

Shore Monitoring & Research

Flexible, shallow water and topography surveys

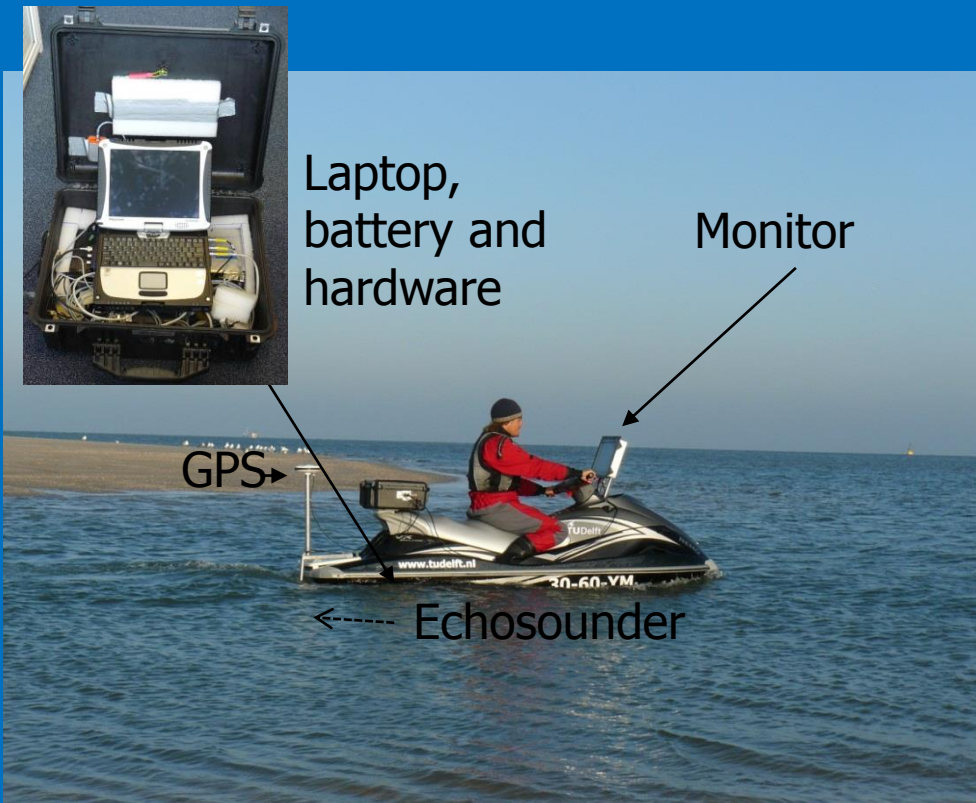
Monitoring for research, consultancy, maintenance and management



info@shoremonitoring.nl
+31 681280230

www.shoremonitoring.nl
twitter.com/ShoreMonitoring

Shallow water jetski surveys

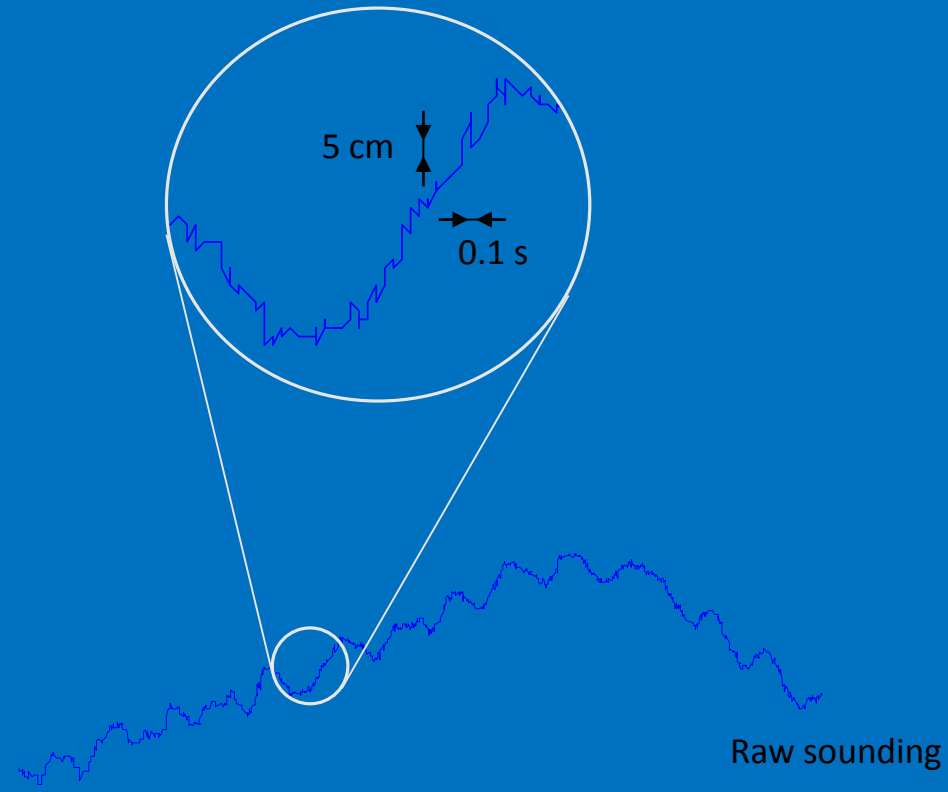


Survey specifications

- Assembly / mobilisation ~ 1h
- Survey speed ~ 10 km/h
- $H_s < 1,5$ m (35 % offtime)

