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Energy Balance at the Air-Sea Interface of the Tropical Atlantic Ocean

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The main goal of this work is to characterize the radiometric parameters of the atmosphere and of the ocean in the Saint Peter and Saint Paul Archipelago (SPSPA) region, located in the tropical Atlantic Ocean. The SPSPA is formed by a group of small uninhabited rocky islands, which are devoid of any kind of vegetation, and it is located about 1.010 km from the Brazilian coast, in a prime position for the development of meteorological and oceanographic researches. This work is connected to the FluTuA project (Turbulent Fluxes over Atlantic), that uses a ten meter micrometeorological tower installed at the SPSPA, to investigate the ocean-atmosphere interaction through the observation of meteorological parameters in the Tropical Atlantic ocean. Initially, this work used internet available data measured in situ from the PIRATA (Pilot Research Moored Array in the Tropical Atlantic) oceanographic buoys and data of programs of research that estimate variables using different algorithms (reanalysis data). Through the temporal evolution of the shortwave radiation incident at the top of atmosphere and on the air sea interface it was possible to verify the occurrence of clear-sky days during the available period. To obtain the energy balance over the region it was carried out a characterization of the sensible and latent heat turbulent fluxes in the ocean-atmosphere interface, as well as the characterization of the radiation balance components (shortwave and longwave). Yet, this work investigated the diurnal and annual evolution of the atmospheric and surface radiometric properties (transmissivity and albedo, respectively).

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