

# Sea level rise impact on sediments at the Belgian Continental Shelf

Stéphanie Ponsar, Dries Van den Eynde, Geneviève Lacroix

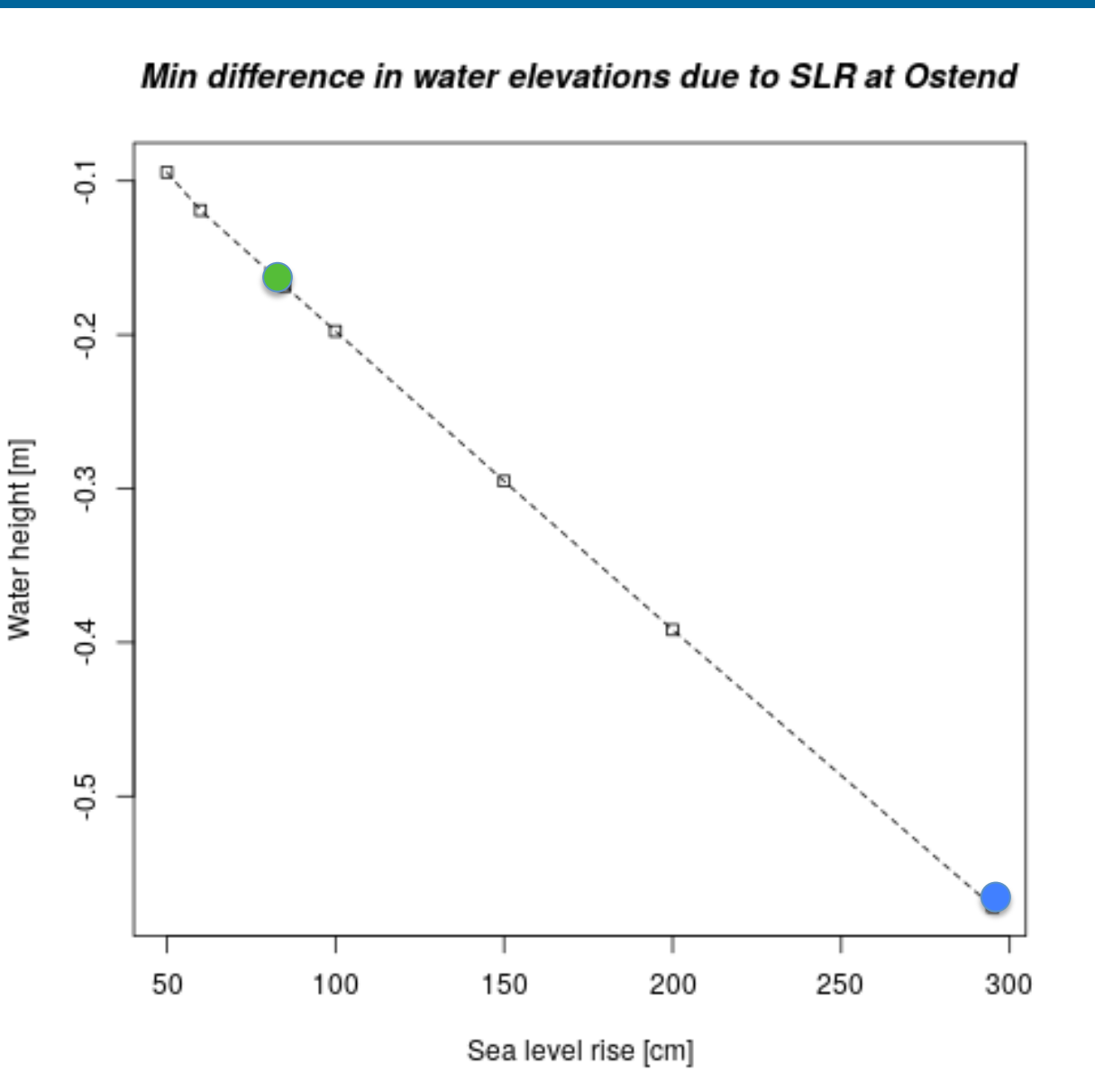
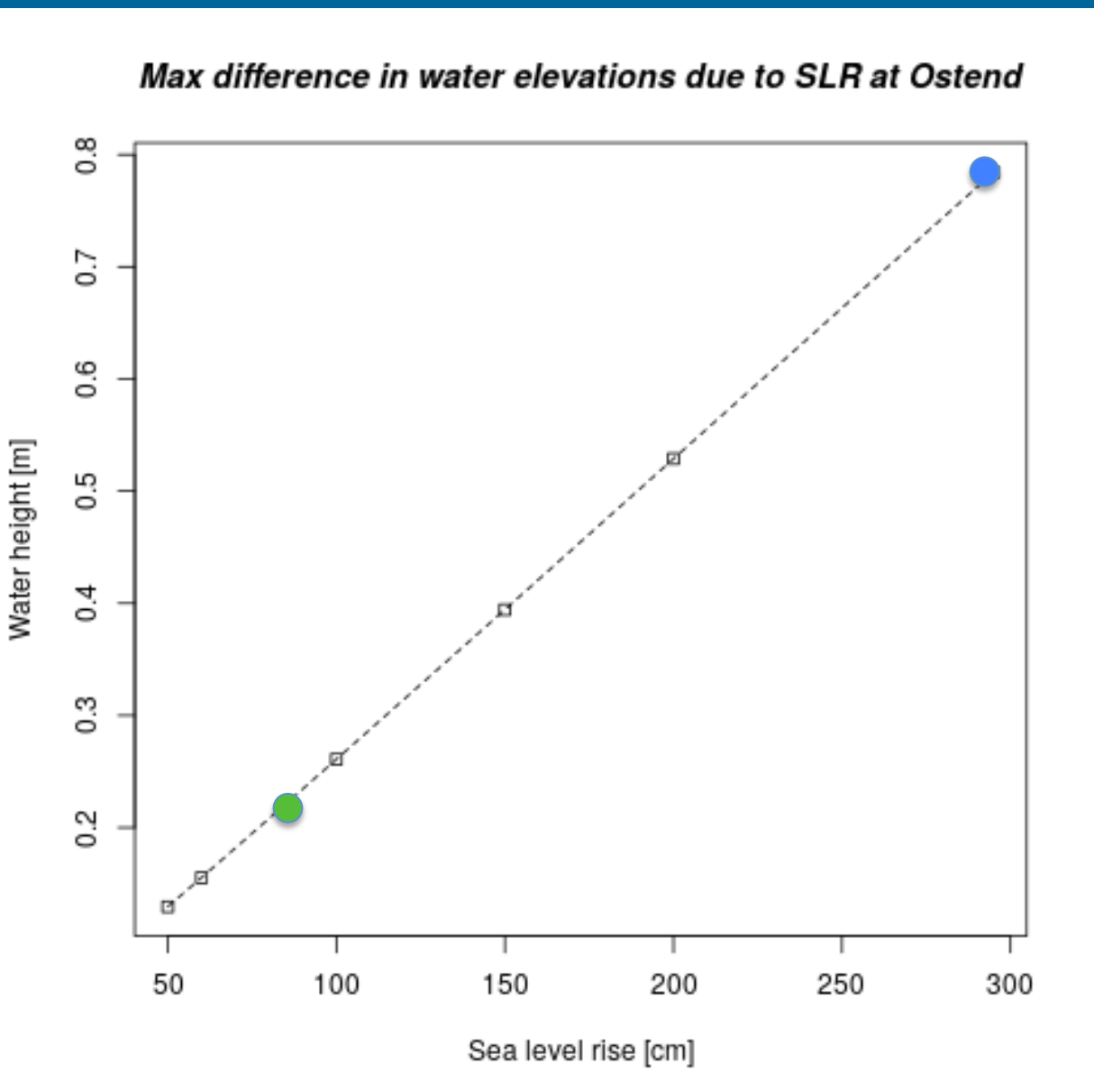
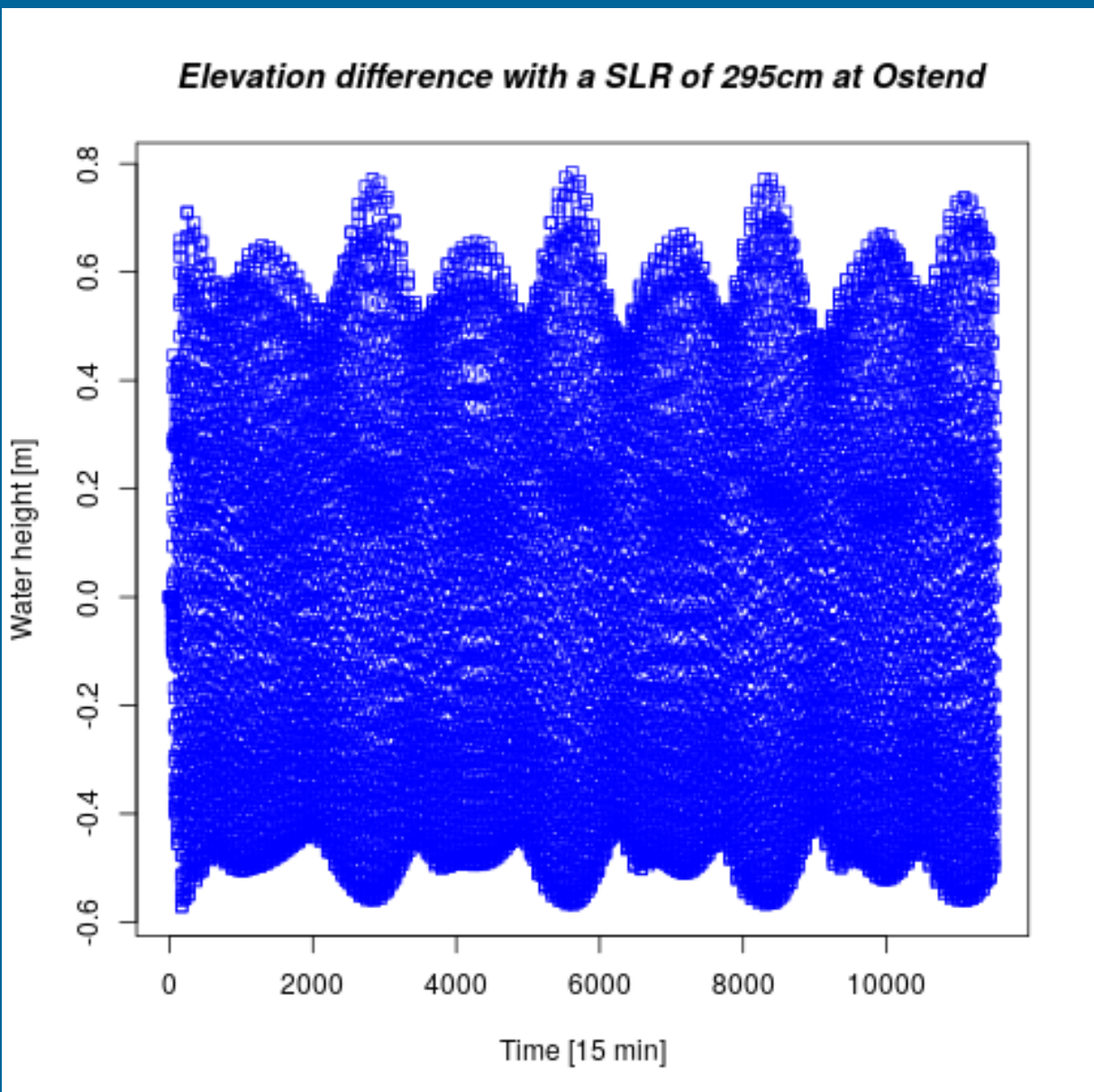
