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## Interhemispheric asymmetries, ITCZ location and interannual tropical Atlantic-Pacific interactions produced by South Atlantic cooling.

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Tropical interbasin teleconnections at inter-annual time scales are receiving much attention in the last years. However, their controlling factors and long-term changes are still under debate. In this work, we investigate whether selected features in the climatology, the position of the ITCZ and strong tropical convection, can influence the teleconnections between the tropical Atlantic and Pacific basins at inter-annual timescales.

For investigation, we contrast a CGCM control simulation with an experiment in which the climatological position of the ITCZ is shifted in latitude by artificially reducing the shortwave radiation incident in a region of the south Atlantic sector. The perturbation magnitude and sign are such that the local model's biases in Atlantic SST are reduced. The experiment shows stronger interannual variability over the tropical Atlantic and Pacific oceans, a westward extension of the Atlantic Niño pattern, and enhanced interannual teleconnections between equatorial Atlantic and Pacific.

We examine the mechanisms at work for these changes. We find several factors as major contributors to enhance the tropical interbasin teleconnections. One is the modified Walker circulation resulting from the westward extension of SST anomalies during the Atlantic Niño and concurrent westward displacement of convection. The other factors are the enhancement of the precipitation at the equator and the shallowing of thermocline in the Pacific, which make the latter basin more sensitive to both local and remote perturbations.

On the contrary, the North Tropical Atlantic – equatorial Pacific teleconnection is weakened in the experiment, despite the strongest impact of the NTA anomalies in the north tropical Pacific winds. due to the opposite effect on divergence exerted by the off equatorial winds related to NTA and the equatorial winds related to the concomitant warming in the eastern and central equatorial Pacific.

