

Southwestern Atlantic Surface Features as Observed from AVHRR Images During Project COROAS (1992 to 1994)

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Starting in September 1992, daily AVHRR images of the Southwestern Atlantic have been recorded by INPE for the COROAS project. Atmospheric corrections were applied through the MCSST NOAA equations to generate the SST maps for the area. The satellite data has been used in the COROAS project for three different reasons: first, when cloud conditions were favorable, satellite data were processed in quasi-real time to provide sea surface temperature (SST) to orient the hydrographic cruises; secondly, the SST maps have been utilized to help the interpretation of field data due to the synoptic view provided by the images; and finally, the images have been used to analyse new phenomena present in the region and which were difficult to be observed by the field data. As examples of this third case of image applications are the wintertime northward penetration of a tongue of cold water over the shelf starting in the Brazil-Malvinas confluence region; the presence of a very large (150 - 200 km) semi-permanent cyclonic eddy present in the Cape Santa Marta (28.5 S, 48.6 W), the very large eddy field associated with frontal instabilities present in the inshore wall of the Brazil Current in the SW/S Brazilian coastline and the interaction of the wind driven Cabo Frio coastal upwelling with the outer shelf and Brazil Current inshore frontal circulations. Preliminary analysis indicate that the frontal instabilities present south of Cabo Frio could be triggered by the abrupt change in coastline and shelf break orientation which then could be enhanced by the cross-stream variation of bottom topography of the continental slope in the presence of a shear flow as postulated by Bidlot and Stern (1994).