

CFOSAT splinter session summary

❖ Intense phase of CAL/VAL (9 months) completed

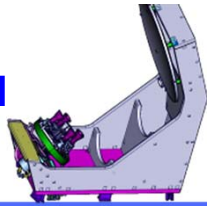
- ✓ **Wave (Hs) and wind (U) products from nadir:** excellent quality, beyond MLE4 (thanks to Adaptive Retracking)
- ✓ Wave spectral data: good products - Work in progress to improve wave spectra (speckle noise) but can be used already

❖ Data access:

- ✓ Already available for science team, access enlarged through AVISO+ starting in a few weeks - <https://www.aviso.altimetry.fr/fr/missions/missions-en-cours/cfosat.html>
 - Update soon to access to the data and CAL/VAL report
 - Announcement will be done through News AVISO and Mail OSTST list
- ✓ NRT delivery to operational centers via Eumetcast (starting 2020)

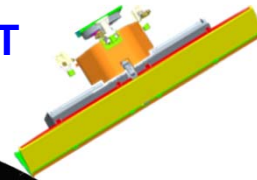
❖ Next CFOSAT science team meeting: in France, November 2020 (TBC). Open to the OSTST community. Topics: CAL/VAL, science & application

SWIM



CFOSAT

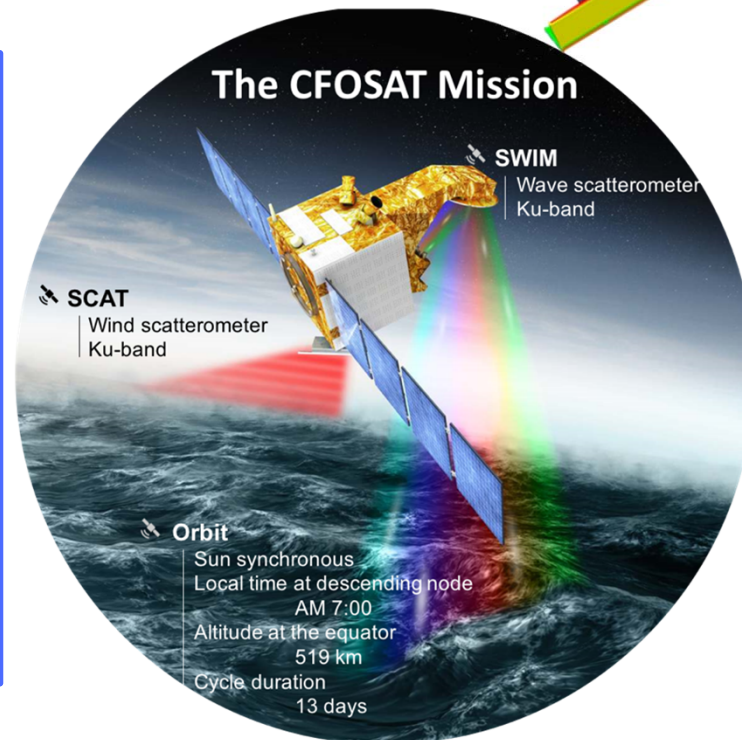
SCAT



CFOSAT: A China/France joint satellite oceanographic mission.

Joint measurements of surface wind and wave

- ✓ a wind scatterometer (SCAT)
=> **ocean surface wind vector**
- ✓ a wave scatterometer (SWIM)
=> **directional spectrum of ocean waves + wind and Hs from nadir**



Funded and managed by 3 Agencies



Plship : Danièle Hauser (LATMOS/CNRS), Liu Jianqiang (NSO)
CoPI : Lotfi Aouf (Meteo-France)

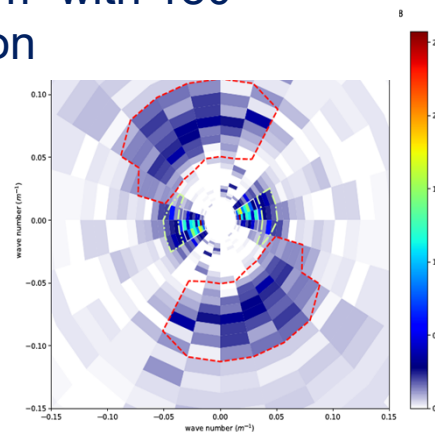
polar, sun-synchronous,
global coverage, 13 day
repeat cycles