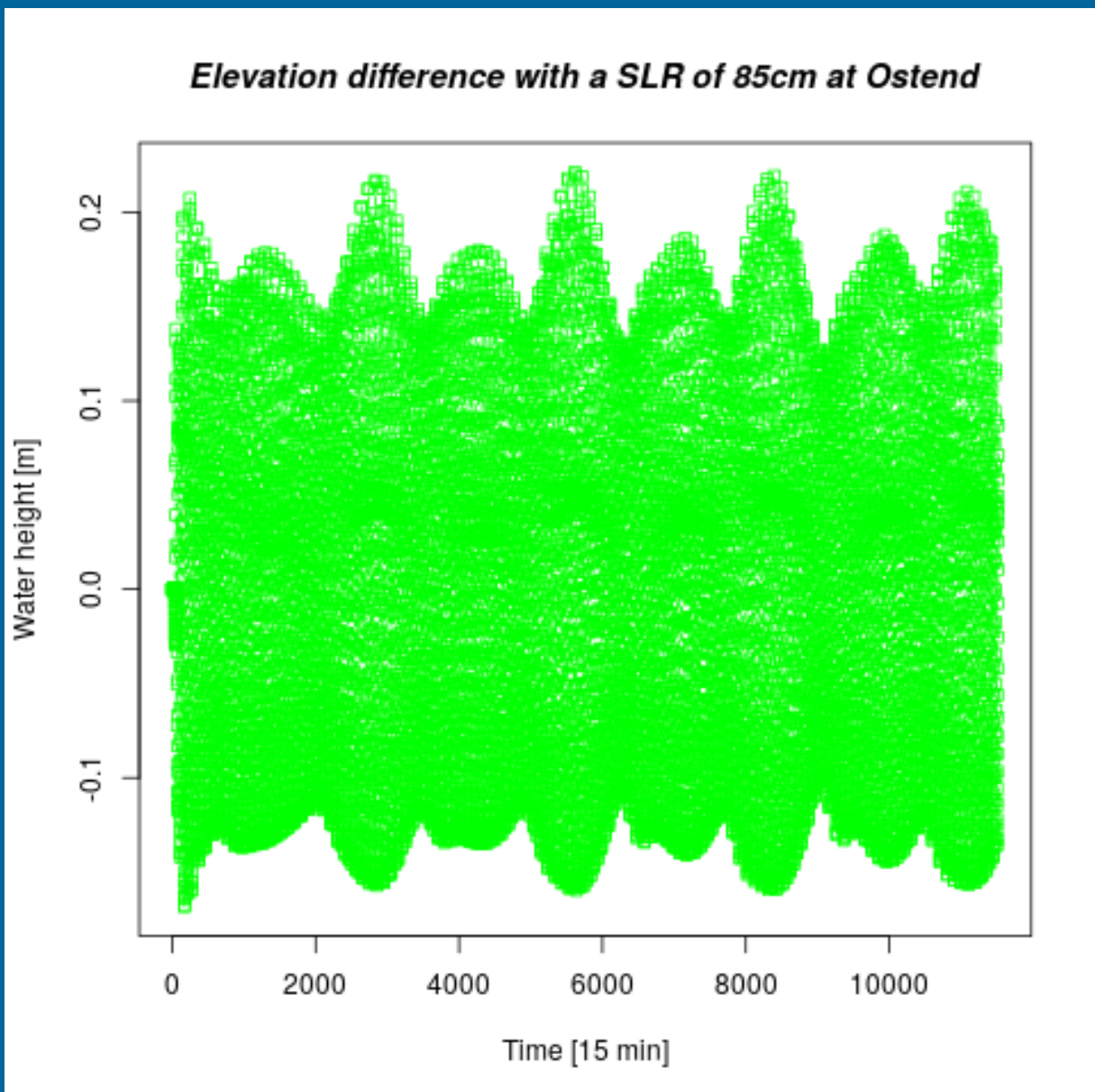
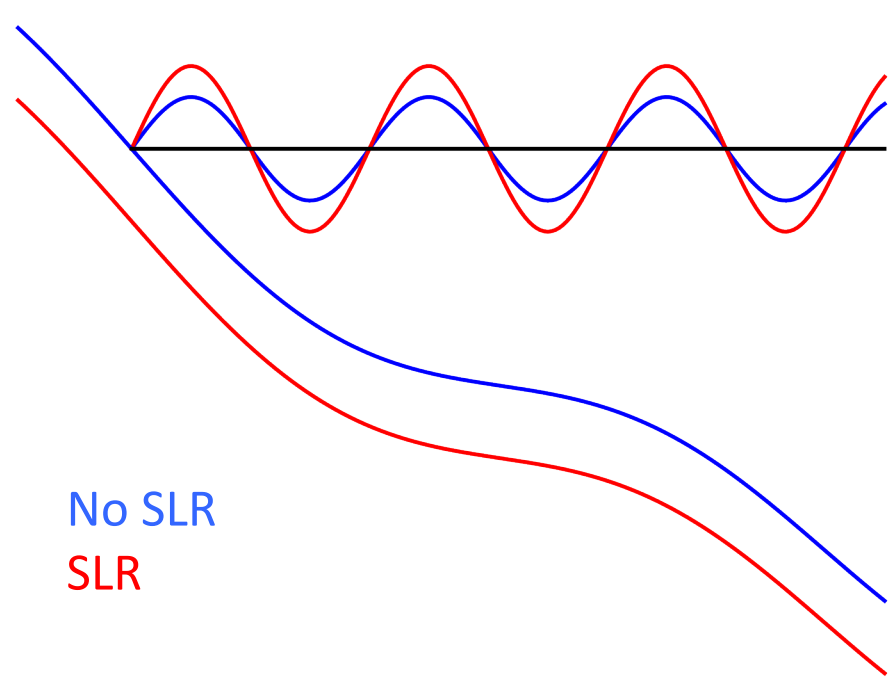
Royal Belgian Institute of Natural Sciences  
Operational Directorate Natural Environment

## Impact of SLR on tidal currents

