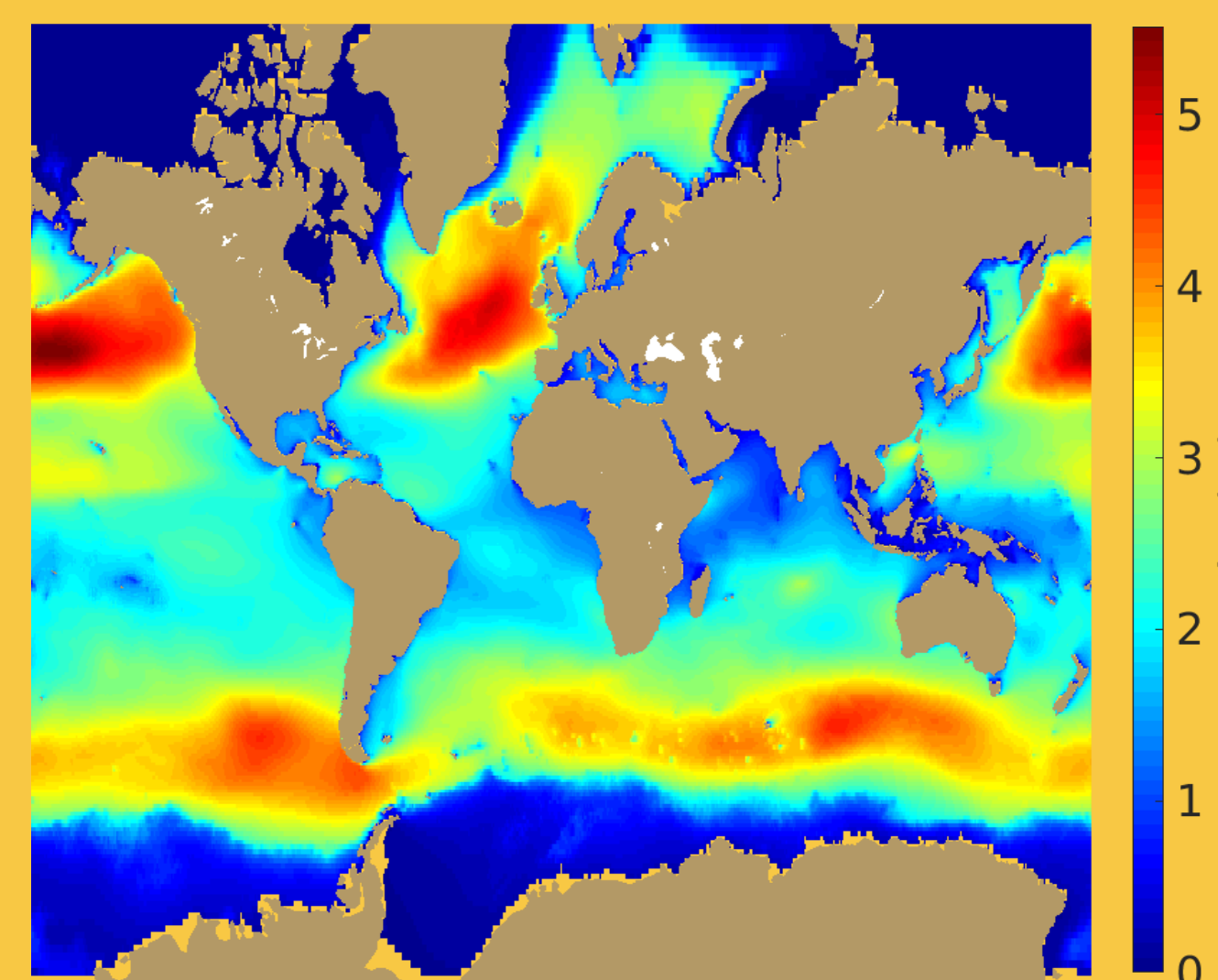


Impact of waves on ARVOR floats behavior

Andrea Garcia Juan, Euro-Argo ERIC
MOCCA project

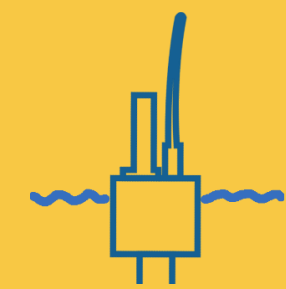


Methodology

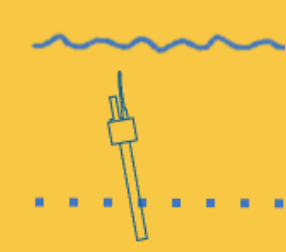


Hs mean during 2018
IOWAGA hindcast, 0.5° / 3h resolution

