



An updated 26-year (1991-2017) sea level record from the Arctic Ocean

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In recent years, there has been a large focus of the Arctic due the rapid changes of the region. The sea level of the Arctic Ocean is an important climate indicator. The Arctic sea ice is decreasing and has since 1997 experienced a steepening in the decrease. The Arctic sea level determination is challenging due to the seasonal to permanent sea ice cover, the lack of regional coverage of satellites, the satellite instruments ability to measure ice, insufficient geophysical models, residual orbit errors, challenging retracking of satellite altimeter data. We present the DTU/TUM 26-year sea level record based on satellite altimetry data in the Arctic Ocean from the ERS1 (1991) to CryoSat-2 (present) satellites. The sea level record is compared with several tide gauges and other available partial sea level records contributing to the ESA CCI Sea level initiative. We use updated geophysical corrections and a combination of altimeter data: REAPER (ERS1), ALES+ retracker (ERS2, Envisat), combined Rads and DTUs in-house retracker LARS (CryoSat-2). The ALES+ is an upgraded version of the Adaptive Leading Edge Subwaveform Retracker that has been developed to improve data quality and quantity in the coastal ocean, without degrading the results in the open ocean. ALES+ aims at retracking peaky waveforms typical of lead reflections without modifying the fitting model used in the open ocean.