



## **The bivalve *Glycymeris longior* as an environmental archive for the Mar Argentino, southern South Atlantic**

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Southern Hemisphere lacks of suitable high-resolution long datasets for the marine environment. This is translated in poor understanding of climate dynamics and processes at regional and continental-scale. We assessed the potential of *Glycymeris longior* as an environmental indicator for the mid-latitudes of South Atlantic by applying sclerochronological techniques on sample sets collected from San Matías Gulf, Mar Argentino, southern South Atlantic.

We present a reconstruction of marine environmental variability of SMG for the period 1890-2016, covering 125 years. The reconstruction is based on the growth increment series for the first absolutely-dated annually-resolved multi-decadal *G. longior* bivalve on Sothern Atlantic. Shells were collected in 1918, 1933, 1945, 1983, 1989, 2009, 2011, 2015 and 2016. Sample depth varies between collection years. Age of the individuals was estimated from the hinge region of the shell.

*G. longior* forms an annual narrow growth line. Maximal longevity was 40 years old. A strong common environmental signal is apparent in the increment widths. Correlations between the growth increment indices and regional temperature series (sea surface temperatures, continental temperatures) and other proxies were made. Preliminary results indicate that *G. longior* sclerochronologies, combined with low-frequency proxies can facilitate reconstructions of oceanographic variability. We discuss multi-decadal climate variability.

Given the ability to generate annually-resolved chronologies *G. longior* is likely to be used as a climate recorder in southern South America. Hence, *G. longior* shells from Pleistocene marine deposits from Patagonia, Argentina, have a considerable potential to contain information of past climate for mid-latitudes of South Atlantic.