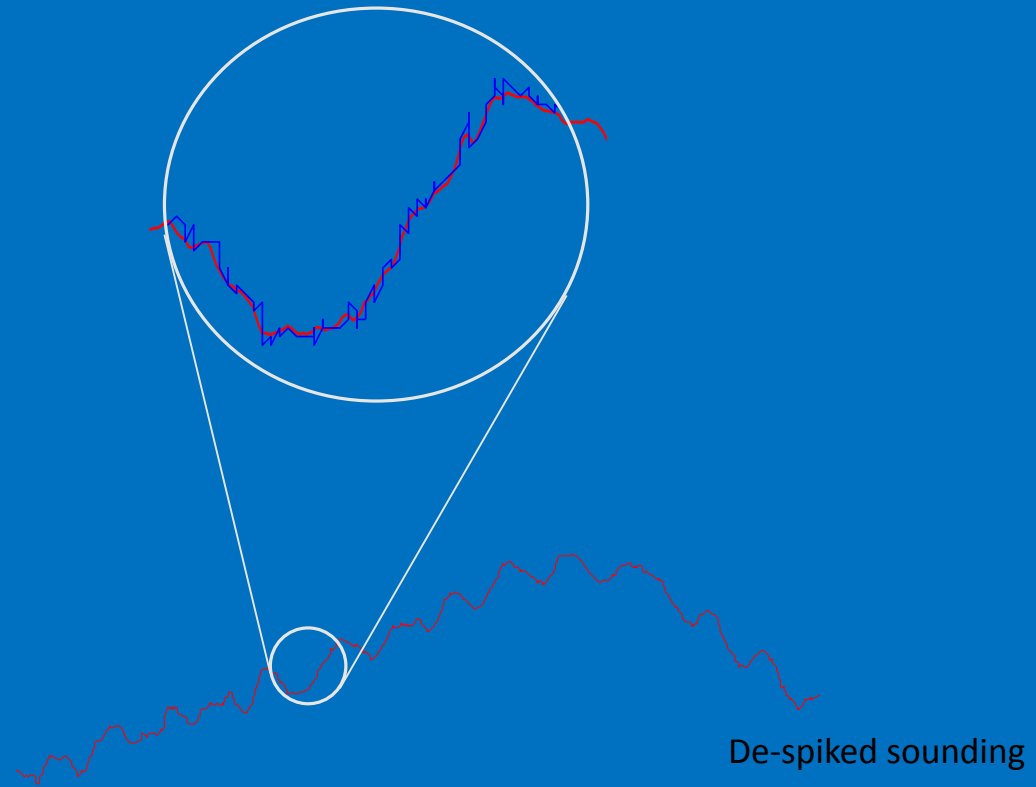
Data processing

1. Raw sounding
2. Remove spikes
3. Subtract jetski elevation



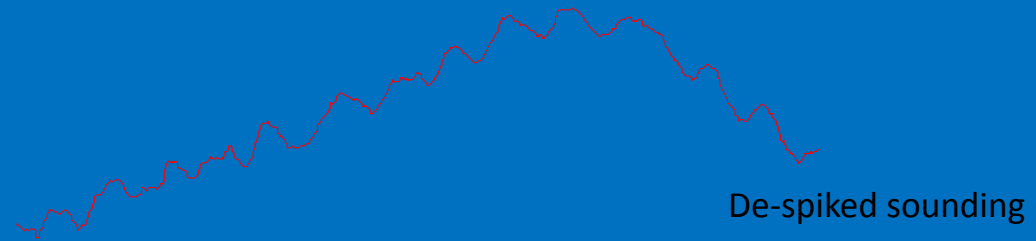
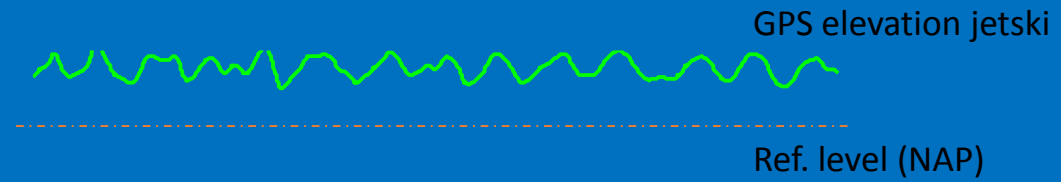
Data processing

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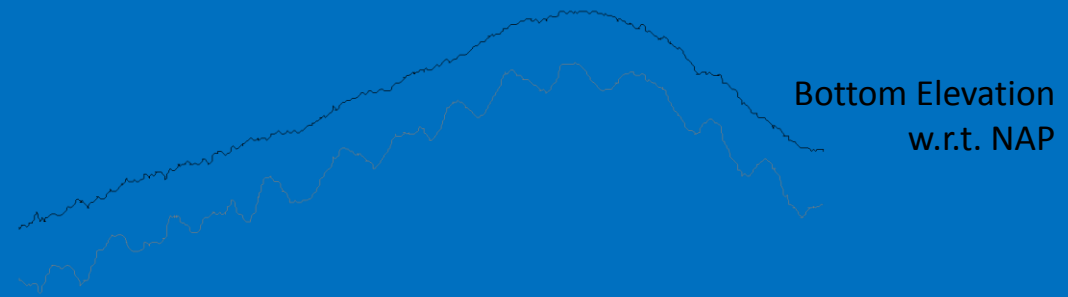
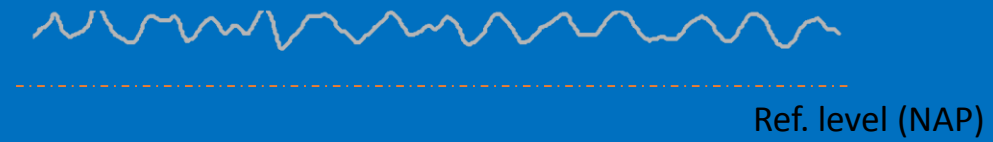
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Data processing

