



## **Climatic variability of the Antarctic Circumpolar Current position and its intensity based on remote sensing data**

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The Antarctic Circumpolar Current (ACC) develops to area of convergences and divergences of the Southern Ocean, which is confined of Subantarctic Front (SAF) and Polar Front (PF). Position of the SAF and PF were constructed from international GODAE (Global Ocean Data Assimilation Project) High Resolution sea surface temperature (SST) Pilot Project gradients based on satellite SST data. According to the SAF and PF average annual position the ACC northern and southern borders was determined as 60 and 100 cm isolines in Rio and Hernandez (2003) combined mean dynamic topography (MDT), which calculated by by in situ, drifter and satellite altimetric measurements relative to 1500 dbar. The ACC axis was defined as location of geostrophic surface speed maximum along meridian between stated isolines on the synoptic dynamic topography, which are constructed by superposition of sea level anomaly altimetry data with corresponding MDT. Value of surface speed on the ACC axis was determined as intensity of this current. Along ACC axis seven local maximum of geostrophic surface speeds (more 20 cm/s) are observed. The ACC axis position changes near latitude 50°S in the Atlantic and the Indian Oceans, and between latitude 55–60°S in the Pacific Ocean. Thus average geostrophic surface speed along the ACC axis makes 16 cm/s, and it changes from 10 to 15 cm/s on ACC borders (SAF and PF). In spectral density seasonal variation of the ACC axis and intensity are looking good independently of longitude. However interannual changes are various for different part of the Southern Ocean. For example they are insignificant in Drake Passage, but near Kerguelen Plateau position of the ACC axis dislocates to south with rate about 0.02 deg/yr or 1.8 km/yr, while the ACC intensity isn't change almost.

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