# SARAL/AltiKa data quality assessment over ocean

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# Cal/Val activities

- Objectives of altimetry validation activities over ocean
  - check the data availability and validity
  - analyze the physical content of product parameters
  - estimate the system performance
  - contribute to a better knowledge of the sea-level physical content
  - check improvement by new standards
  - provide information to users and production centres

# Introduction & Outline

- Analysis based on SARAL/AltiKa GDR-T Patch 2 data,
- From cycles 1 to 26, completed by IGDR sometimes

  2.5 yrs from march 2013 to August 2015

- Main metrics of SARAL/AltiKa performance over ocean,

  derived from routine validation of GDRs

- Mission events over the last year

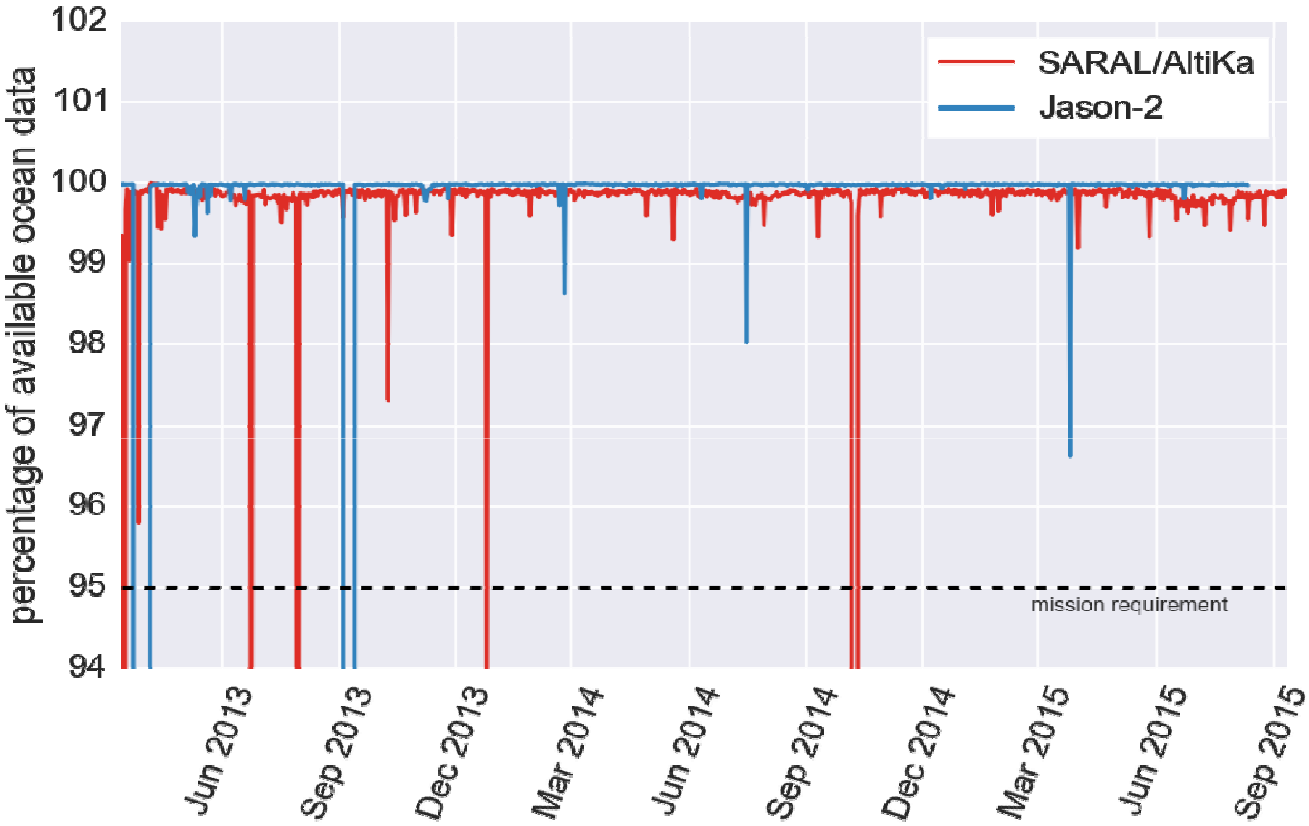
  mispointing, ground track shift, SHM impacts, …