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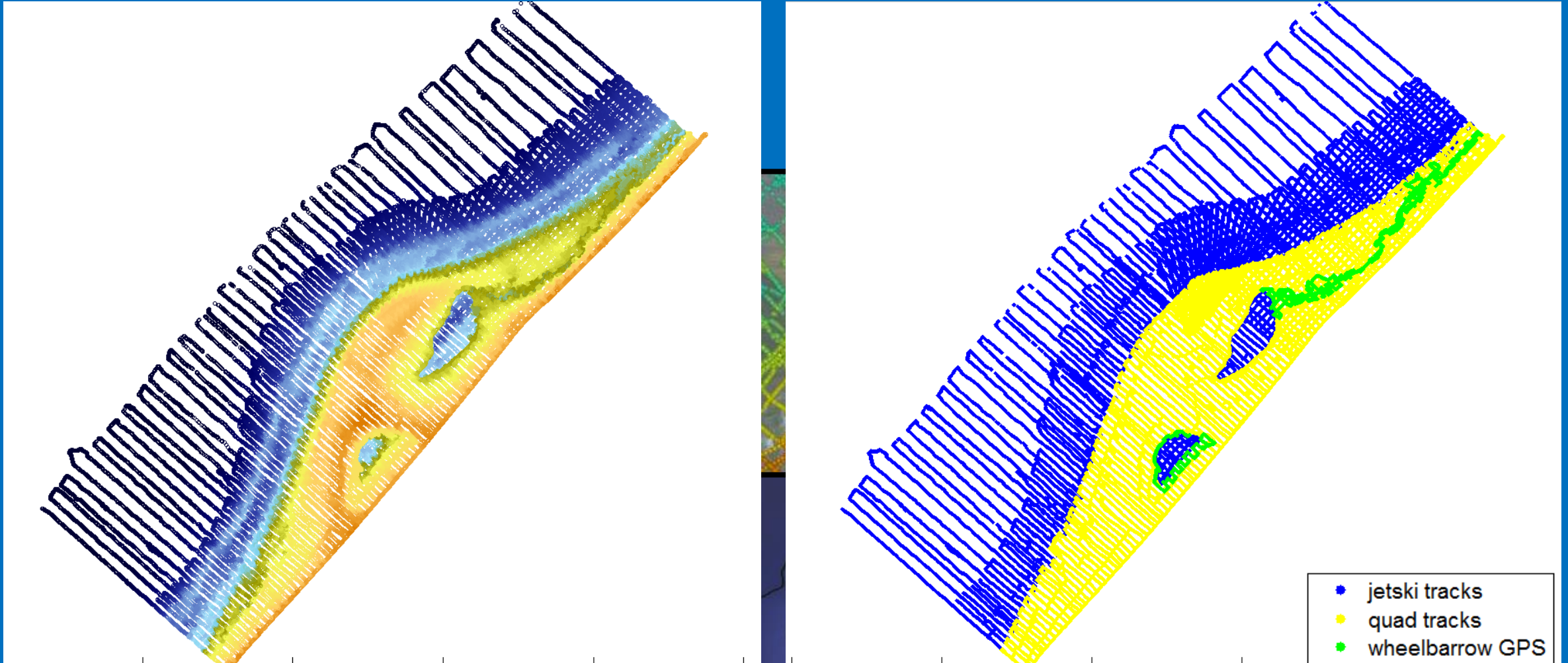


Topography

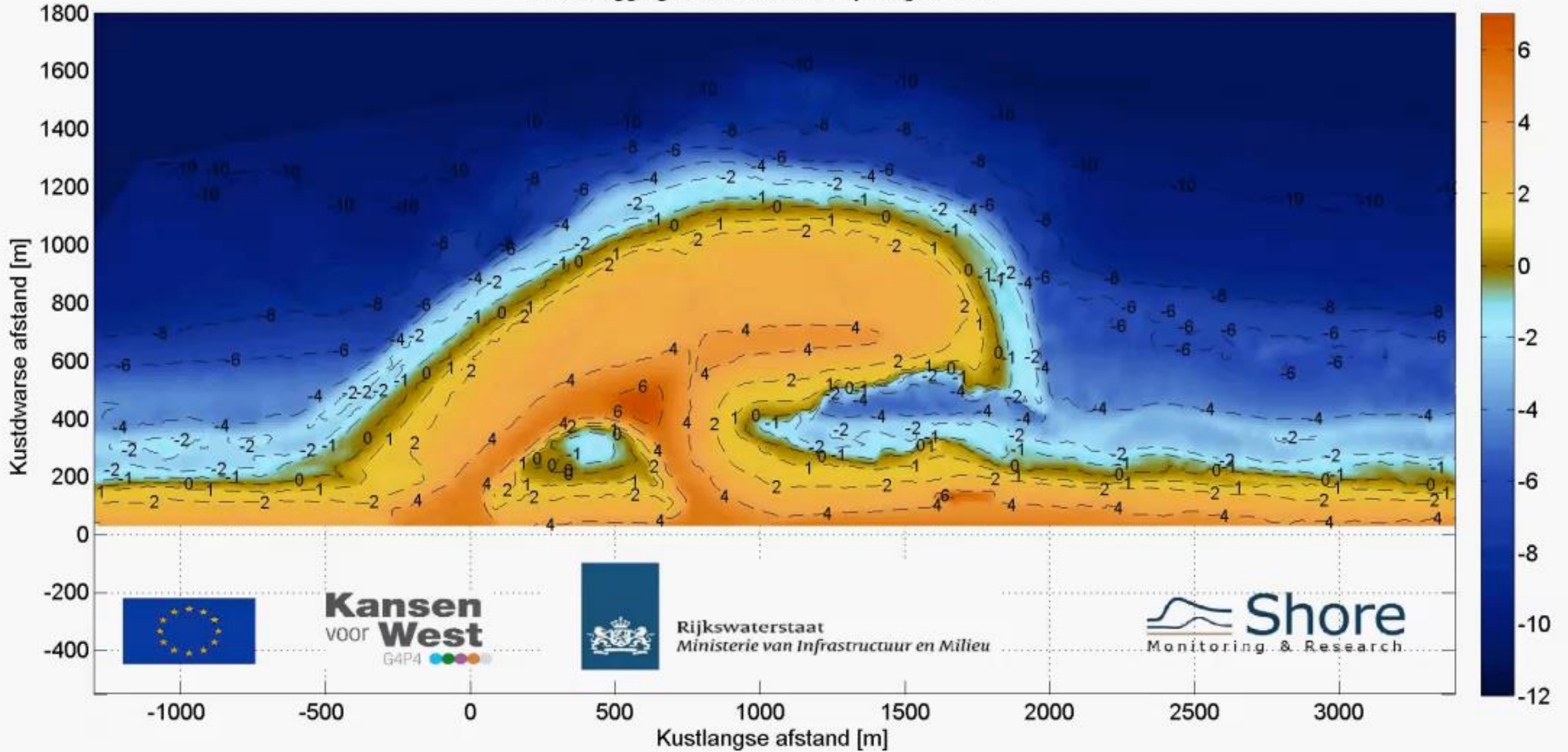
- Quad RTK GPS (all areas until 30 cm waterdepth)
- Wheelbarrow RTK GPS (places where jetski & quad don't do the trick)
- Correct for antenna height w.r.t. surface level elevation