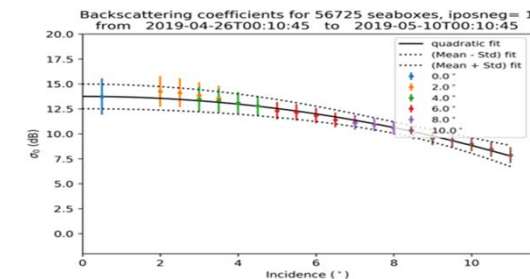
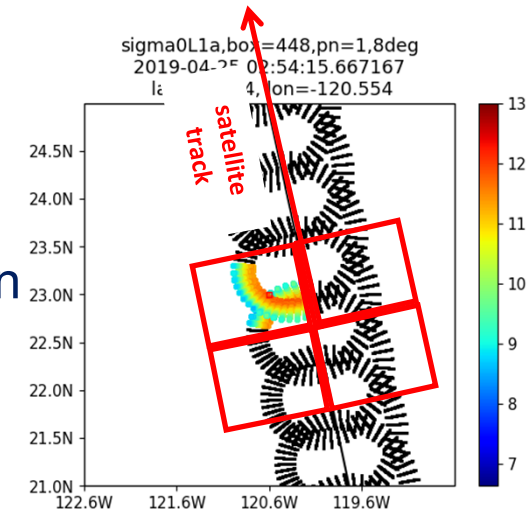
Main SWIM variables in the operational products

(CNES mission Center CWWIC)

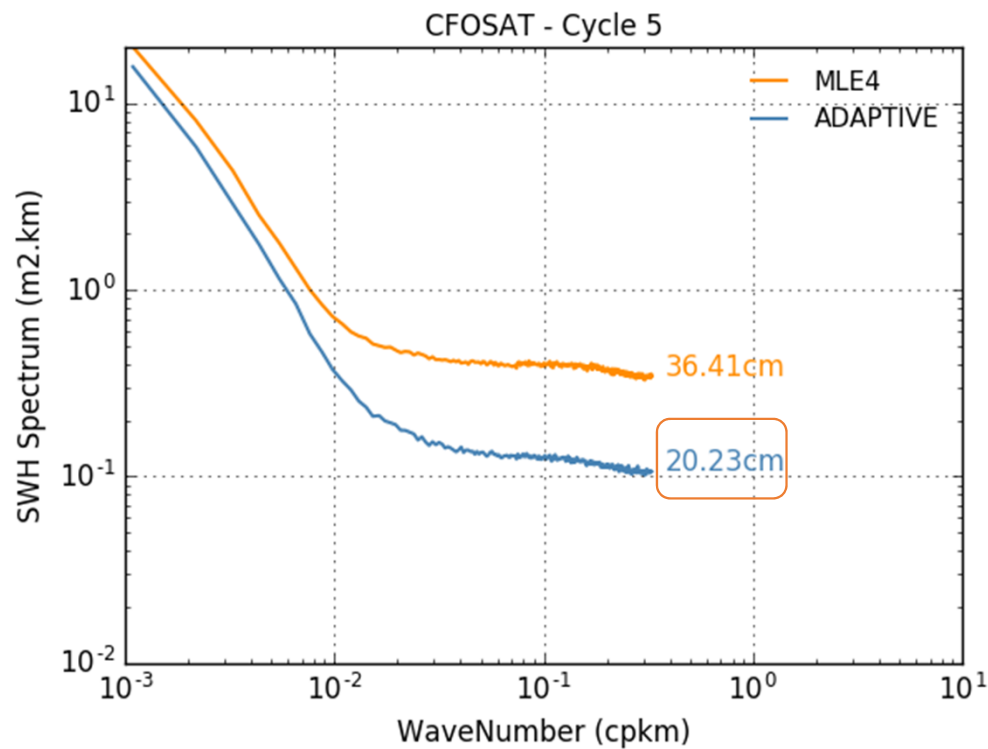
- ❖ Significant wave height and wind speed (along-track)- similar to altimeter mission
- ❖ In continuous wave cells (70 km x 90 km) on each side of the track
 - 2D wave spectra for wavelengths in the range [70-500] m- with 180° ambiguity in direction



- Backscattering coefficient (sigma0) profile



Compared to current altimeters ground segment processing: Lower spectral noise level on SWH



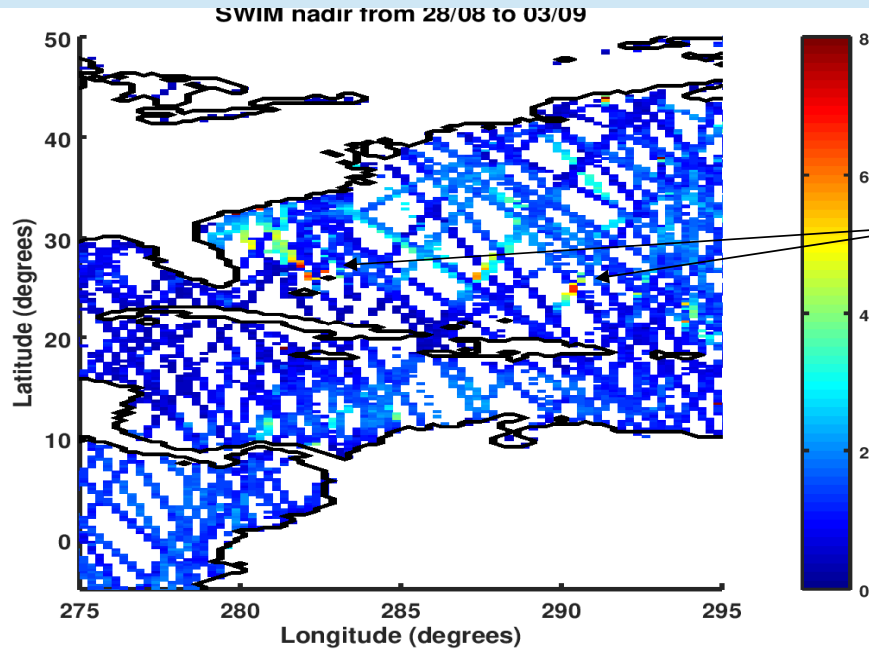
Large scale bias on MLE4 (No Look Up Tables) reduced

