

Sentinel-6 MF

G01 Reprocessing Calval Assessment

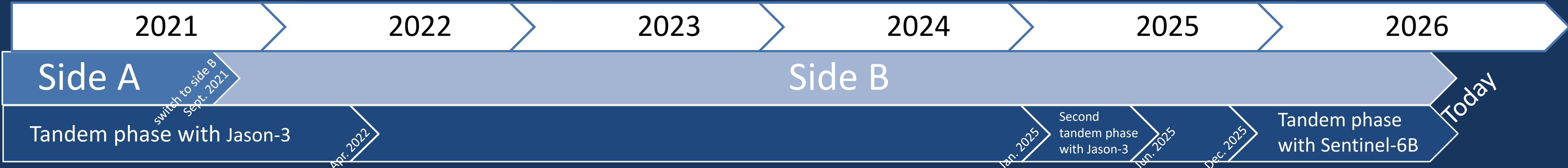
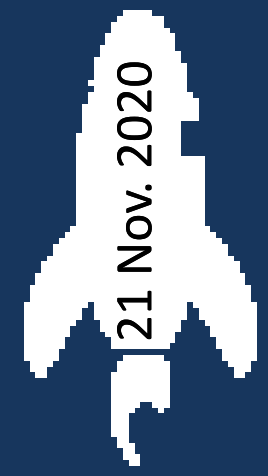


1. CNES, France
2. CLS, France
3. CELAD, France
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Sentinel-6 MF is the current reference altimeter

All data from launch were reprocessed in 2025 at GDR-G standard (Processing Baseline G01)



PB G01 is the first S-6 MF Baseline including all four retrackerers (MLE4 & NR for LR mode, SAMOSA & NR for HR mode) for the entire time series

Processing Baseline G01

GDR-G Standard

- MSS sol1 : Hybrid CNES-CLS2023/Scripps/DTU
- MSS sol2 : DTU2021
- MDT : CNES-CLS MDT 2022
- FES22 for Ocean & Load Tides
- POE-G orbits
- Removal of Ku-MLE3 variables

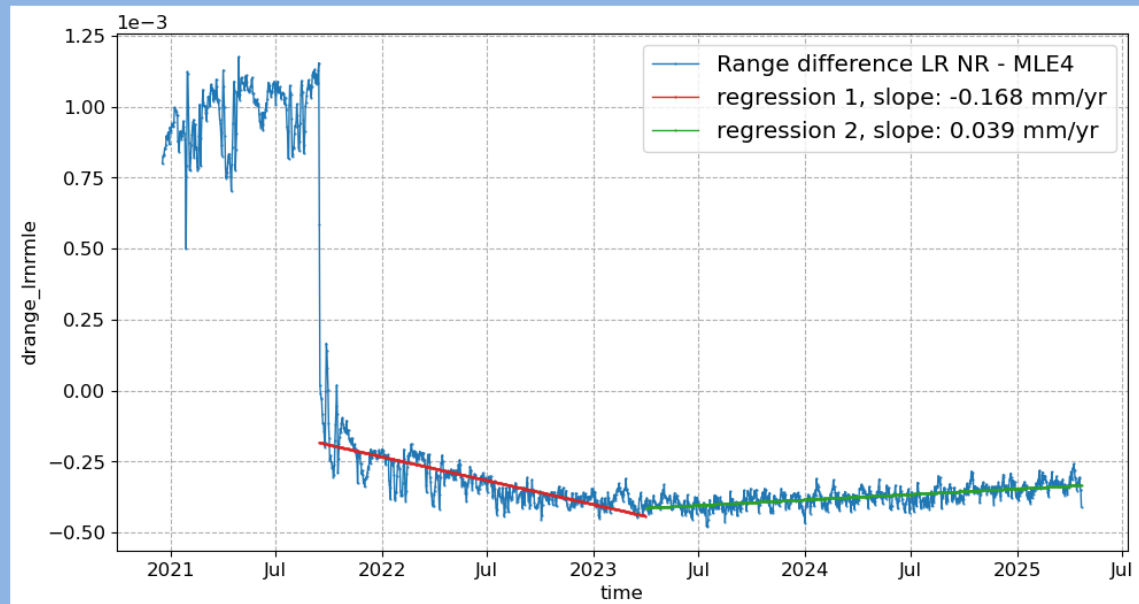
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G01 Processing Practices

