

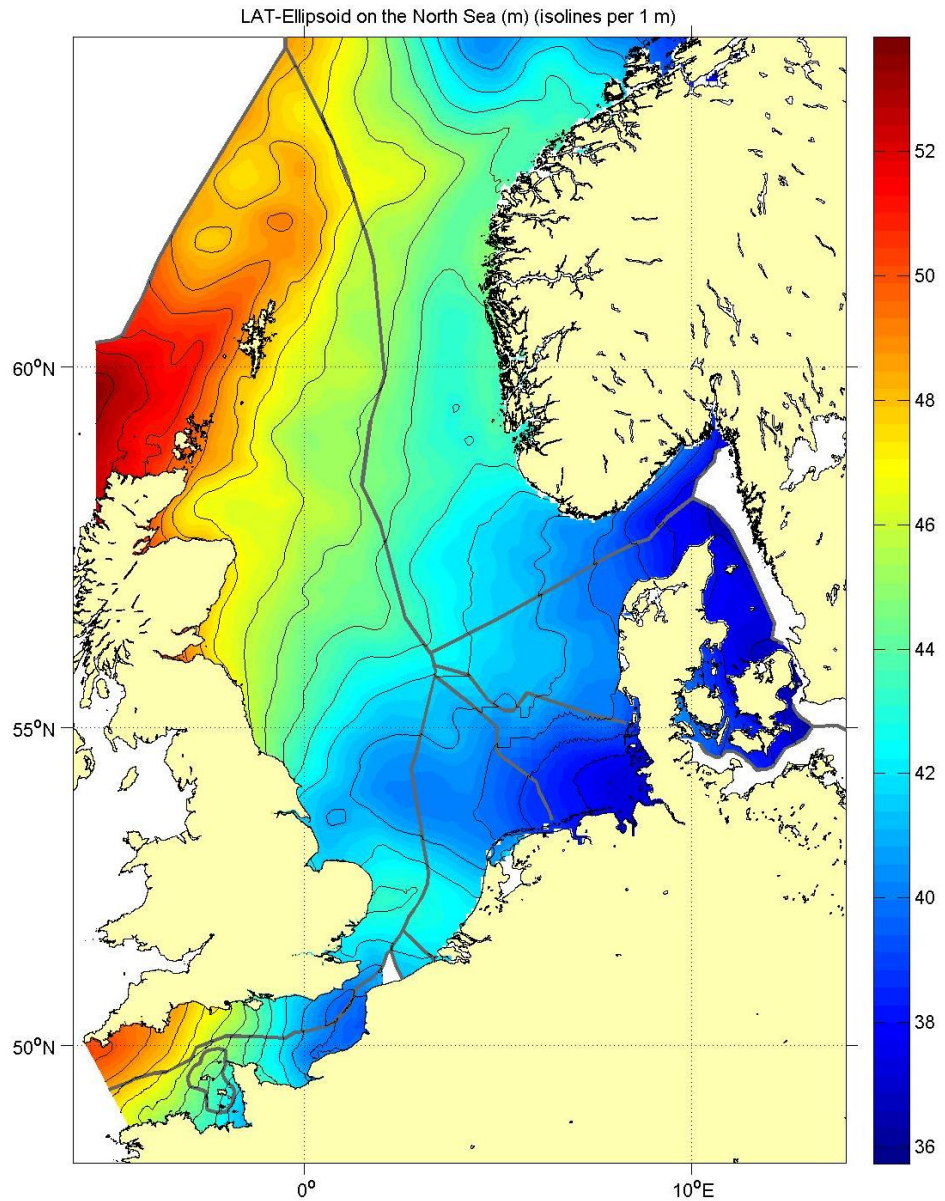
# NLLAT2018

## User products

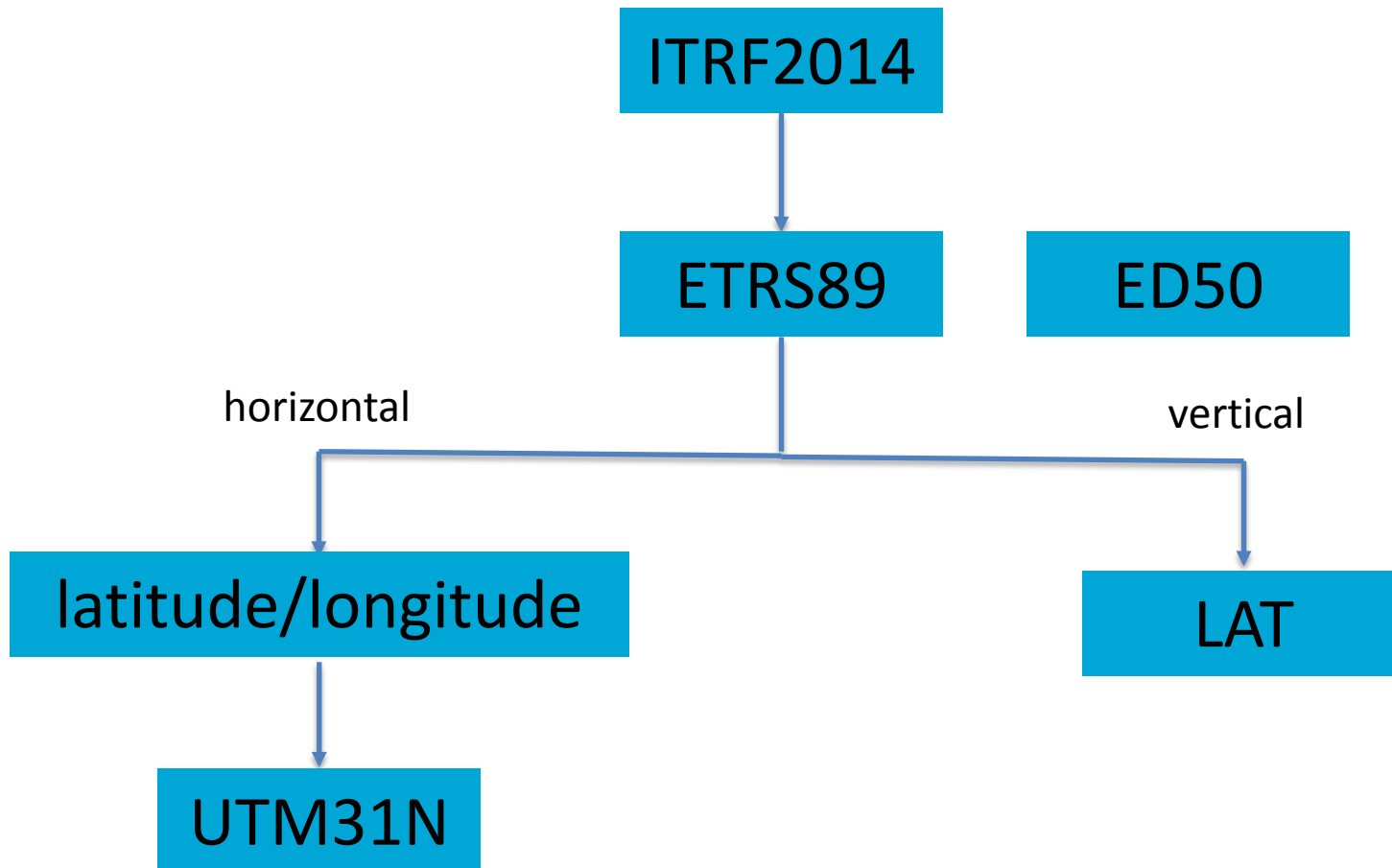
Rogier Broekman  
Royal Netherlands Navy  
Hydrographic Service