CFOSAT **Ground segment** instrumental noise = **20.23 cm**

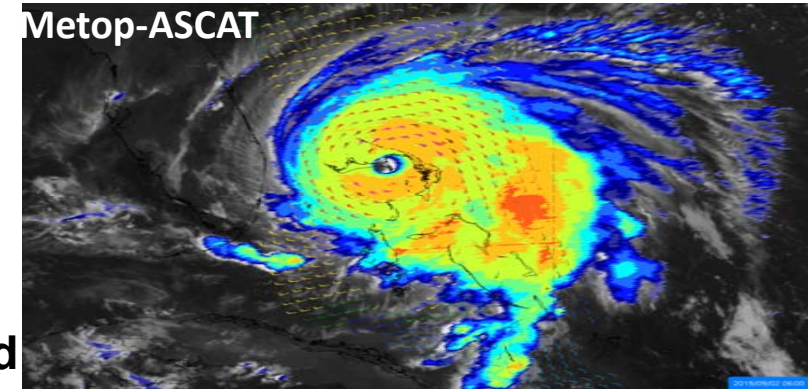
CFOSAT MLE4 instrumental noise = **36.41 cm**

45 % noise reduction w.r.t MLE4!

Relevance of CFOSAT wave data in extreme weather conditions : Hurricane DORIAN

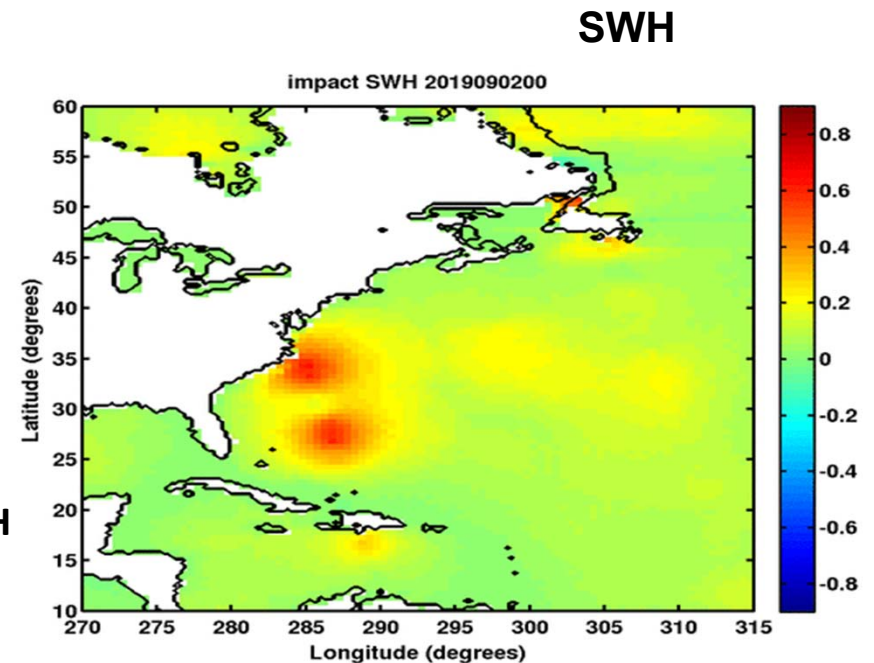


High waves captured by SWIM during Hurricane DORIAN 28 Aug to 3 Sep.



→ Assimilation of CFOSAT wave data ensures the best estimate of integrated wave parameters

During this event the assimilation of SWIM induces an improved SI of SWH by roughly 16 % in comparison with altimeters



CFOSAT Session recommendations

1. CFOSAT project encourages the OSTST to use these data
2. Consider a CFOSAT/ALT synergy session for next OSTST (Oct 2020) to include:
 - measurement issues (SWOT, DDA, LRM)
 - applications that combine the benefits of both satellites
3. CFOSAT should look into providing precise SSH measurements from its nadir altimeter
4. Look at CFOSAT altimeter SWH and σ_0 to see first global full time adaptive retracking mission for a nadir altimeter (MLE3, MLE4, Adaptive data will also be on Jason-3 GDR-F)