Responses to Reviewer # 1 0Supplementary material

GC4

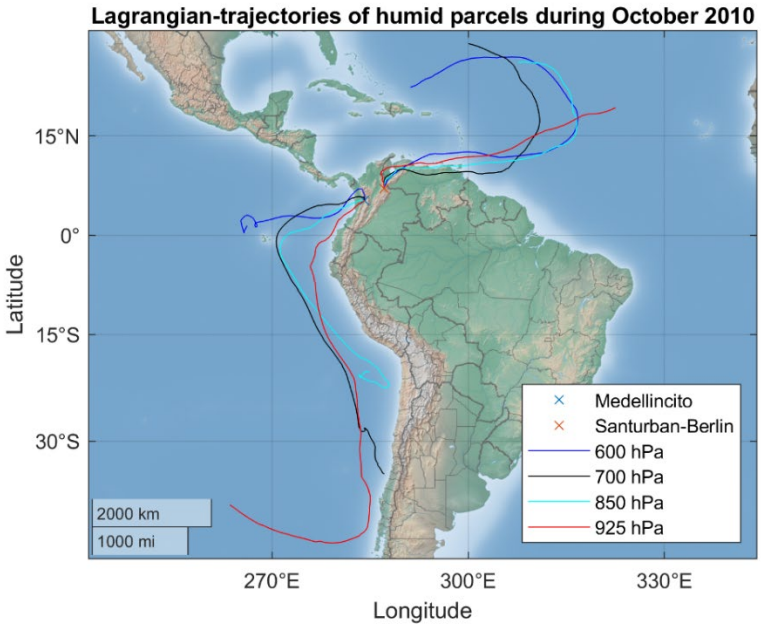