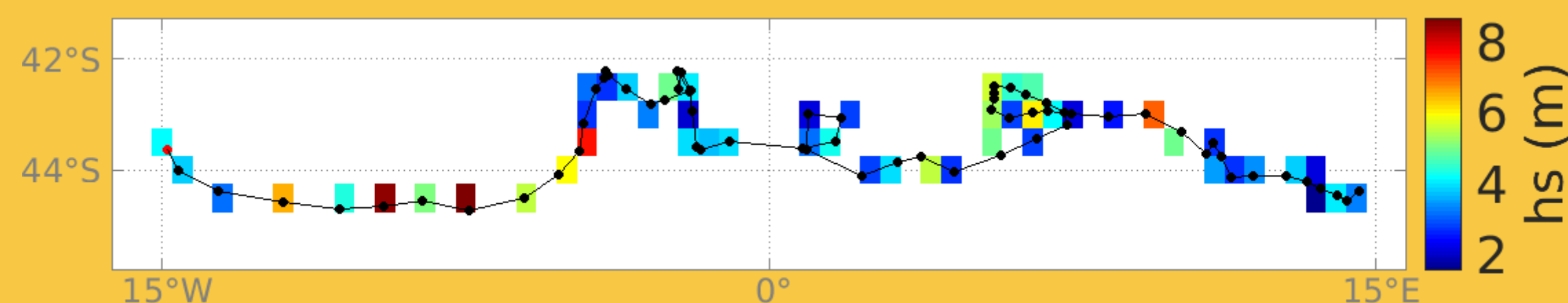
- **Colocalisation** of cycles with waves model hindcast
- Split results regarding a **configuration parameter**



PumpActionTimeBuoyancy
Acquisition (csec)



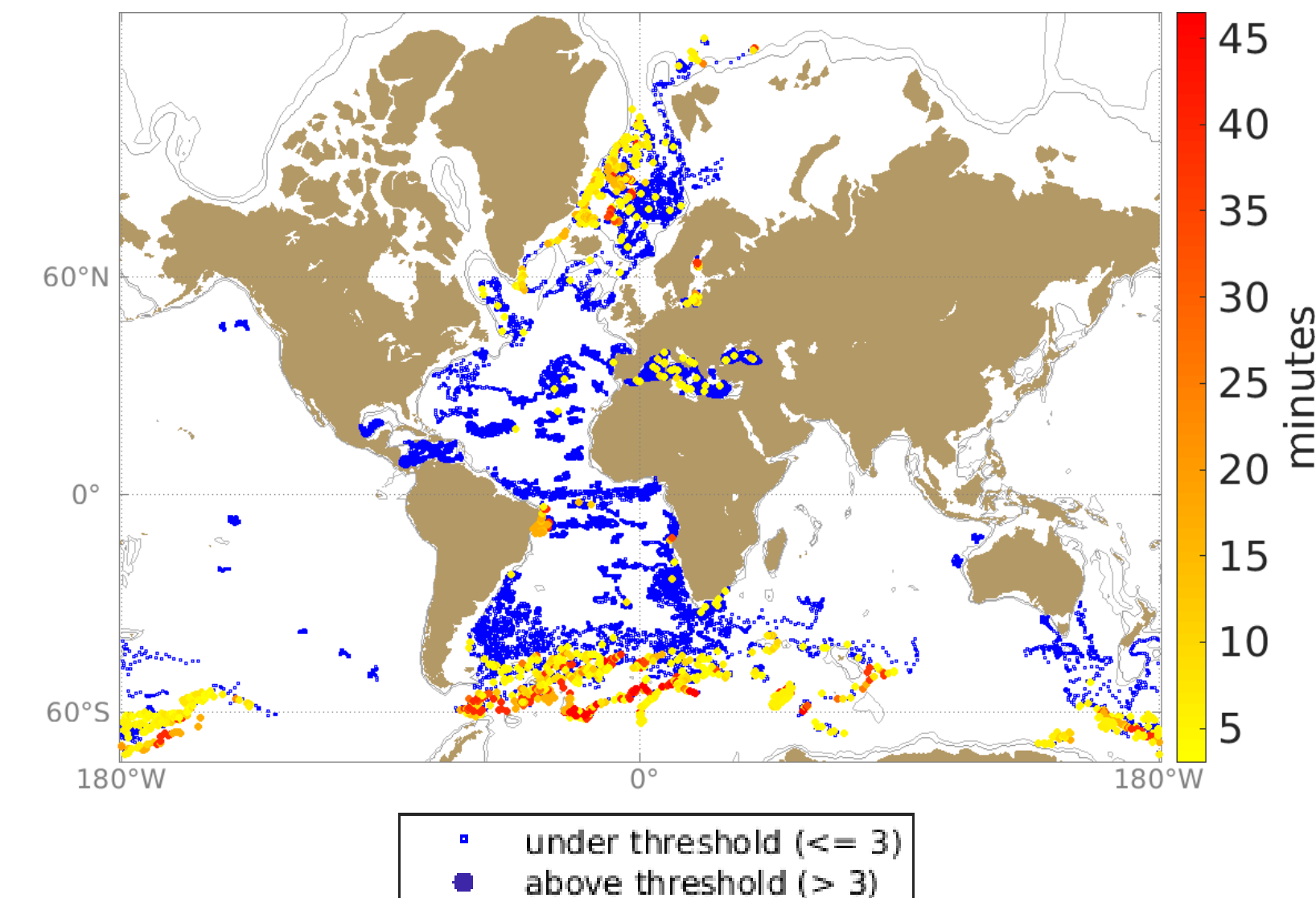
BuoyancyReductionSec
ondThreshold (dbar)



