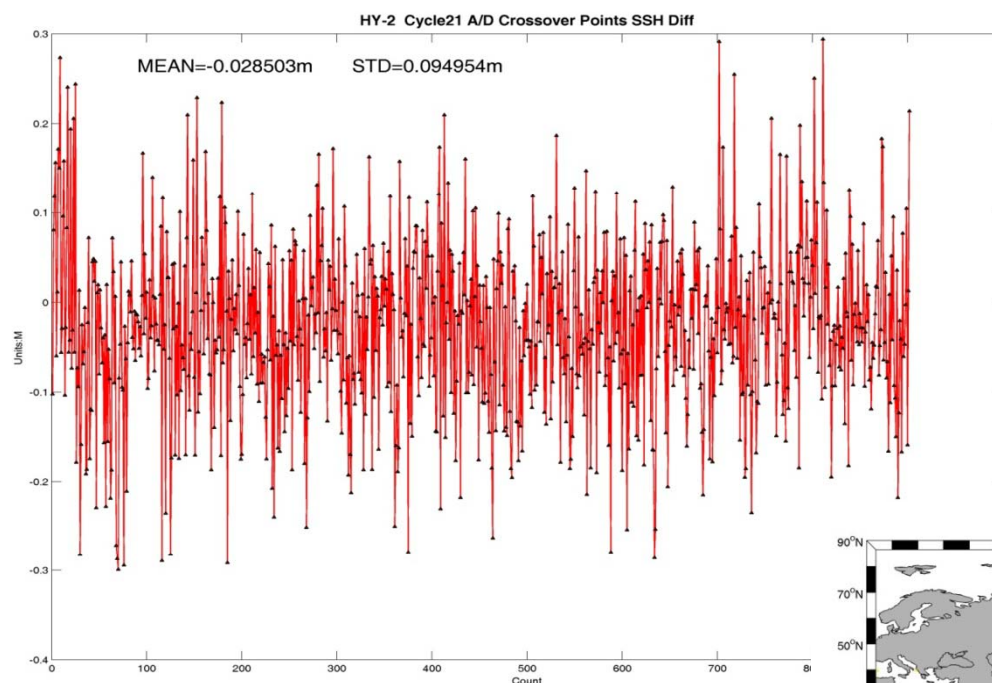
The POD instruments:

- Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS).
- Dual frequency GPS
- Laser Retroreflector Array(LRA)

HY-2 Altimeter Performance

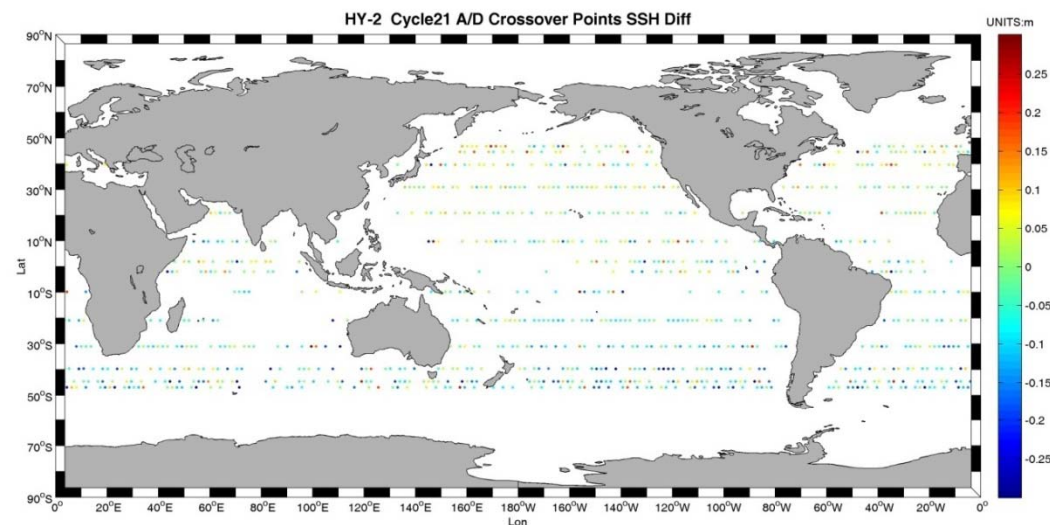


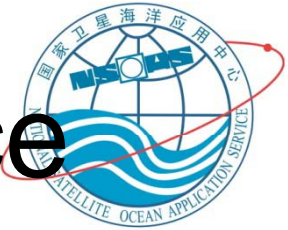
- Performance based on HY-2 alone



The analysis of the SSH differences within 3 days at crossovers between HY-2 IGDR Cycle 21 ascending and descending tracks.