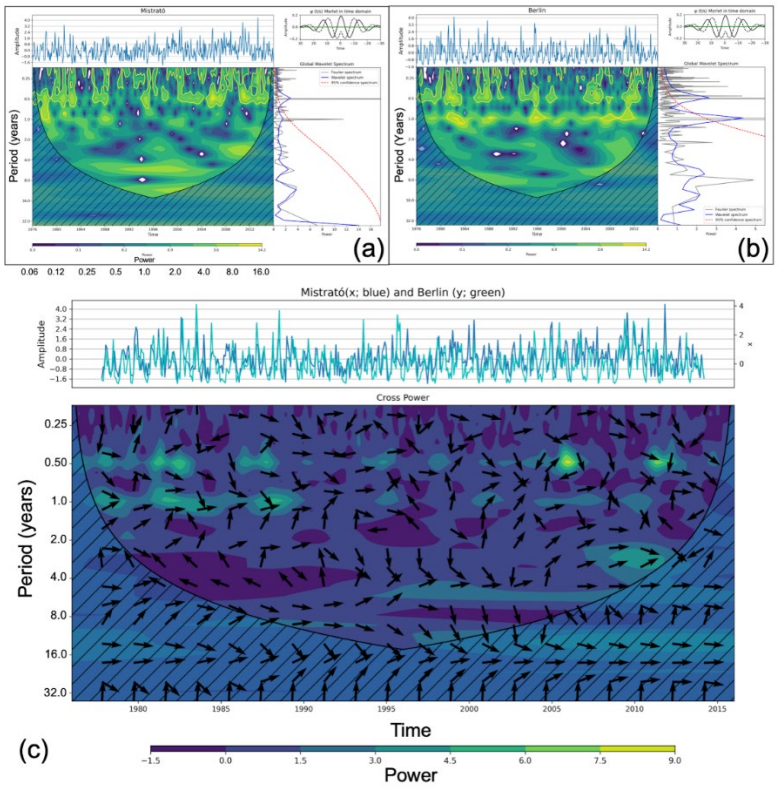
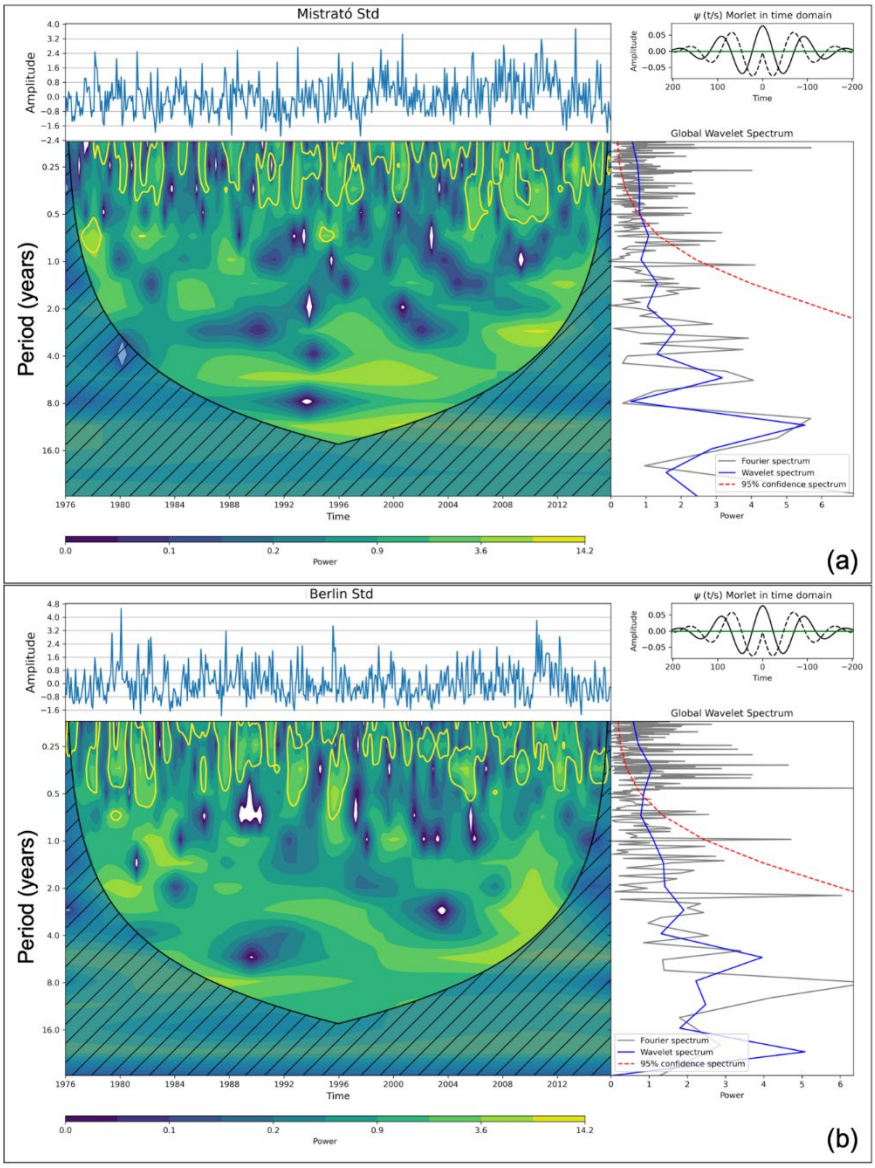


