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Global morphological variation in Recent *Globorotalia menardii* and *Globorotalia tumida*

0.1 K. Brown

Naturhistorisches Museum Basel, Augustingergasse 2, CH-4001 Basel,

Kevin-R.Brown@unibas.ch

Globorotalia menardii and *G.tumida* are prominent Neogene sub-tropical to tropical planktonic foraminiferal species. They share a distinctive lenticular keeled morphology however *G.tumida* shows greater spiral height and heavier secondary crusting. *G.menardii* shows a range of morphtypes, from more robust, heavily keeled types (*G.menardii menardii*) to the more delicately walled finer keeled forms (*G.menardii cultrata*). This work attempts to geographically map out the various Recent morphotypes, identify end members and determine if this morphological variation can be linked to environmental conditions, and or geographical areas.

Results for the *G.menardii* plexus show, that the Caribbean Sea / Gulf of Mexico and Atlantic Ocean are dominated by a single morphotype, which is similar to *G.menardii cultrata* and showing a trend towards flatter, disc like shells. Greater variation is seen in the Indian Ocean with forms most similar to *G.menardii menardii* and *G. menardii gibberula.* The greatest morphological variation occurs in the Pacific Ocean, although the Pacific specimens do not show the extremes of size seen in the Caribbean samples. A latitudinal variation in the spiral height of the menardii-form globorotalids is also seen. The highest spired specimens (*G.menardii gibberula*) appear to be restricted to the Southern Indian Ocean and Eastern Pacific.

Results for the *G.tumida* plexus is tightly constraint in test morphology. This indicates, that *G.tumida* could represent either a single global population or cryptic species. *Globorotalia ungulata* identified during this project, shows, apart from secondary encrusting, great morphological similarity to *G.tumida.* Additional evidence from sta-

ble isotope analysis supports the idea, that they are members of the same species. The differences in the secondary encrusting are considered to be ecophenotypic, with *G.ungulata* representing a shallow warm water dwelling juvenile form, and *G.tumida* the deeper dwelling adult form.