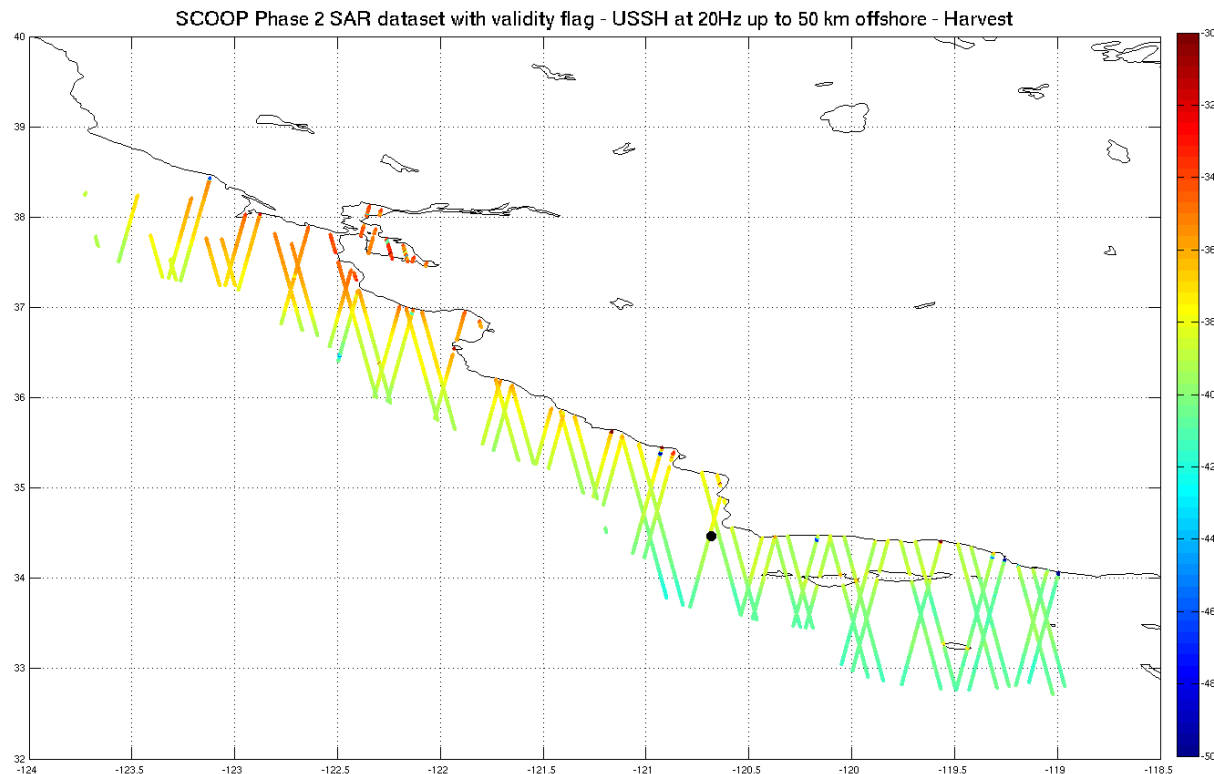


SCOOP Acceptance Review

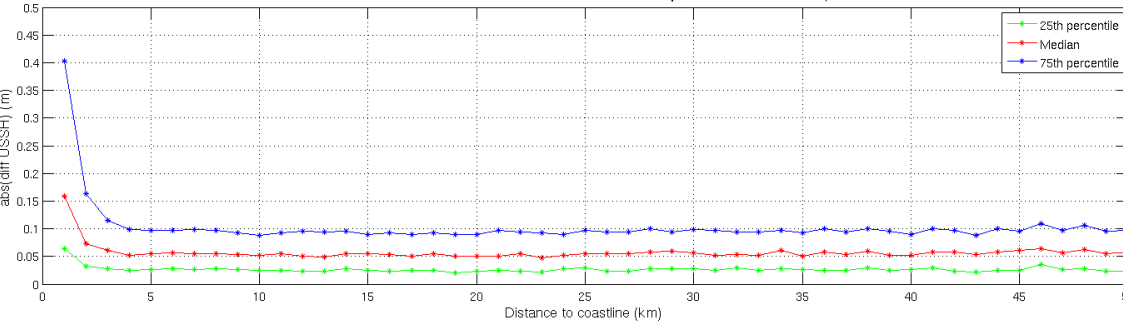
WP6000 – Coastal zones
Harvest region



- Evaluation of Phase 2 SAR L2 dataset provided by IsardSAT
 - USSH = altitude – range (at 20 Hz)