Survey Methodology



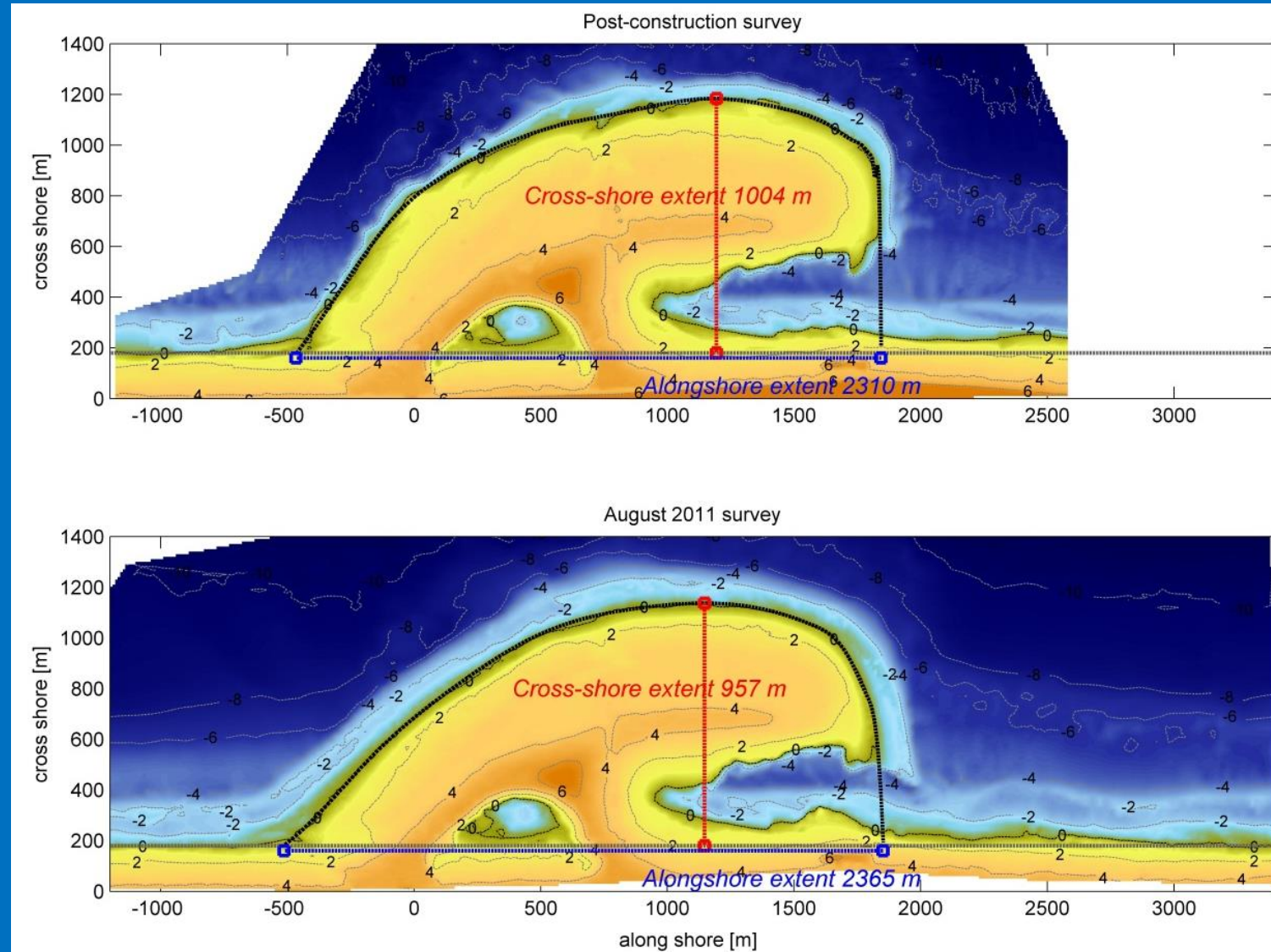
Bodemligging Zandmotor, survey August 2011