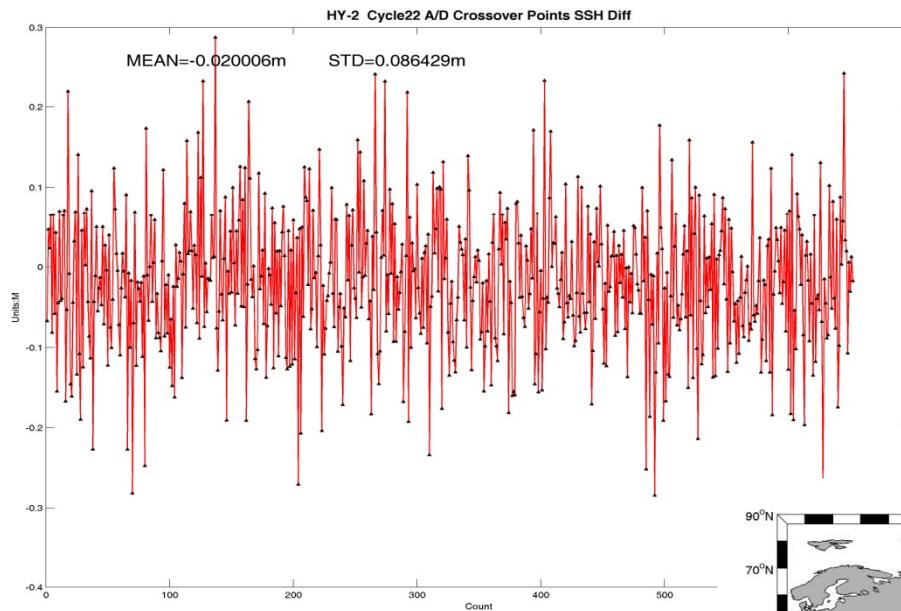
After a standard selection of crossover data (on latitude, bathymetry) the crossover for Cycle21 standard deviation is -2.9 ± 9.5 cm





HY-2 Altimeter Performance

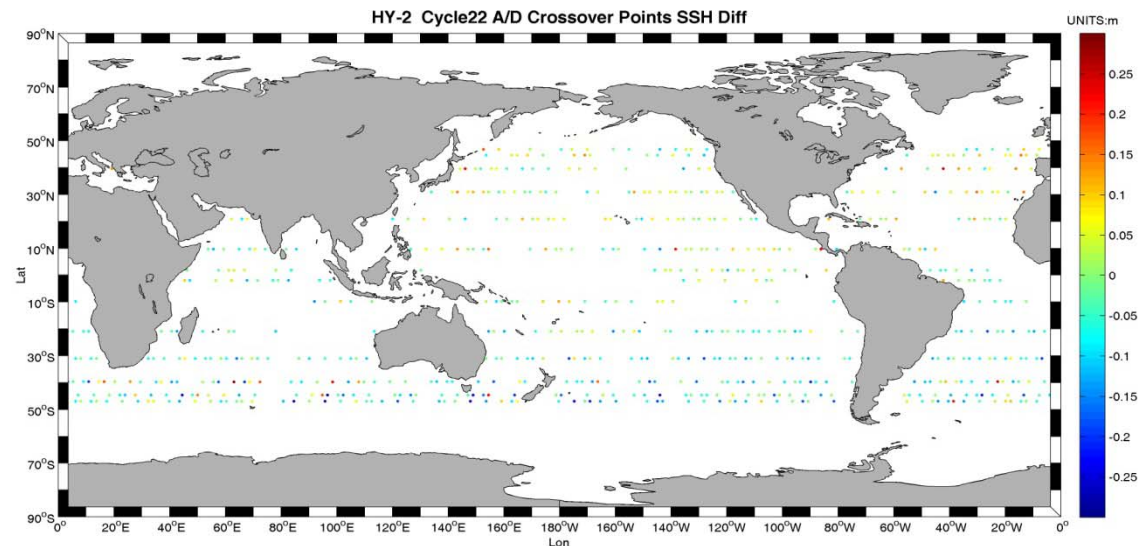
- Performance based on HY-2 alone

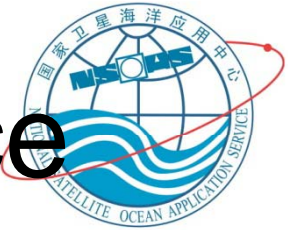


The analysis of the SSH differences Within 3 days at crossovers between HY-2 IGDR Cycle 22 ascending and descending tracks.

After correction of timetag bias, the map is remaining geographical patterns of about 2-3 cm magnitude. It may be due to residual orbit error.

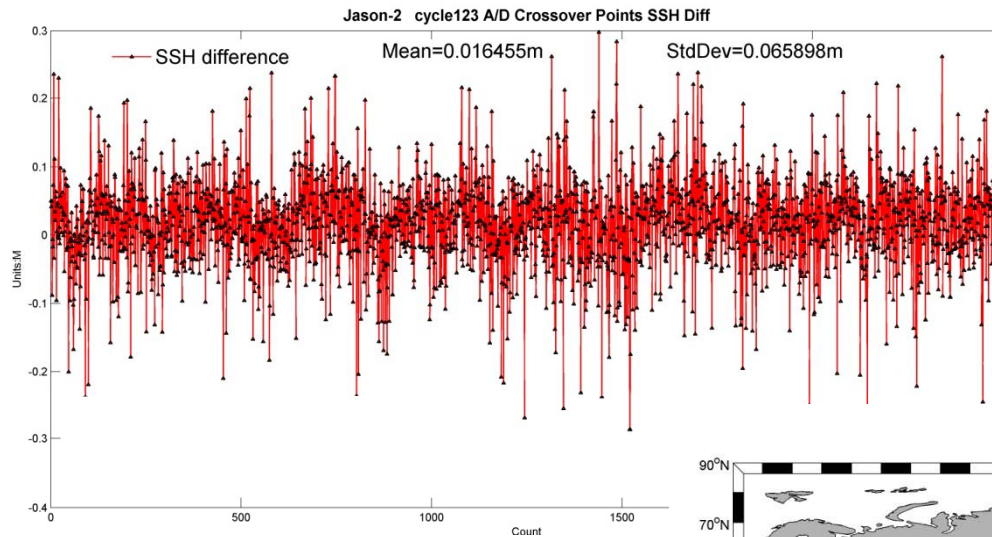
After a standard selection of crossover data (on latitudes, bathymetry), The crossover for Cycle22 standard deviation is about -2 ± 8.6 cm