 - range = retracked_range_analytical_SWH_MSSfixed_20_ku
 - ➔ Analysis of the USSH variability as a function of the distance to the coast (cf. Luciana's and Andy's analyses)



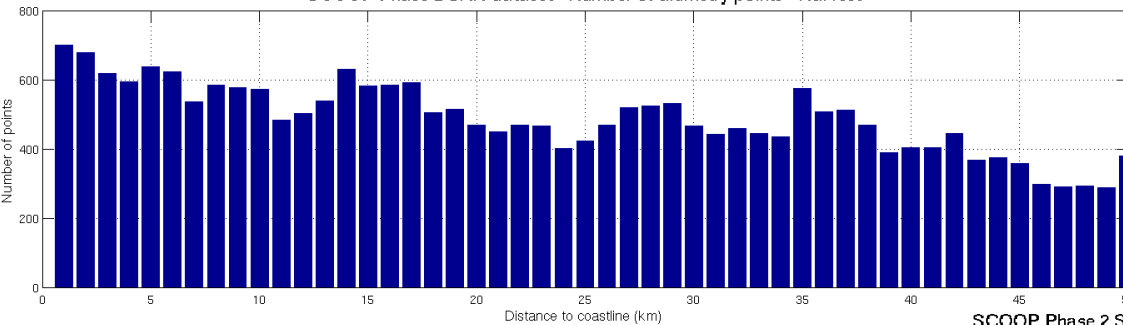
SCOOP Phase 2 SAR dataset - Percentiles on abs(diff USSH at 20Hz) - Harvest