# LAT on the North Sea

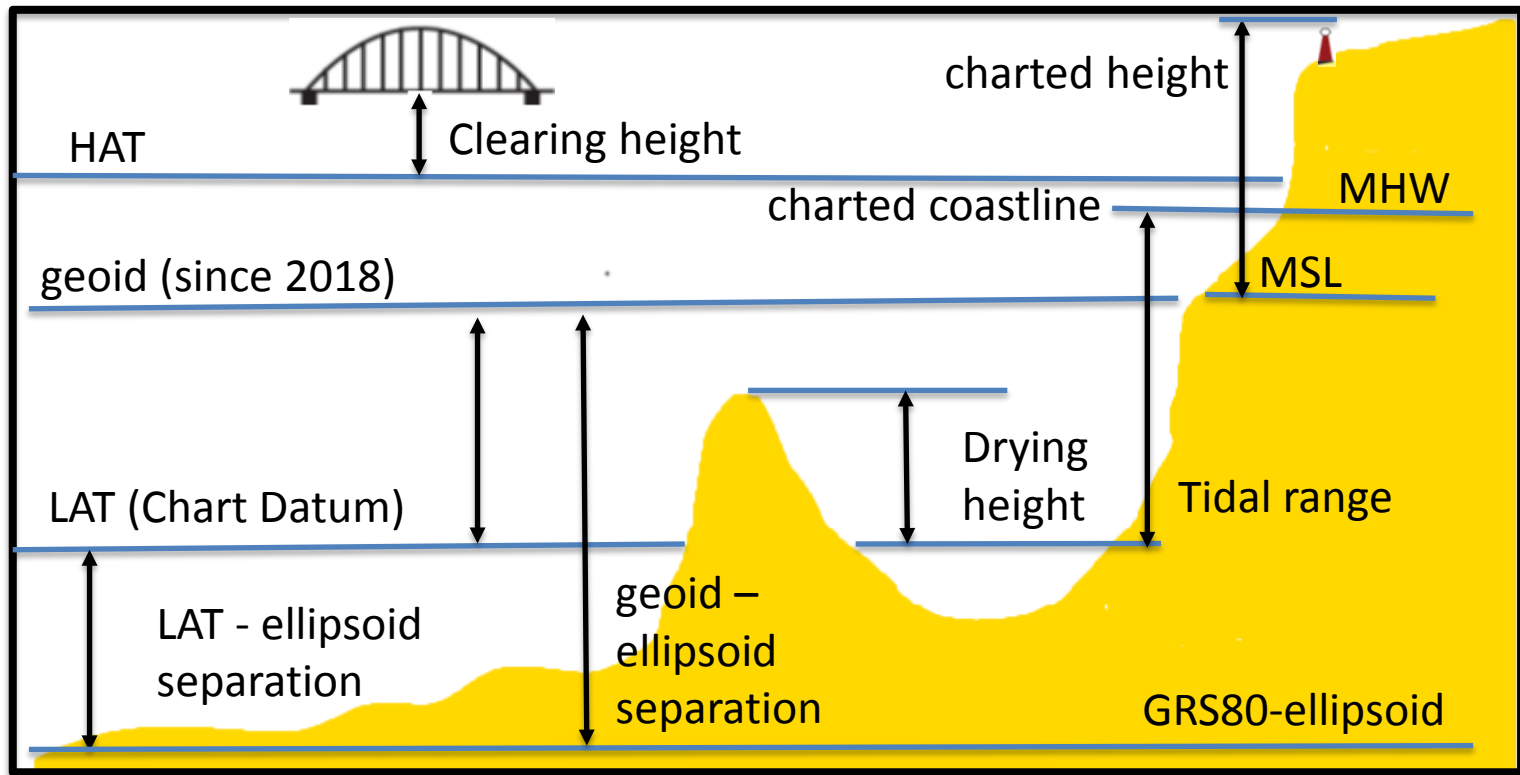
- Collection of separate LAT surfaces
- Each nation has their own realization of LAT surface
- There is no seamless border
- Each country publishes their own LAT surface