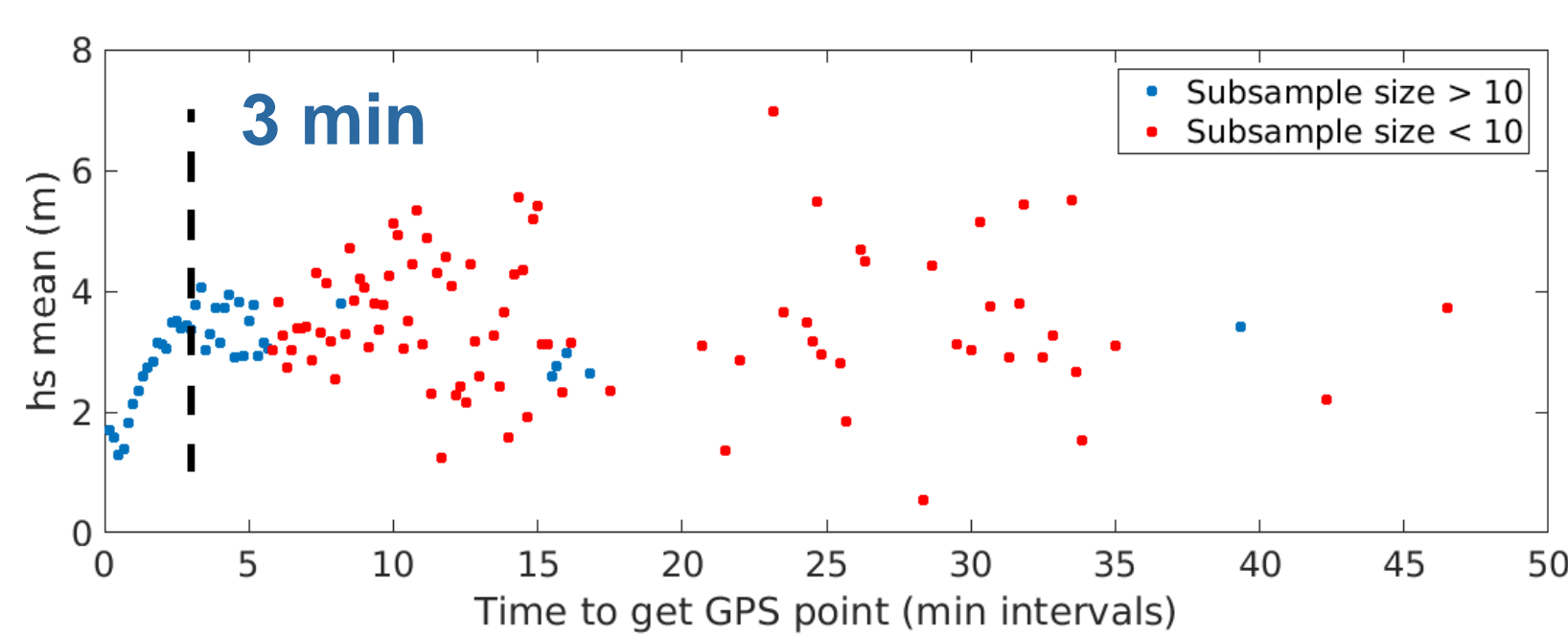
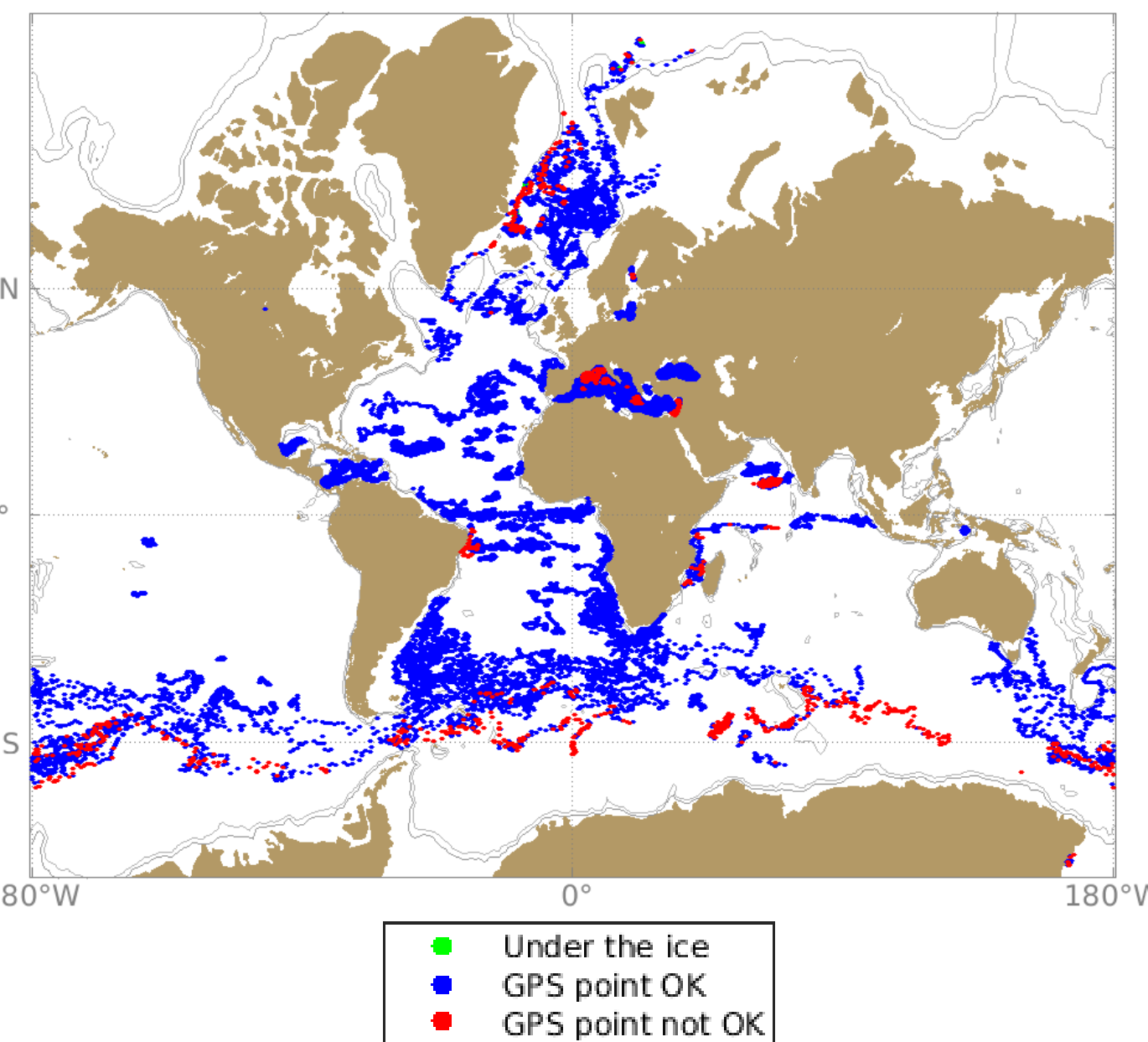
Trajectory of MOCCA float 3901889