# MISSION PERFORMANCE: A QUICK OVERVIEW

Main metrics from Cal/Val analysis

# Data coverage AltiKa v Jason-2

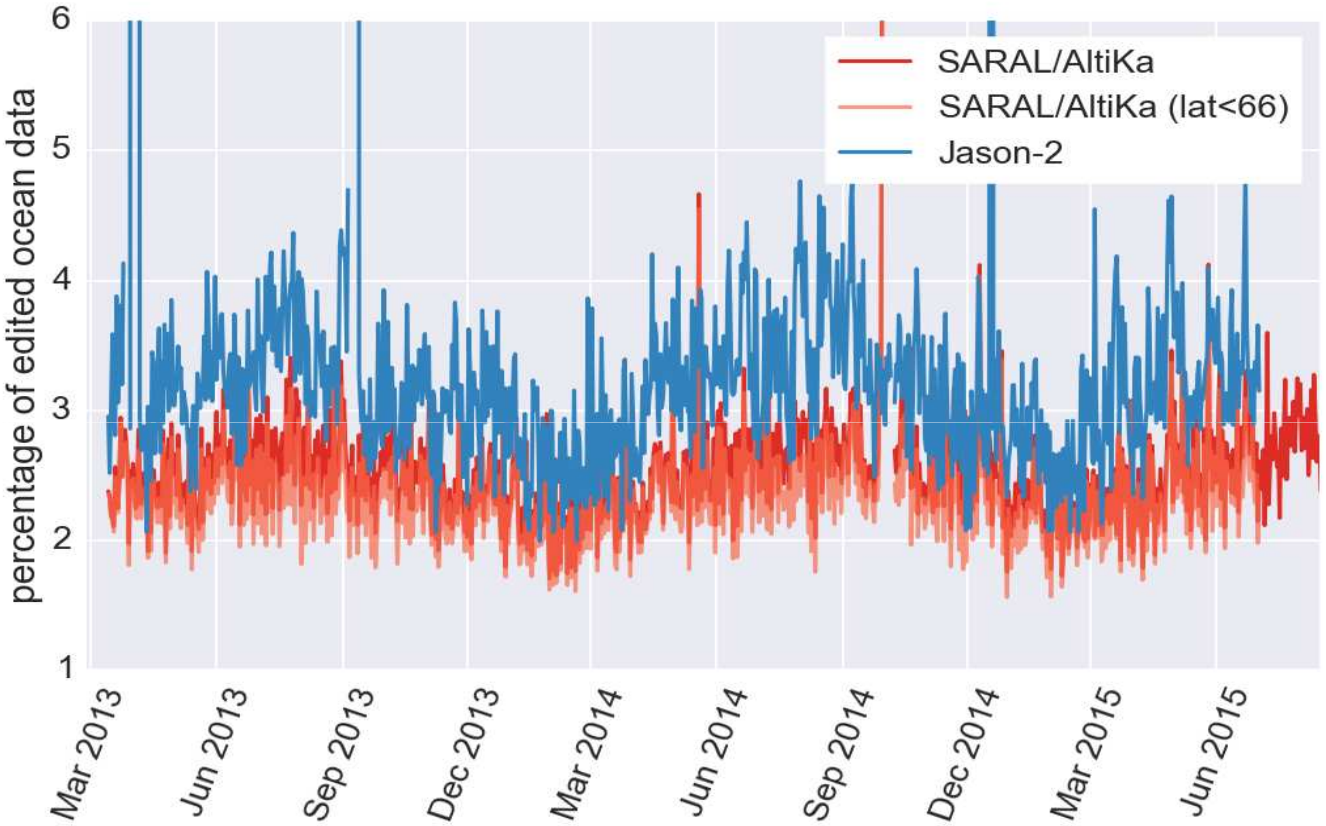
- Ocean only,




- Ocean availability : 99.8 % (no SHM), 99.3% (SHM included)
- Exceeds mission requirements

# Data editing

- Thresholds only




- Stable over time,
- Averages to 2.6 % (3.4 for Jason-2 over the same period)

