



Intraseasonal variability of the sea surface temperature in the Tropical Atlantic

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The sea surface temperature (SST) intraseasonal variability (ISV) and its interaction with the local surface wind in the tropical Atlantic Ocean are investigated using atmospheric observations and reanalyses of the 2000-2009 decade. Largest SST ISV centers are located in frontal areas of the three main tropical upwelling systems: the Eastern equatorial upwelling (east of 20°W), and the Senegal-Mauritania and Angola-Namibia coastal upwellings. The equatorial SST ISV is dominated by tropical instability waves (TIWs) west of 10°W, and a quasi-biweekly oscillation (QBO) further east, from May to August. Along the West-African coast, two adjacent regions of strong SST ISV are found north and south of 15°N. The southern one is most active during November-May and is dominated by 30-90 days periodicity, with SST anomalies mainly generated by stronger-than-normal Trade winds and Azores anticyclone. The northern one corresponds to a SST ISV maximal in June-September, and a dominant periodicity between 3 and 15 days, with SST anomalies driven by coastal surface wind modulations coming from African Easterly Waves. Off the Angola-Namibia coast, the SST ISV is also maximal at two locations: around 11°S all over the year, and near 21°S in November-March, with a dominant periodicity between 20 and 90 days in both regions. The SST anomalies are created by a jet of coastal southeasterlies mainly controlled by the large-scale St Helena anticyclone. The equatorial upwelling appears to be the region with the clearest signal of surface wind adjusting to SST anomalies, while it is more modest in the other two regions of coastal upwelling.