GPS positioning

Time to get GPS point



Valid GPS point



Number of floats	
At least 1 not valid GPS point	53 (17.3 % of floats 5% of cycles)
> 50% of cycles GPS point not OK	13
> 30% of cycles GPS point not OK	22
> 20% of cycles GPS point not OK	31

- Times > 3 min to get a GPS point are not related with big waves
- Cycles with not valid GPS point are not related with big waves
- No changes depending on config. parameter

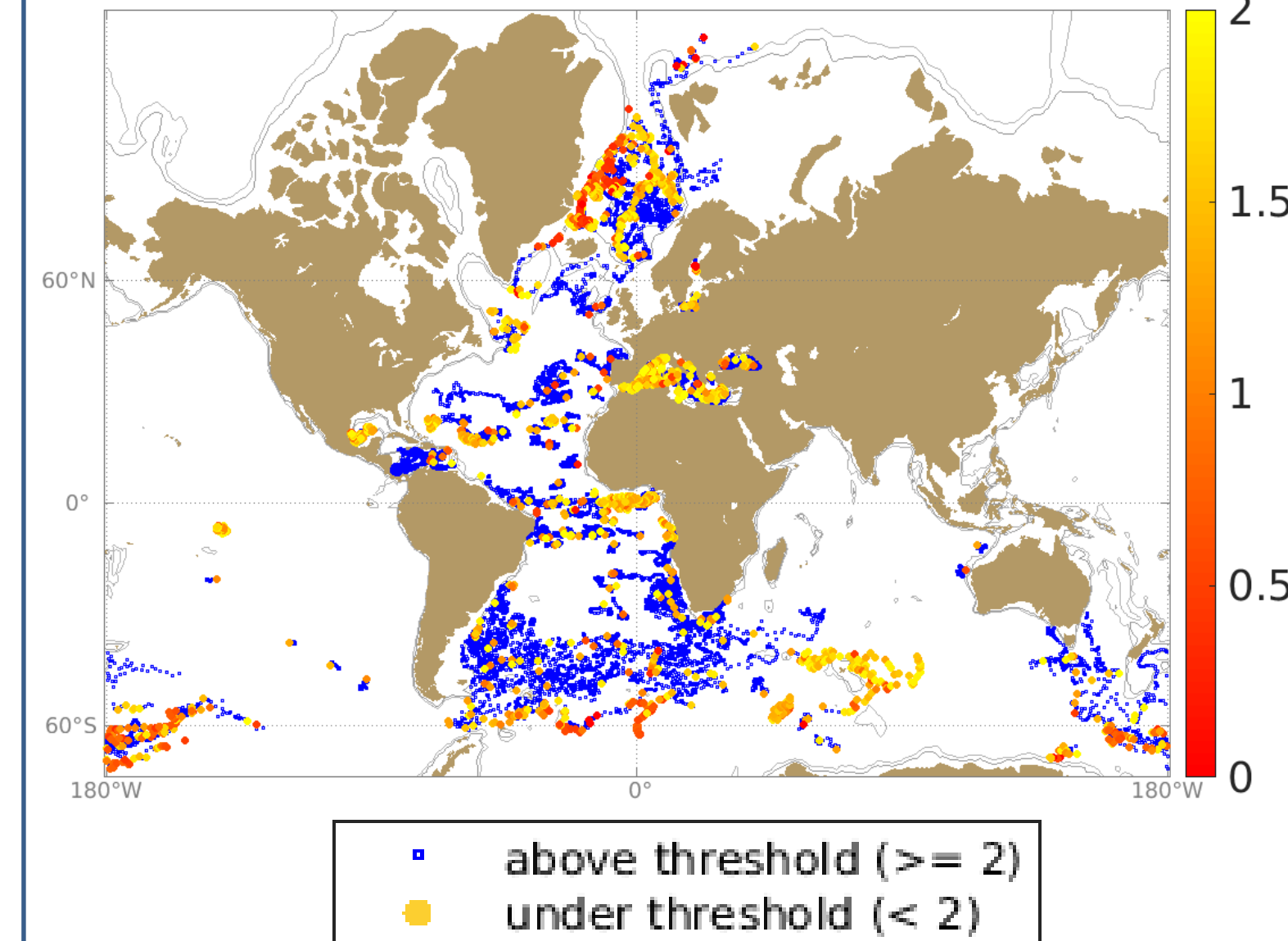
Not related with

Mediterranean

- Time to get GPS point > 3 min occurred only for 0.55% of cycles (3.2% in global ocean)
- Floats with at list one not valid GPS point were deployed before 2014