000 – Coastal zones

It provided by IsardSAT

SCOOP Phase 2 SAR dataset - Number of altimetry points - Harvest

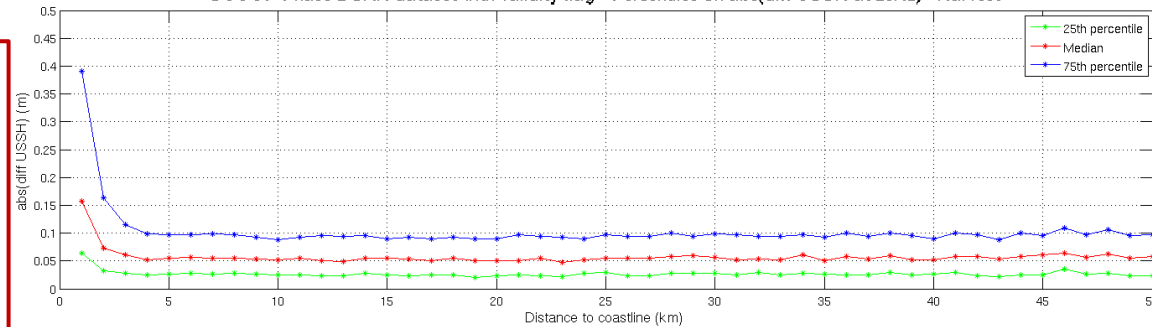


ISSfixed_20_ku

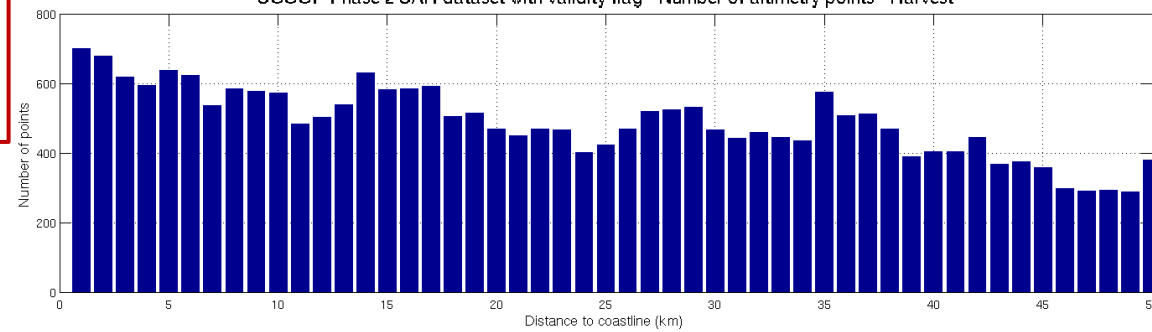
→ The use of the validity flag
(*Flag_validity_L1B_wvfm_20_ku*)
provided in the SAR L2 products
very slightly reduces the variability