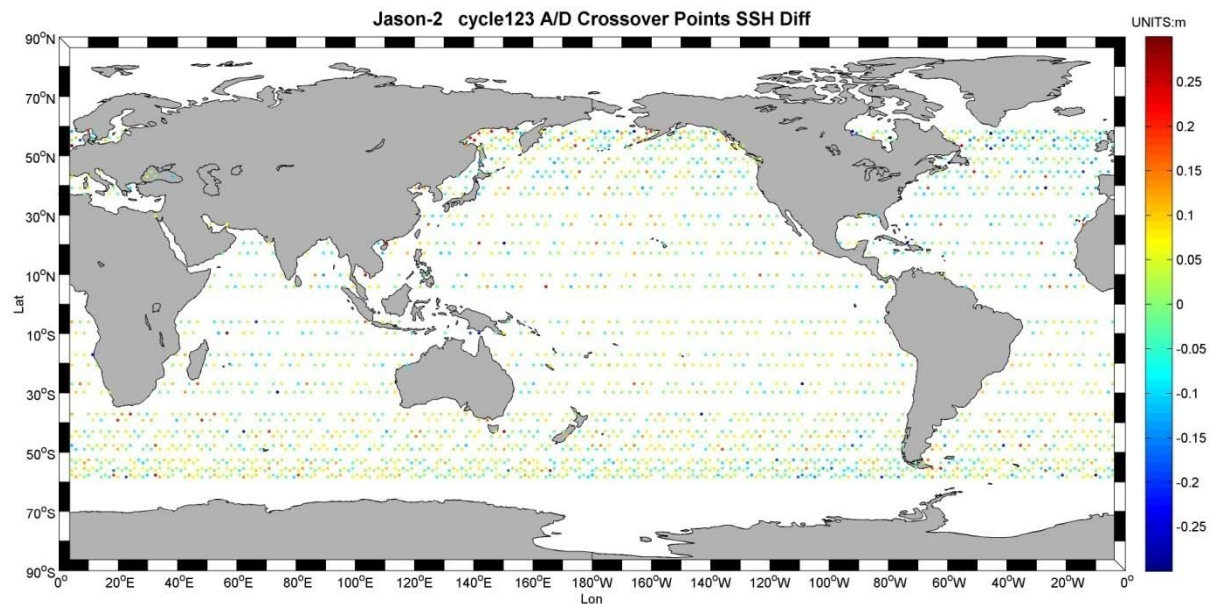
HY-2 Altimeter Performance

- Jason-2 IGDR Cycle123 Crossovers analysis

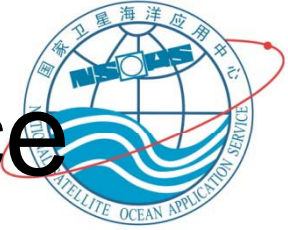


The analysis of the SSH differences within 3 days at crossovers between Jason-2 IGDR Cycle 123 ascending and descending tracks.

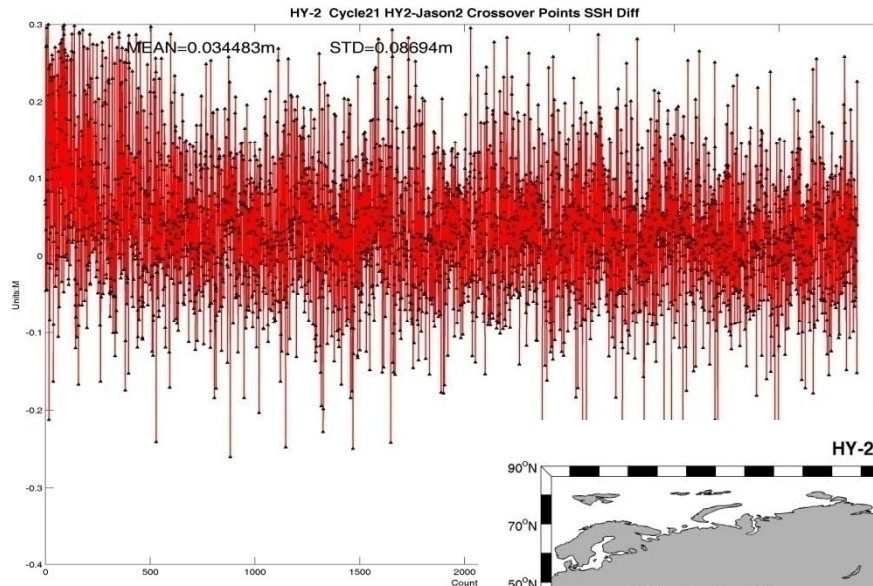
After a standard selection of crossover data (on latitudes, bathymetry), The crossover for Jason-2 Cycle123 standard deviation is about 1.6 ± 6.6 cm



