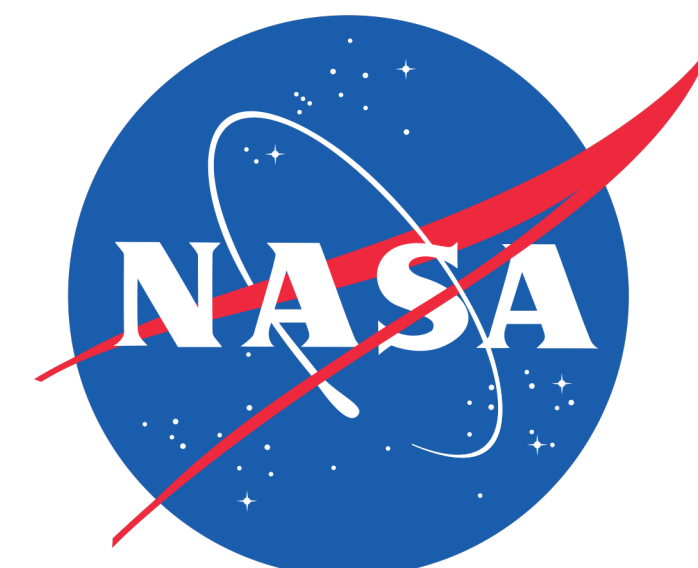


Jason-3 on the Interleaved Orbit: Results from Independent Calibration and Validation

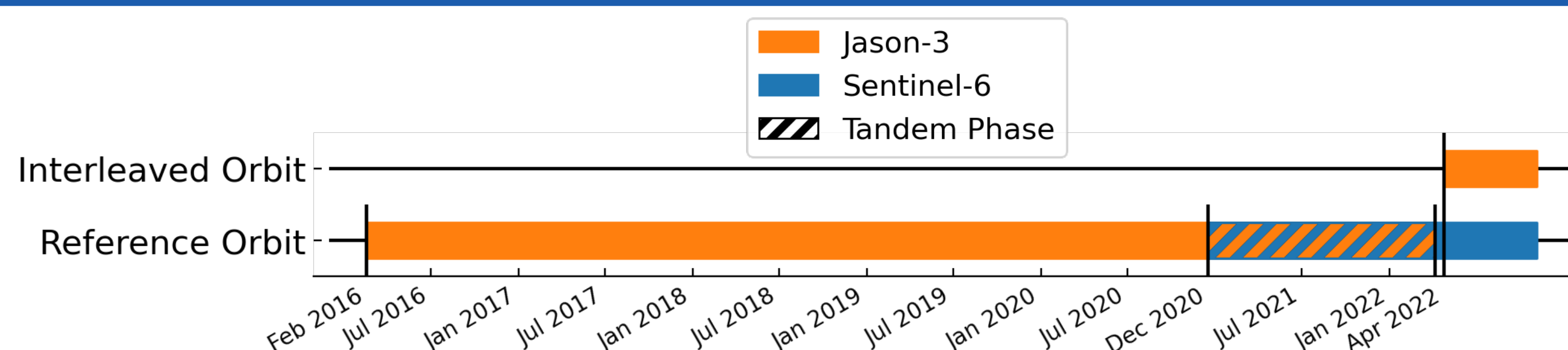
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Background

The Jason-3 spacecraft has been collecting sea surface height measurements along the historical ground-track from February 2016 to April 2022 (cycles 1 - 227). As of April 25th, 2022 (cycle 300), the Jason-3 mission was moved to the Interleaved Orbit to complement the new reference mission Sentinel-6 for an optimal time and space coverage.