close to the coast

→ Same analysis to be done on
dataset with coastal processing
and on RDSAR dataset

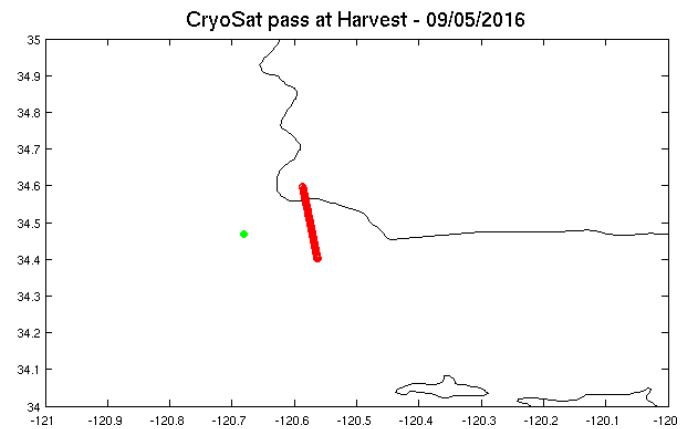
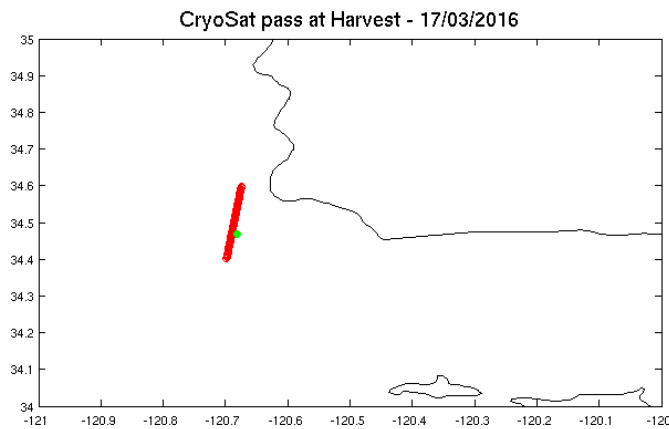
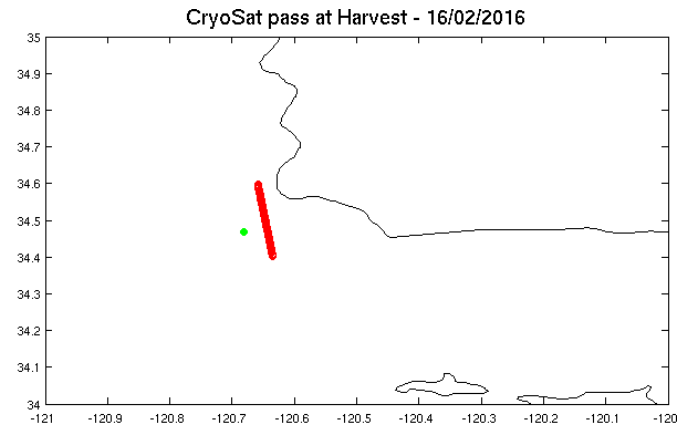
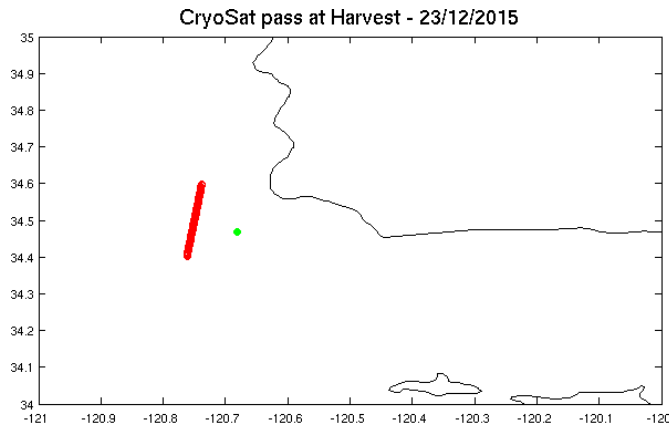
SCOOP Phase 2 SAR dataset with validity flag - Percentiles on abs(diff USSH at 20Hz) - Harvest