HY-2 Altimeter Performance

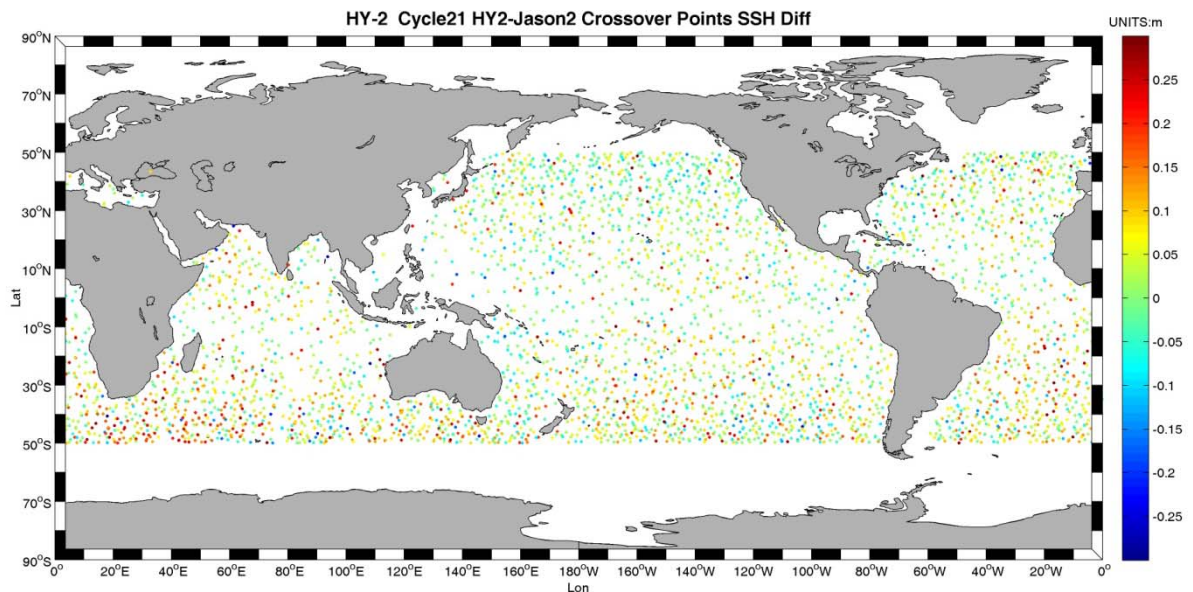


- Comparison with Jason-2 IGDR



The SSH differences at HY-2 IGDR Cycle 21/Jason-2 crossovers Within 3 days shows a general good agreement between both missions. But there is a 3.5cm bias.

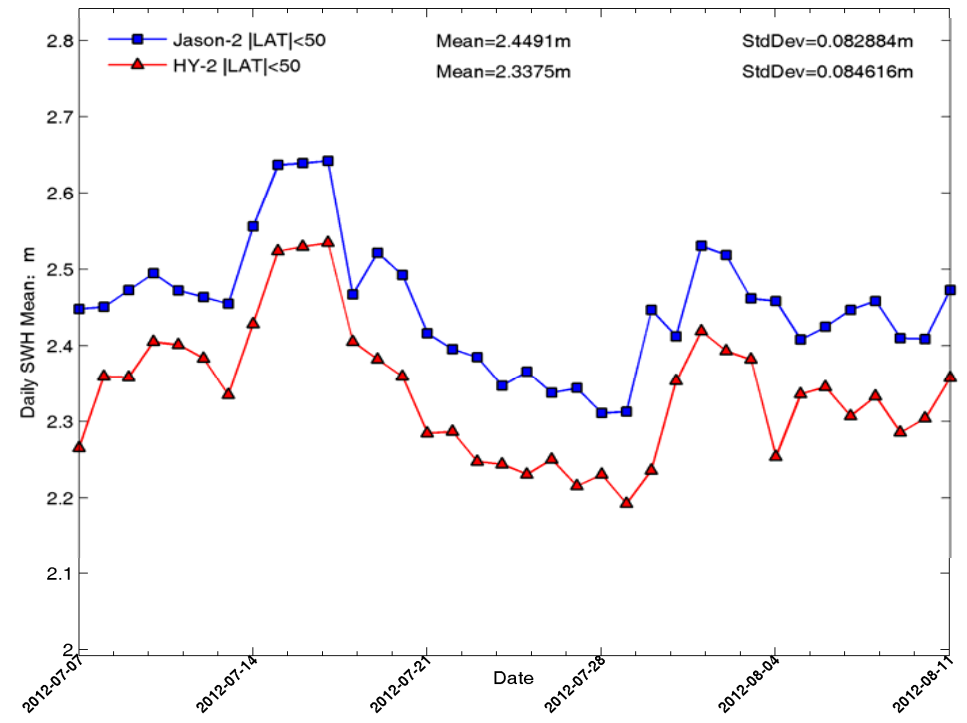
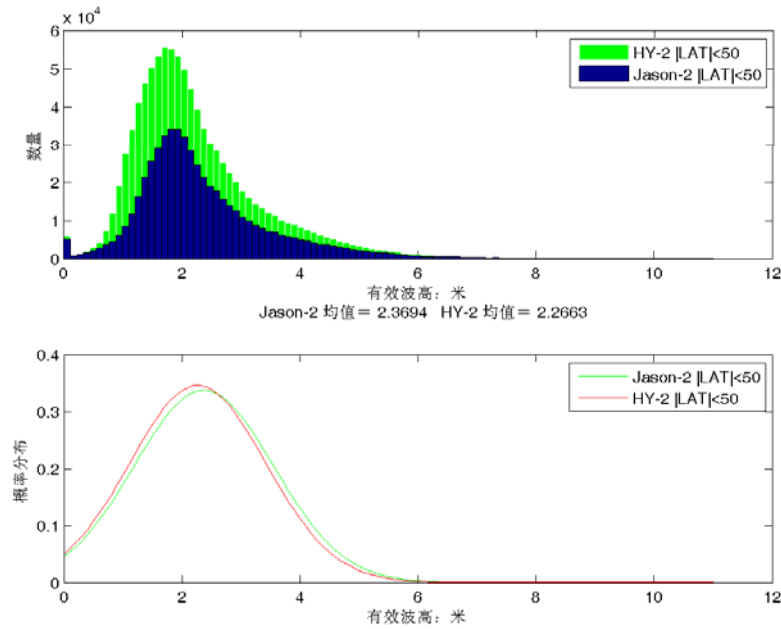
The performance for HY-2/Jason-2 is about 3.5 ± 8.7 cm at $|\text{Lat}| < 50$ and bathy < 1000 m