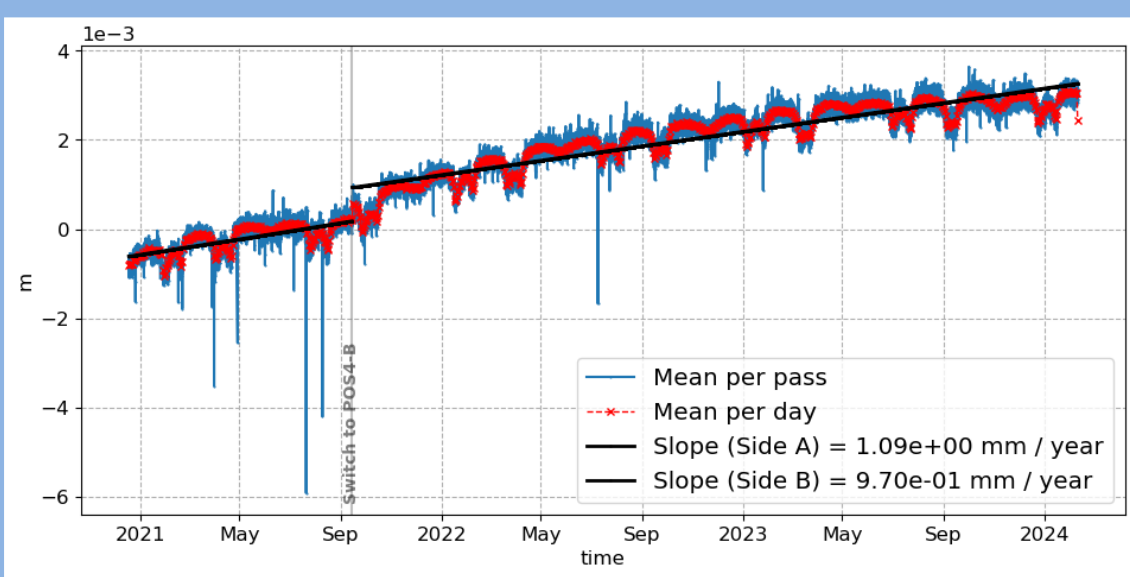
- LUT updates for LR Ku-MLE4 and C-MLE3
- vertical wave motion correction at 20Hz and range walk correction for all HR dataset
- external path delay and g scaling update

Range

Homogeneous time series for all retrackerers



Assessment of PTR evolution impact in LR MLE4 vs NR time series



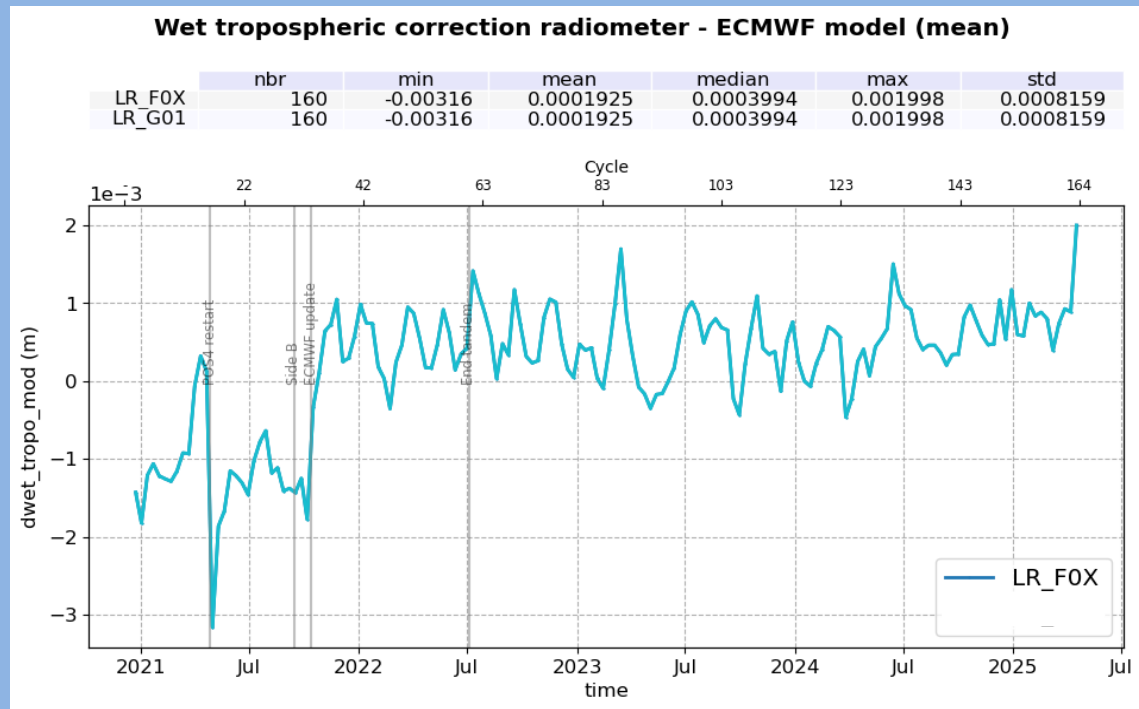
Assessment of range-walk correction in HR SAMOSA time series : about 1mm/year