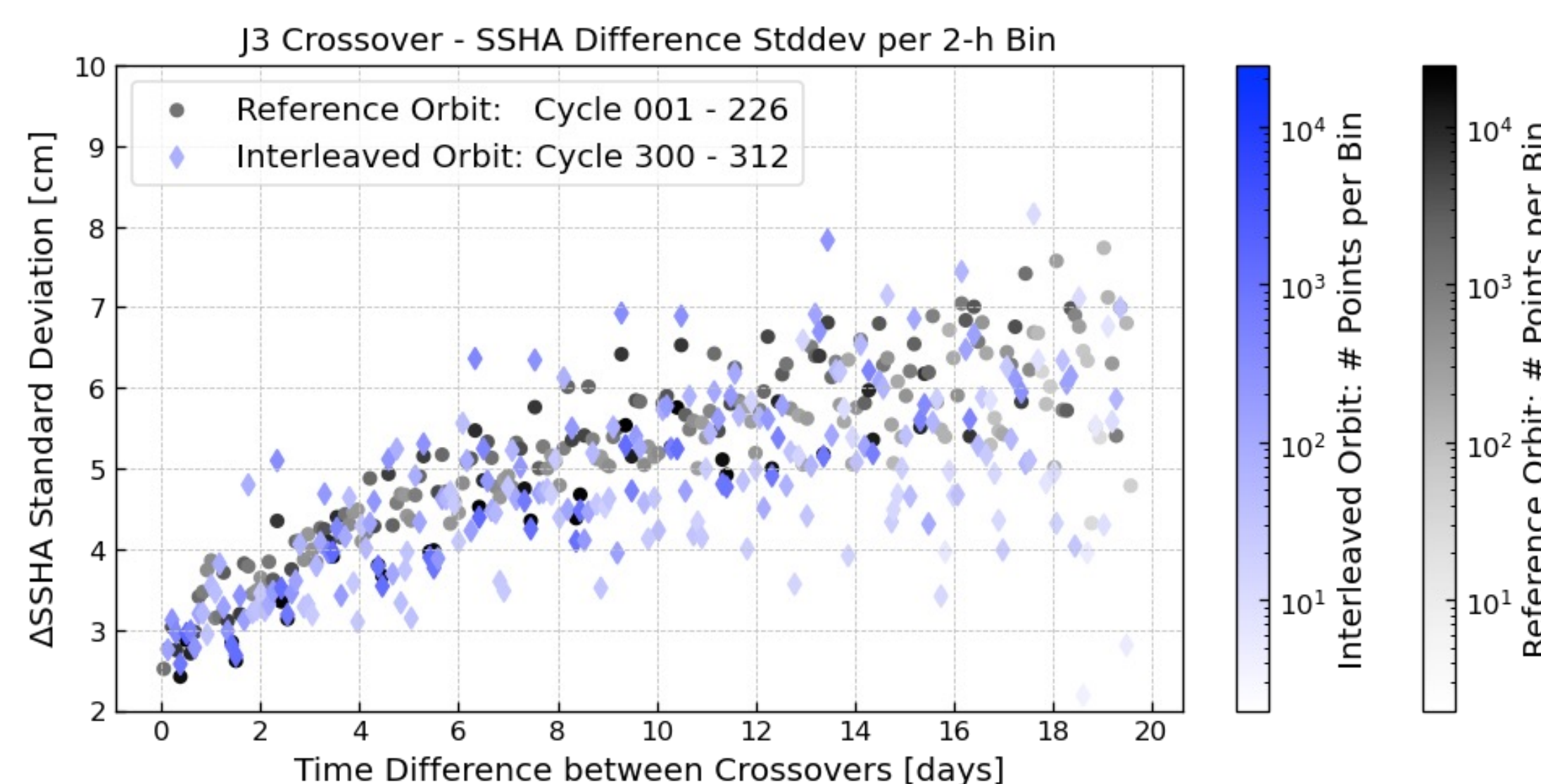
Crossover Analysis

Reference Descending Pass

Interleaved Descending

Reference Ascending

Interleaved Ascending