HY-2 Altimeter Parameters Statistical

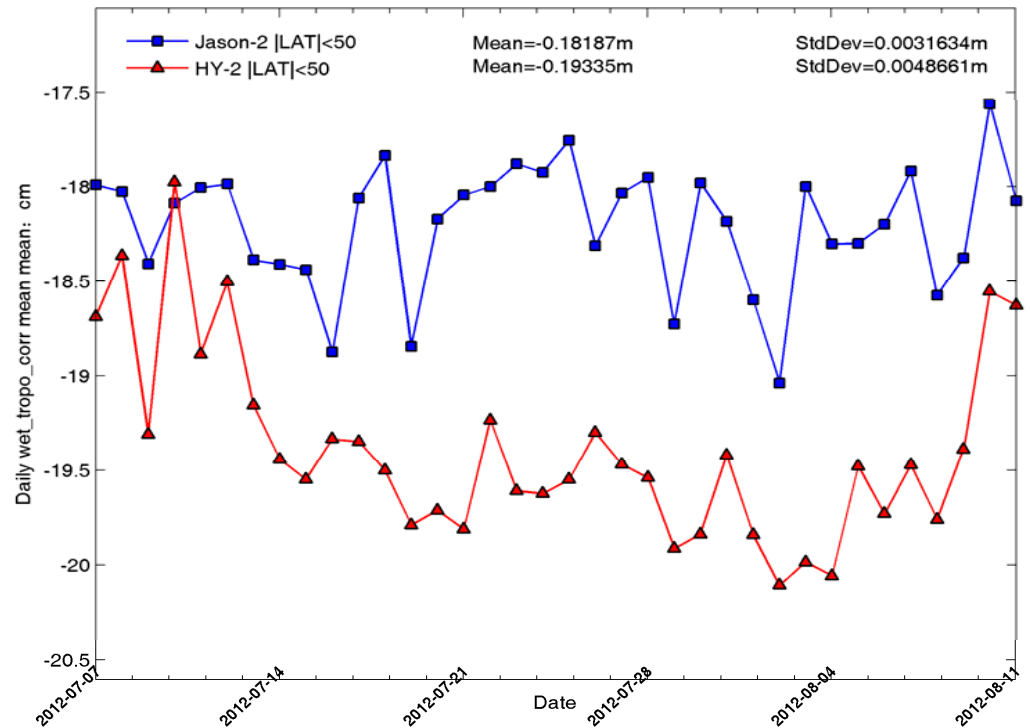
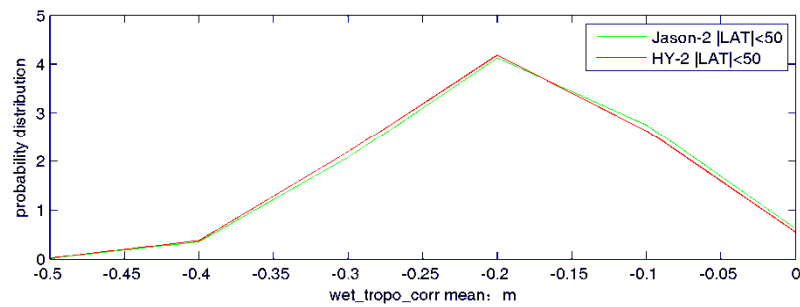
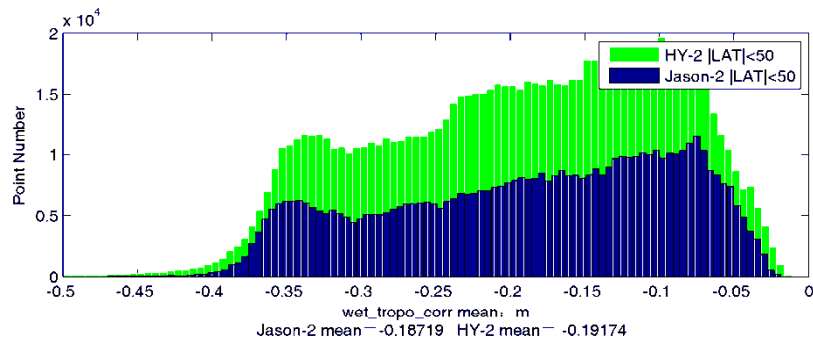
SWH Statistical data analysis with Jason-2