Data Analysed

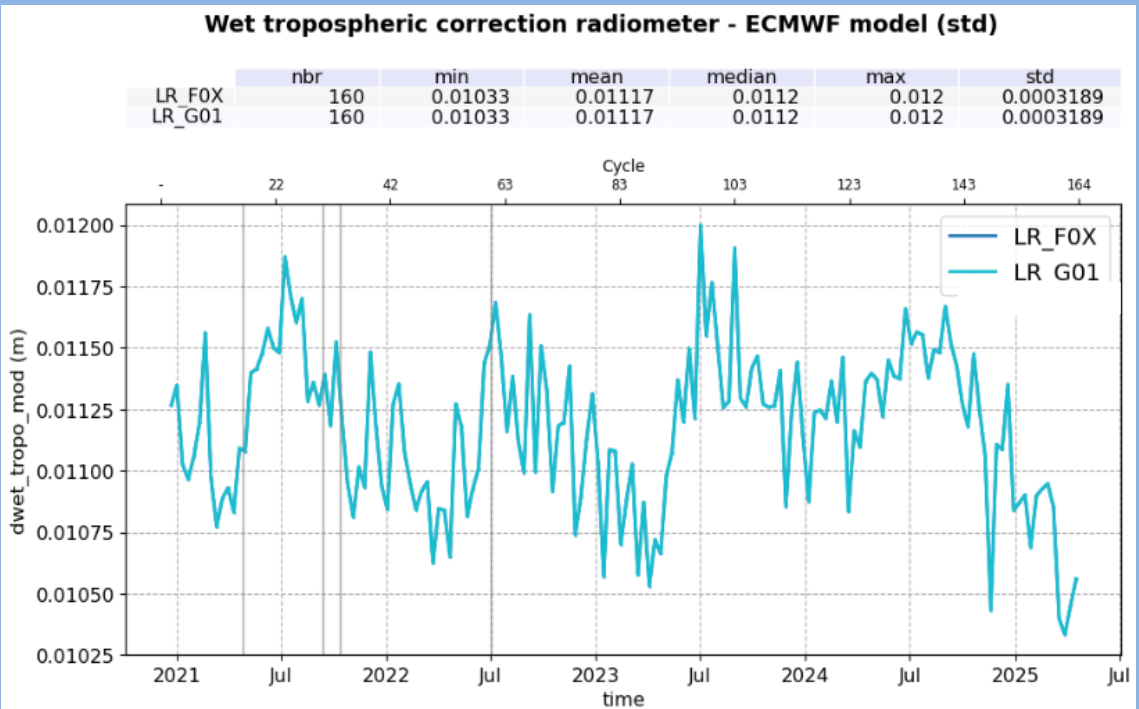
S6-MF ocean 1Hz L2 data from 17 December 2020 to 10 April 2025 (cycle 4 pass 13 to cycle 163 pass 230)

	LR	HR
Availability over ocean	99,73 %	98,93 %
Ice removal	4,93 %	4,93 %
Unvalid data rejection	6,4%	5,0 %

Wet Tropospheric Correction



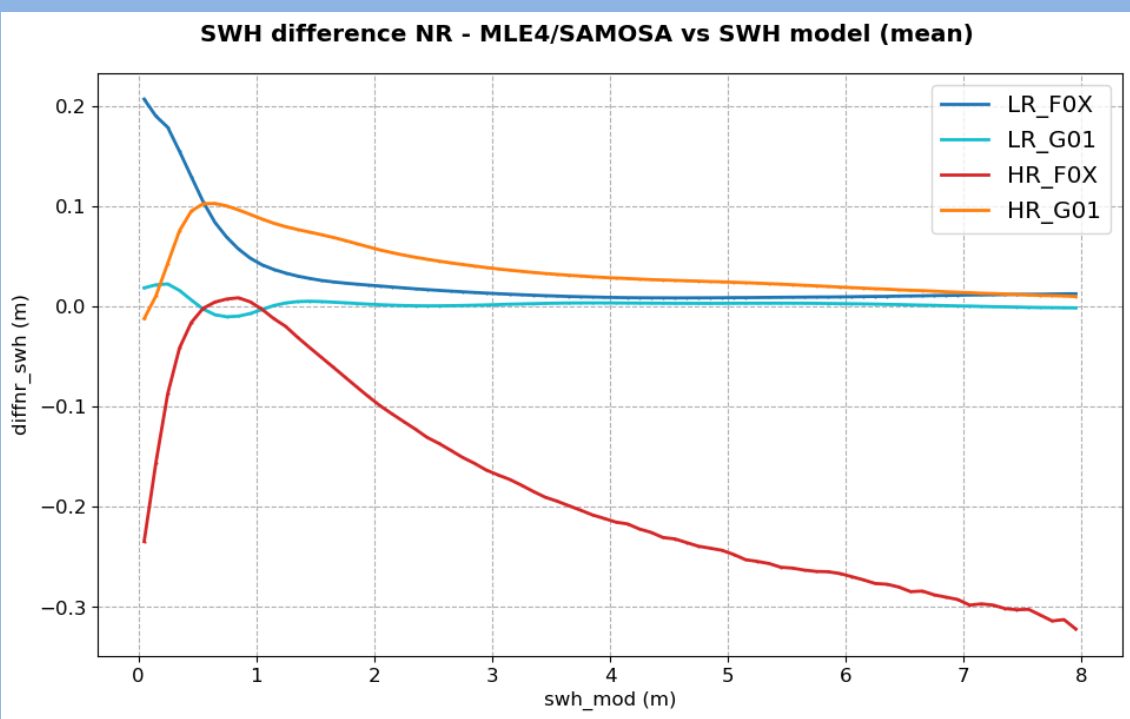
Stable difference wrt model since Oct. 2021 ECMWF update