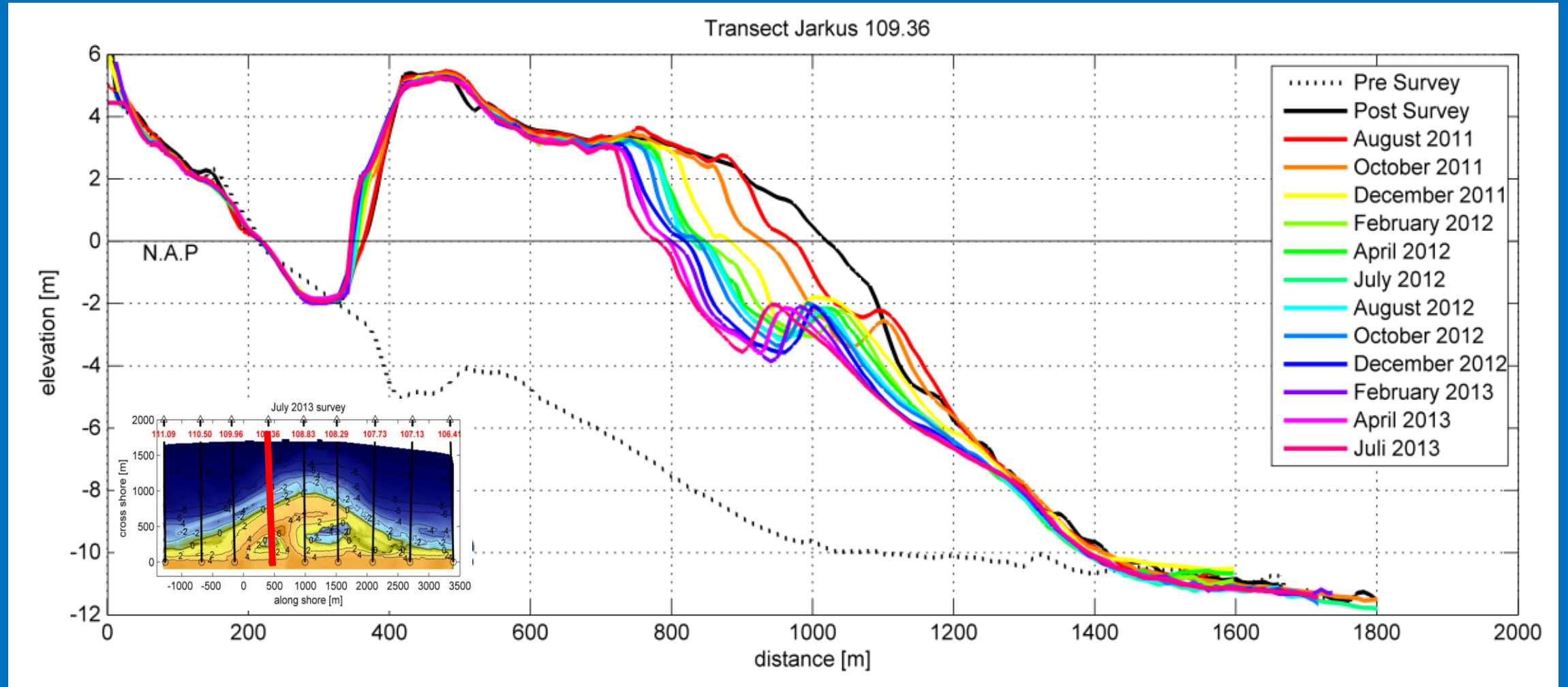
Evolution

- 1st year
1450 m wider / 120 m thinner

- 2nd year
290 m wider / 60 m thinner

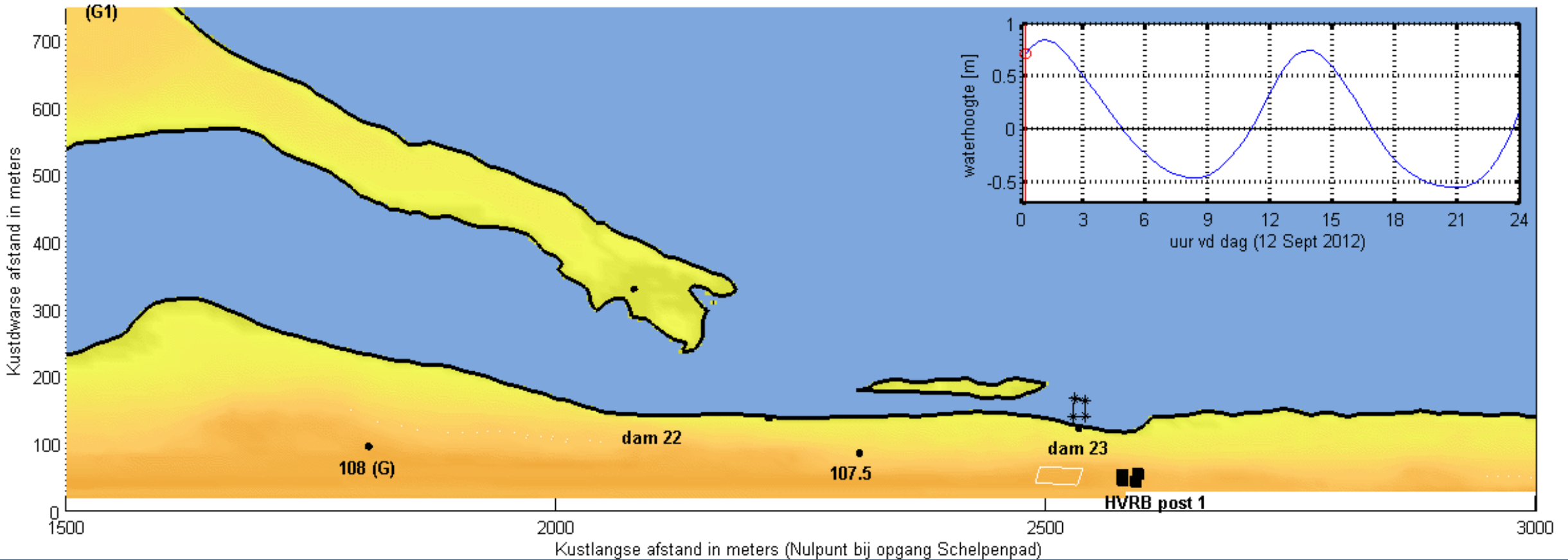


One of over 200 transects



Intertidal area

Bodemligging Zandmotor van 23/08/2012 , Diepte in meters ten opzichte van NAP (ong. gemiddeld waterniveau)