HY-2 Altimeter Parameters Statistical

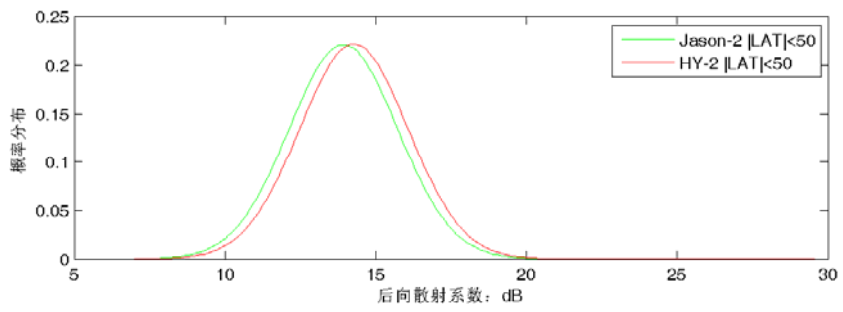
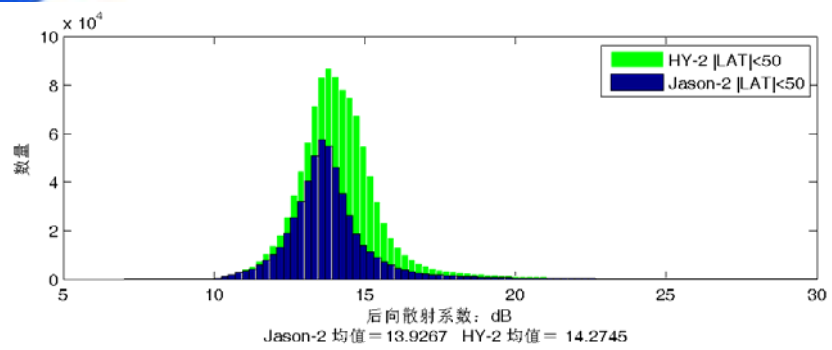
Rad wet Statistical data analysis with Jason-2



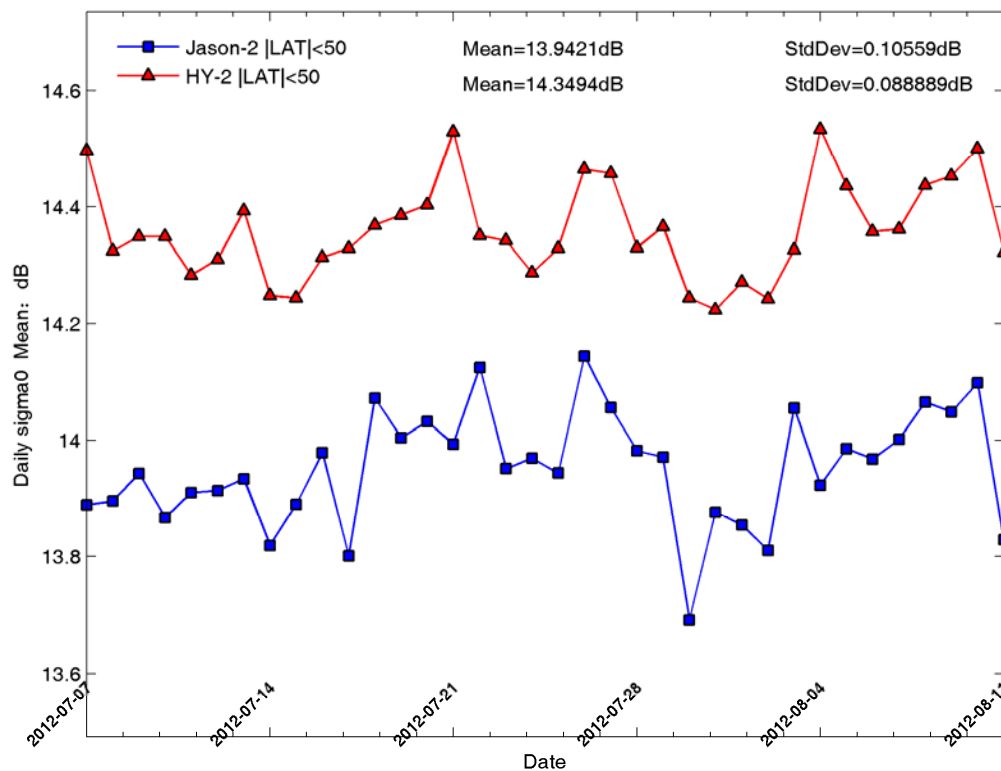


HY-2 Altimeter Parameters Statistical

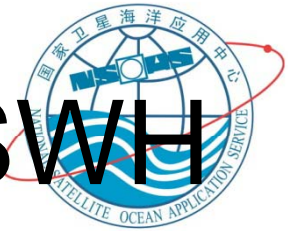
Sigma0 Statistical data analysis with Jason-2