SCOOP Phase 2 SAR dataset with validity flag - Number of altimetry points - Harvest



- Comparison to Harvest in situ SSH observations
 - Four passes close (<20km) to the Harvest calibration site over the period (12/2015 – 05/2016) → only four dates to compare with the in situ data



● Comparison to Harvest SSH observations

GPOD CRYOSAT data located less than 30 km and 20 km from the Harvest platform

Phase 1 GPOD dataset
(12/2015 – 12/2016)
13 dates for comparison

Harvest Platform

Less than 20 km from TG

Less than 30 km from TG

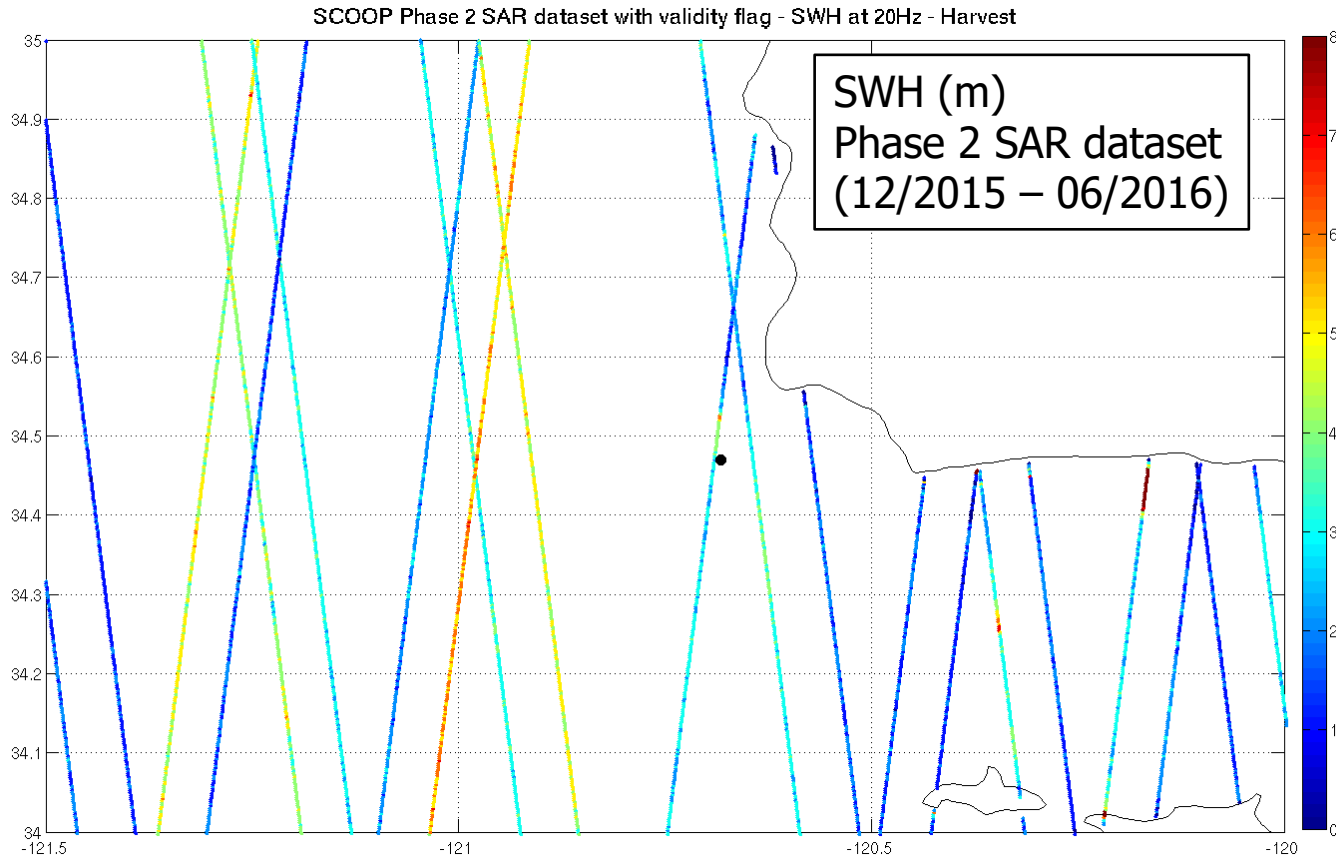
More than 30 km from TG

Phase 2 SAR CRYOSAT data located less than 30 km and 20 km from the Harvest platform - 12/2015 - 05/2016

Phase 2 SAR dataset
(12/2015 – 05/2016)
3 dates for comparison

- One missing file in Phase 2 SAR dataset (missing FBRs at IsardSAT)
- Would be fine to have the period 05/2016 – 12/2016 processed (after the AR)

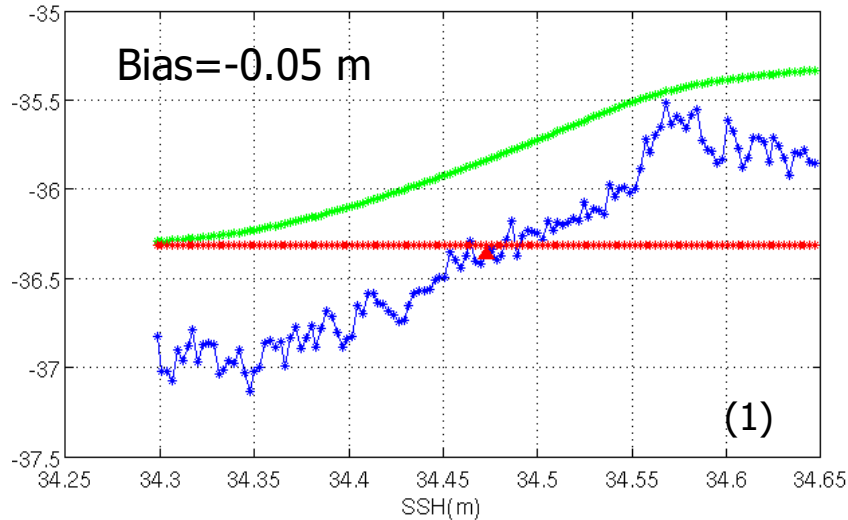
● Comparison to Harvest SSH observations: the SSB problem