Figure 6. Backward Lagrangian air parcel-tracking at different pressure levels during La Niña of October 2010 (an anomalous wet year), showing the different moisture sources at Berlín and Mistrató. Trajectories provided by the NOAA Physical Sciences Laboratory, Boulder Colorado from their web site at https://psl.noaa.gov/

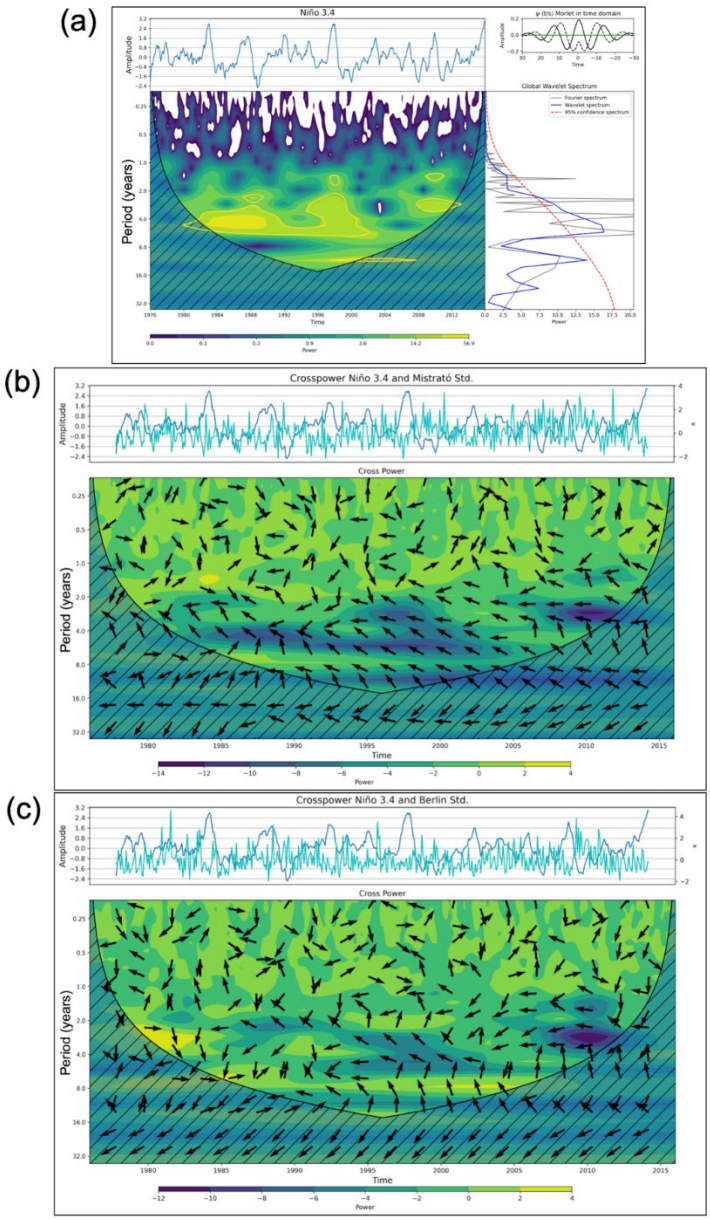
GC5



Figures 7-9 we redone as well and pasted here:
New Fig 7 Wavelets Mistrato-Berlín Stds_Fig7.png