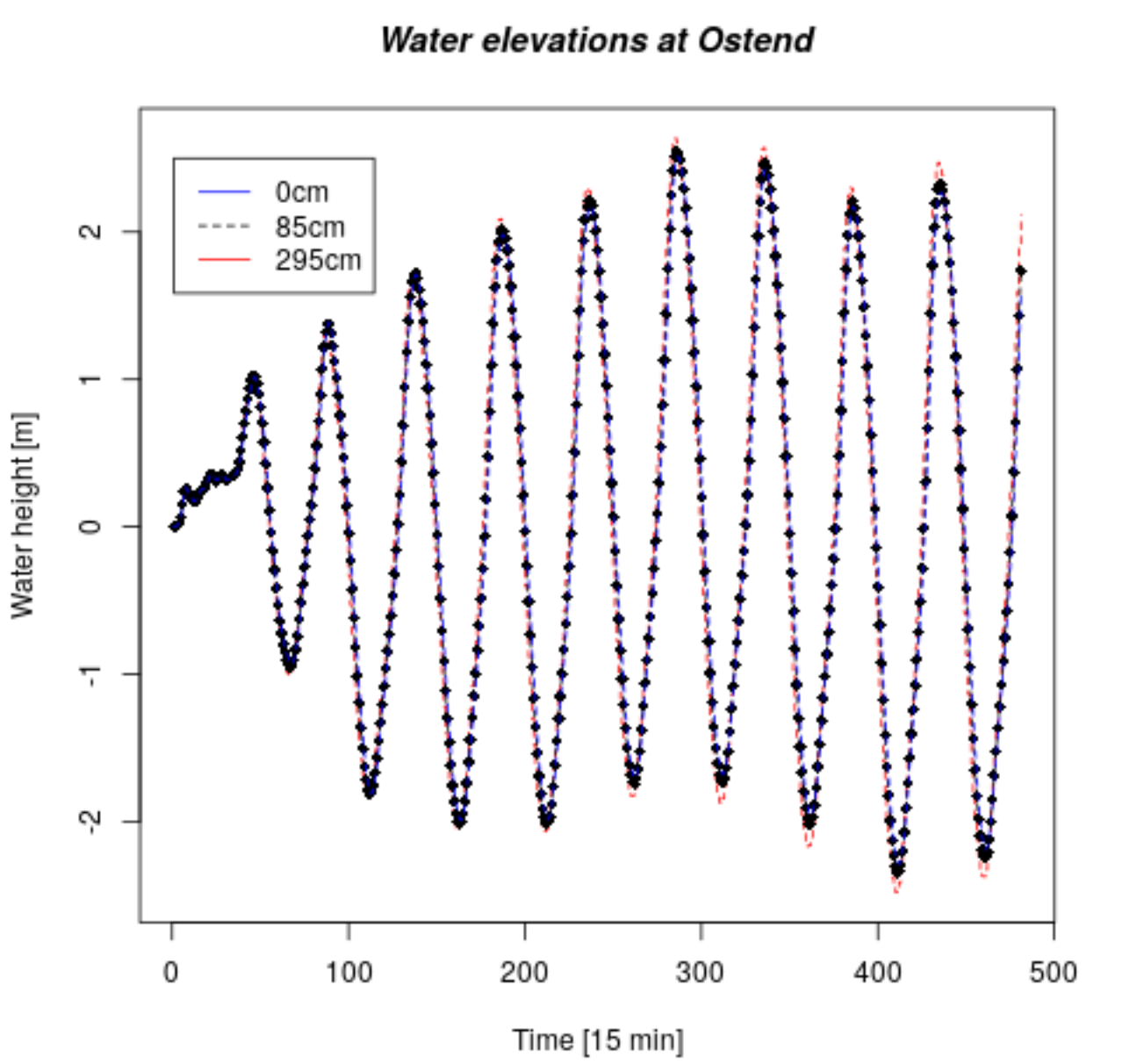
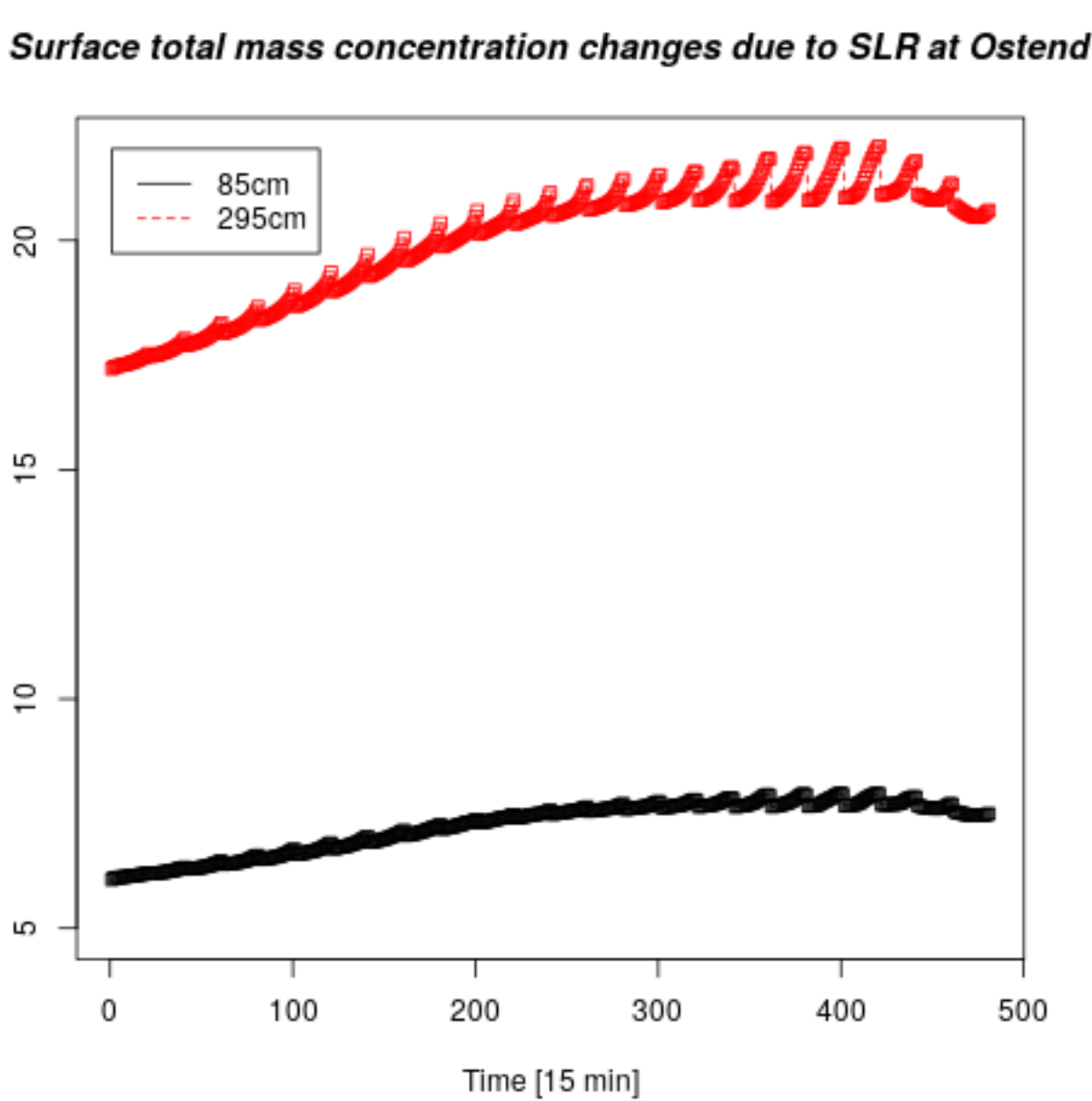
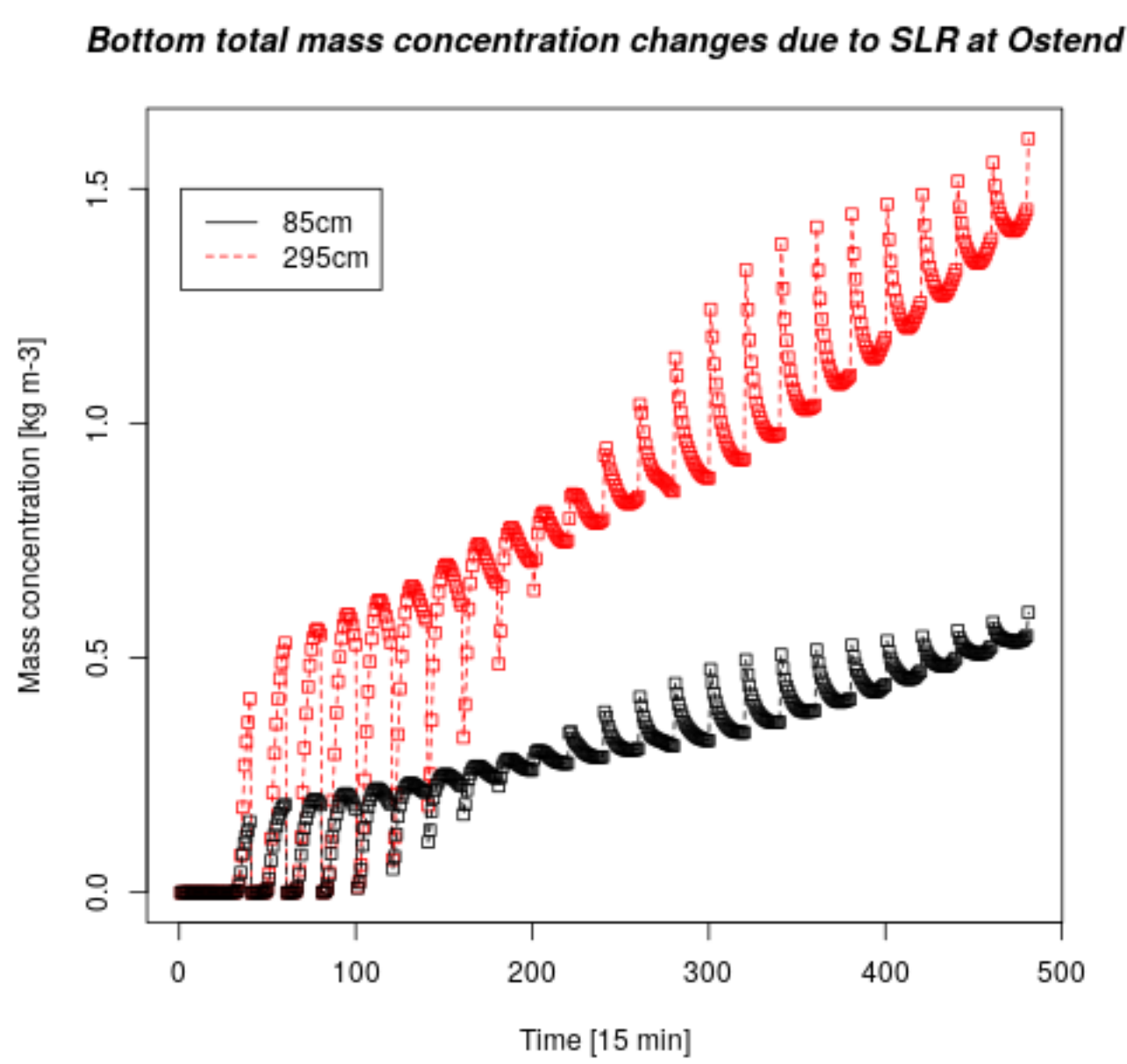
Tidal cycle: 4 months (January-April 1979)  
COHERENS hydrodynamical component, 15min resolution  
2 scenarios of SLR: 85cm, 295cm