After Cross-calibration of HY-2 altimeter and TRMM PR (Precipitation Radar) sigma0

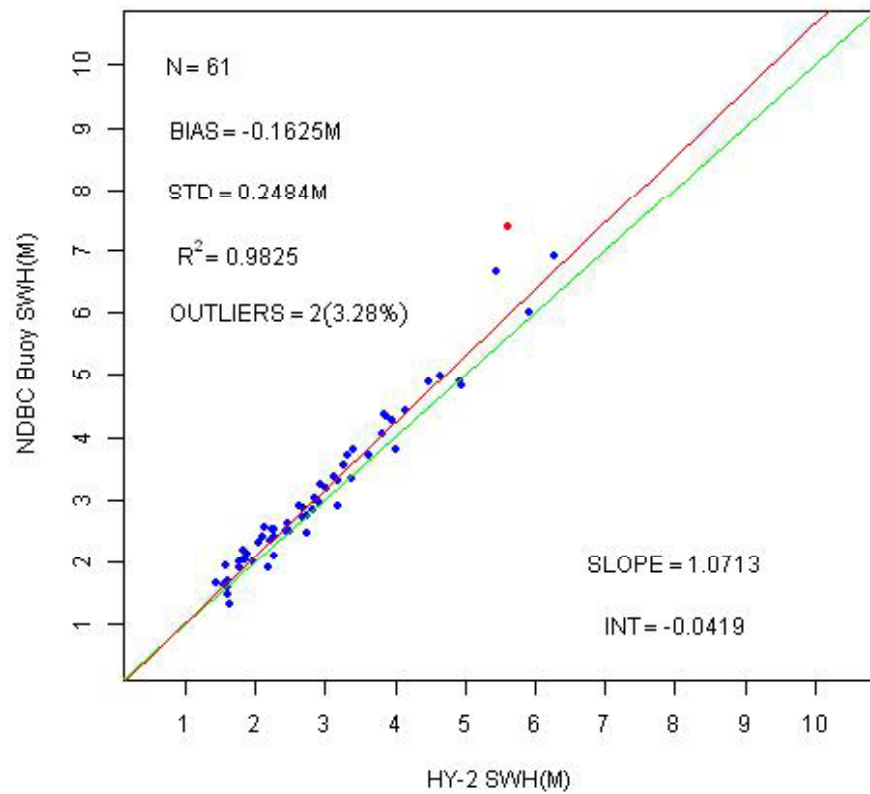


Validation of HY-2 Altimeter SWH

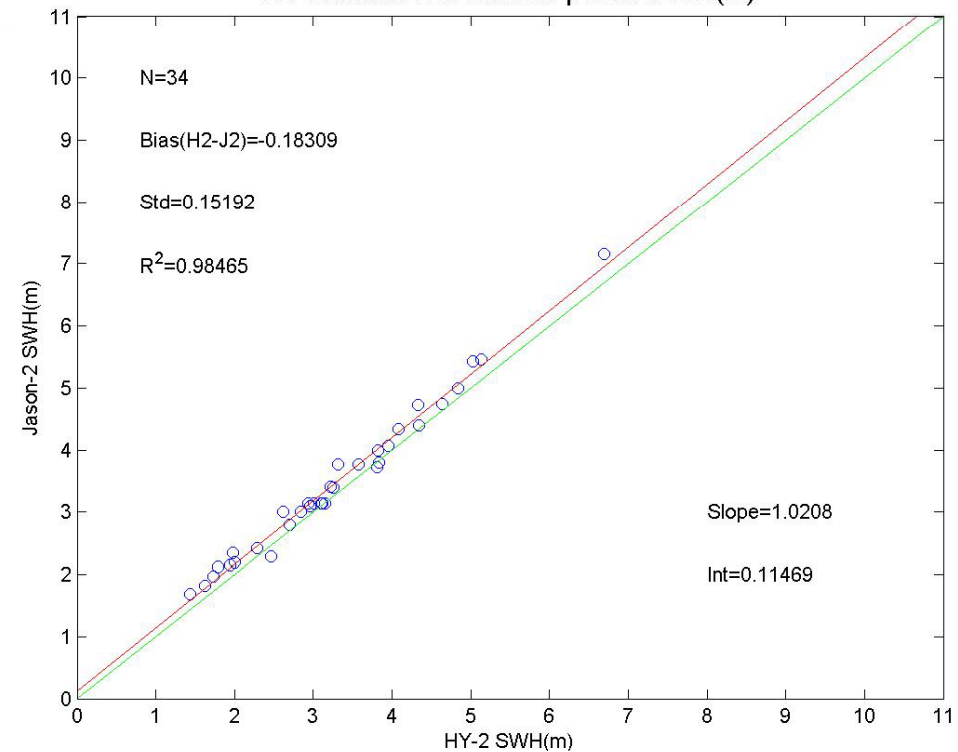


Validation of HY-2 Altimeter SWH With NDBC Buoys(Cycle3 and Cycle 4)