# Geodetic Coordinate Systems at Sea



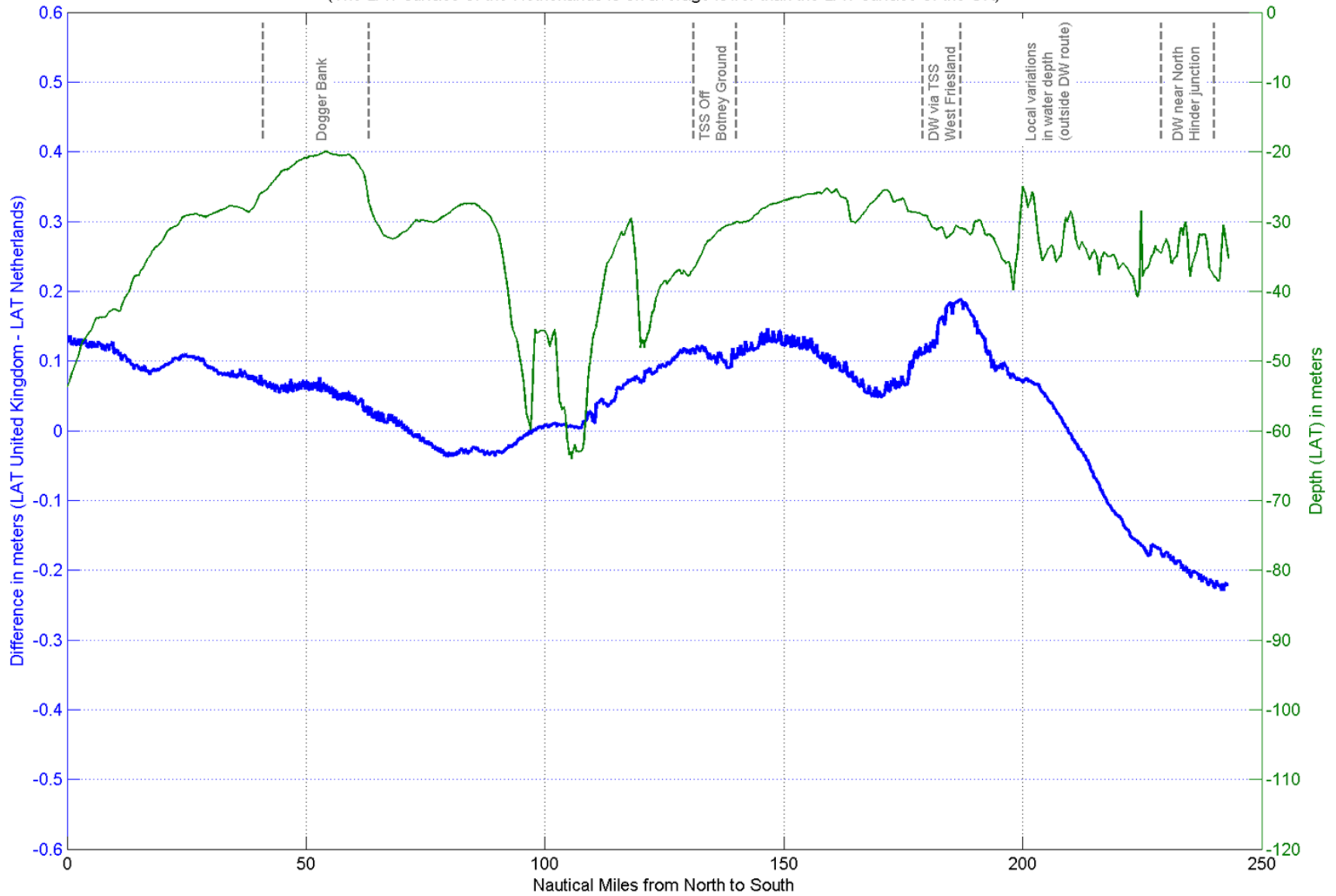
# Vertical references in use