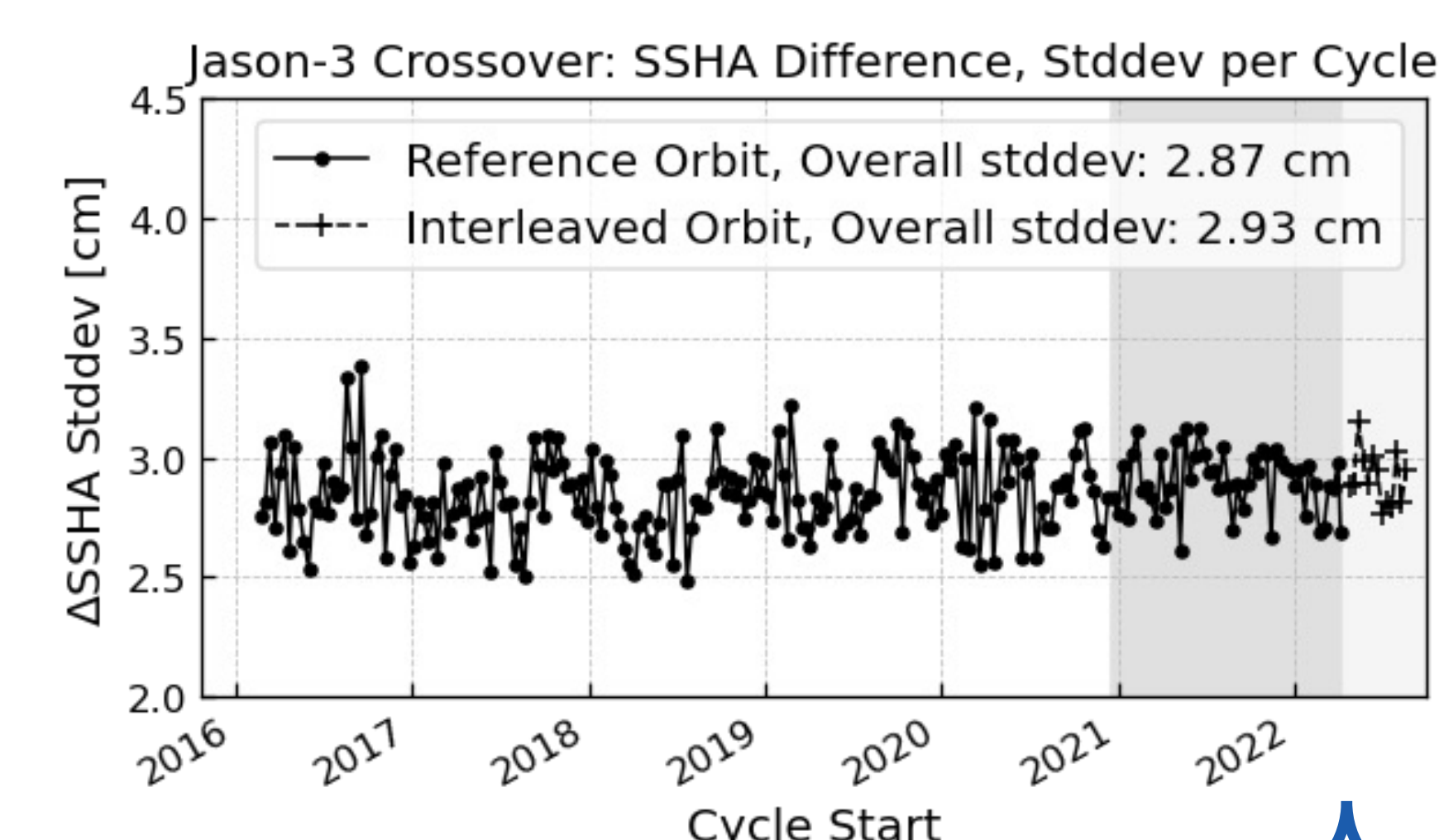


Standard deviation of Jason-3 SSHA crossovers as a function of time difference Δt elapsed between the two measurements.

