



## **Variability in Last occurrences of *Nuttalides truempyi*- a new insight to understand the opening of Drake Passage**

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*Nuttalides truempyi* is a dominant, warm water benthic foraminifer of Eocene. Its opportunistic behavior and tendency to migrate at different depths in search of suitable habitat can be closely correlated with climatic or tectonic induced variability in deep ocean. The opening of tectonic gateways (Tasmanian/ Drake Passages) during Eocene is the main reason for the change in bottom water circulation and global climates. Following the opening of these gateways, the established Antarctic Circumpolar Current (ACC) regulated the exchange of heat flow between ocean and atmosphere thereby influencing the global ocean circulation and biological productivity. This study compiles the results of last occurrences of *N. truempyi* at different ODP/DSDP sites (at different paleodepths) of global Ocean, including the new data of Central Kerguelen Plateau Site 1138A in Southern Ocean to correlate the timing of Drake Passage (DP) opening. Our results indicate that the last occurrences of *N. truempyi* vary with the opening of DP, followed by the cooling of water column in response to gradual deepening of ACC. Last extinction of this species from the global ocean in response to the initiation of Antarctic glaciations and evolution of cold oxygenated nutrient rich Southern Component Water (SCW) occurred after/during ~ 38-37 Ma through the replacement of Warm Saline Deep Water (WSDW).

Keywords: *Nuttalides truempyi*, Drake Passage, Southern Ocean, Global Ocean, Kerguelen Plateau, ODP site 1138A.