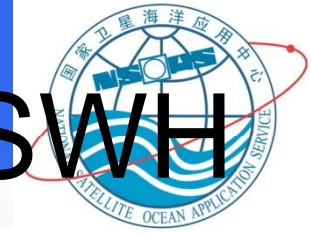
HY-2/BUOYS NDBC Wave Height 50KM 30MN 50KM Ave



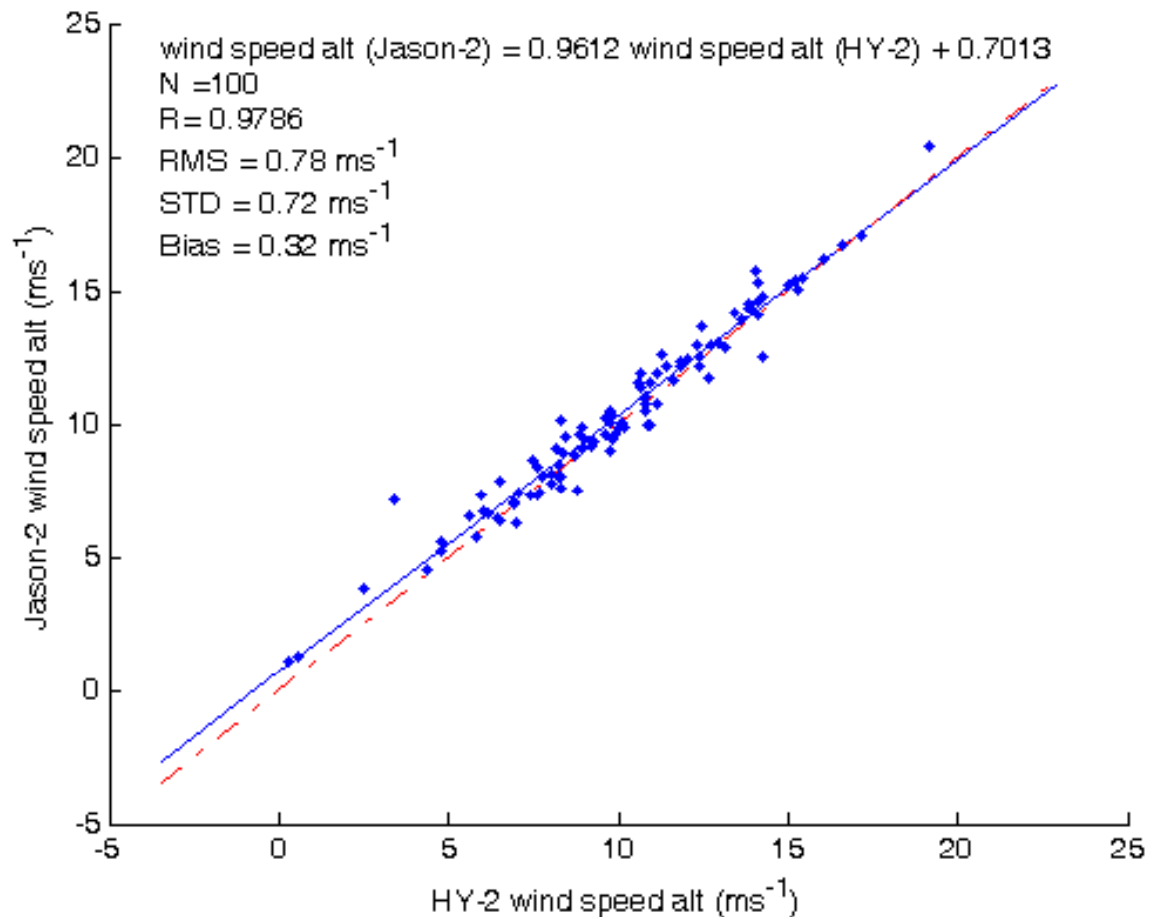
HY-2/Jason-2 crossover points SWH(m)



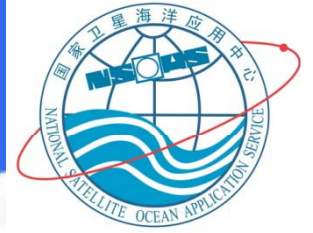
Validation of HY-2 Altimeter SWH



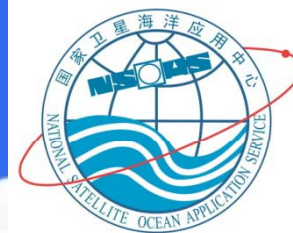
Compare HY-2 Altimeter wind Speed with Jason-2



Summary



- HY-2 Altimeter Data is stable
- Further work to improve data quality and accuracy
- Data can be obtained from website <http://www.nsoas.gov.cn>
or songxingai@mail.nsoas.gov.cn



Thanks !