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Aluminium in an ocean GCM: sources and sinks

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A model of aluminium has been developed and implemented in an Ocean General Circulation Model (NEMO-PISCES). In the model, aluminium enters the ocean by means of dust deposition as well as from sediments by sediment remobilisation. The internal oceanic processes are described by advection, mixing and reversible scavenging. The model has been evaluated against a number of selected high-quality datasets covering much of the world ocean, especially those from the West Atlantic Geotraces cruises of 2010 and 2011. Generally, the model results are in fair agreement with the observations. Comparison with observations shows that some processes might be missing in the model, among which the biological incorporation of aluminium into diatoms.