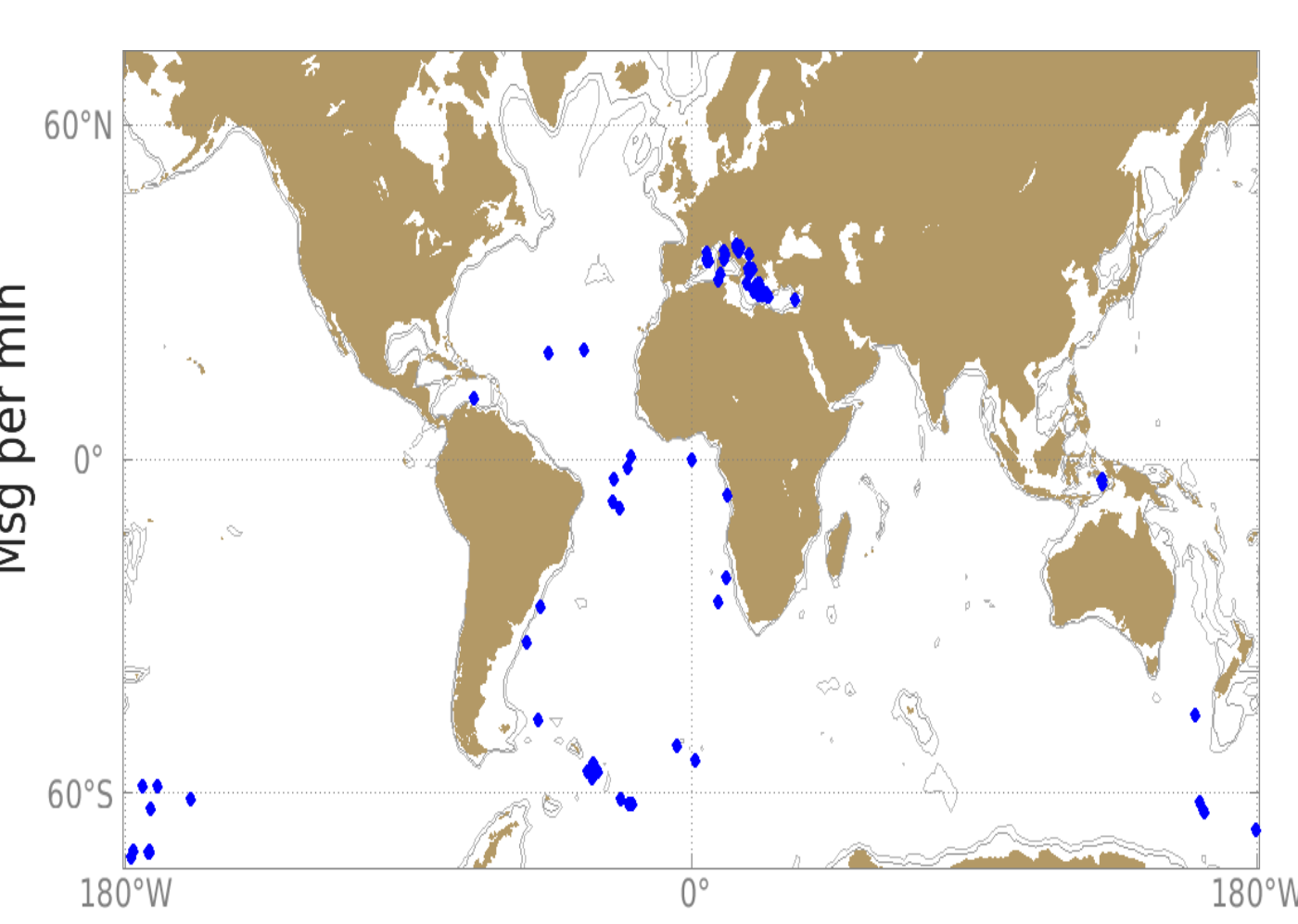
Iridium transmission

Iridium transmission speed



R = 0.04

CTD data transmission incomplete



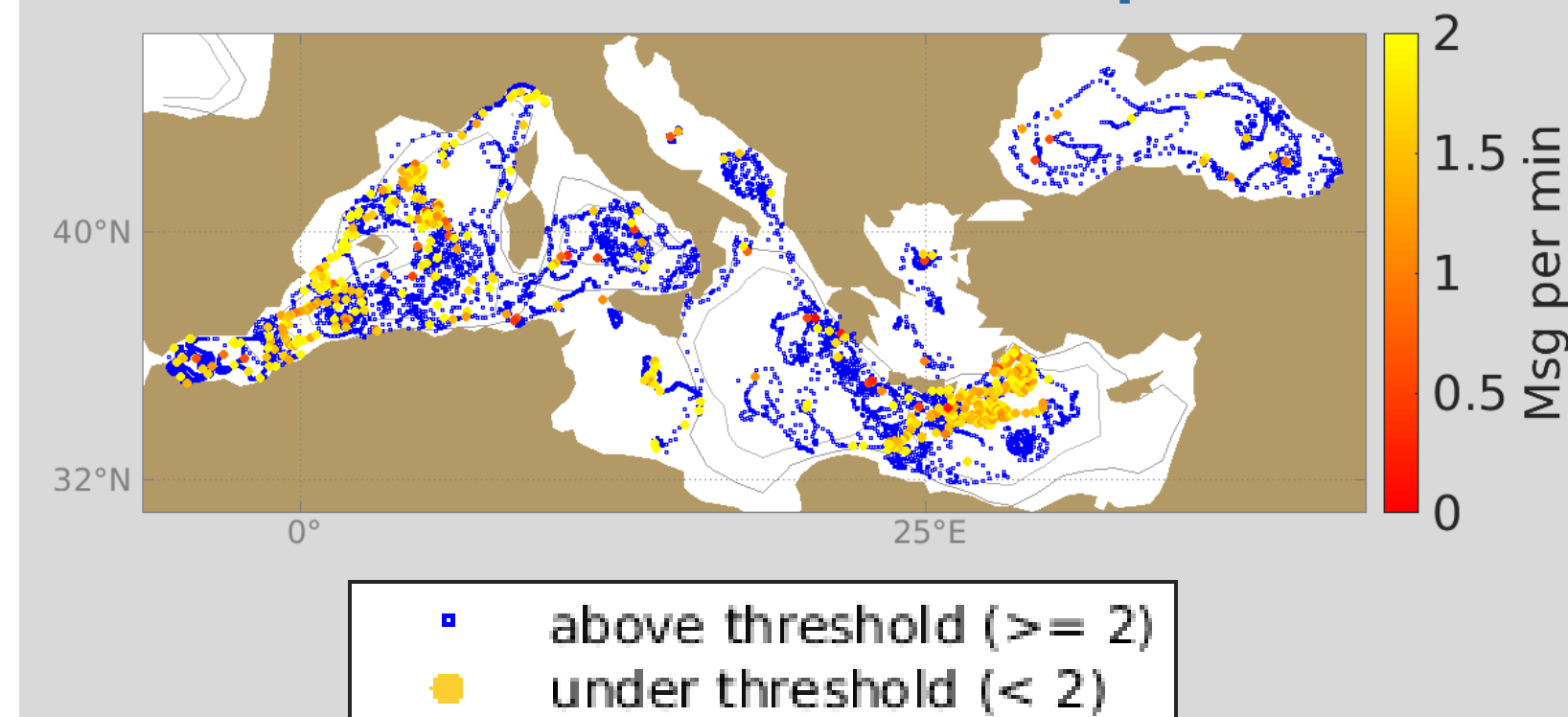
Mean hs = 1.3 m

- Smaller Iridium transmission speeds are not related with waves height
- Cycles with CTD data transmission incomplete are not related with big waves
- No changes depending on config. parameter