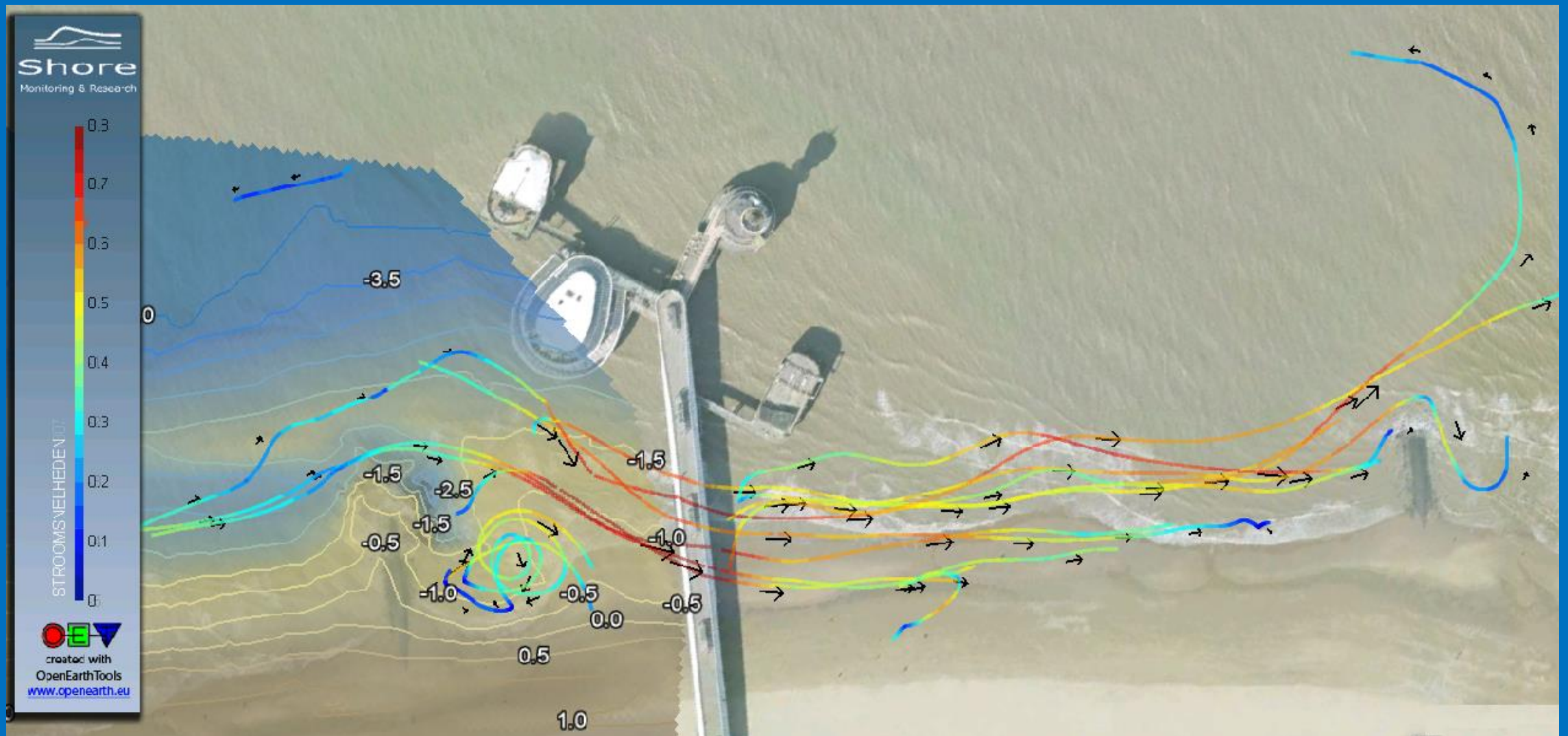


Current pattern measurements GPS drifters

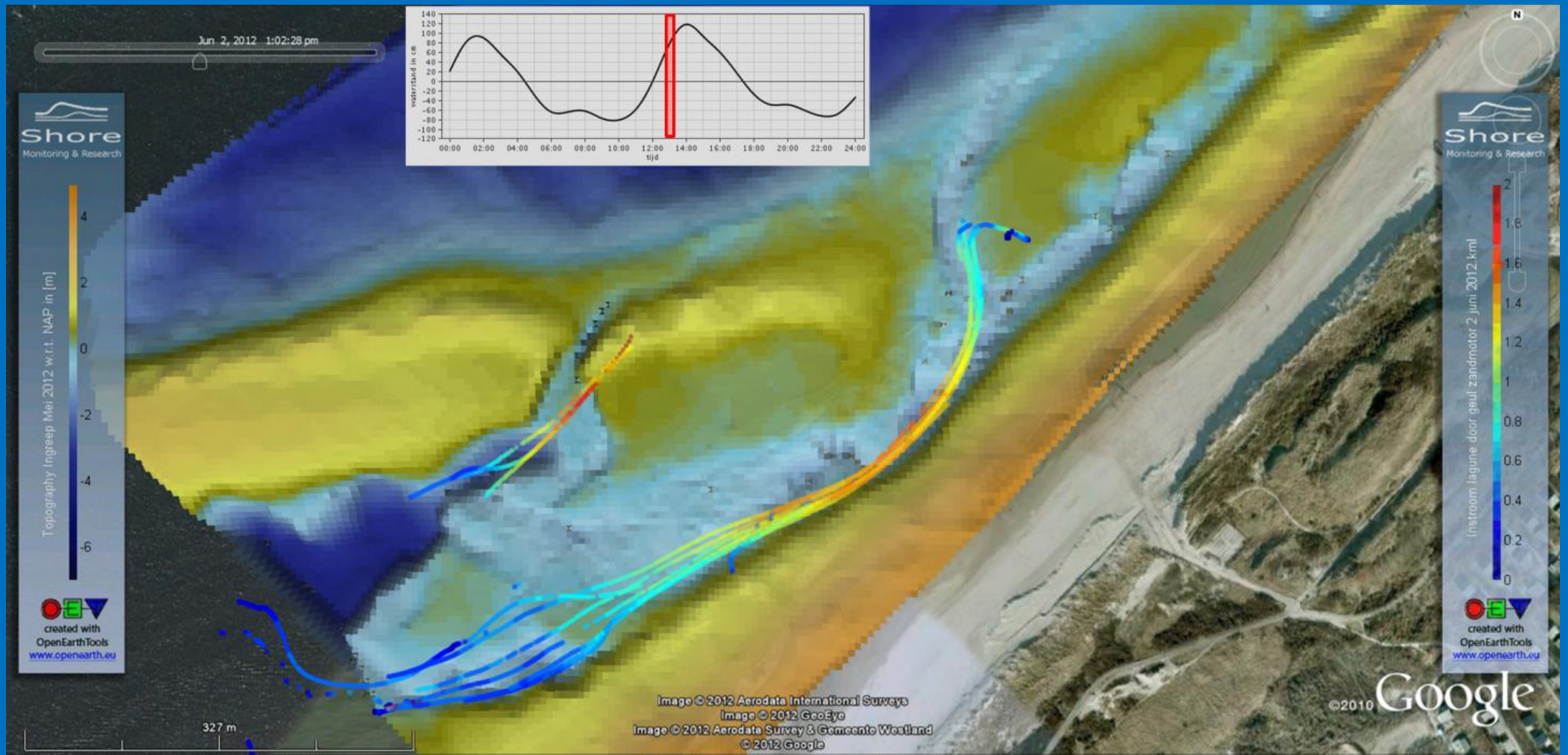
- Log raw GPS data (2s intervals), convertible to RINEX and post processing with reference station ~ 0.4 m accurate position (x,y)
