STUDY OF THE EQUATORIAL ATLANTIC OCEANIC MIXING LAYER USING AN ONE-DIMENSIONAL TURBULENCE MODEL

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The oceanic mixing layer (OML) is the upper layer of the ocean, where the density is approximately the same of the surface due to the turbulent mixing caused by the wind, surface breaking waves and seawater instability. Many physical processes (e.g. heat, momentum and gases budget between the ocean and the atmosphere), chemical (e.g. CO_2 dissolution from the atmosphere) and biologic (e.g. phytoplankton blooms) occur in the OML. Therefore, the OML is an important component for climatic, pollution, and biologic studies, among others. Few works investigate the OML over the equatorial Atlantic region, where the air-sea interactions dominate the mechanisms responsible by the sea surface temperature (SST) variability (e.g. Carton and Zhou, 1997).

In this work, a modified version of the General *Ocean Turbulence Model* (*GOTM*) (Burchard et al., 1999) is used to investigate the OML evolution over the equatorial Atlantic region. Data from a PIRATA buoy located at 0° 23°W and the NASA's satellite product, SRB, was used as initial condition and upper boundary condition (Table 1).

	PIRATA buoy	**SRB-NASA**	**Specification on the model**
Meteorological	Air temperature; Sea surface temperature; Relative humidity; Wind components (u and v); Downward shortwave.	Upward shortwave; Downward and upward longwave.	Upper boundary conditions: • Moment and heat turbulent fluxes; • Surface radiation balance.
Oceanographic	Temperature, salinity and current vertical profiles.	_____	Initial conditions and model relaxation.

Table 1: dataset used in the model run at location 0° 23°W.

The model has shown capable to simulate the main features over the region. Fig. 1 shows, for example, the difference between the SST simulated and observed. Despite the model's overestimation for the maximum daytime values, it reproduces well the SST variability with and good accuracy. Thus, it allows a good compromise to this study.

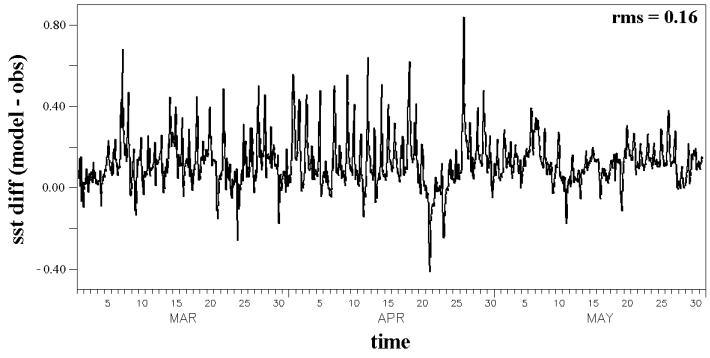

Figure 1: simulated minus observed SST (at 1 m depth) for the ITCZ season.

REFERENCES

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