Not related with

Mediterranean

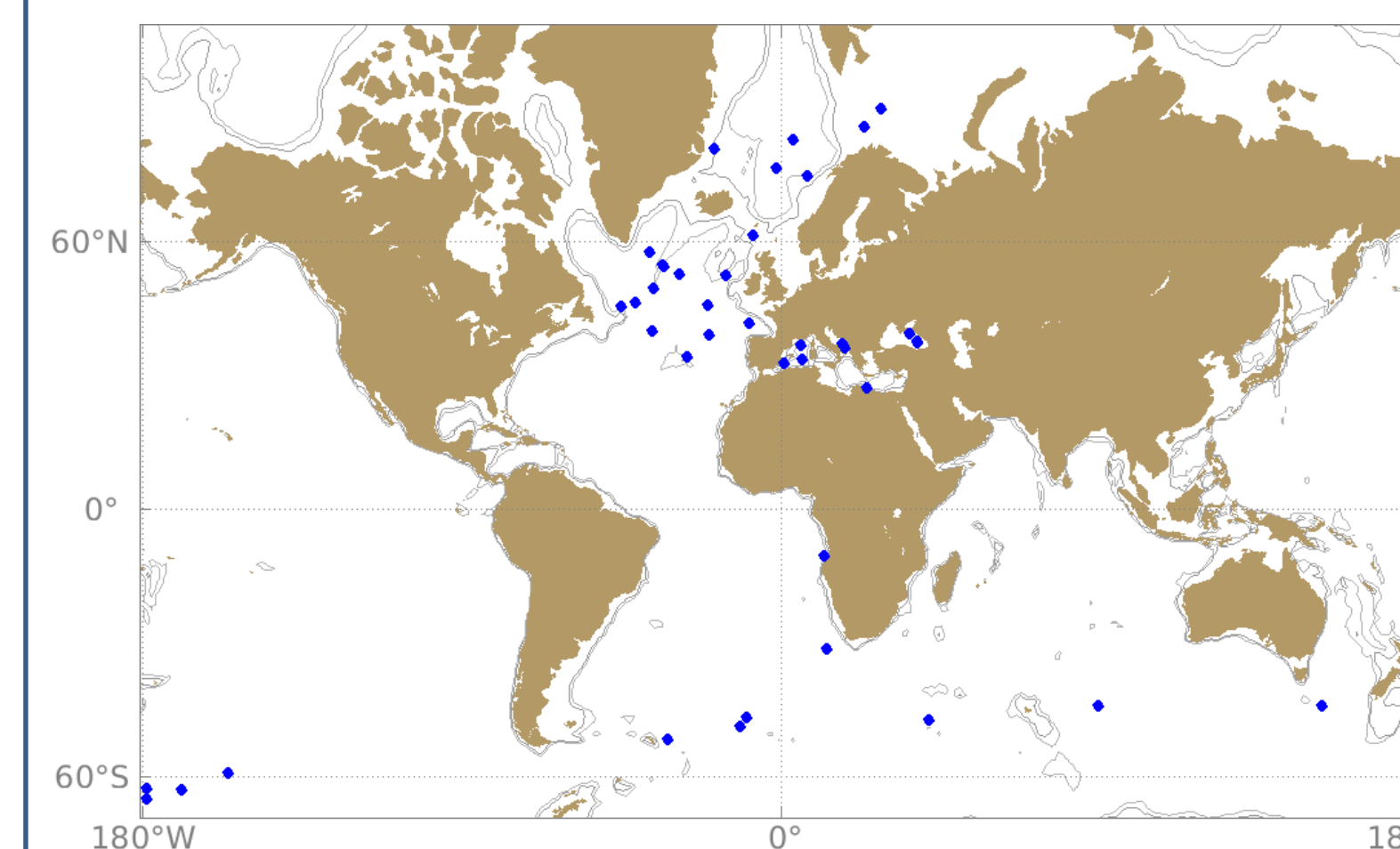
Iridium transmission speed



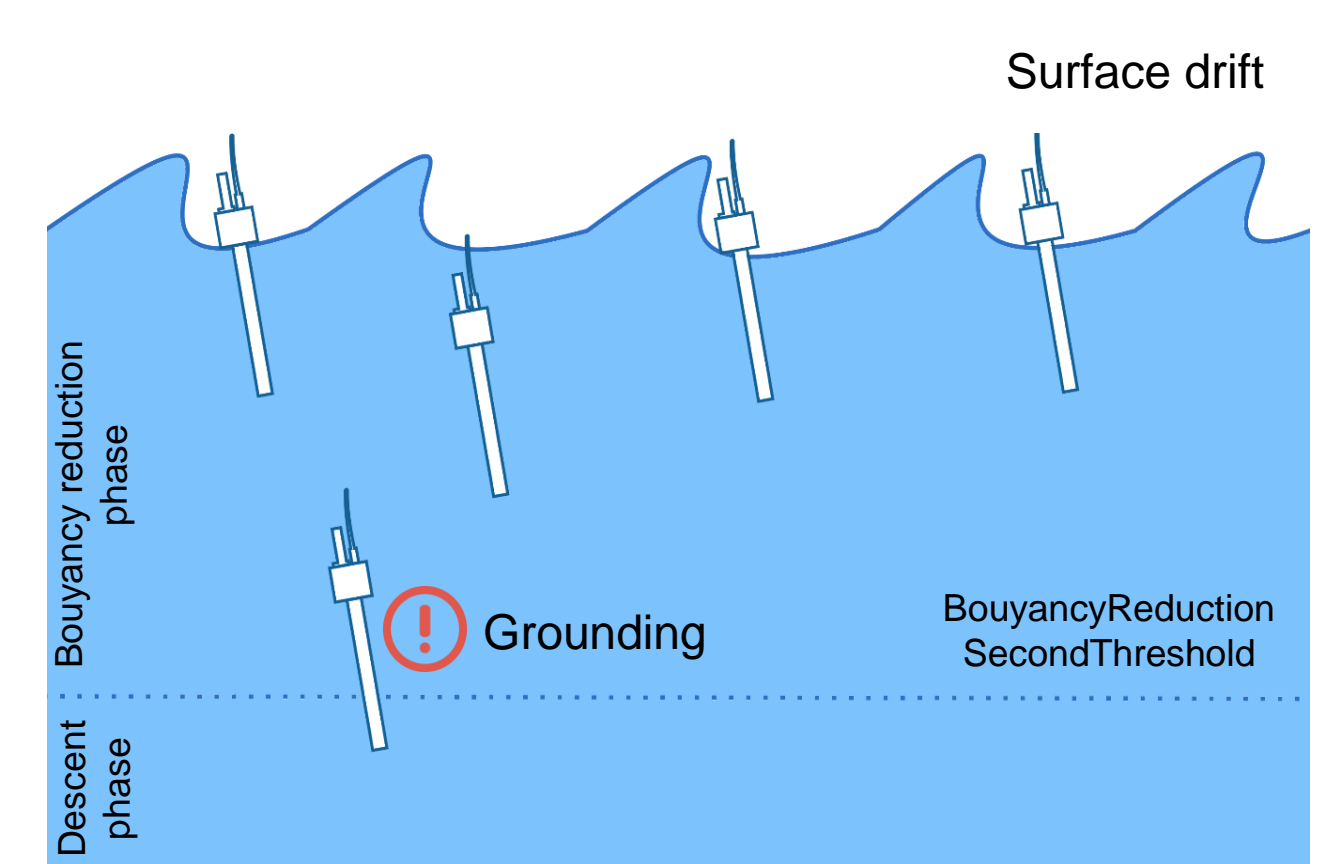
- Eastern basin: same floats (24h period)
- CTD data trans. incomplete: 12 floats deployed before 2014

Surface grounding

Cycles grounded at surface



Mean hs = 3.7 m
Waves of 5, 6 and 7 m



Mean hs = 4.3 m
(without marginal seas)

- Surface grounding is related with big waves except for floats in marginal seas

Related with

Conclusions

- Iridium transmission
- GPS positioning
- Surface grounding in global ocean



- Key configuration parameters can be now optimized
- First step to a series of best practices in Arvor floats configuration settings
- Methodology to be used in life expectancy study (EA-RISE WP2)

Consequences of these 3 issues

Loss of CTD data
Inaccurate positions