

## **Boreal spring equatorial Sea Surface Salinity as a potential predictor of Atlantic Cold Tongue events**

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### **Abstract**

The link between the boreal spring sea surface salinity (SSS) and the May-June-July (MJJ) sea surface temperature (SST) in the equatorial Atlantic Cold Tongue (ACT) region is investigated at interannual time scales from 1990-2012 using observations and model. Results reveal a significant correlation between April-May-June (AMJ) interannual SSS anomalies (SSSA) and the MJJ SST anomalies (SSTA). Most of extreme interannual SSSA appear the years of extreme interannual SSTA in the ACT region. Thus, major salty and desalted ACT events are followed by 1-month major warm and cold ACT events and confirms the idea that boreal spring SSSA could be used as a predictor of ACT events. Based on the model mixed-layer salinity budget and sensitivity experiments, we found that the interannual variability of the SSS is mainly controlled by horizontal advection during salty and desalted ACT events and changes in the horizontal advection are largely due to changes in winds.



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