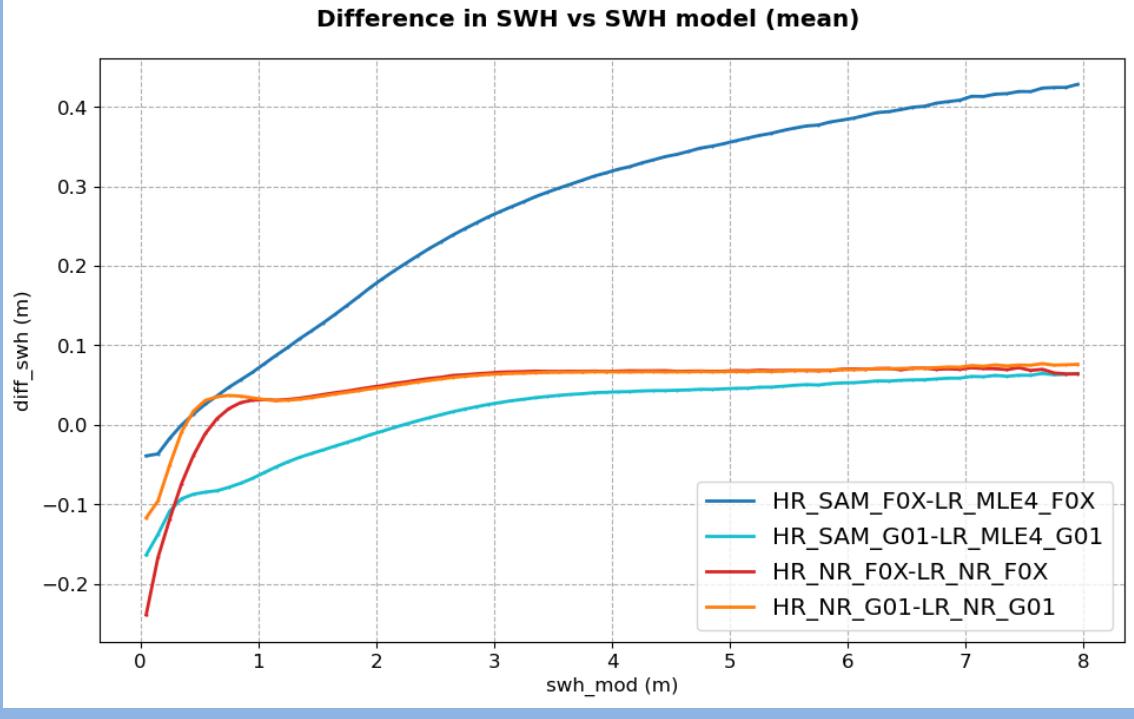
Around 1.1 cm std wrt model

SWH

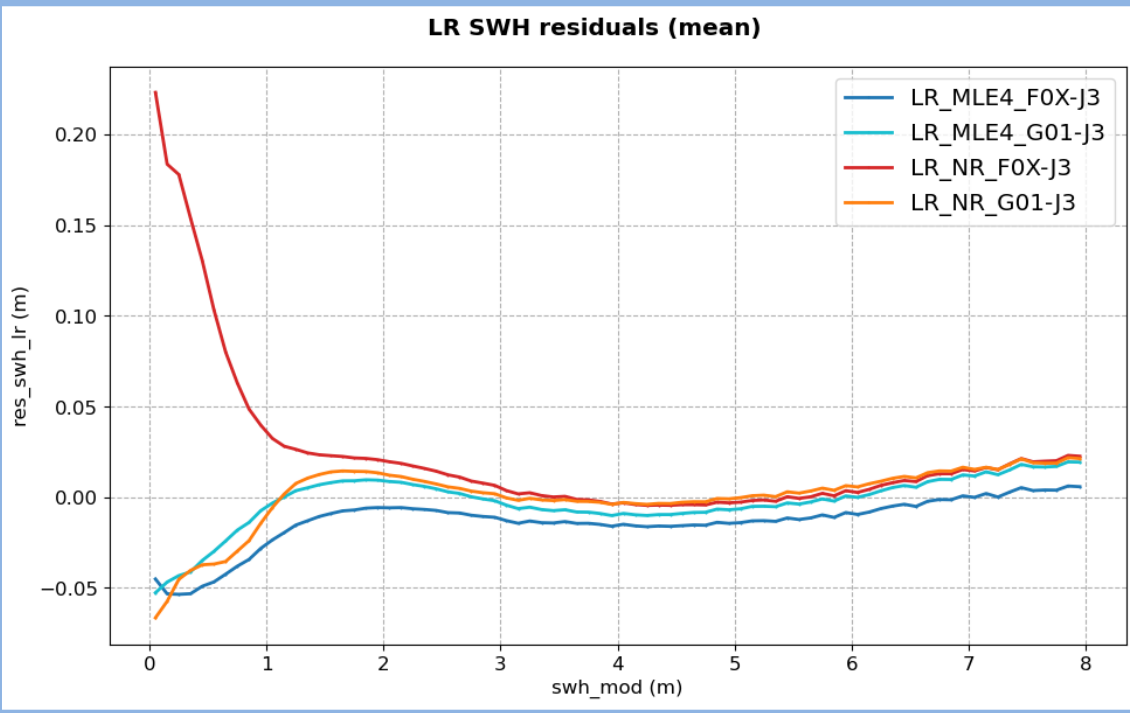
Homogeneous time series for all retrackerers