# Std at mono mission X-overs

Model Radiometer

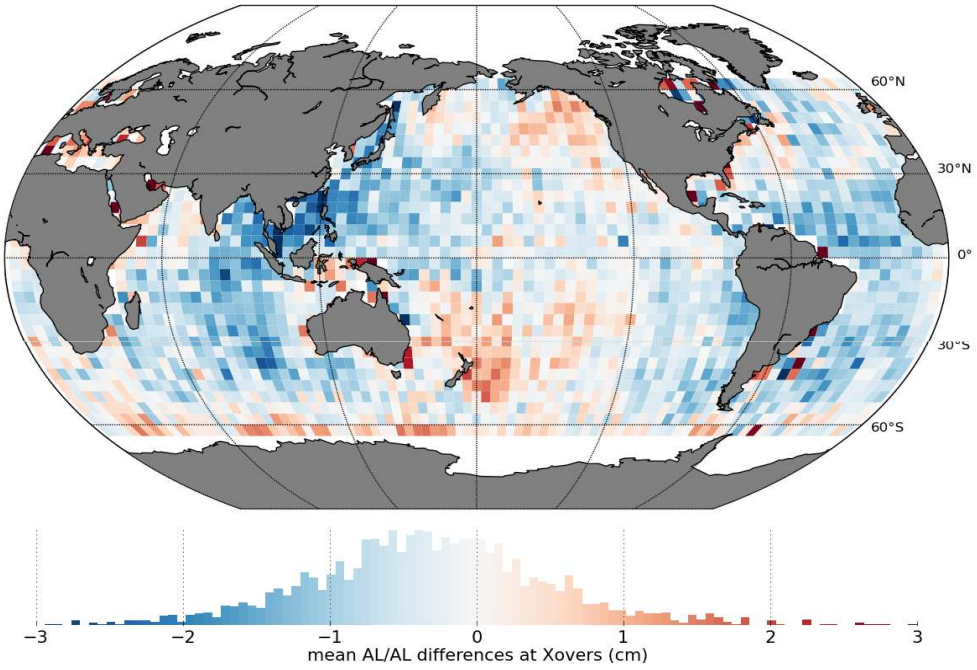

- At crossovers, SARAL/AltiKa performs as well as Jason-2,

  5.3 vs 5.4 cm

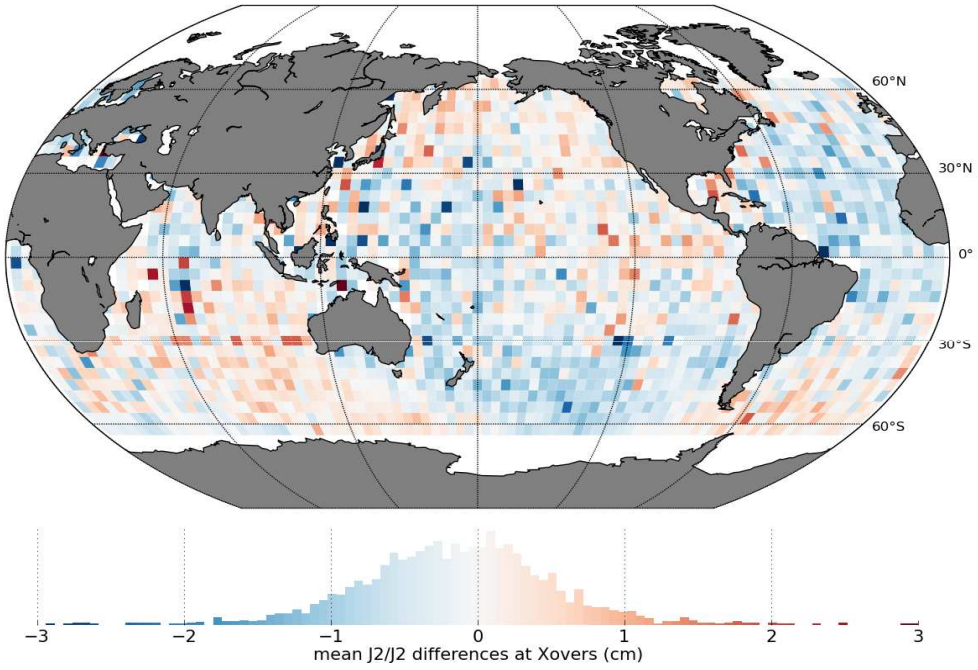
# Mean differences at X-overs

- Mono-mission mean differences

AltiKa



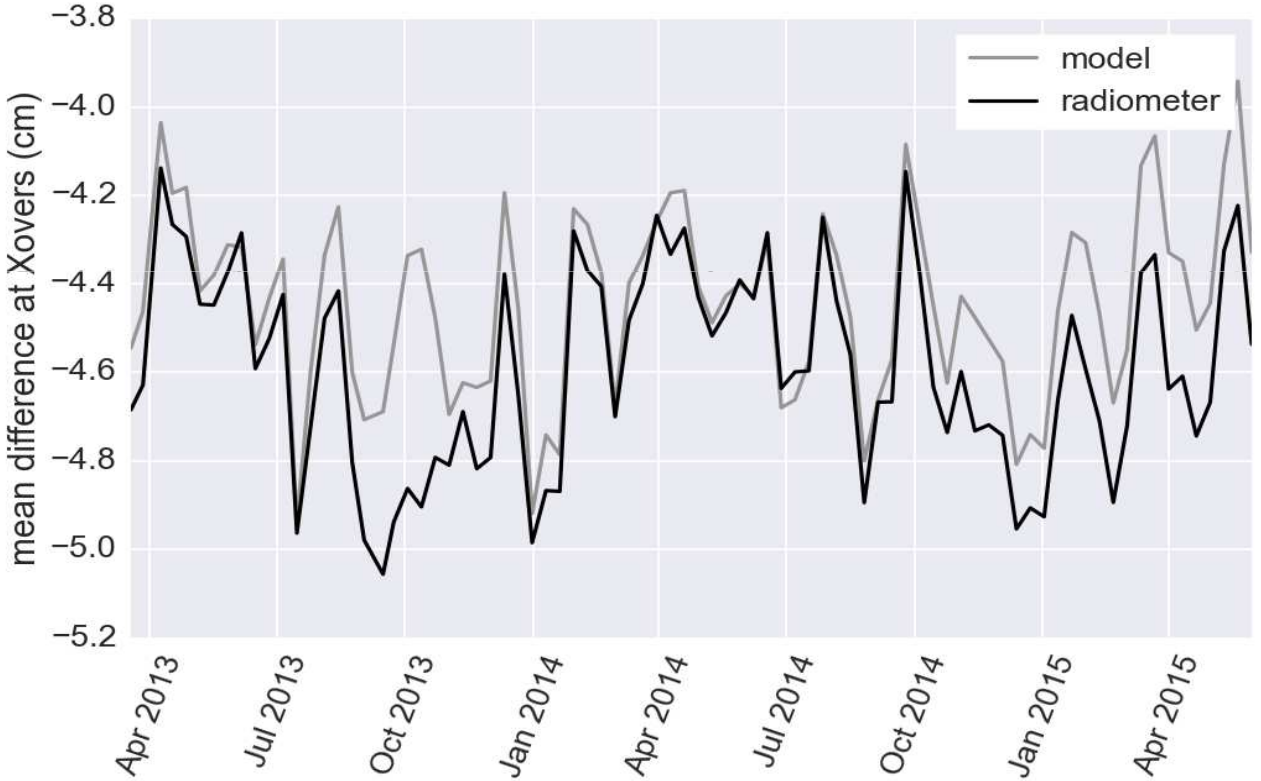

Jason-2




- Slightly larger geographical patches on SARAL/AltiKa,
- Mean is negative on SARAL (close to zero on Jason-2)

# Mission stability

- No statistically significant drift wrt Jason-2,
- but several events are detectable: hot counts sat., SHM, tropo drift

