# Reproductive Behaviour of Benthic Foraminifera: a Key to Reconstruct the Late Quaternary Climatic Changes from the Indian Ocean

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Amongst many microfossils, foraminifera appeared very early in geological time scale and acquired an important position due to their applicability in solving various ocean related problems. It is well known that the shape, size and proloculus diameter of foraminiferal tests belonging to the same species are different and broadly separated into two types. This dimorphism is related to variations in reproductive behaviour and the two forms are known as microspheric and megalospheric. Many species show alternate generations. As a rule, the number of microspheric forms (formed through sexual reproduction) is considerably less than the number of megalospheric (formed through asexual reproduction) forms. However, under extreme conditions, microspeheric forms can overtake the megalospheric ones. These unfavourable conditions seem to depict fluctuations in climates. The ratios of dimorphic forms were estimated for *Bolivina skagerakensis* in the North Sea sediments and compared with other paleoclimatic parameters like oxygen isotopes fluctuations. The results showed that dimorphic forms can be used as an additional tool for the paleoclimatic reconstructions. This approach was later modified in subsequent publications from the Arabian Sea, which exhibited that mean proloculus size [a numerical parameter showing dimorphism] of benthic foraminifera can be also be used as additional tool in paleomonssonal studies. By exploiting this new approach of using dimorphic ratios/mean proloculus size for high resolution paleomonsoonal reconstructions, number of climatic cycles were deciphered from the marine sediments of the marginal seas of the Indian Ocean particularly Arabian Sea and Bay of Bengal. These includes climatic cycles of 200±50 years (Suess cycles), 80±10 (Glessberg cycles) and 22±3 years (double sun spot cycles). Invariably, all these cycles can be correlated to variations in solar out put that controls the climate.