**The Brazilian Coastal Monitoring System (SiMCosta) for Climate Studies**

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The SiMCosta aims to improve the Brazilian coastal observing systems, by using advanced and integrated methodologies, which can obtain, analyze and distribute permanent and continuous temporal series of high-quality essential climate variables (ECVs) collected in several points along the coast. The SiMCosta seeks to detect long-term trends, improve the capability of predicting the effects of climatic variability and climate changes and contribute with other national efforts of early warning systems for extreme events. The SiMCosta has been implemented by phases. In its first phase, 12 tidal gauges and 8 meteo-oceanographic buoys are being installed along the Brazilian coastline.

The SiMCosta buoys provide on-line data of the following atmospheric and oceanic ECVs: air temperature, wind speed and direction, air humidity, precipitation rate, atmospheric pressure, surface solar irradiance, air CO2 concentration, sea surface temperature, sea surface salinity, sea state (wave height and direction), current profile, chlorophyll and CDOM fluorescence, oxygen concentration, turbidity, pH and nitrate concentration.

The SiMCosta data quality control structure follows the procedures adopted by the Quality Assurance of Time-series of Oceanographic Data - IOOS (Qartod). The tidal gauges measure sea surface level (radar) and the following atmospheric properties: temperature, wind speed and direction, air humidity, atmospheric pressure, precipitation rate and visibility. The sea level measured by the tidal stations will be referred to the high quality geodetic vertical datum maintained by the Brazilian Institute of Geography and Statistics (IBGE).

The project SiMCosta was created in December 2011, attending a specific request from the Ministry of Environment (MMA) and an old need identified by the Brazilian scientific community. The Coastal Zone Network associated with the Brazilian Network for Global Climate Change Studies (Rede CLIMA) and the National Institute of Science and Technology for Climate Changes (INCT for Climate Changes) is responsible for establishing and implementing SiMCosta.