New Figure 8: nino34_crossps_mistratostd_Berlínsstd_Fig8.png



New Figure 9: tna_crossps_mistratostd_Berlínstd.png

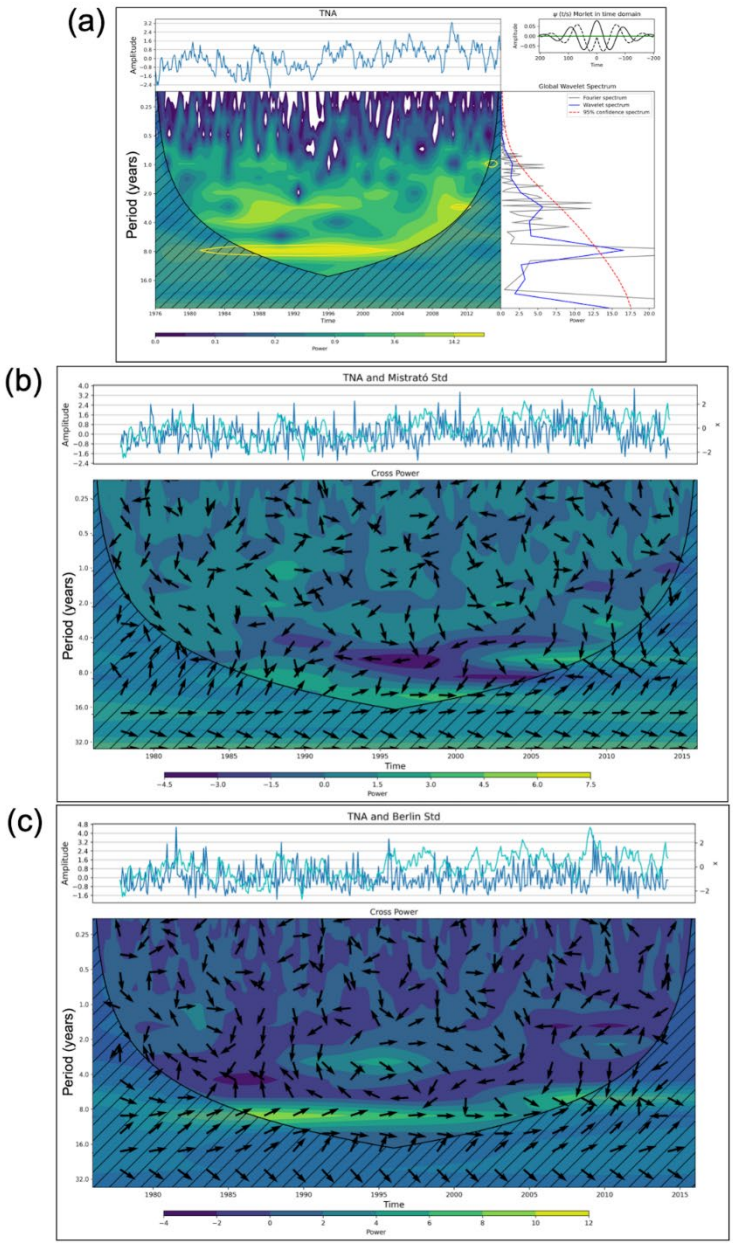
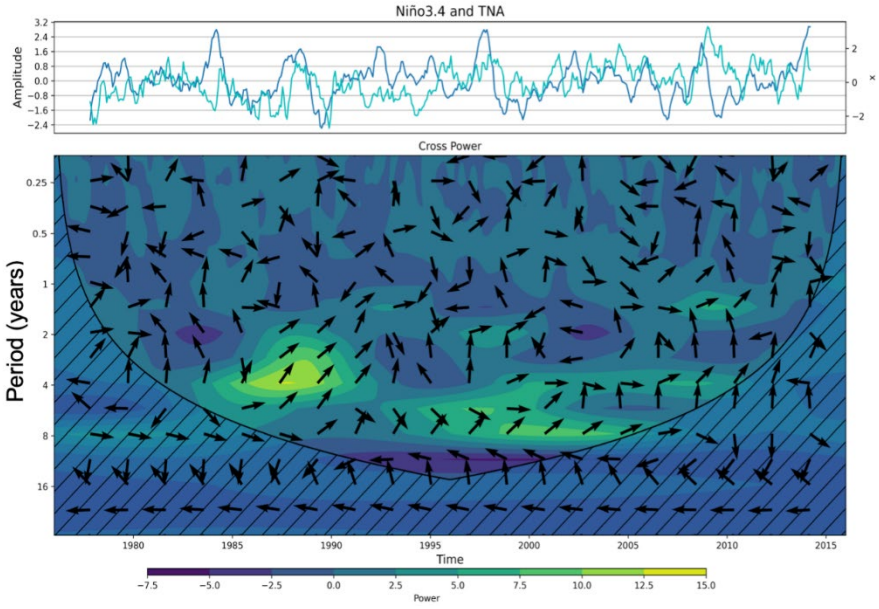


Figure Cross Power Spectra Niño 3.4 – TNA:
Cros_Power_Nino34_TNA.png



- **GC5.Q2: What are the dynamical mechanisms underlying in the strengthening/weakening of rainfall in the sampling points due to the heating/cooling of SST in tropical Pacific and Atlantic oceans? R/.**

Here we attached the figures discussed in the text:

SVD analysis of TNA SSTs and Precipitation over northern South America during MAM (1980-2022). The first vector explains 47.06% of the variance between both fields.

