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Data Handling of a Perennial Acoustic Observatory in the
Antarctic Ocean

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In December 2005, 4 broadband hydrophones were deployed through boreholes under the 100m thick floating ice shelf near Atka Bay, Antarctica. Since then, more than 10.000 hours of underwater sounds have been recorded, containing marine mammal vocalizations and the unique background sounds generated by ice and the occasional ship. These records from this pristine region are analyzed in terms of the local noise budget, the behaviour of marine mammals and anthropogenic impacts. The observatory is energetically self-sufficient and connected by a 15km WLAN link to the year-round manned German Neumayer Base, where a leased satellite line allows live streaming of highly compressed audio to <http://icecast.awi.de>. While the recording device is capable of four channels / 192kHz / 24Bit, this cannot be transferred continuously through the WLAN and satellite link, so a multi-stage automatic buffering and selection scheme is implemented to allow for both, continuous coverage and high quality recordings of selected events. About two terabytes per year are automatically streamed into the petabyte data storage of the World Data Centre for Marine Environmental Data, hosted by AWI, where they are analysed and prepared for publishing under an open access license.