at sea/coastal zone



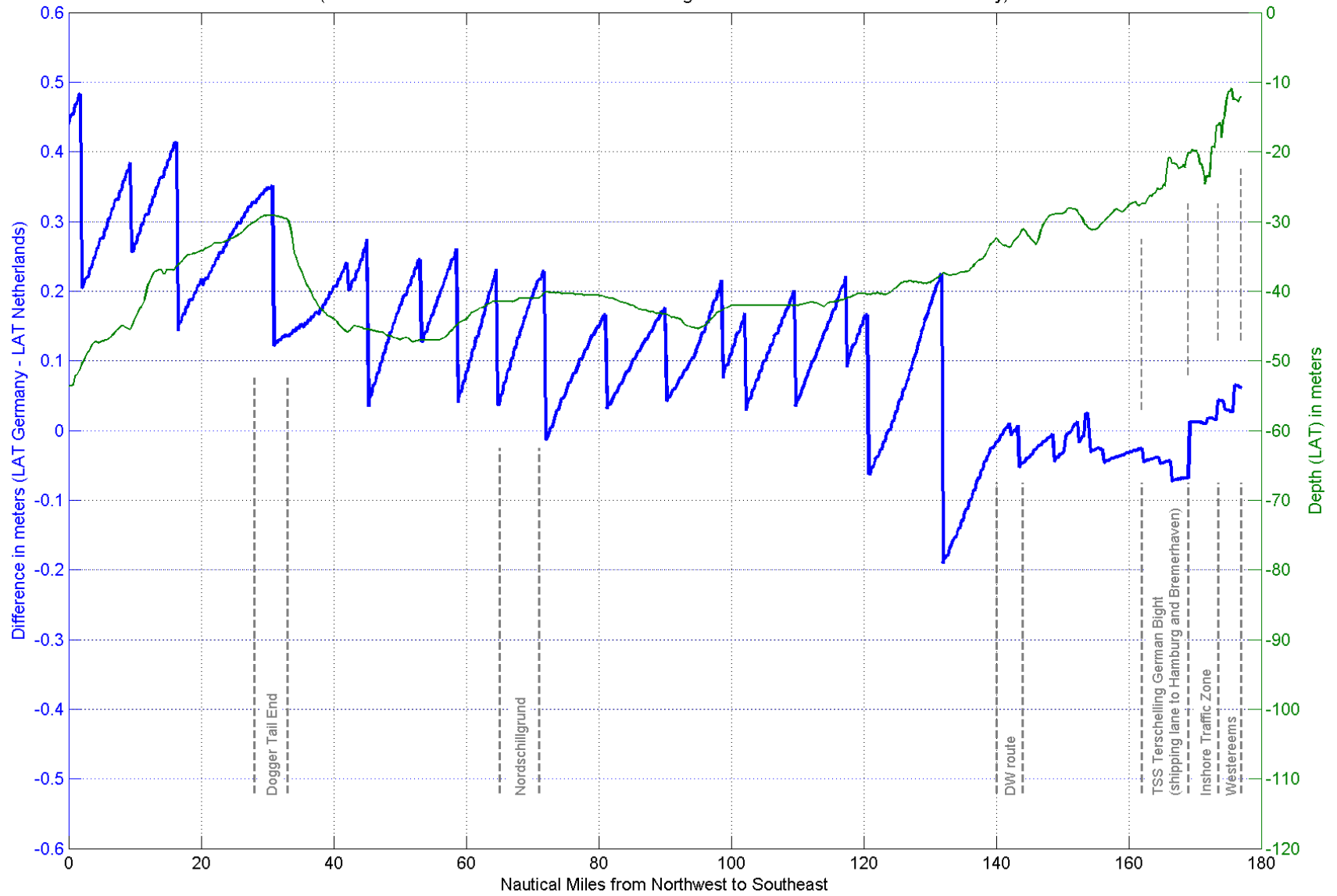
# Different LAT surfaces in the North Sea

