



Sea level trends in the Southern Ocean over the last century from historical data

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It is well known that the spatial distribution of sea level measurements throughout the Southern Ocean is sparse and mostly consists of datasets with short records. The PSMSL (Permanent Service for Mean Sea Level) has only a few sea level time series below 45° South and most of them are shorter than twenty years. The lack of observations constrains the ability to determine or reconstruct global estimates of mean sea level change over the past century. For this reason, any available historical information becomes invaluable for deriving long-term estimates of sea level change in this part of the world. The aim of this presentation is to describe the way we have recovered and analysed the available historic sea level observations made in few sites of the Southern Ocean and to propose new reliable long term sea level trend estimates in this region. The first site is Saint-Paul, a small island of the Southern Indian Ocean where historical measurements were done in 1874 and connected to the permanent GLOSS tide gauge. The two other historical observations were recorded by the Australasian Antarctic Expedition lead by Sir Douglas Mawson in 1912 at Maquarie Island and Cap Denison (Antarctica). The last site concerned by this presentation is the Dumont d'Urville (Antarctica) where historical information from the beginning of the 1950's were found and analysed.