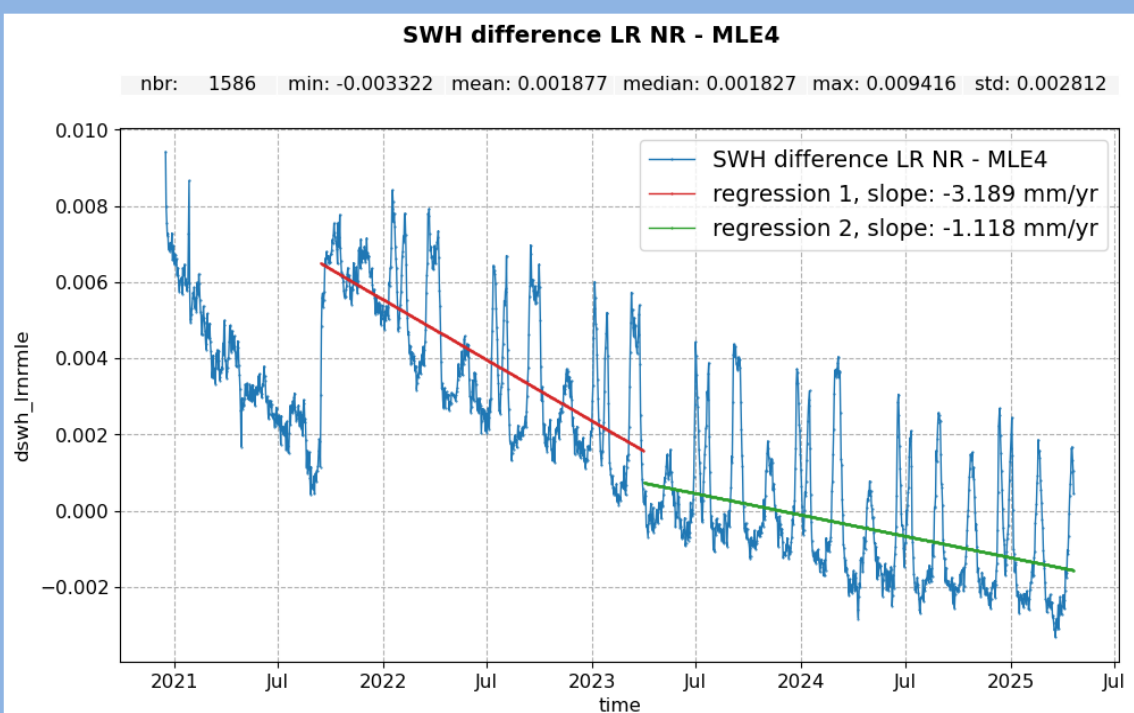
Perfect alignment btwn the two LR retrackerers
Centimetric biases btwn the two HR retrackerers



