



## Confidence and sensitivity of sea-level reconstructions

**Svendsen, Peter Limkilde**

*Publication date:*  
2013

*Document Version*  
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

*Citation (APA):*  
Svendsen, P. L. (2013). *Confidence and sensitivity of sea-level reconstructions*. Abstract from WGOMD/SOP 2013 Workshop on Sea Level Rise, Ocean/Ice Shelf Interactions and Ice Sheets, Hobart, Tasmania, Australia.

---

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

# Confidence and sensitivity of sea-level reconstructions

For the last two decades, satellite altimetry has provided a near-global view of spatial and temporal patterns in sea surface height (SSH). When combined with records from tide gauges, a historical reconstruction of sea level can be obtained; while tide gauge records span up to 200 years back, their combined quality for reconstruction purposes is limited by the sparsity of their geographical distribution and other factors.

We examine both a traditional EOF analysis of sea surface height, and another method known as minimum/maximum autocorrelation factors (MAF), which takes into account the spatial nature of the data fields. We examine the sensitivity of a reconstruction with respect to the length of calibration time series, and the spatial distribution of tide gauges or other proxy data. In addition, we consider the effect of isolating certain physical phenomena (e.g. ENSO) and annual signals and modelling these outside the reconstruction.

The implementation is currently based on data from compound satellite datasets (i.e., two decades of altimetry), and the Simple Ocean Data Assimilation (SODA) model, an existing reconstruction, where a calibration period can be easily extracted and our model's basic performance can be relatively easily assessed. This means that we will consider only the last 50–60 years of sea level data.

This is a preliminary analysis to pave the way for an improved reconstruction in the Arctic area, a major focus of my PhD project.