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DIFFERING GEOGRAPHIC DISTRIBUTIONS OF CALCIFICATION MORPHOTYPES OF THE COCCOLITHOPHORID *EMILIANIA HUXLEYI* IN THE SOUTHERN OCEAN

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Increasing atmospheric CO_2 is predicted to inhibit calcification in the key ocean plankton *Emiliania huxleyi,* with far reaching impacts notably in the Southern Ocean. We screened by scanning electron microscopy for subtle morphological variations in *Ehux* in Southern Ocean surface samples collected by l'Astrolabe from 43 to 64°S during Oct/Feb 2002/3, 2003/4, 2004/5. The results were compared with historic data from a similar transect occupied in Dec/Jan 1983/4 and Jan-Feb 1994, 1995. While *Ehux* was virtually absent south of 60°S in 1983/4 and 1994/5, this taxon was consistently present in that region in 2002-5. The "overcalcified" morphotype A mainly occurs north of 48°S, being replaced by the dominant Southern Ocean "cold water" morphotype B/C from 48-63°S. The more typical "warm-water" morphotype A exhibited a partially overlapping distribution from 44 to 55°S, but stretched South to 62°S in 2004/5. A number of dissolution morphotypes were also encountered. We seek to resolve the ecological significance of *Ehux* calcification morphotypes in the Southern Ocean by characterizing cultured strains morphologically, genetically (RAPD,AFLP) and physiologically. This works aims to improve the confidence of our predictions of impact of climate change and ocean acidification on this keystone global ocean taxon.