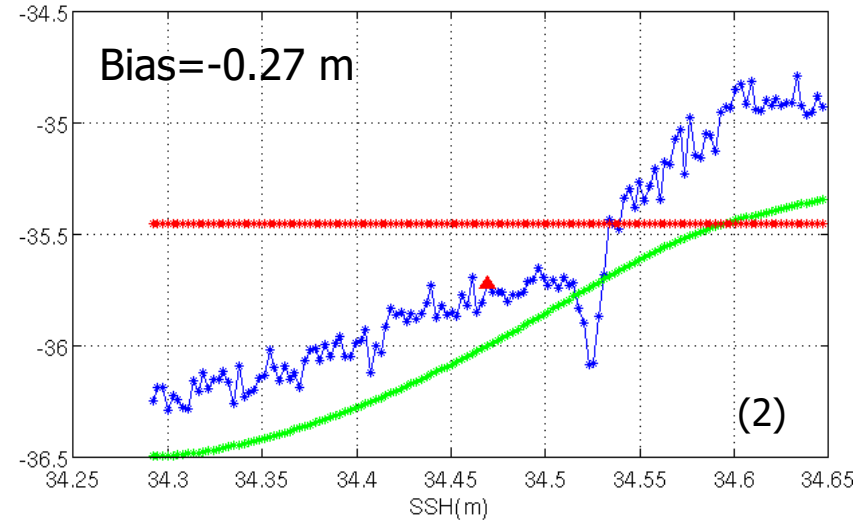
- Waves often large near the Harvest platform → The in situ SSH data provided by B. Haines (JPL) are corrected for SSB from wave buoy measurements
- Not sure the « % of SWH » approximation will be very accurate in this case for altimeter SSH

- * CS2 SAR L2 products at 20 Hz (triangle: closest point to TG)
- * Harvest TG SSH at CS2 time of measurement
- * CNES-CLS15 MSS along CS2 pass

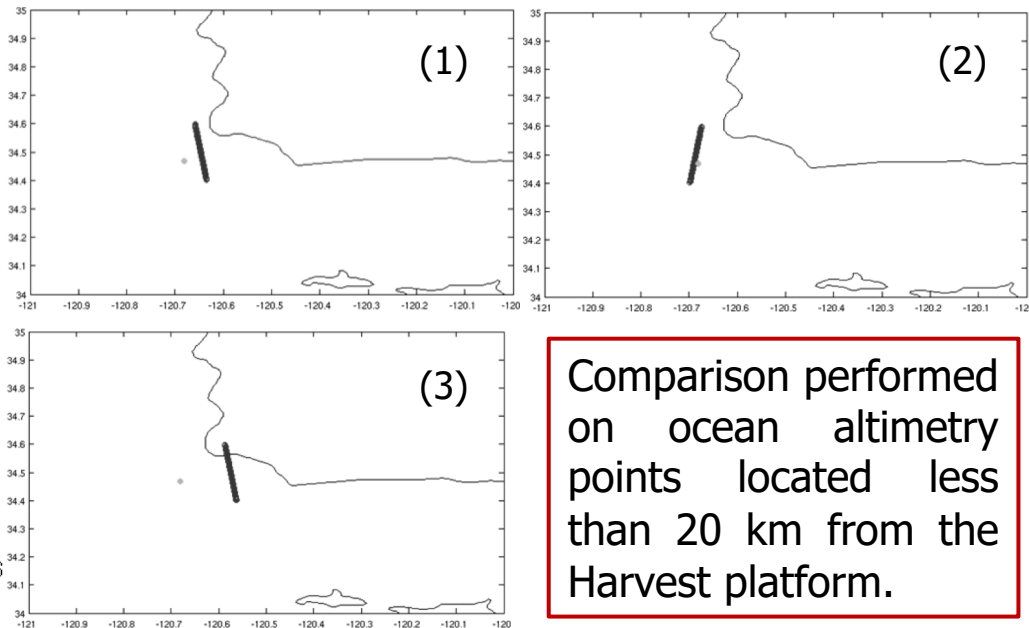
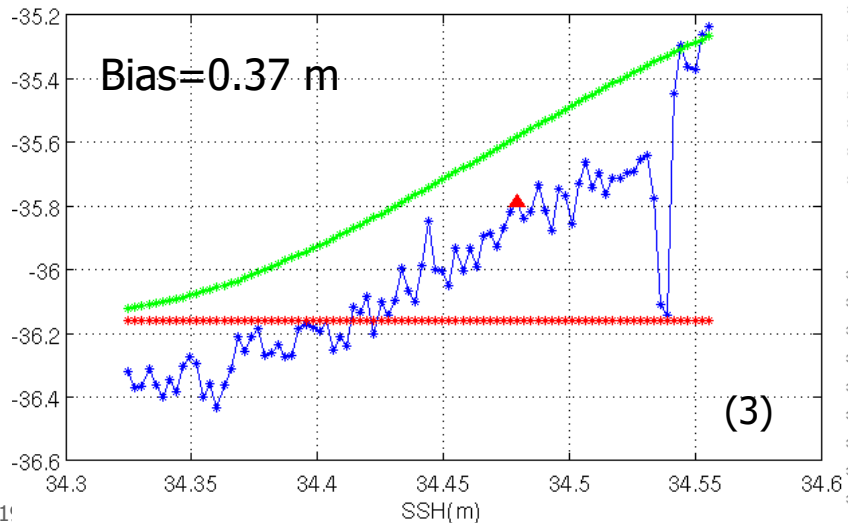
SSH (m) at Harvest - 15/02/2016