Centimetric biases between HR and LR

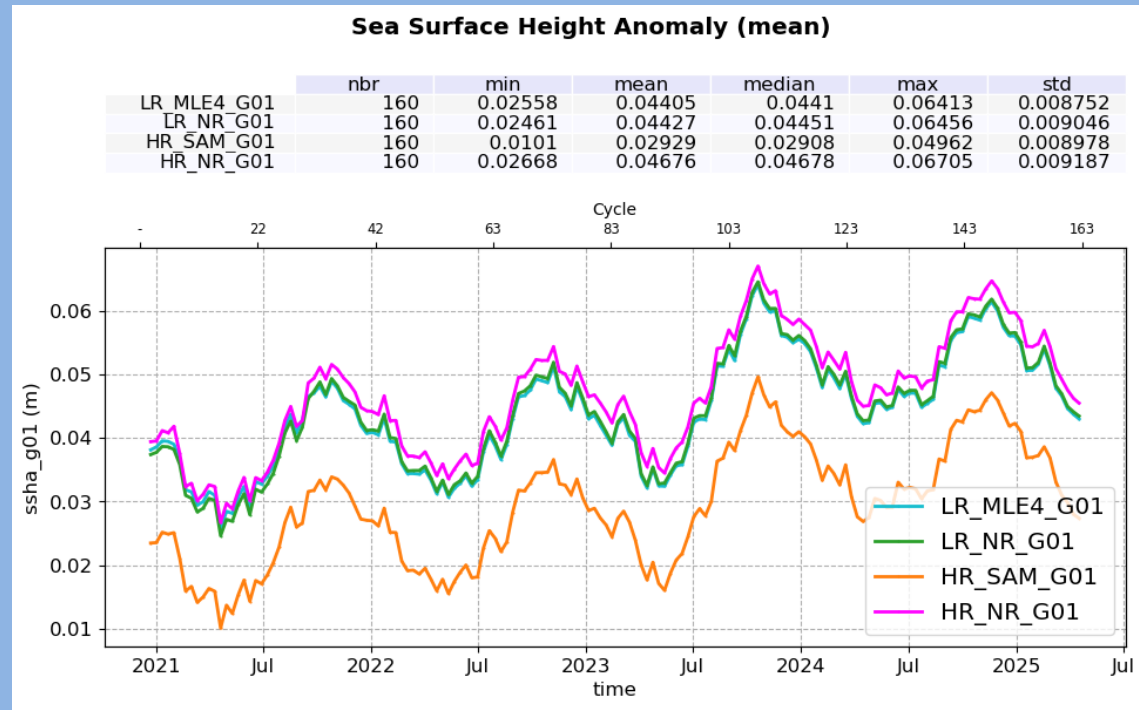


Centimetric differences with Jason-3 during tandem phase

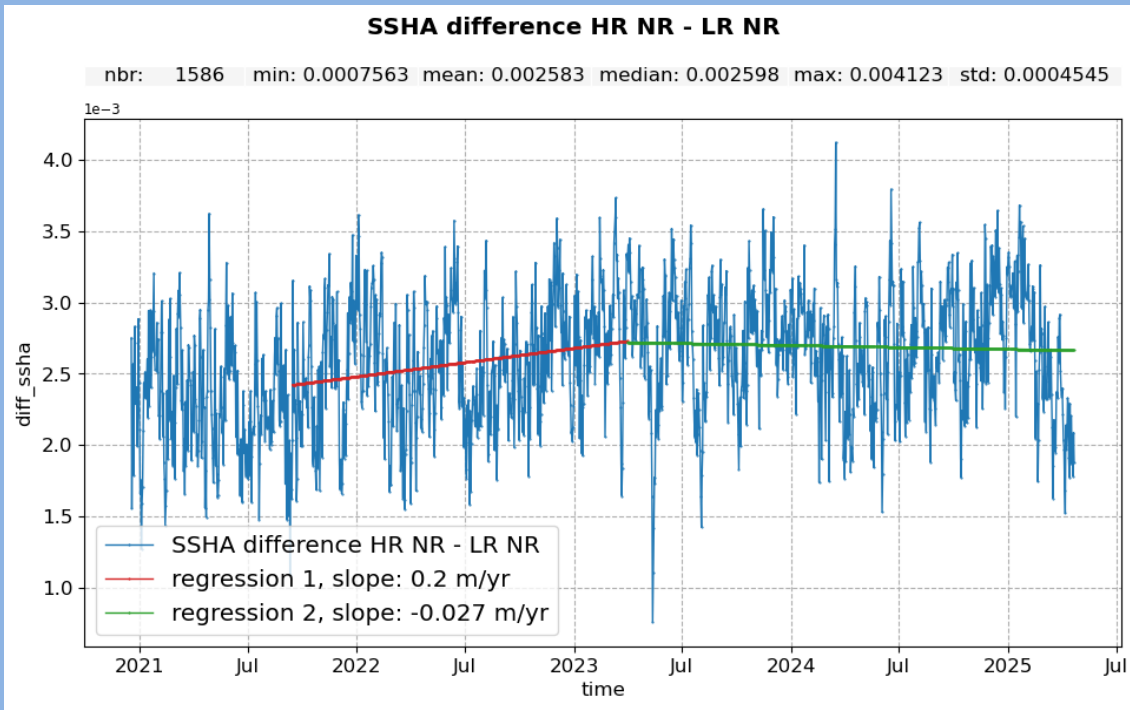


Assessment of PTR evolution impact in LR MLE4 vs NR time series

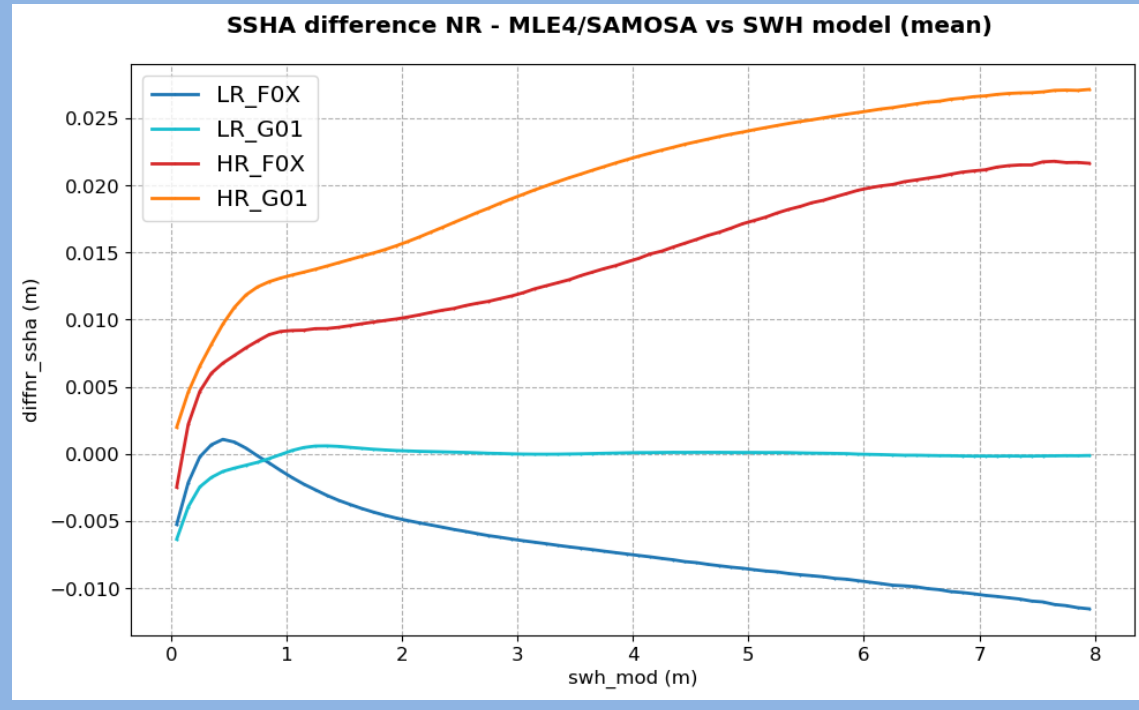
