

Interactive comment on “Identification of the accretion rate for annually resolved archives” by F. De Ridder et al.

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I study coral skeleton proxies (stable isotopes and trace elements) to reconstruct climatic and oceanographic parameters during the past, so I am a potential user of this method. The goal of this manuscript is to improve data series by adding information on accretion rate of the studied material.

It seems to me that in this case, the periodicity would be restricted to periodicities lower than 1 year. Indeed, for several decades, biologists (Knutson et al, 1972) pointed out this annual periodicity and assumed that the coral growth rate likely varies according to season. Once the annual growth is recognized, the seasonality of the proxy is identified and the chronology is improved. In the second step of the study, the interpretation of the record implies to highlight highest periodicities. Before supposing that the data series present unknown periodic signals we have to estimate them by using

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spectral analysis (for a review see Ghil et al, 2002). Finally this periodic variability will be attributed to a climatic or/and oceanic mechanism. This approach is also used for other organisms.

However, it does not alter the interest of MDL and TBD parameters because we need the understanding of the proxy seasonality and its changes in past time. First, the studies derived from coral are more and more based on multi-proxies, each of them having its specific periodicity comparable with measured environmental parameters. Second, we have also to be able to recognize possible modifications of this seasonality. Such knowledge is of prime importance because more and more we realize that a proxy is not only a tracer of a single factor. M. Ghil, M. R. Allen, M. D. Dettinger, K. Ide, D. Kondrashov, M. E. Mann, A. W. Robertson, A. Saunders, Y. Tian, F. Varadi, and P. Yiou, advanced spectral methods fro climatic time series, *Reviews of Geophysics*, 40,1003, doi:10.1029/2000RG000092 Knutson, D. W., R. W. Buddemeier and S. V. Smith (1972). "coral chronometers: seasonal growth band in reef corals." *Science* 177: 270-272.

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