



## **Towards modelling the impact of ocean acidification on aragonite production.**

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Ocean acidification due to the uptake of anthropogenic CO<sub>2</sub> reduces carbonate ion concentrations, resulting in a shoaling of the aragonite saturation horizon. With the standard “business-as-usual” scenario, it has been shown that surface water in the Southern Ocean will become undersaturated with respect to aragonite by the end of this century. This is likely to have a negative effect on organisms such as pteropods, zooplankton which secrete aragonite to form their shells. Changes in pteropod abundance could in turn affect the entire food chain up through higher trophic levels. Thus, there is a need to develop a quantitative understanding of how the future reduction in carbonate ion concentrations will impact pelagic ecosystems. We address this question by means of sensitivity studies using the ocean biogeochemical-ecosystem model PISCES that is coupled to the OPA/ORCA2 global-scale ocean general circulation model. In its standard version, the PISCES model distinguishes two phytoplankton and two zooplankton size classes. For this study, we included aragonite as an additional tracer. The production of aragonite by pteropods is described by the distribution of their size class (mesozooplankton) as a function of saturation state and temperature. Here we present the first results for preindustrial aragonite production.