SSHA



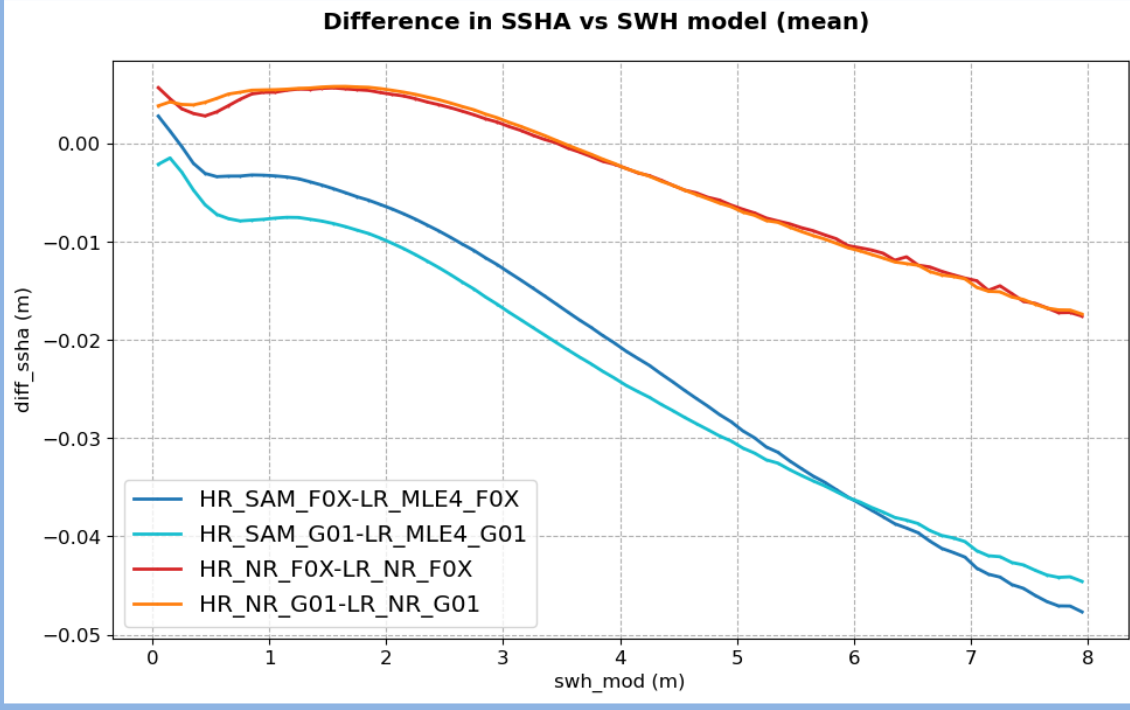
Long Term SLA monitoring



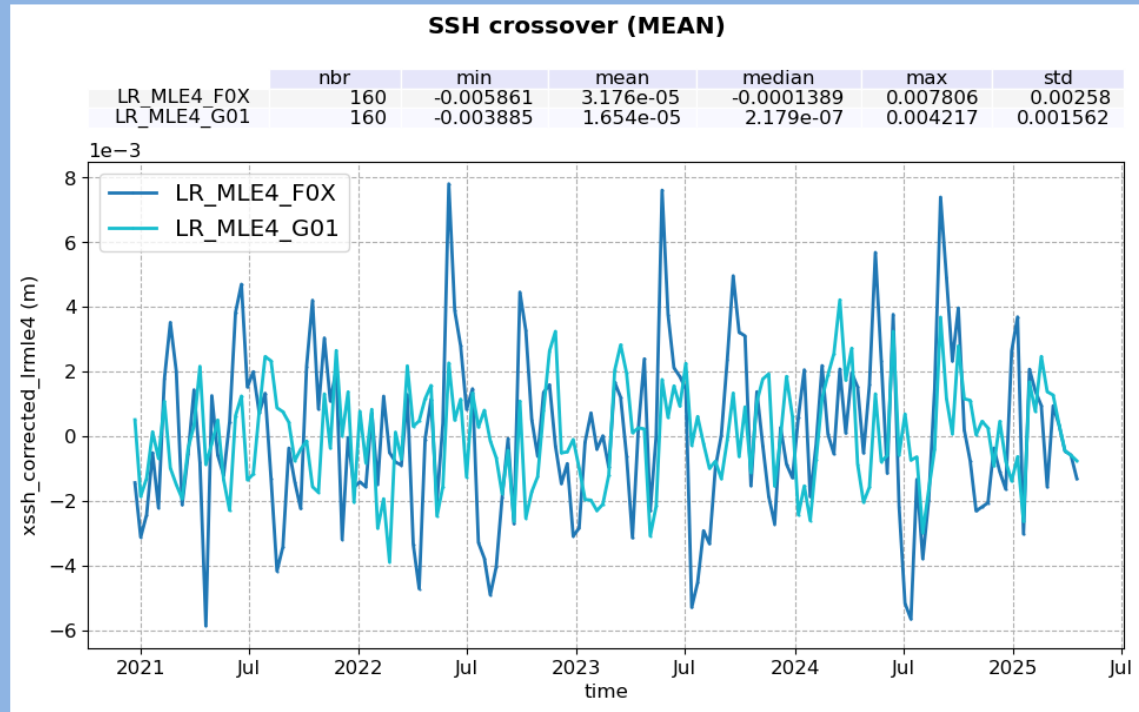
Slight long term trend between HR and LR



Perfect alignment btwn the two LR retrackerers
Centimetric biases btwn the two HR retrackerers