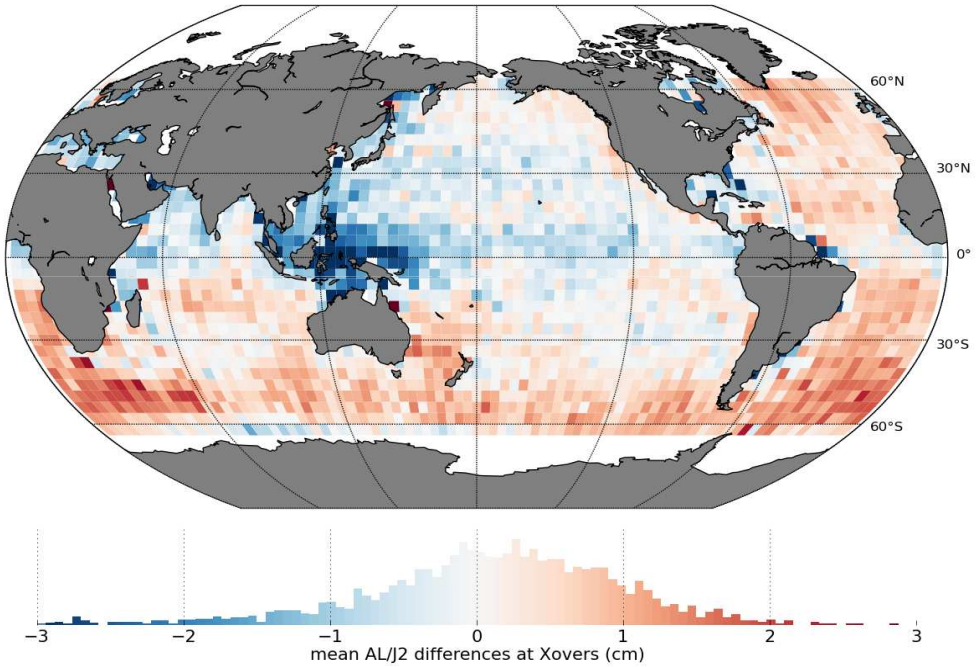



- Mission stability confirmed at AL/J2 crossovers

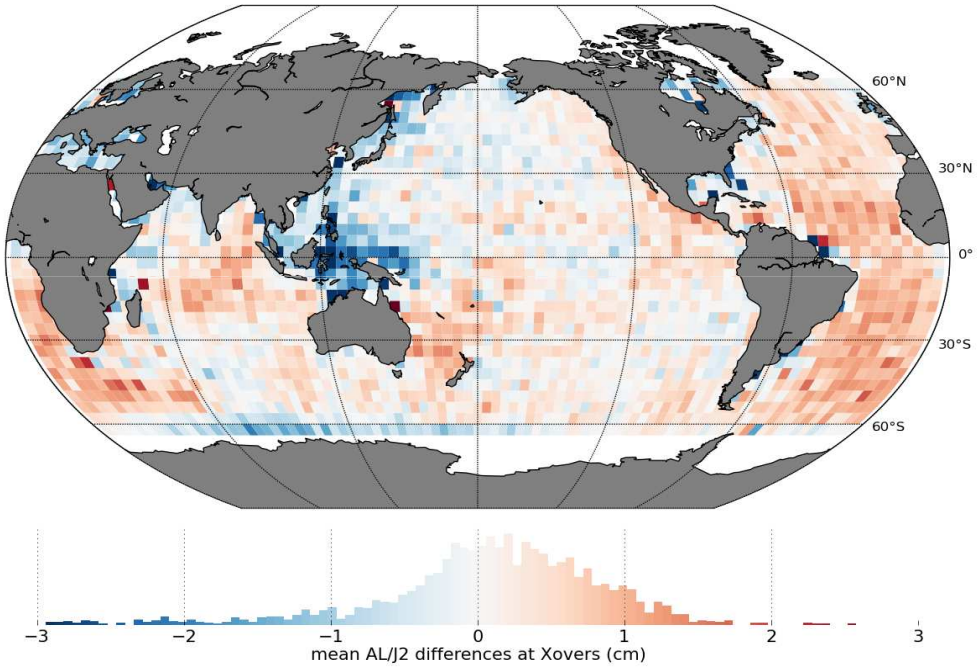
# Geographical biases

- multi-mission mean differences at crossovers

Radiometer




Model

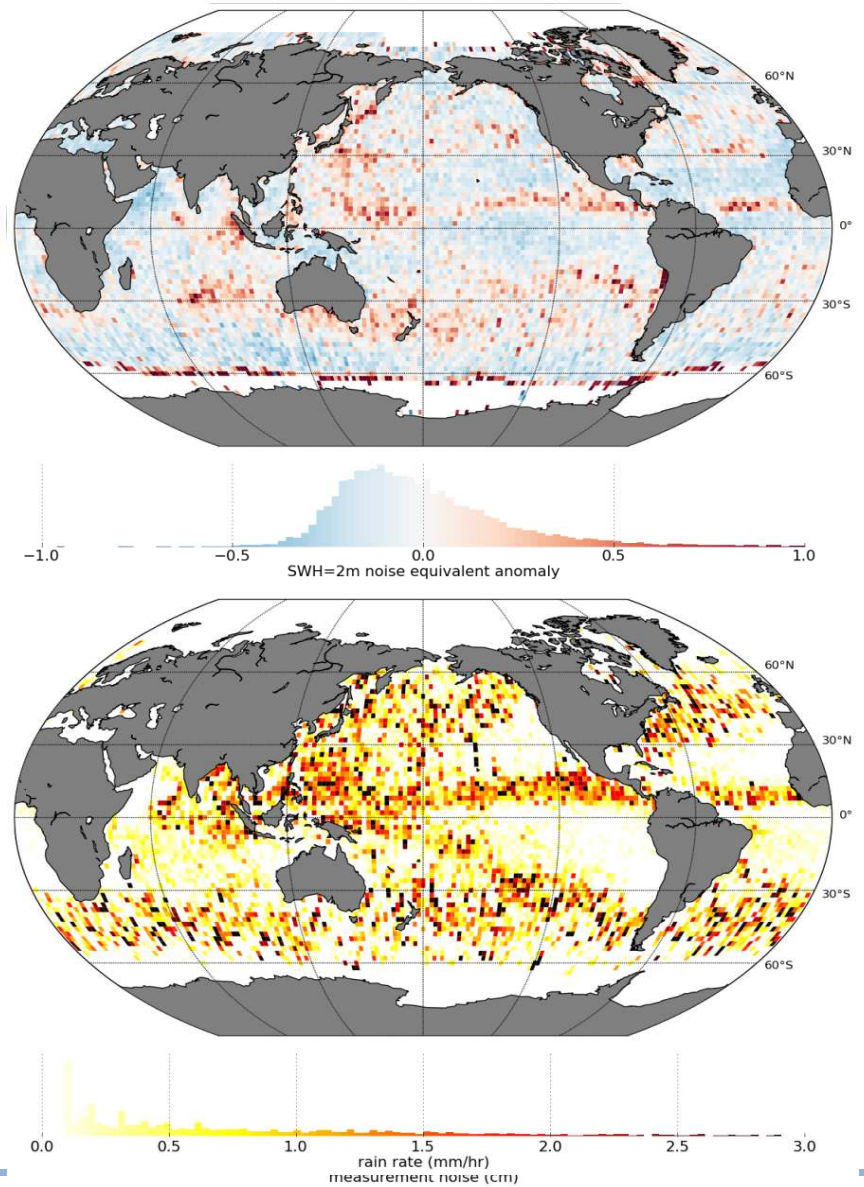



- Patches are reduced when using the model wet tropo

# Error budget

- Combining classical and spectral anaylisis,
- Investigations on the impact of rain events on measurement noise
- Analysis includes lower frequencies (annual signals)

