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## Seasonal mean pressure reconstruction for the North Atlantic (1750–1850) based on early marine data

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**Abstract.** Measurements of wind strength and direction abstracted from European ships' logbooks during the recently finished CLIWOC project have been used to produce the first gridded Sea Level Pressure (SLP) reconstruction for the 1750–1850 period over the North Atlantic based solely on marine data. The reconstruction is based on a spatial regression analysis calibrated by using data taken from the ICOADS database. An objective methodology has been developed to select the optimal calibration period and spatial domain of the reconstruction by testing several thousands of possible models. The finally selected area, limited by the performance of the regression equations and by the availability of data, covers the region between 28° N and 52° N close to the European coast and between 28° N and 44° N in the open Ocean. The results provide a direct measure of the strength and extension of the Azores High during the 101 years of the study period. The comparison with the recent land-based SLP reconstruction by Luterbacher et al. (2002) indicates the presence of a common signal. The interannual variability of the CLIWOC reconstructions is rather high due to the current scarcity of abstracted wind data in the areas with best response in the regression. Guidelines are proposed to optimize the efficiency of future abstraction work.

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