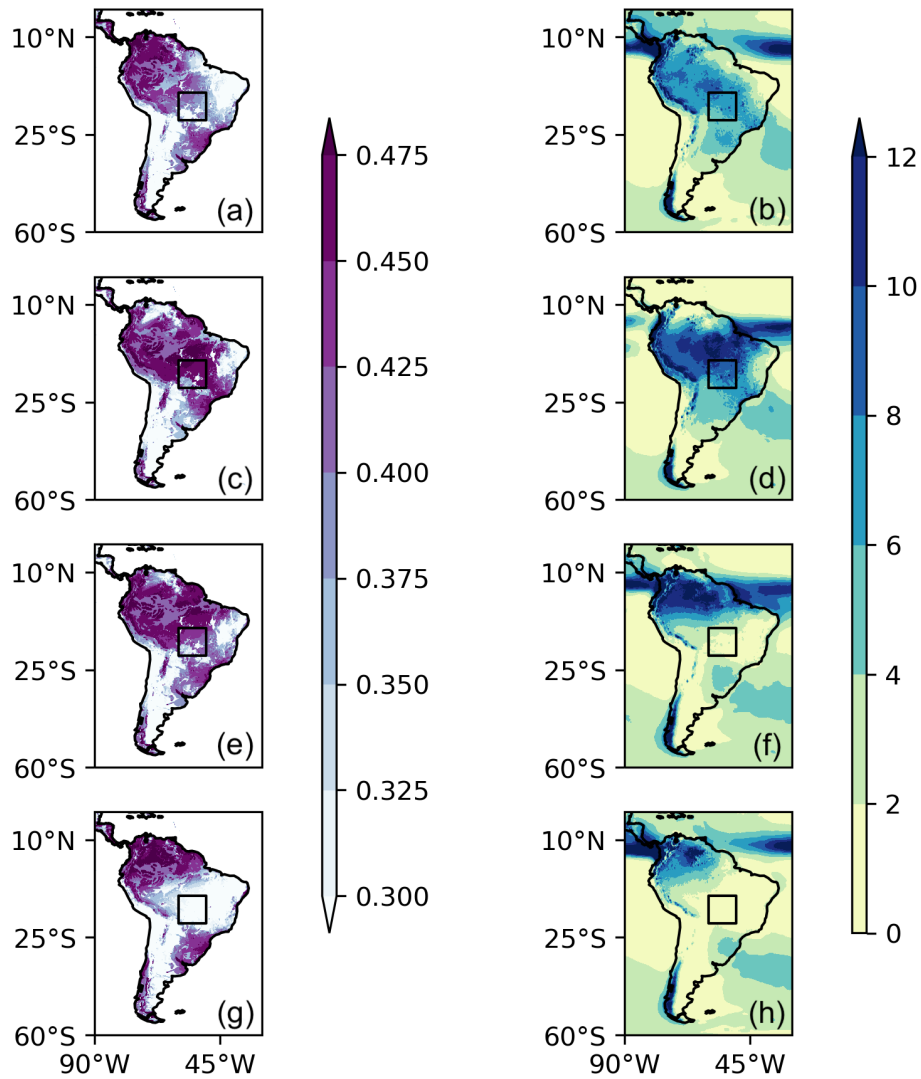
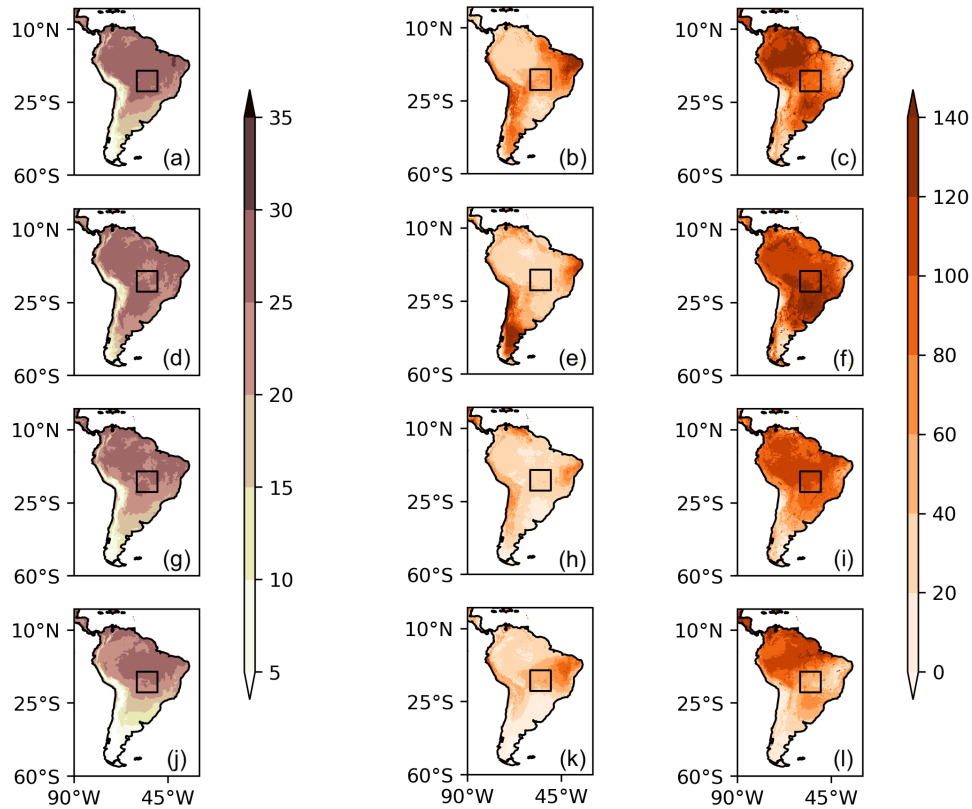


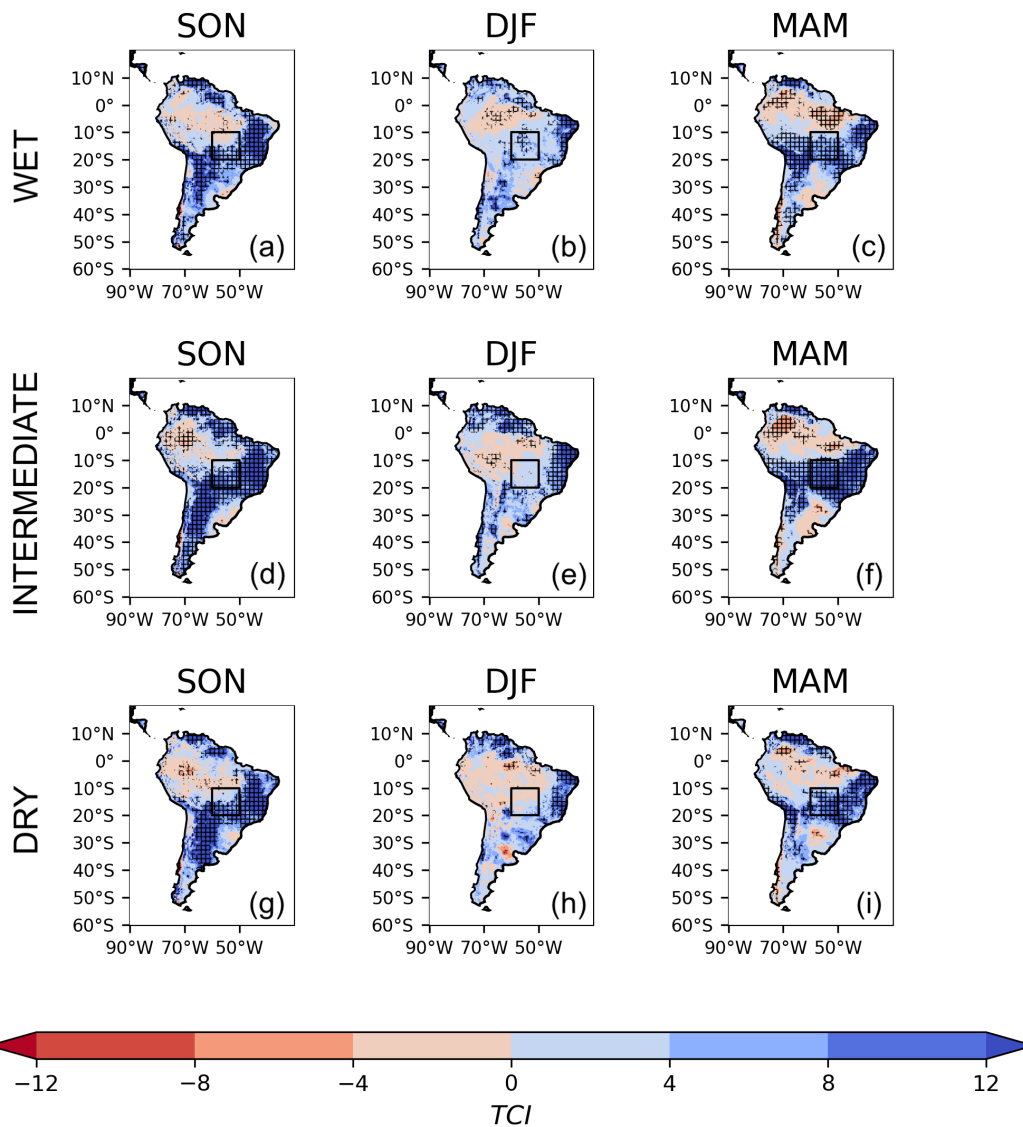
## Supplement File



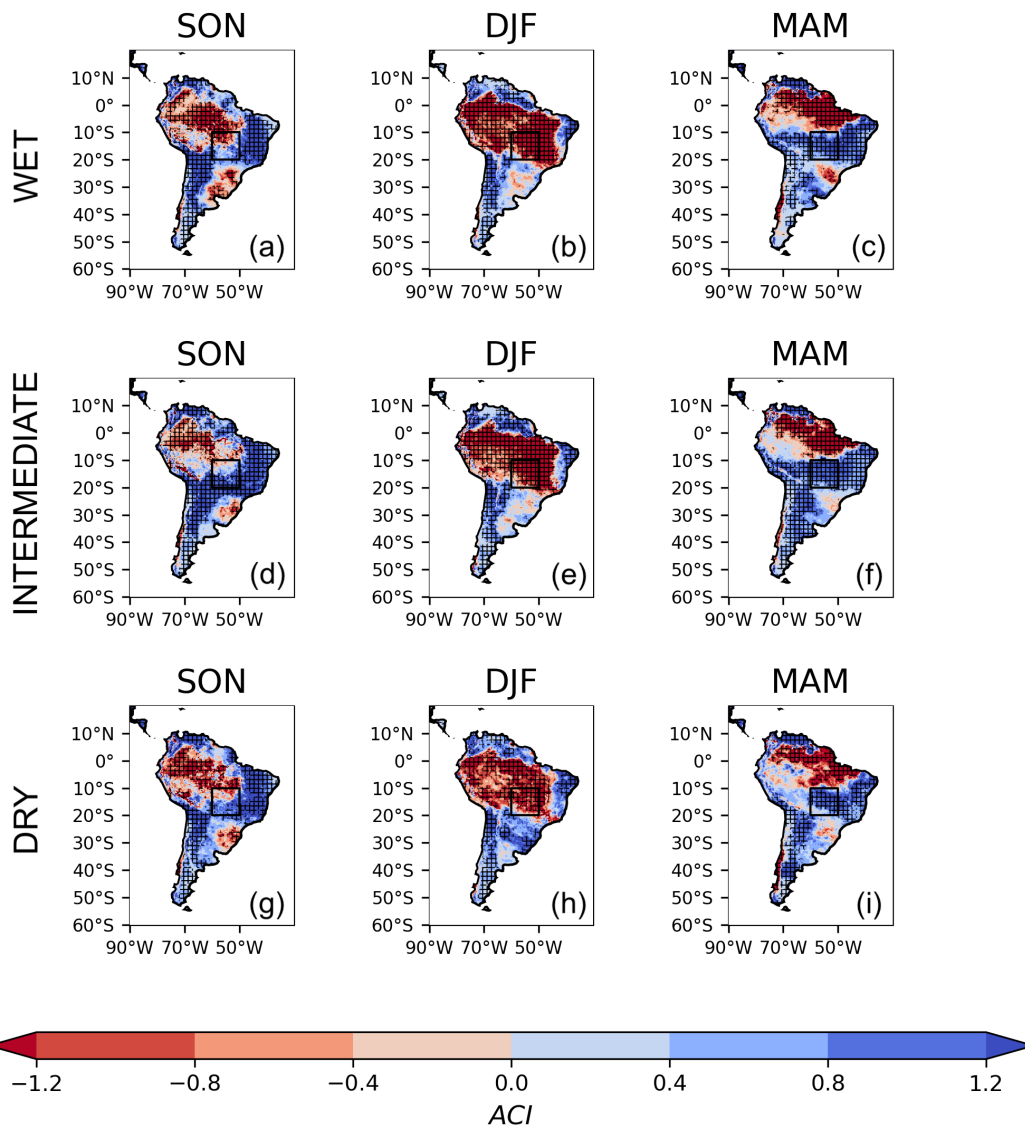
**Figure S1.** Climatology of 1991-2021 for volumetric soil moisture at 0-7 cm (column a-g), in  $\text{m}^3 \cdot \text{m}^{-3}$ , and average daily precipitation (column b-h), in  $\text{mm} \cdot \text{day}^{-1}$ , for the quarters of September-October-November (SON, line a-b), December-January-February (DJF, line c-d), March-April-May (MAM, line e-f) and June-July-August (JJA, g-h)



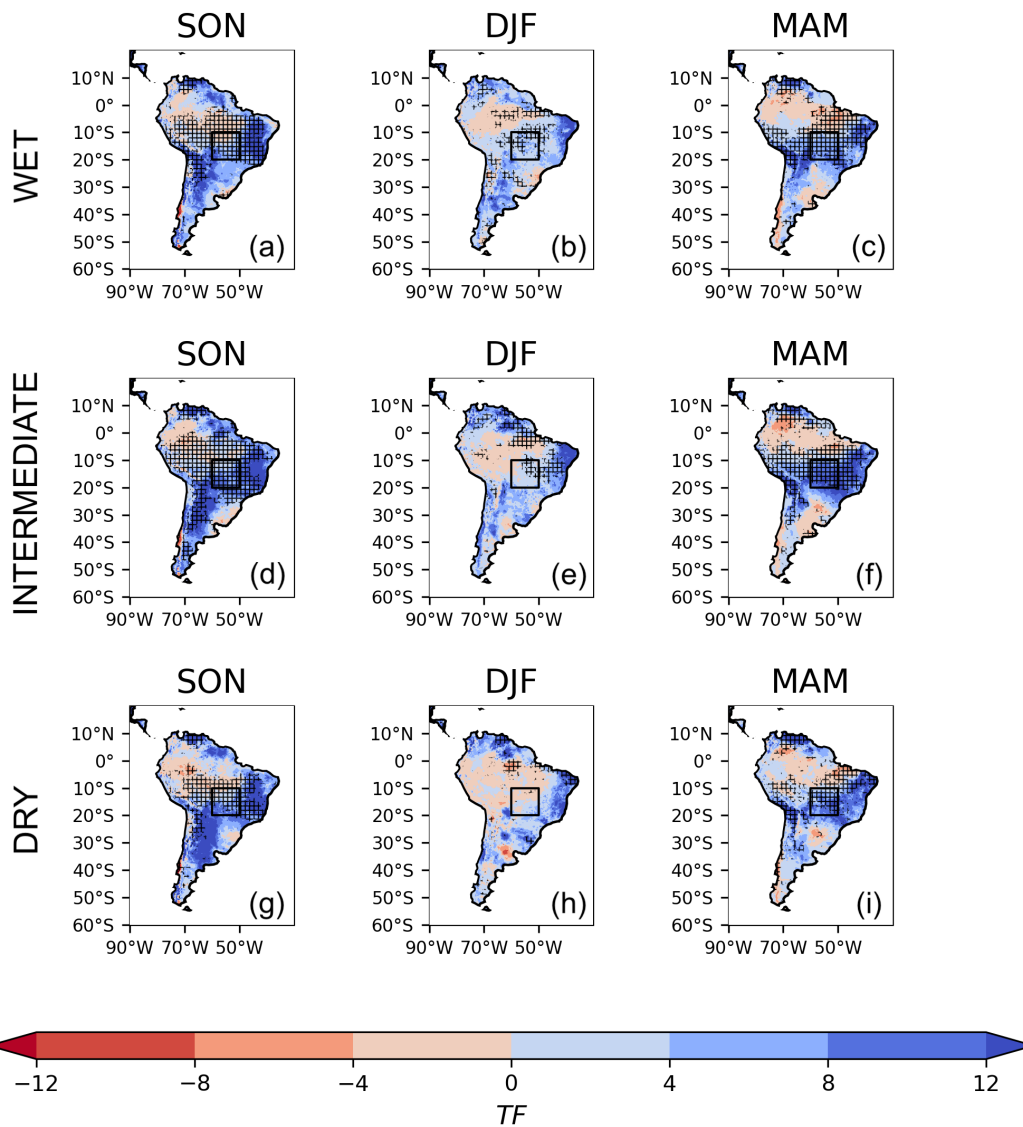
**Figure S2.** Climatology of 1991-2021 for air temperature at 2 meters (column a-j), in °C, and sensible (column b-k) and latent (column c-l) heat fluxes at the surface, in W.m<sup>-2</sup>, for the September-October-November (SON, line a-c), December-January-February (DJF, line d-f), March-April-May (MAM, line g-i) and June-July-August (JJA, j-l) quarters.



**Figure S3.** TCI ( $\text{W}\cdot\text{m}^{-2}$ ) over the development (SON, column a-g), maturity (DJF, column b-h), and weakening (MAM, column c-i) quarters of the SMAS rainy season for three soil moisture conditions; wet (line a-c), intermediate (line d-f), and dry (line g-i). The hatched area shows statistical significance when the p-value was less than 0.05.



**Figure S4.** ACI (mm.day<sup>-1</sup>) over the development (SON, column a-g), maturity (DJF, column b-h), and weakening (MAM, column c-i) quarters of the SMAS rainy season for three soil moisture conditions; wet (line a-c), intermediate (line d-f), and dry (line g-i). The hatched area shows statistical significance when the p-value was less than 0.05.



**Figure S5.** TF (W.m<sup>-2</sup>.mm.day<sup>-1</sup>) over the development (SON, column a-g), maturity (DJF, column b-h), and weakening (MAM, column c-i) quarters of the SMAS rainy season for three soil moisture conditions; wet (line a-c), intermediate (line d-f), and dry (line g-i). The hatched area shows statistical significance when the p-value was less than 0.05.