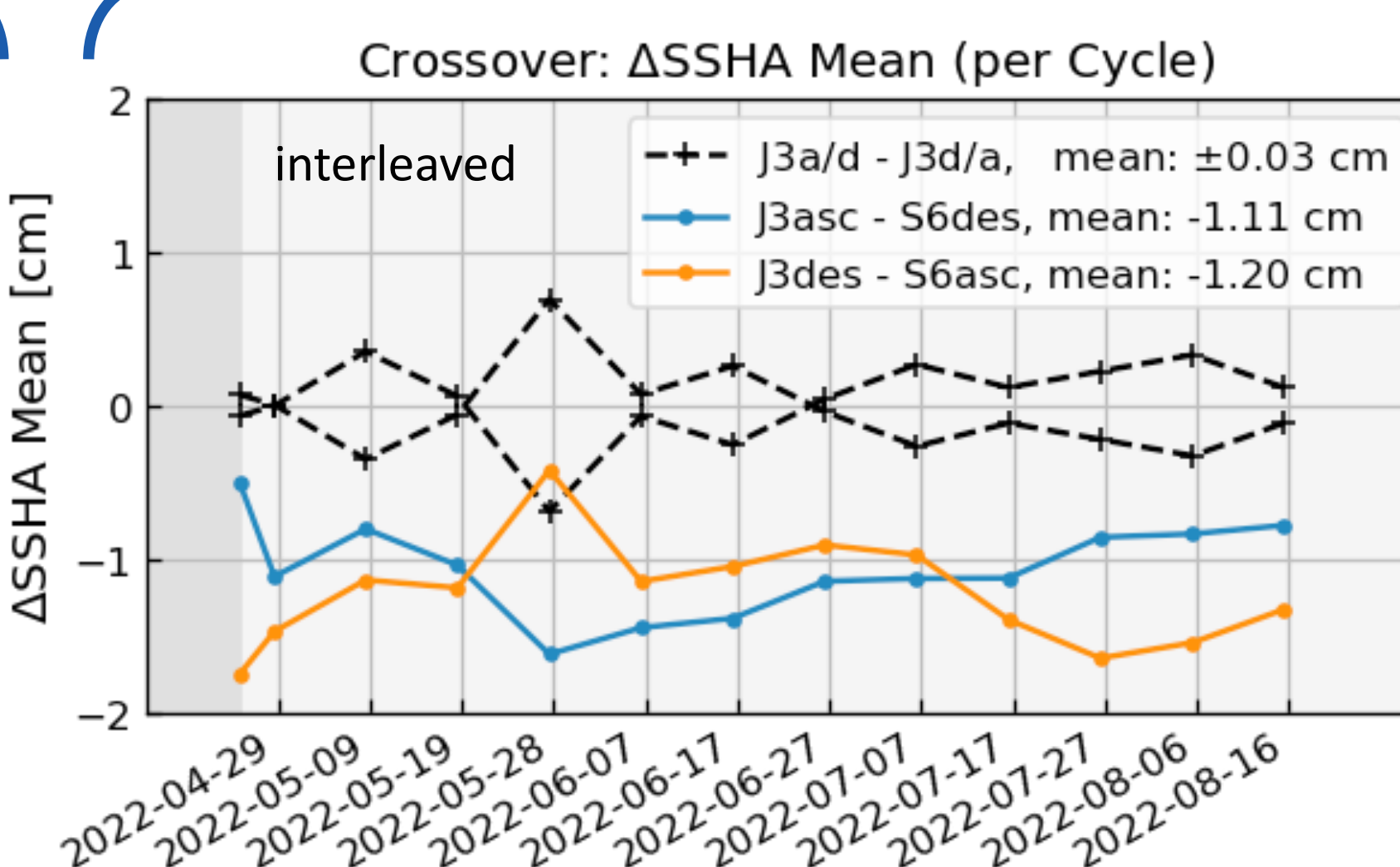
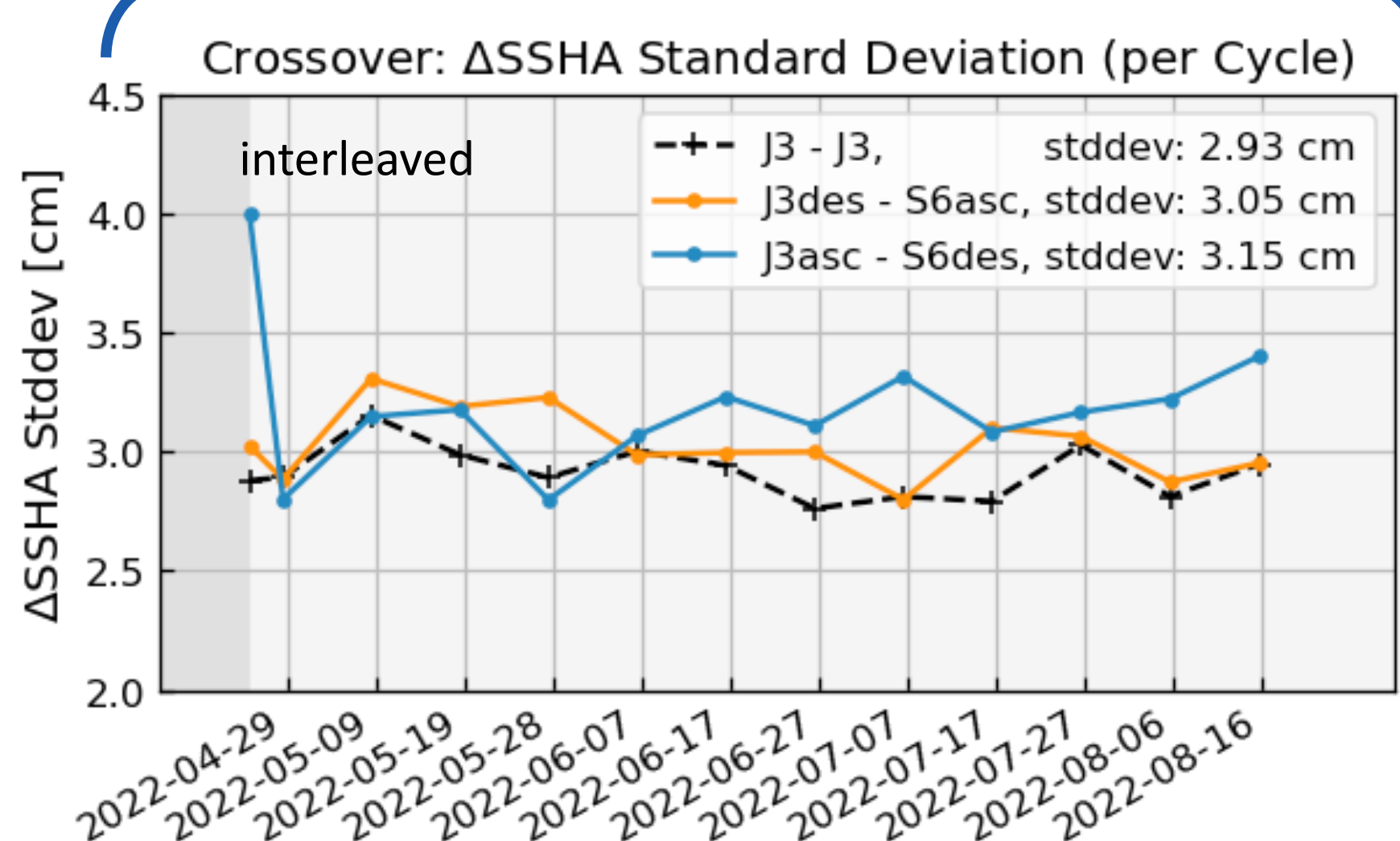
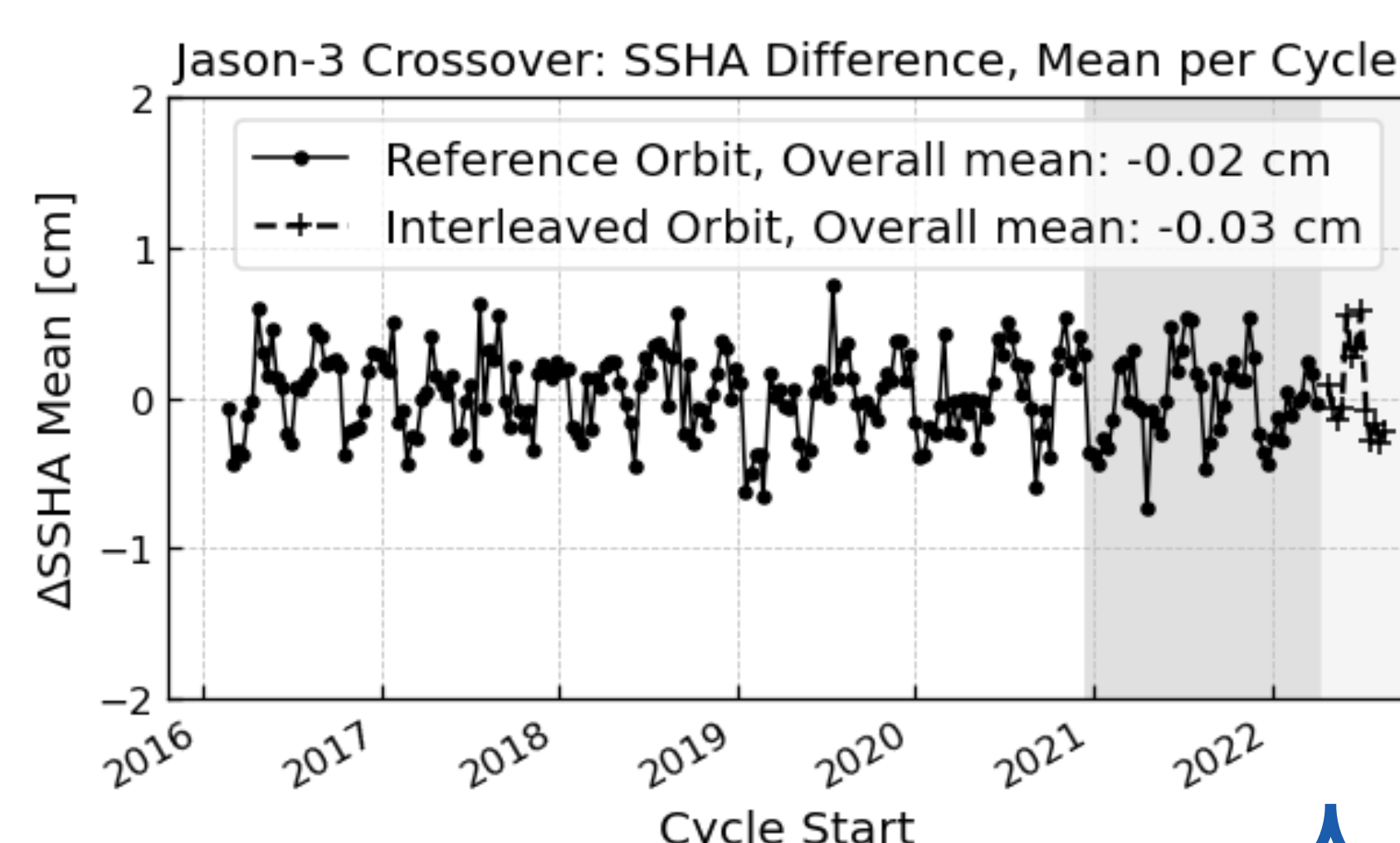
- $\Delta t \rightarrow \infty$ the effect of ocean variability increasingly dominates the results
- $\Delta t \rightarrow 0$ ocean variability effects become negligible which allows to estimate the system performance
- Combined crossovers** for cycles N/N-1, N/N, N/N+1 \rightarrow **90 % more samples** for $\Delta t < 10$ days (304,876 vs. 581,622)