Left Singular Vector No. 1 (SSTs over TNA region)

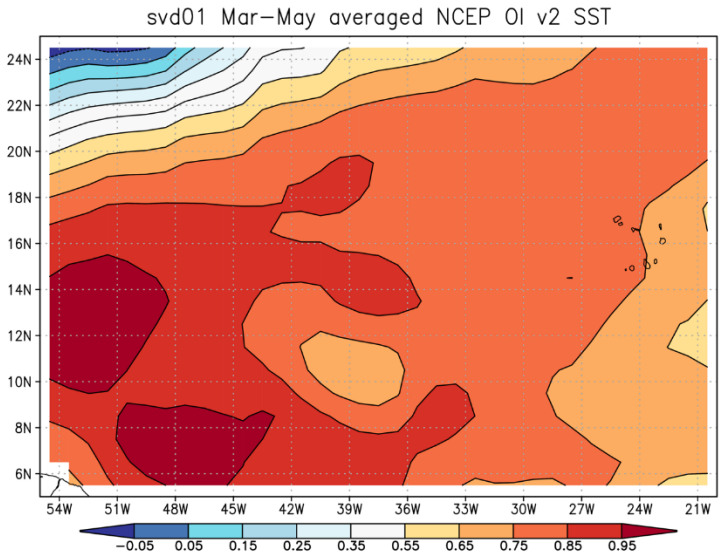


Figure S1. Left singular vector shown TNA SST during MAM

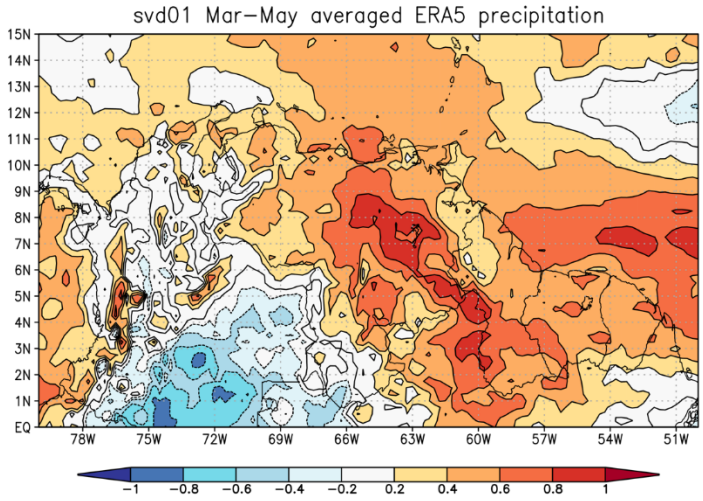


Figure S2. Right Singular Vector No. 1 (Precipitation over northern South America)

SVD Analysis between SSTs TNA vs Meridional surface Winds (10 m) during MAM (1980-2022). The first vector explains 54.3% of the variance between both fields.

Left Singular Vector No. 1 (SSTs over TNA region)

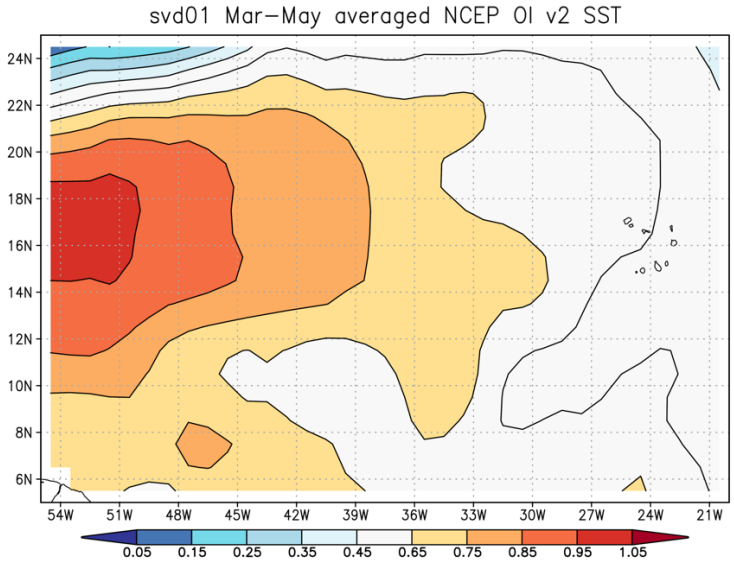


Figure S3. Left Singular Vector No. 1 (Meridional winds at 10 m)