SSH (m) at Harvest - 17/03/2016

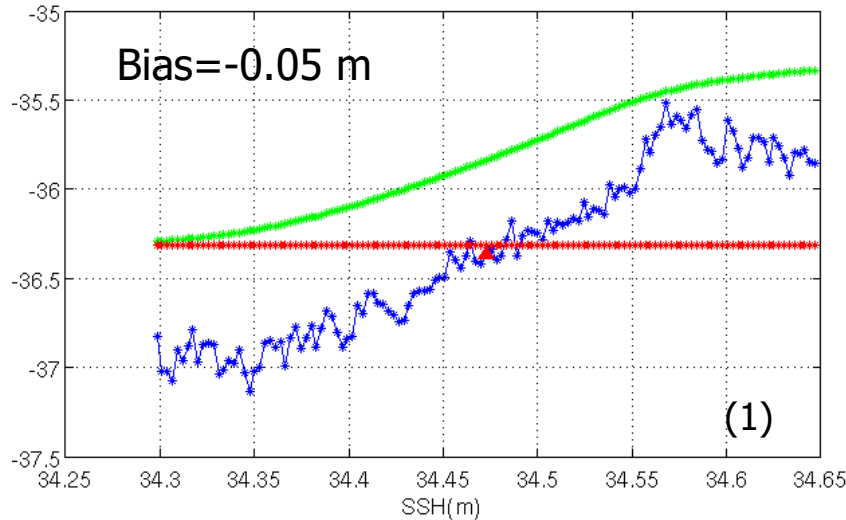


SSH (m) at Harvest - 09/05/2016

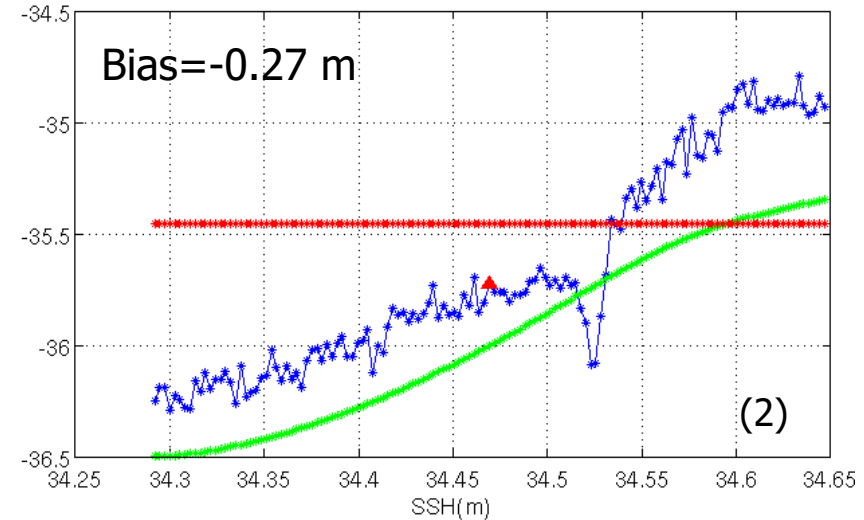


- * CS2 SAR L2 products at 20 Hz (triangle: closest point to TG)
- * Harvest TG SSH at CS2 time of measurement
- * CNES-CLS15 MSS along CS2 pass

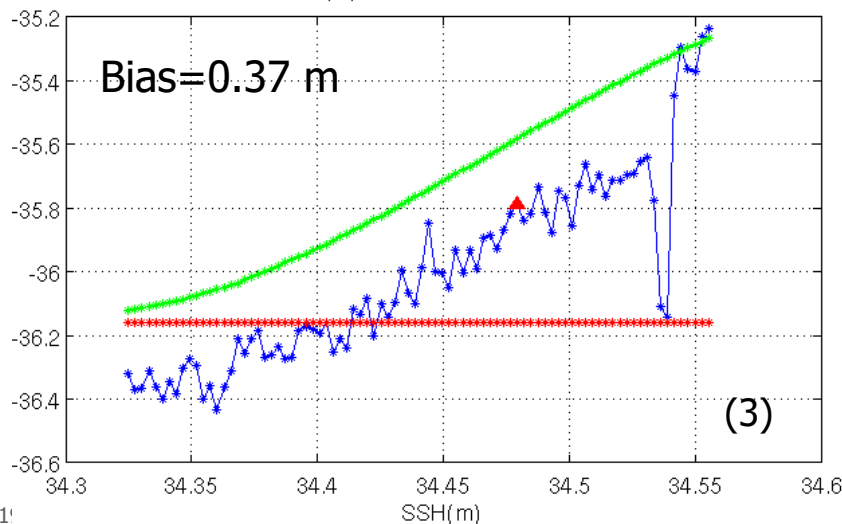
SSH (m) at Harvest - 15/02/2016



SSH (m) at Harvest - 17/03/2016



SSH (m) at Harvest - 09/05/2016



Limitations of the comparison:

- SSB = 5 % of SWH
- No DAC nor tide corrections applied (ocean tide ~2 m in the area)
- No correction for MSS slope applied
- Direct comparison of 1 point at 20Hz with TG SSH (no smoothing)

● Conclusions

- ▶ Very preliminary analyses and comparisons with TG SSH
- ▶ Statistical evaluation of SAR L2 dataset consistent with the other validations in other regions
- ▶ More CS2 passes would statistically improve the comparison with TG SSH (at least 1 year of CS2 data instead of 5 months)
- ▶ Very basic and preliminary (“sanity check”) comparison with TG SSH: some ways of improvements identified as usually done in calval activities:
 - along-track smoothing of 20 Hz altimeter SSH
 - correction for MSS slope between altimeter pass and TG (strong MSS gradient at Harvest)
 - tide and DAC corrections applied to CS2 and TG data before the comparison.
- ▶ Same analyses to be performed with “coastal” L2 dataset and RDSAR dataset, after the AR meeting