	Spatial resolution (deg)	Spatial resolution (m) North-South	Spatial resolution (m) West-East
UK	0.008	900	400-600
Norway (added Oct 2017)	0.0333	3700	1600-2050
Denmark	0.0167	1850	975-1050
Germany, < ~6 M from coast	~0.005	600	350
Germany, > ~6 M from coast, east of 6°E	~0.02-0.06	2000-7000	1250-4000
Germany at sea, west of 6°E	0.15	16700	9000
Netherlands	0.00576	640	360-400
Belgium	0.00167-0.003	200	200
France	0.005-0.03	500-3000	350-2000
Analysis by NLHO (Oct 2017)	0.00576	640	360-400

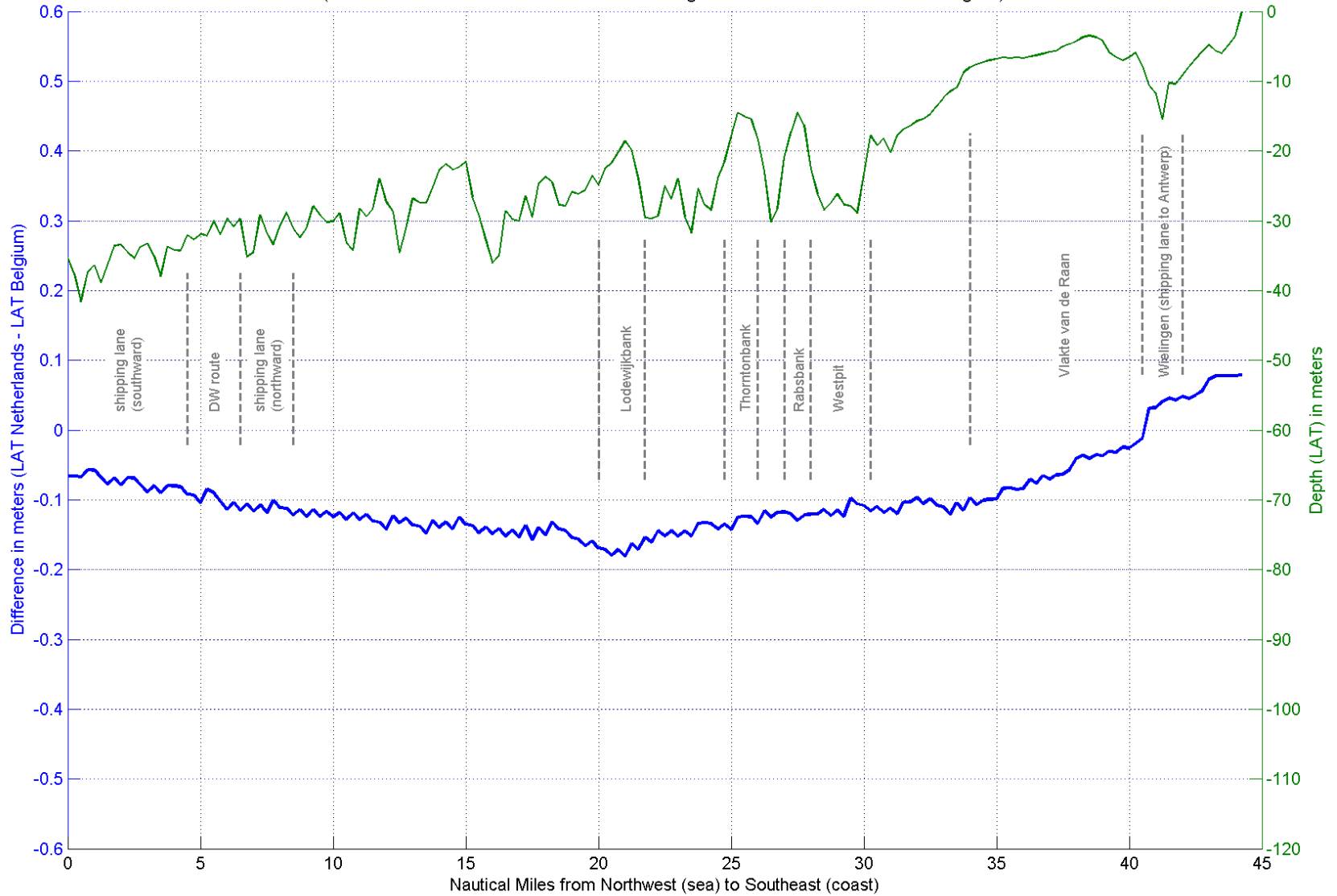
Difference in LAT-ellipsoid along the maritime boundary between the United Kingdom and the Netherlands  
 (The LAT surface of the Netherlands is on average lower than the LAT surface of the UK)