- Results will be available as part of yearly report

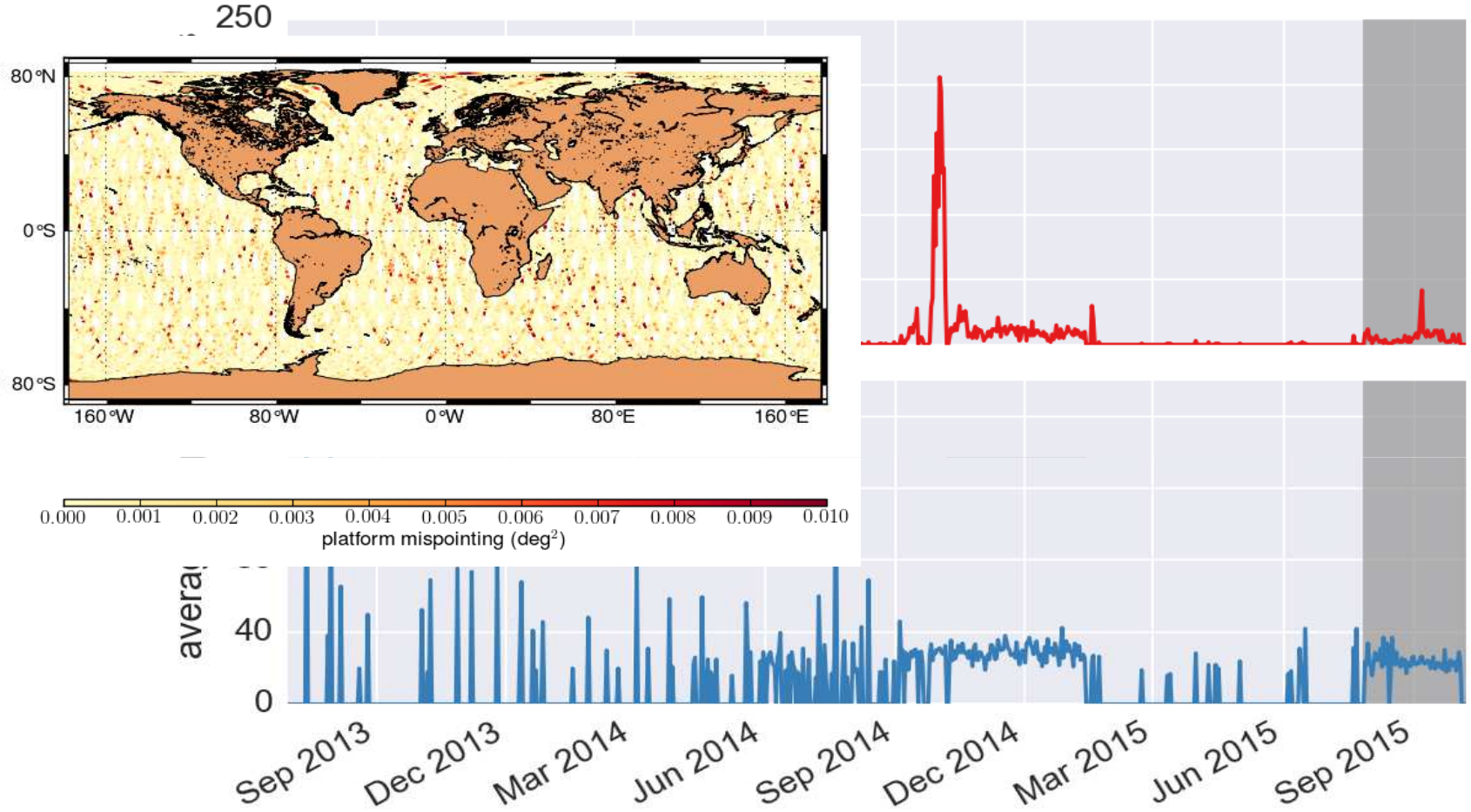


# MISSION EVENTS

SARAL/AltiKa is performing great,

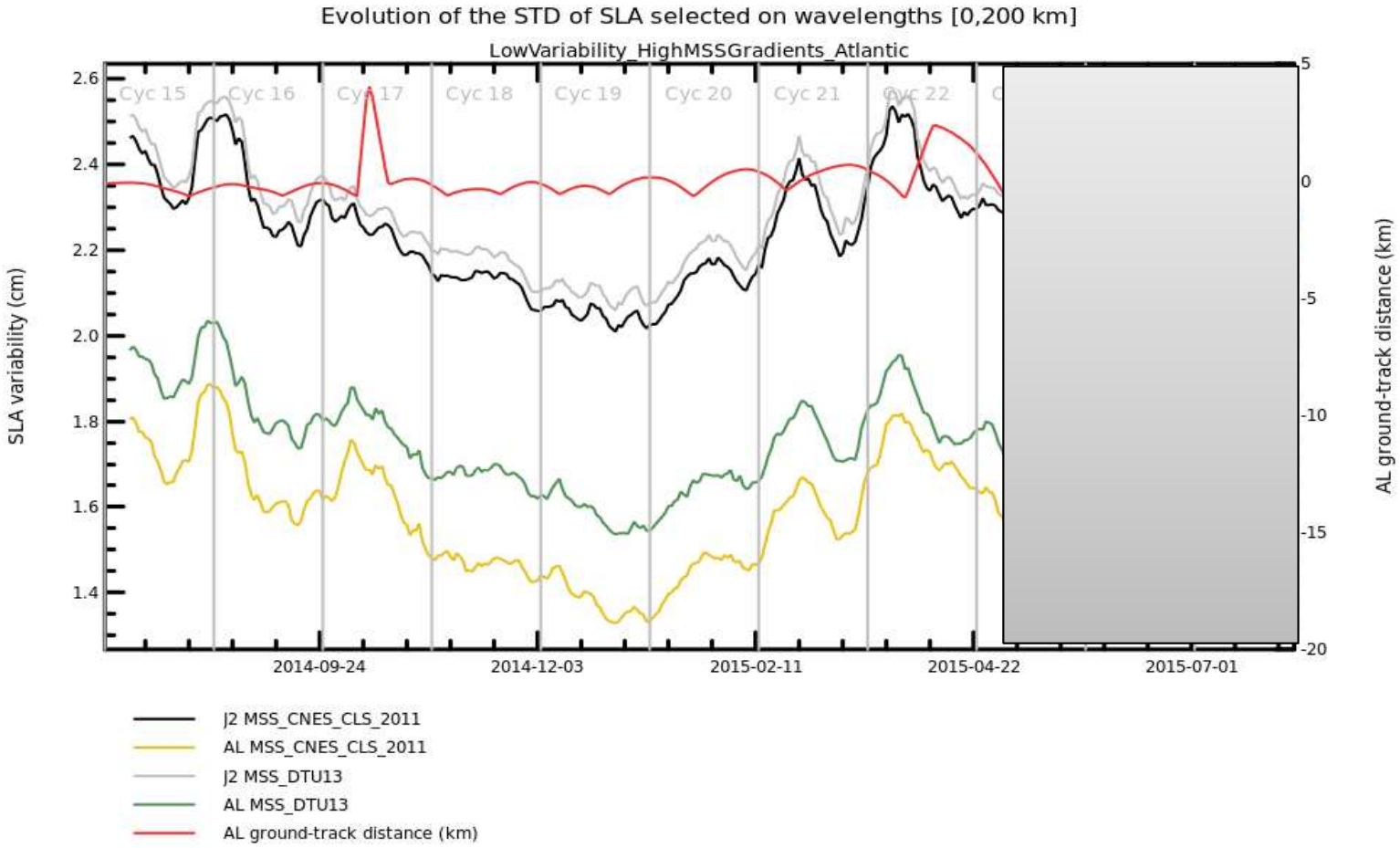
But several events happened

# Mispointing events




- Random mispointing events due to increases of RW friction
- No data quality impact noticed (events are edited)