Crossover Statistics: Sea Surface Height Anomaly (SSHA)

Standard Deviation



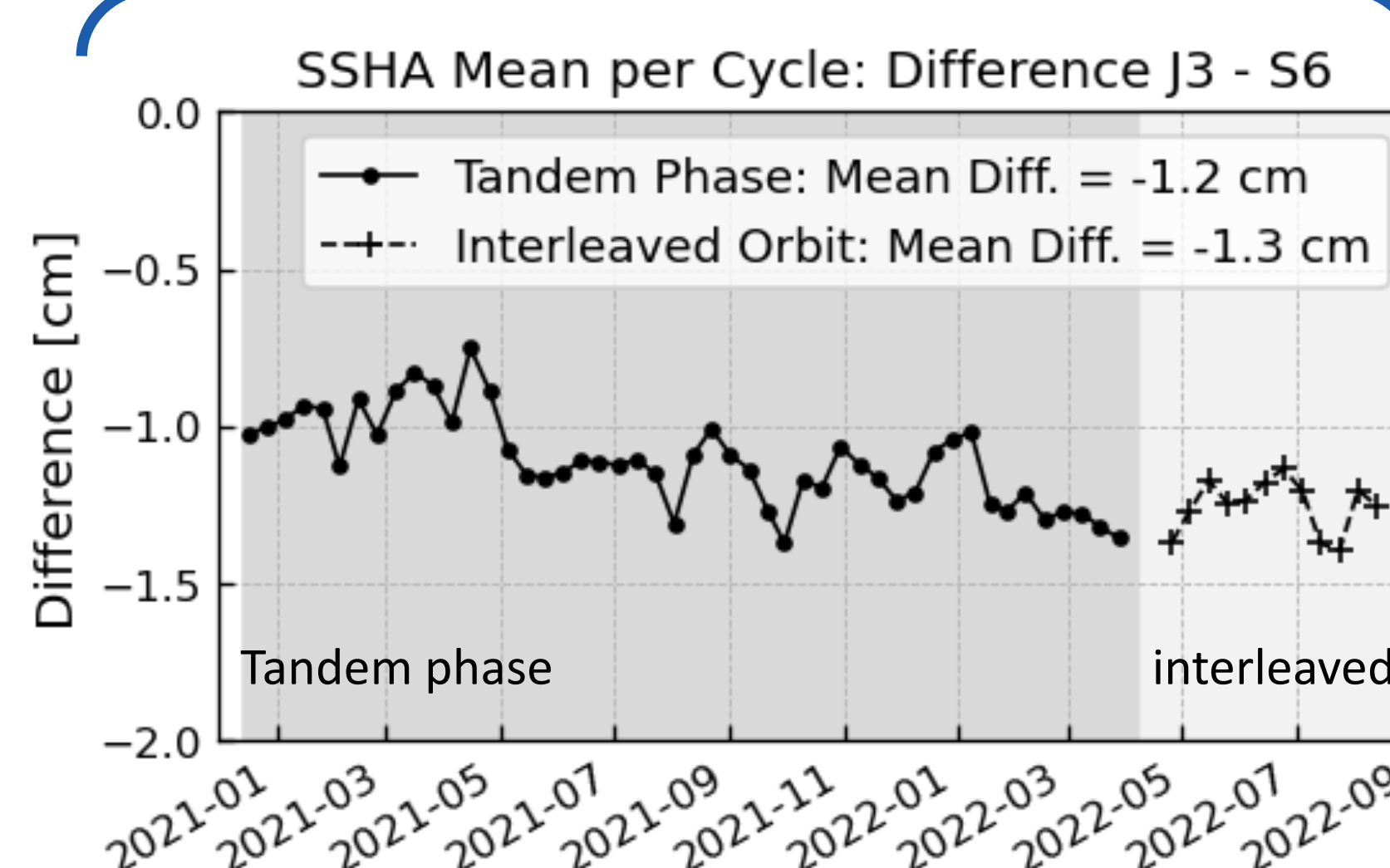
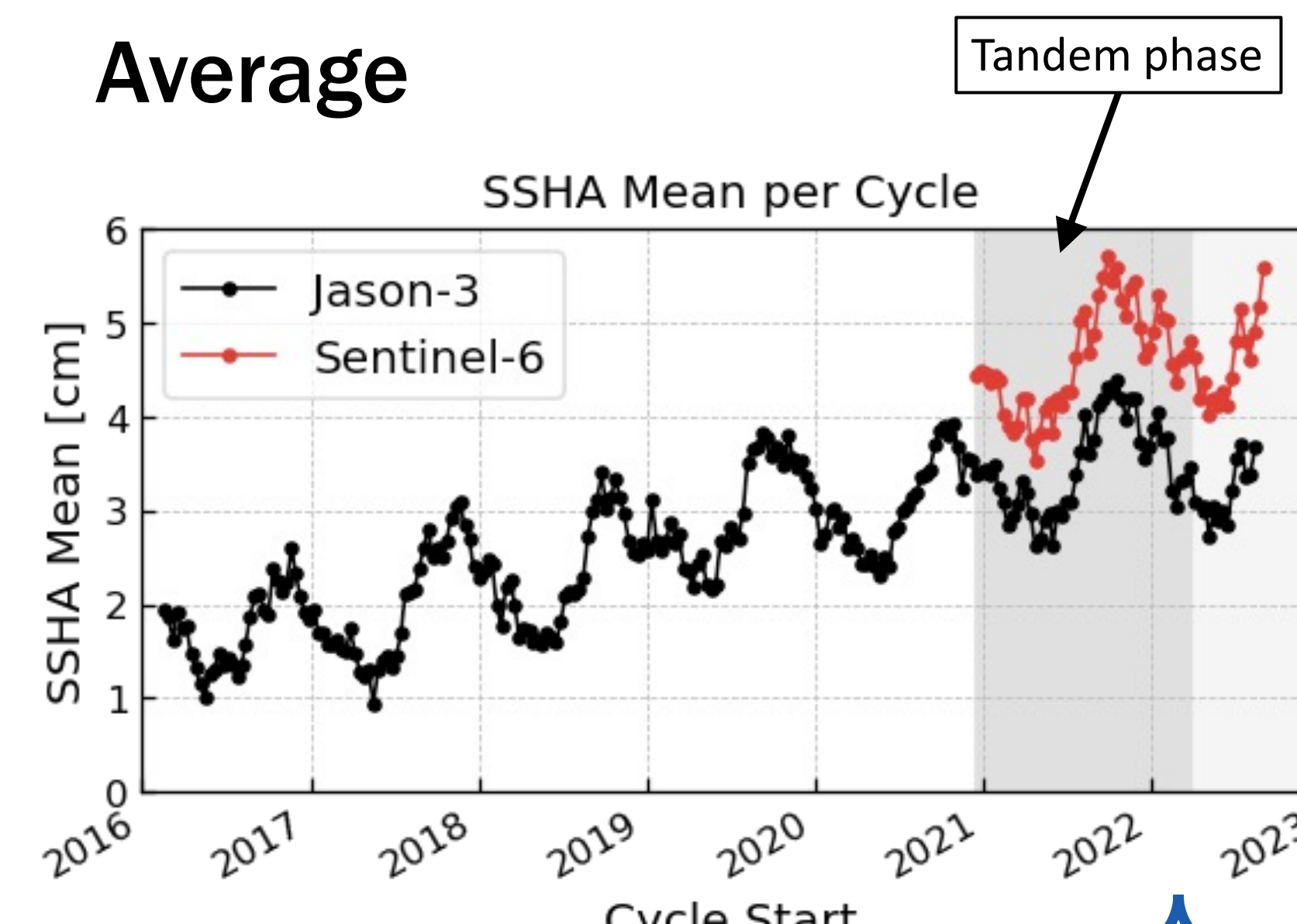
Average



