

Progress in the sclerochronological approach on molluscan species from Peru and Chile for climate variability reconstruction

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In the last few years, sclerochronological studies on molluscan shells were strongly developed in several countries and in different kinds of marine and nearshore environments. CENSOR members actively participated in this innovative and promising line of research, and focused their efforts upon the identification and characterization of the effects of environmental parameters such as water temperature variability on the growth structures of shells of different coastal species (from both gastropods and bivalves) of northern Chile and Peru. They are particularly interested in the detection of the impacts of thermal anomalies, like those produced during ENSO conditions, on the shell growth characteristics in a series of molluscan resources of economical interest (such as *Argopecten purpuratus*, *Concholepas concholepas*, *Protothaca thaca*, *Trachycardium procerum*, *Eurhomalea rufa*). The studies are based on microscopic analyses of daily growth increment thickness of shells and sometimes could benefit from a monitoring of thermal variations of the water at a sub-hourly frequency and of staining experiments which provided precise time markers within the shells. Moreover high-resolution geochemical analyses of the biogenic carbonate formed at a daily scale yielded useful indications on the impacts of environmental factors. Even in the absence of clear-cut ENSO conditions within the last few years, these studies allowed us to analyze the impact of seasonal or sub-seasonal SST anomalies on different species and at distinct latitudes. The study also provided a solid database for the understanding of shell growth variability which will be confronted to on-going studies on the life cycle of these key species.

Key words: sclerochronology, mollusc shells, ENSO, climate variability, SST, Peru, Chile.

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