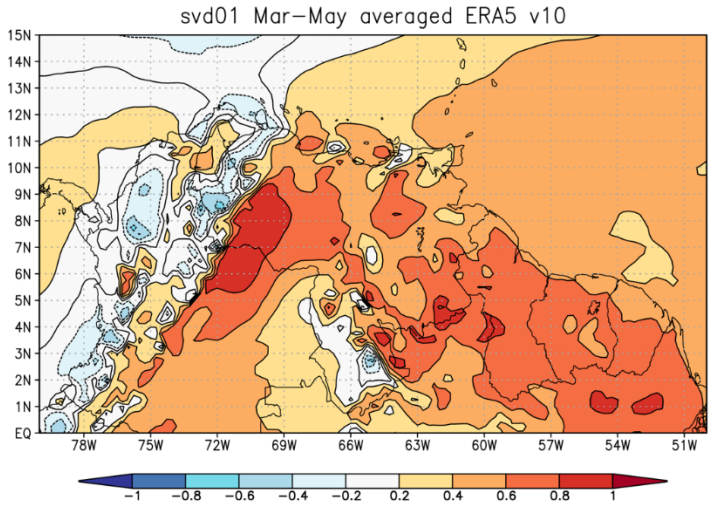


Figure S4. Right Singular Vector No. 1 (Meridional winds at 10 m)

GC7

This is also the new proposed Figure 7:

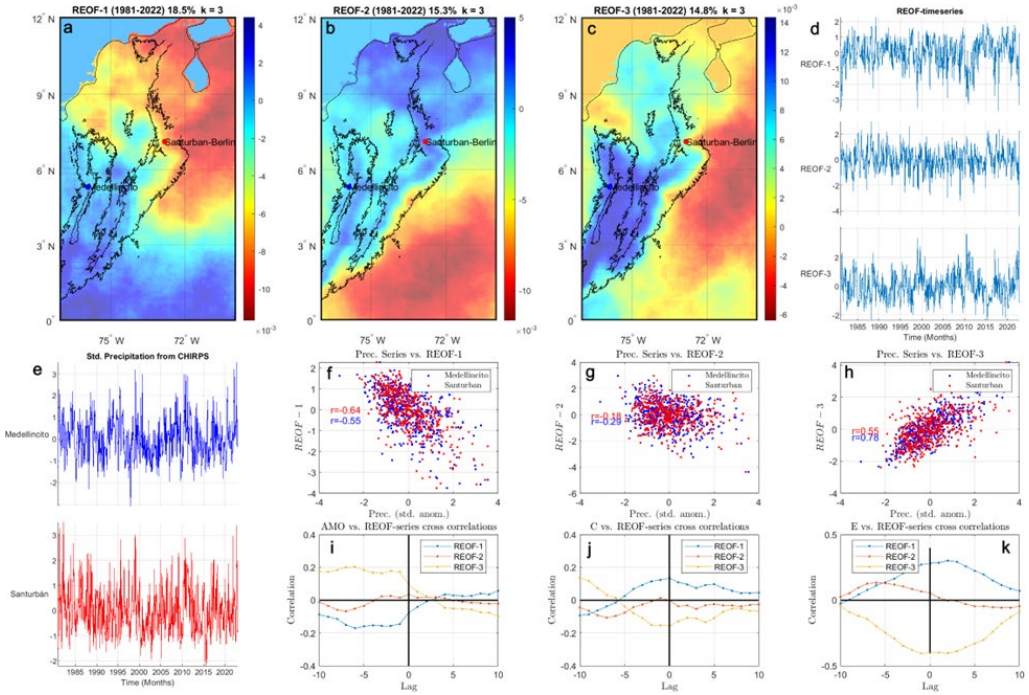


Figure 7. (a-d) REOF-modes of monthly CHIRPS data over Colombia (0N-12N/78W-70W) based on k=3 SVD-modes (48.5% variance). (e-h) Standardized precipitation from CHIRPS at "paleo" sites and regressions with REOF-series. (i-k) Cross-correlation analysis of REOF-series with ENSO diversity indices (E, C) and AMO. Black line denotes 1000 m asl elevation, distinguishing EC, CC and WC.