

Workshop on Seasonal Cycle of the Carbon Climate System in the Southern Ocean, Cape Town, South Africa, 23–25 August 2010

Role of the seasonal cycle in coupling climate and carbon cycling in subantarctic zone

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Abstract

There is increasing evidence in the Southern Ocean that mesoscales and seasonal scales play an important role in the coupling of ocean carbon cycling and climate. The seasonal cycle is one of the strongest modes of variability in different components of the carbon cycle in the Southern Ocean. It is also the mode that couples climate forcing to ecosystem responses such as productivity and ultimately biogeochemical signals including carbon export. With this as an overarching theme, a workshop in South Africa brought together scientists working in the Southern Ocean, the waters south of Australia, New Zealand, and South Africa. The importance of the Subantarctic Zone (SAZ) as a carbon sink made it an ideal system on which to focus the workshop. The workshop was convened with the following hypothesis: Climate change forcing will be reflected in changes to the magnitude, phasing, and persistence of the seasonal cycle in mixed-layer physics and biogeochemistry and, in particular, the carbon cycle.