## Influence of the South Atlantic Convergence Zone and South Atlantic Sea Surface Temperature on interannual summer rainfall variability in Southeastern South America

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## ABSTRACT

In subtropical Argentina, Paraguay and southern Brazil, precipitation is most abundant during summer but its interannual variability is large. At this time a zone of low-level convergence, upper-level divergence, and intense convection is developed to the north of this area. This feature is known as the South Atlantic convergence zone (SACZ) and seems to be related to the interannual variability of summer rainfall to its south. The aim of this work is to document this relationship.

Reduced (increased) precipitation in southern Brazil, most of Uruguay and northeastern Argentina is associated with a strong (weak) SACZ and a northward (southward) displacement of it, while increased (reduced) rainfall occurs further south in subtropical Argentina. Also, warm (cold) SST in the region 20°S-40°S and west of 30°W is likely accompanied by a southward (northward) shift of the SACZ. Aside of this relation with the SACZ that affect on the precipitation field of Southeastern South America, the proximate Atlantic Ocean SST seems to force the precipitation over this region by other mechanisms as well. The result of this additional SST forcing is to enhance the signal of the SACZ in northeastern Argentina, Uruguay and southern Brazil and to oppose the SACZ effect in southern subtropical Argentina.