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## A global stratification product of the thermocline based on Argo observations

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Enhanced ocean stratification is projected as a result of a warming climate. Changes of upper-ocean stratification can have a potential impact on physical as well as biogeochemical and ecological processes, such as ocean circulation and redistribution of heat and salt, ocean ventilation and air-sea interactions and in addition, nutrient fluxes, primary productivity and fisheries. However, in what terms these processes might be affected still remains uncertain. This investigation particularly addresses variations of the vertical stratification maximum which is found at the depth of the thermocline/pycnocline. The analysis separates between summer and winter stratification. Trends of the vertical stratification maximum are computed for both seasons, respectively. Our intention is to show regional differences in the trends as well as to identify whether the corresponding seasonal cycle is changing. The aim of this study is further to produce a world-wide product of the stratification maximum based on Argo observations from 2006-2021. The goal is to create an algorithm that takes the uneven vertical resolution of Argo profiles into account. In order to verify our product, we compare the results of the Argo data to other CTD measurements as obtained from research vessels and buoys. With this we receive a quality-controlled global product which allows us to make a statement about the global variability of the stratification in the thermocline. Understanding the changes of the vertical stratification maximum will help to identify their impact on ocean ventilation and nutrient supply to the euphotic zone.