



DRYING OF EASTERN AMAZON IN A HEAVY-EMISSION SCENARIO: ANALYSIS OF CMIP5 SIMULATIONS AND DOWNSCALING

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CORDEX SIMULATIONS AT UECE: - DOMAINS: CENTRAL AMERICA, SOUTH AMERICA, AFRICA

REGIONAL MODEL: RAMS 6.0

GLOBAL MODEL: HADGEM2-ES









OUR FOCUS: AMAZON

TEMPERATURE PROJECTED CHANGES, RCP8.5, 2079-2099 (REFERENCE PERIOD = 1985-2005)





PRECIPITATION PROJECTED CHANGES, RCP8.5, 2079-2099 (REFERENCE PERIOD = 1985-2005)



PRECIPITATION AND TEMPERATURE PROJECTED CHANGES, RCP8.5



WCRP CORDEX

Latent Heat Flux



Sensible Heat Flux



Downward SW Radiation



850 hPa circulation (div)



Soil Moisture



200 hPa circulation (div)



CHANGES IN SEVERAL FIELDS (SON, RCP8.5, 2079-2099)



Historical







RAMS AND CMIP5 MODELS

Western
AmazonEastern
AmazonIncreased PRLittle changeII+EReduced P7





WCRP CORDEX





IMPORTANT FEEDBACKS INVOLVING SOIL MOISTURE, EVAPORATION AND CONVECTION

Lots of uncertainties:

- Deforestation
- Interannual variability
- Vegetation feedbacks
 - Forest fires
 - > Tree mortality due to droughts, rainfall extreme events
 - Ecosystem interactions, including tree diseases and infestation (including bugs, fungi and other parasites), pollination, etc.
 - Hydrological feedbacks (changes in the inundated area)





WHAT WE ARE TRYING TO ADDRESS AT THIS POINT

Forest Fires

Projected changes in Forest Fire Danger Index (FFDI, which accounts for temperature, relative humidity, daily precipitation and wind speed) and expected number of hotspots – using Hoffmann et al. (2003) equation







FINAL REMARK

Die-back or no die-back?

The answer, my friend, is not in the wind alone, but in the feedbacks...







THANK YOU