Difference in LAT-ellipsoid along the maritime boundary between Germany and the Netherlands  
 (The LAT surface of the Netherlands is on average lower than the LAT surface of Germany)

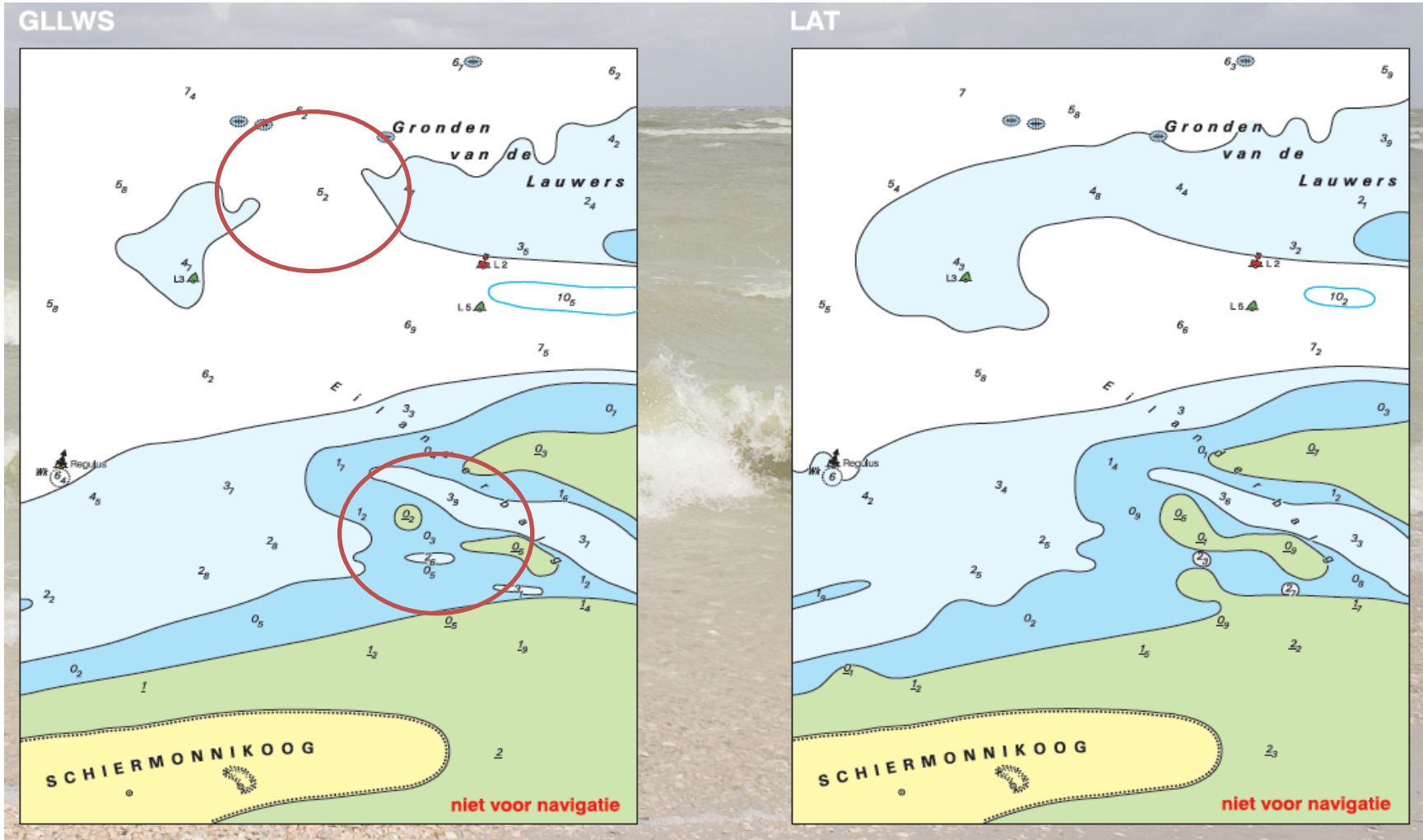


Difference in LAT-ellipsoid along the maritime boundary between Netherlands and Belgium  
 (The LAT surface of the Netherlands is on average lower than the LAT surface of Belgium)