Centimetric wave-dependent biases between HR and LR

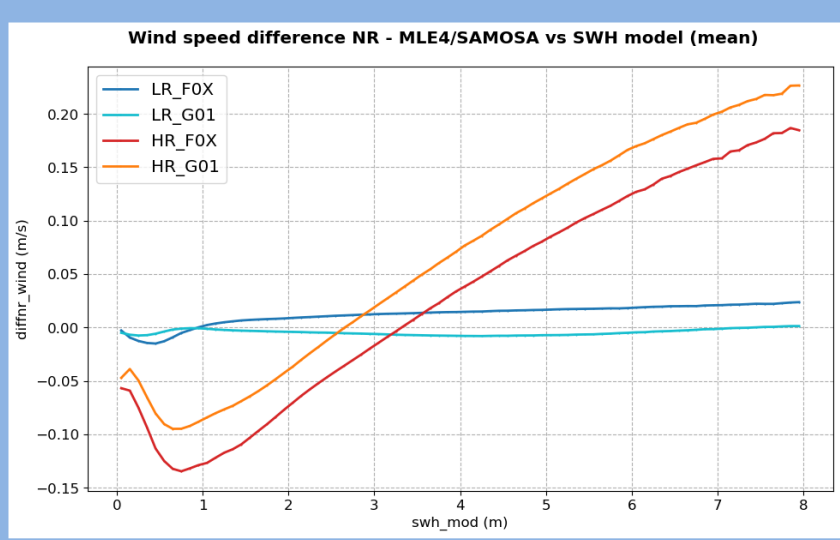


Significant reduction of Xovers mean oscillation for all retrackerers

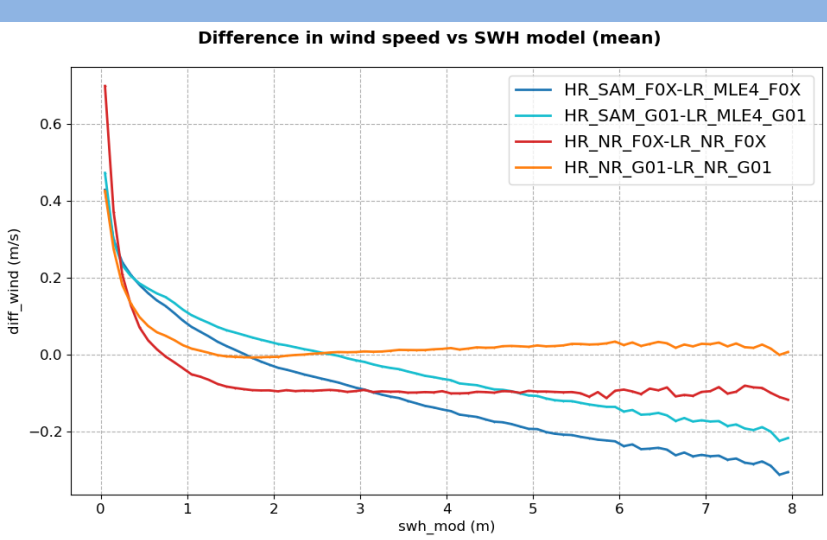
Retracker	Mean (cm)	Std (cm)
LR MLE4	0.00	4.62
LR NR	0.00	4.60
HR SAMOSA	0.09	4.42
HR NR	0.09	4.40

SSH Xover differences

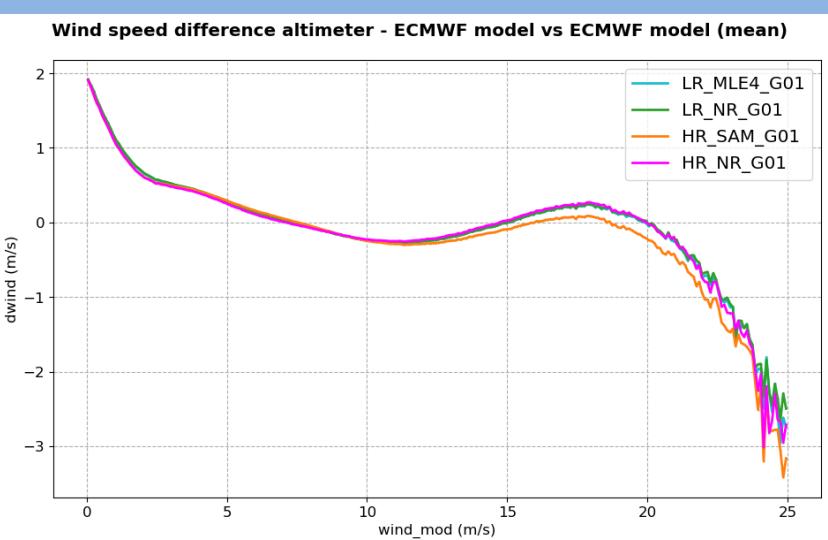
Wind Speed



Perfect alignment btwn the two LR retrackerers.
Tens centimeter wave dependent biases btwn the two HR retrackerers



NR : good alignment between LR & HR
MLE4/SAMOSA : Tens centimeter wave dependent biases



Altimetric WS above model for low winds, and below model for high winds

See also...

GMSL impacts of G01 → Quet et al. OSTST 2026
J3/S6-MF tandem phase analysis → Flamant et al. OSTST 2026

GDR-G reprocessing status → Bignalet-Cazalet et al. OSTST 2026
Copernicus Altimetry Products Performance Reporting → Nogueira Loddó et al. OSTST 2026

Conclusion

- Excellent availability and quality of G01 Sentinel-6 MF data
- Full compliance to system requirements
- Homogeneous time series for all retrackerers, no longer discontinuity between POS4 sides A and B
- Improvement of consistency between retrackerers, but still some slight geographic and slight long term discrepancy remains between LR and HR



Full assessment in [Courcol et al, 2026] Sentinel-6 MF : G01 Reprocessing Calval Assessment
https://user.eumetsat.int/s3/ope-eup-strapi-media/Sentinel_6_MF_G01_Reprocessing_Calval_Assessment_7e75a56d93.pdf



Sentinel-6 MF G01 data is available on EUMETSAT Datastore. See :
<https://user.eumetsat.int/news-events/news/release-of-sentinel-6-michael-freilich-g01-reprocessed-datasets>

The Sentinel-6 Mission Performance Service is an expertise and performance evaluation service for the Sentinel-6 missions, delegated to CNES by EUMETSAT



OSTST 2026
Wiesbaden, Germany



PROGRAMME OF
THE EUROPEAN UNION

