

Observations and modeling of the diurnal SST cycle in the North and Baltic Seas - DTU Orbit (09/11/2017)

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This paper discusses the evaluation of three parameterizations for the diurnal variability of sea surface temperature (SST) during one year, from February 2009 to January 2010 (inclusive), using high resolution, regional atmospheric model outputs as input fields. Comparison of the spatial extent of diurnal warming in the Northern European Seas from the Spinning Enhanced Visible Infrared Imager (SEVIRI) and the models indicates the ability of the models to reproduce the general patterns seen from the observations. Mean absolute biases between the SEVIRI observed peak warming and the modeled results do not exceed 0.25 K, with a maximum standard deviation of 0.76 and a 0.45 correlation. When random noise is added to the models, their ability to reproduce the statistical properties of the SEVIRI observations improves. The correlation between the observed and modeled anomalies and different parameters highlights the importance of wind as a driving field. A positive correlation is found between hourly SEVIRI anomalies and the daily mean diffuse attenuation coefficient $K_d(490)$.

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