# Ground track shift

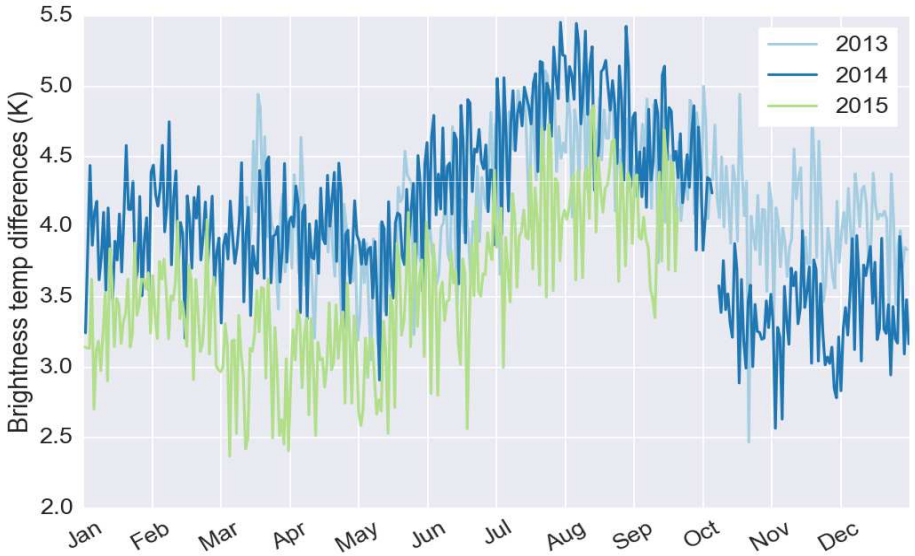


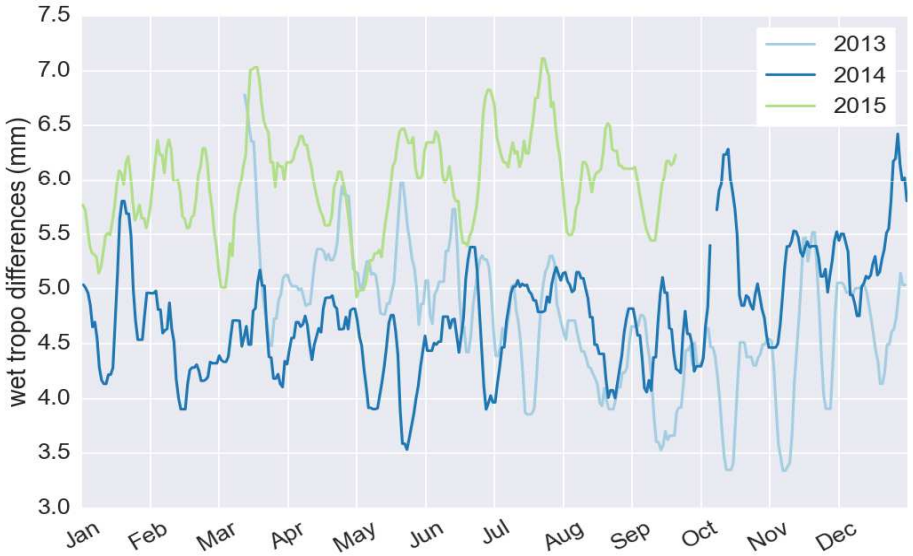

- GT shift allowed for interesting observations

(see Y. Faugère's talk)

# Looking for SHM impacts

- SHM early October 2014,
- Resulted in a 1K shift on 37 GHz brightness temperatures,
- Which translates into a 1 mm shift on the wet tropo