Methodology:

SLR represented as a change in bathymetry



## Impact of SLR on sediment concentration



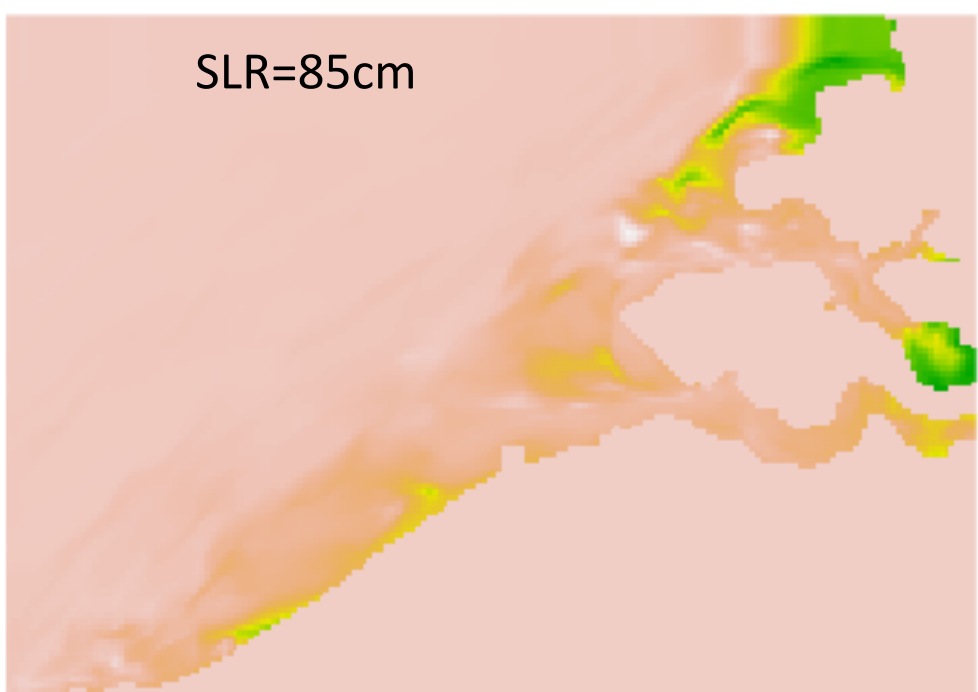
COHERENS hydrodynamical +  
sediment components  
5-day storm: 14-18 December 2070  
3 fractions of sand: 50, 150, 300  $\mu\text{m}$

Relative changes in bottom total mass concentration due to SLR      Relative changes in bottom total mass concentration due to SLR

## Conclusions

- Tidal currents:
- Changes in low and high tides vary linearly with the magnitude of SLR
  - High tides are higher and low tides are lower in a context of SLR

- Sediment concentration:
- Main driver of changes is the tidal component of the current
  - At Ostend, at the surface, the changes in mass concentration follow the changes in water elevations; at the bottom, it takes longer for sediments to reach the maximum concentration
  - On the BCZ domain, changes in sediment concentration vary from 6% with a SLR of 85cm to 15% for a SLR of 295cm, both at the surface and at the bottom



Relative changes in surface total mass concentration due to SLR      Relative changes in surface total mass concentration due to SLR