- Float in upper 50 cm of water column (comparable with swimmers)
- Tilts on wave impact, doesn't surf.



Current pattern measurements GPS drifters



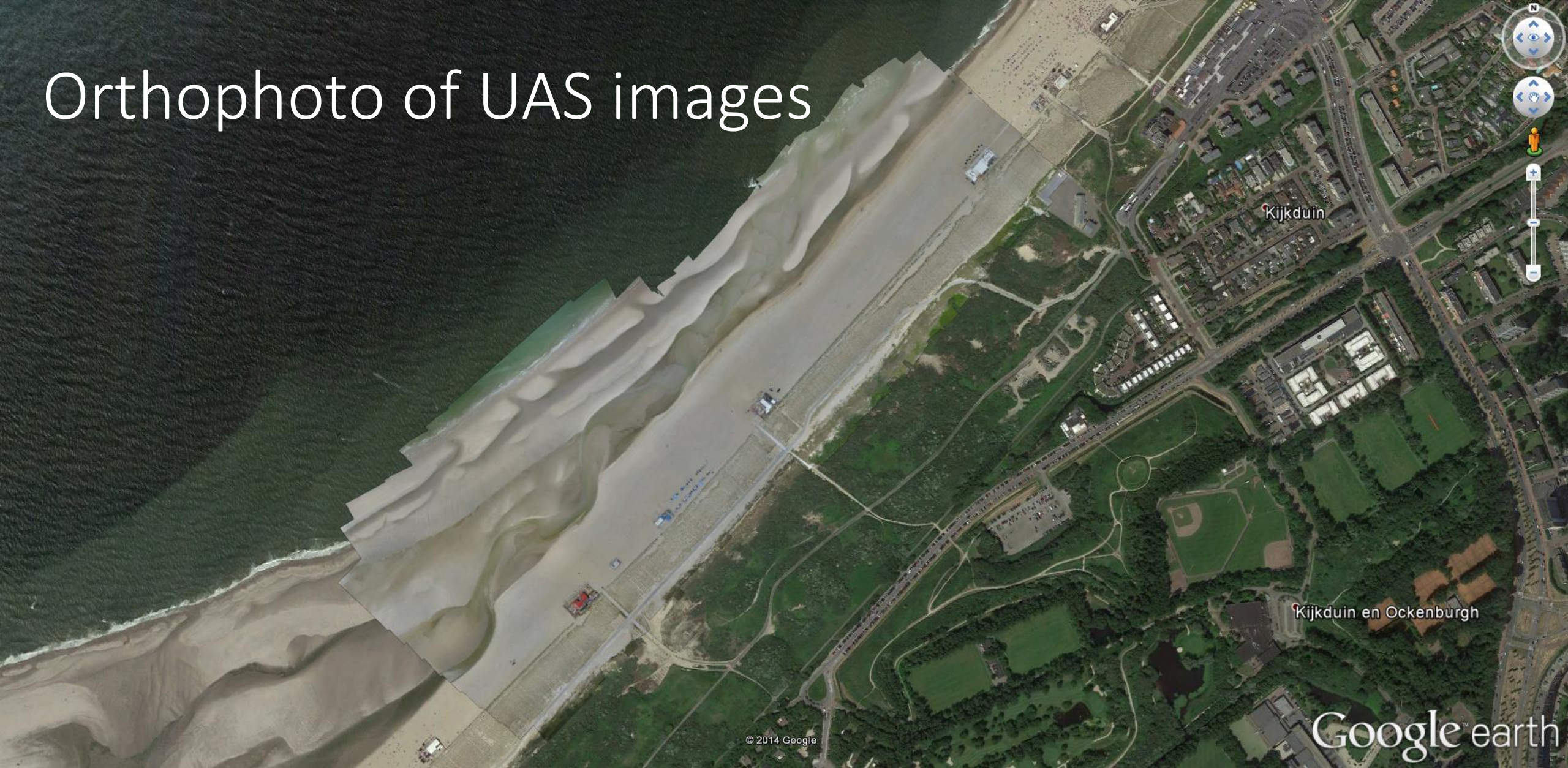
Current pattern measurements GPS drifters