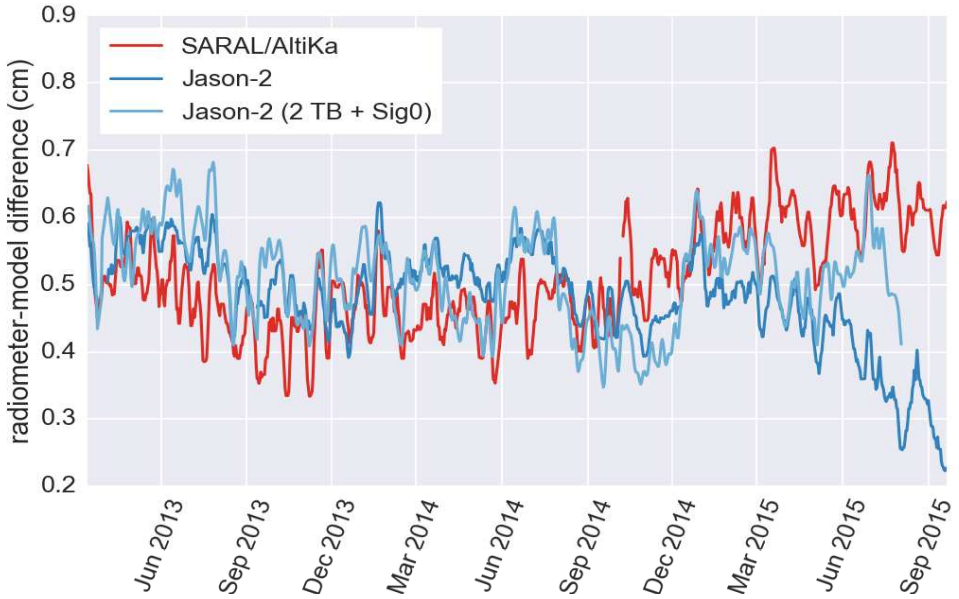



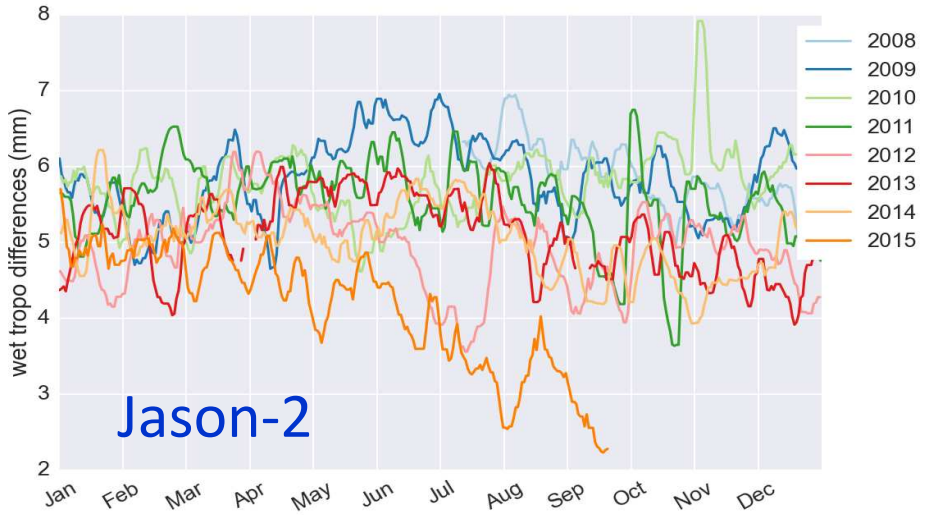

- An empirical correction should be available in GDR-E products

# Radiometer drift ?

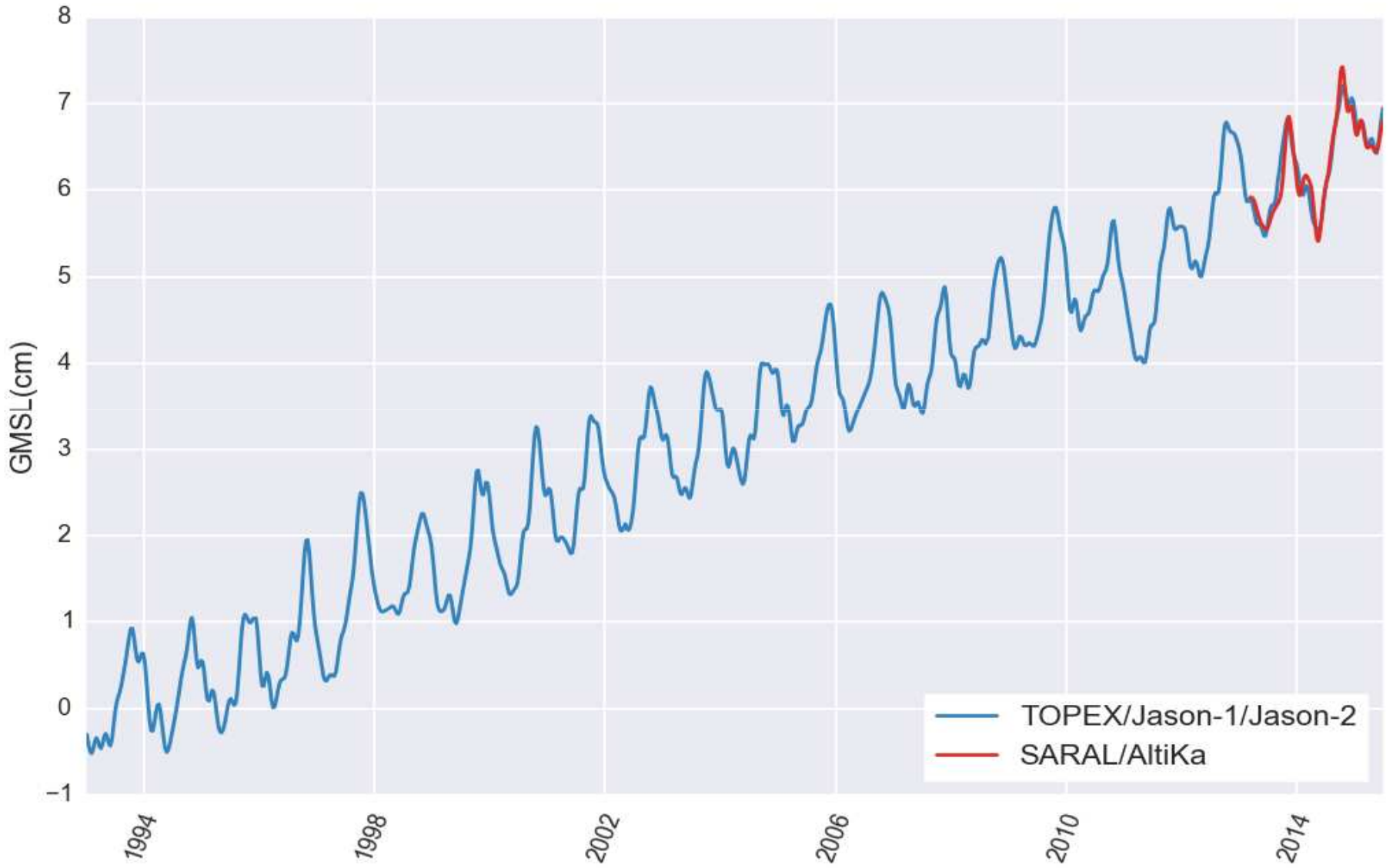
- Inconsistent d_tropo drift between SRL and J2 at the end,
- Attributed rather to J2
- Likely related to a drift on J2's 18.7 channel,

- Is reduced when a 2 BT + Sig0 algorithm is used on Jason-2,
- 18.7 GHz CAL performed on Jason-2 (GDR cycle 260) brings J2 back up by 1 mm



# Conclusions



# Questions ?

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