



Objective monitoring of the Southern Ocean Subtropical Front from Space

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The northern boundary of the Southern Ocean is commonly defined as the Subtropical Front, the hydrographic boundary between warm, saline subtropical gyre waters and cooler, fresher subantarctic waters. The Subtropical Front is characterised by enhanced meridional temperature and salinity gradients, and is associated with an eastward geostrophic current band located at or just north of the surface expression of the front. As the adjacent water masses are modified by across frontal mixing and non-frontal processes, seasonal and interannual variability of the front's position and strength may be observed.

In this paper we discuss a new method which objectively determines the position and strength of thermal ocean fronts. A weighted local estimation technique in which estimates of frontal parameters (position, width and strength) are based upon weighted contributions from surrounding points is described. We apply this new method to the Subtropical Front using remotely sensed sea surface temperature data. We discuss the interannual variation in the properties of the front over the period 2000-2005 and relate such variability to large scale climate indices.