UAS and photogrammetry?

- High spatial resolution 50 – 100 points (x,y,z) per m²
- Large area covered in short amount of time
- Flexible deployment, light, great camera's (also IR)
- Makes intense monitoring of specific areas easy to do.
- Hardly physical interference in natural area (fauna, flora)
- Limited area needed for take off and landing
- Cheap: 2500 – 3500 euro per day (for instance 3-4 km of dunes/beach (3-5 cm ground resolution))

Orthophoto of UAS images

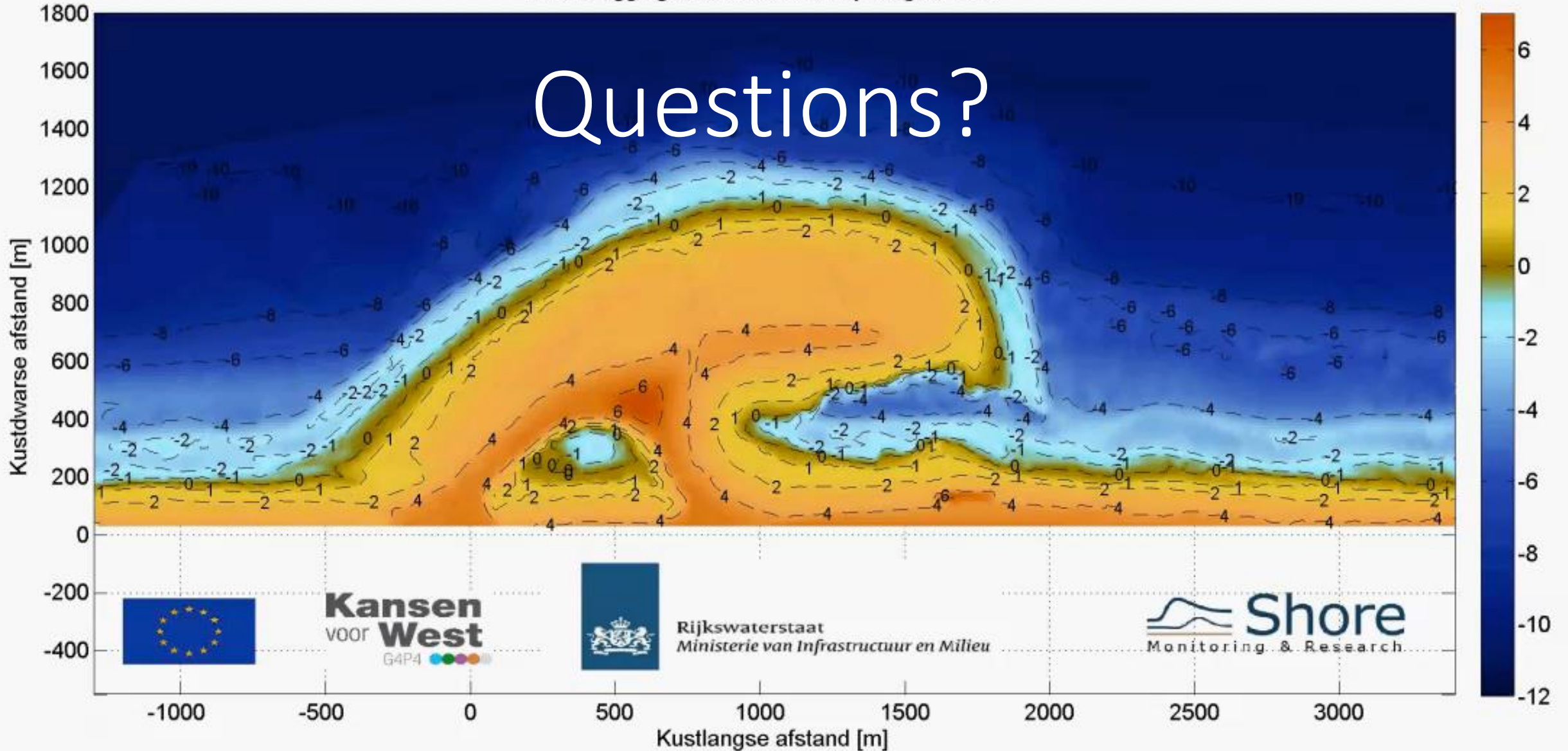


Orthophoto of UAS images



Google™ earth

Questions?



NEXT:

- Split up in two teams
- Put on your wetsuit (you will get wet when walking the wheelbarrow GPS or sitting on the jetski)
- One group with Leon: quad and wheelbarrow demo
- One group with me (Roeland): jetski demo
- You will all be measuring some transects and get the data later tonight (so you can play around with it later this week)
- After 45 minutes you'll swap demo
- After the demo's (approx. 15.30 hr) we'll hike over the sandengine ALL TOGETHER along some highlights

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