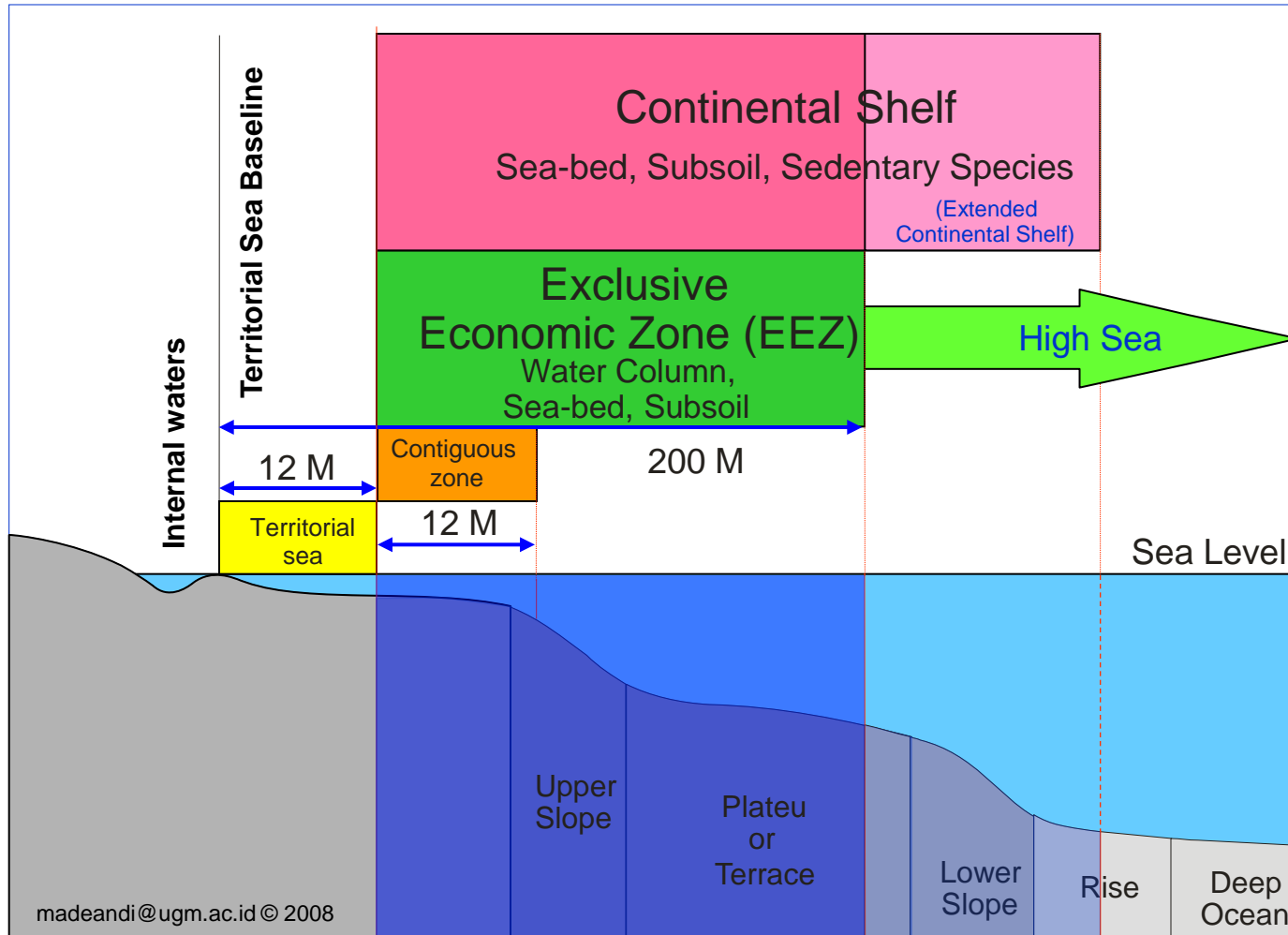




# NAP or LAT at Sea. So what?



# NAP or LAT: legal consequences



# User products

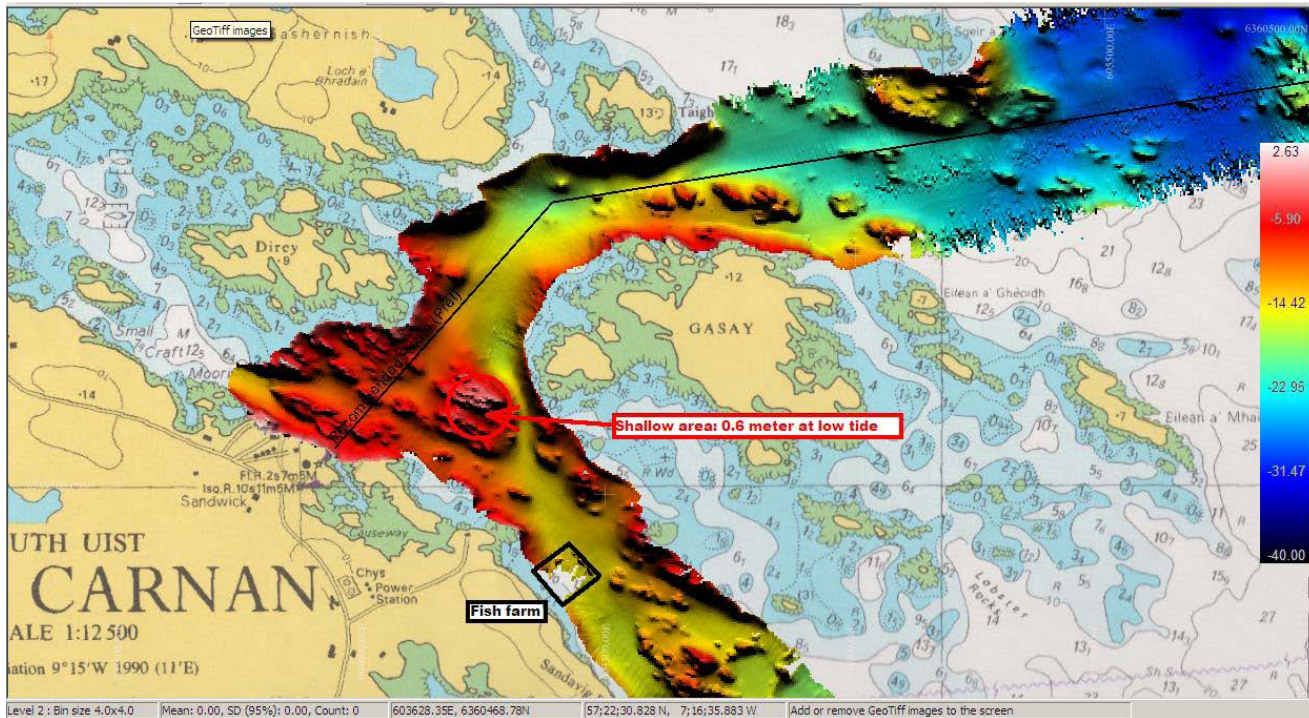
## 1) LAT – ellipsoid separation grid

- Covers NL part of the North Sea (with a few km outside the maritime boundary and up to NL rivers/estuary where available)
- General accuracy for the whole surface = 15 cm ( $2\sigma$ )
- Grid resolution is  $0.00576^\circ$  (640x400m)

## 2) geoid – LAT separation grid

- Covers NL part of the North Sea (with a few km outside the maritime boundary and up to NL rivers/estuary where available)
- General accuracy for the whole surface = 15 cm ( $2\sigma$ )
- Grid resolution is  $0.00576^\circ$  (640x400m)
  
- Release date: to be decided
- Release format: INSPIRE conform (harmonized)
- URL <https://inspire.caris.nl/>

# Questions



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