Crossover time difference < 2 days

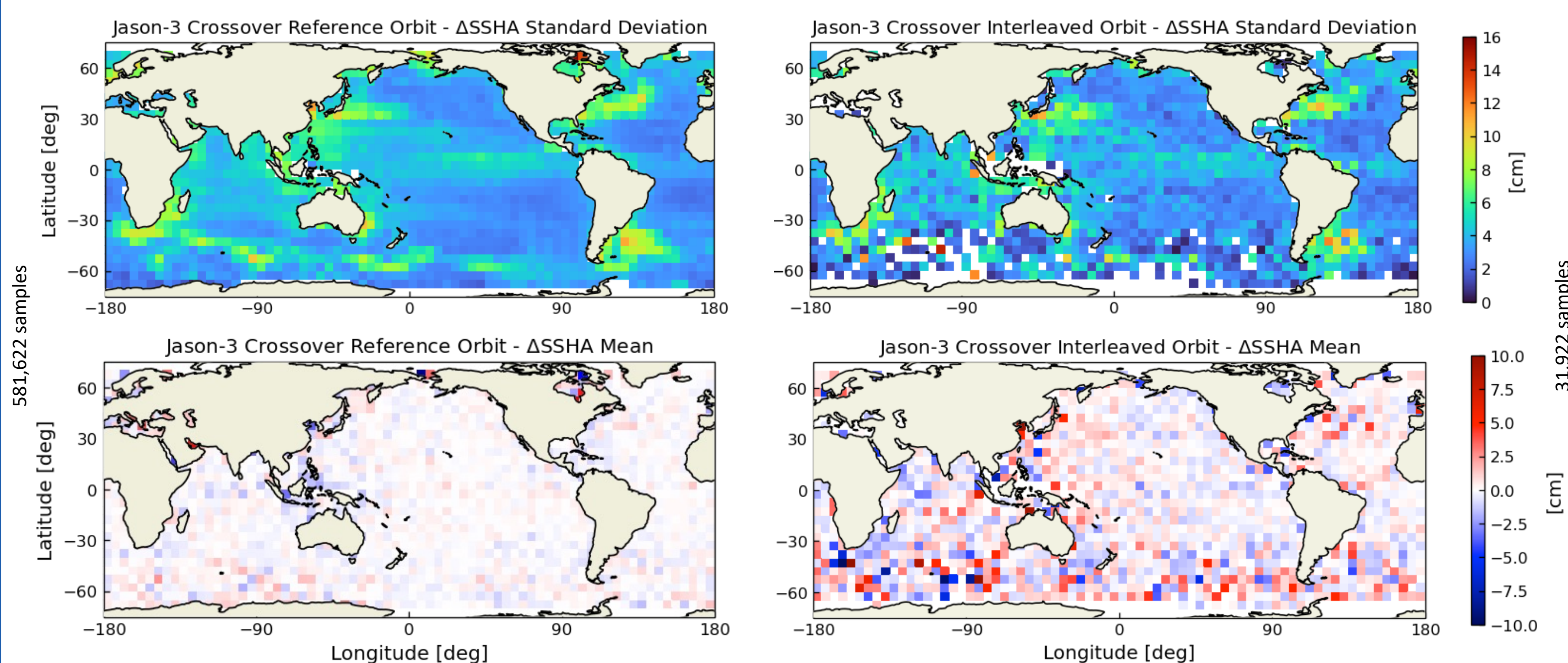
Along-track Statistics: SSHA

Average



SSHA Crossover Statistics Maps

Crossover time difference < 10 days
5-deg lat/lon bins



Key Results:

- Both crossover and along-track SSHA statistics confirm continuity of J3 measurement performance across reference and interleaved orbit. Similar continuity for SWH and sigma0 (not shown here).
- Crossovers: Mean of SSHA differences is consistent between J3 and J3-S6 inter-mission crossovers. Similar relative J3-S6 bias of -1 cm before and after the interleaved orbit.
- Crossovers: Standard deviation of SSHA differences of 3 cm is consistent between J3-J3 on the reference and interleaved orbit as well as J3-S6 crossovers on the interleaved orbit.