

Winter and spring trace metals at the Antarctic marginal sea ice interfaces

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The Antarctic marginal sea ice zone is key for global climate. The formation of winter sea ice is thought to function as storage for trace metals (TM). Freed during spring and summer, stored TM may lead to higher primary productivity. **How do TM get into the seasonal ice and what role do they play in the ecosystem?** To try answers these questions we present TM data collected during 3 cruises to the Southern Ocean including austral winter and early spring seasons. To our knowledge these are the first sea ice data¹ for the Atlantic sector of the Southern Ocean and the first data at ice covered latitudes of ca 57° to 59° S. We present **(1)** dry* and wet* (to be analysed) atmospheric deposition TM **(2)** TM in snow above the sea ice **(3)** TM in ice cores **(4)** TM in water column (0-500m) and **(5)** chl a and pigment composition in ice cores and water column. First results show that **(1)** TM in ice cores show higher levels than in the interfaces above (snow) and below (water column) **(2)** that TM data in ice cores confirm higher levels in top and bottom layers and lower levels in middle layer which correlate positively with meltwater salinity and chl a **(3)** the presence of degradation pigments within the ice. Combination of all this data will try to relate TM in sea ice with deposition and release mechanisms as well as the role played in the ecosystem.

¹ Lannuzel D. et al. (2016)

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