

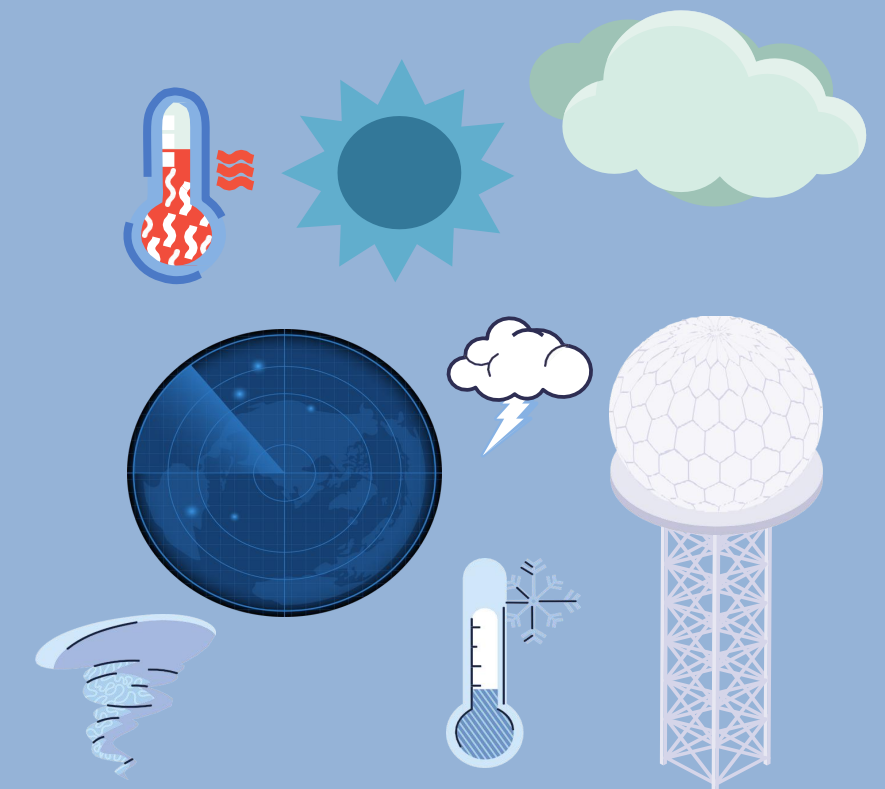


Assessment of ITCZ types over the tropical Pacific in a Channel Model.

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Introduction



- **Tropical Channel Model-TCM**

It's a model-based on Weather Research and Forecasting (WRF) that combines the main advantages of global and regional models (RAY, Pallav et al., 2012).

- **Atmospheric general circulation models-AGCMs**

- **Importance of the intertropical Convergence Zone-ITCZ for the Brazilian Northeast**

The main precipitation generator system in the northern region of the Brazilian Northeast (Nobre e Uvo, 1989).



Methodology



TCM - 36km / 41 Vertical levels / 50 hPa

December 1, 2009 to December 31, 2014

Period: 2010 - 2014

Chen et al. 2008

CMORPH data - $0,25^{\circ} \times 0,25^{\circ}$

17 AMIP6 models - $0,70^{\circ} \times 0,70^{\circ}$ to $2^{\circ} \times 2^{\circ}$

Table 1. Definitions of spatial patterns of the ITCZ.

	North	South	Equator	Double	Full	Weak
H_N	1	0	0	1	1	0
H_E	0 or 1	0 or 1	1	0	1	0
H_S	0	1	0	1	1	0

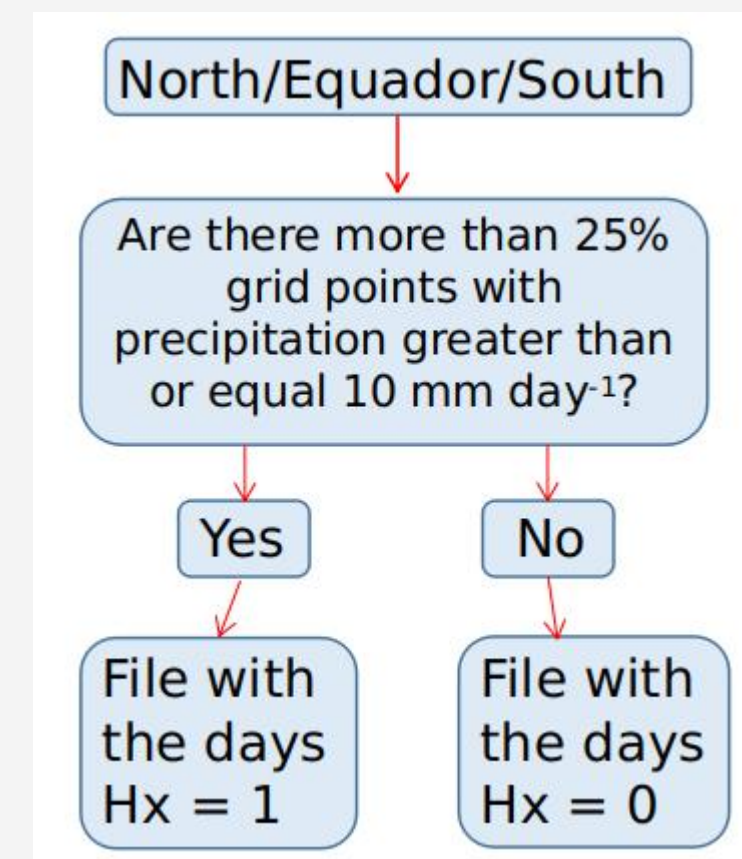


Figure 1. methodological scheme.

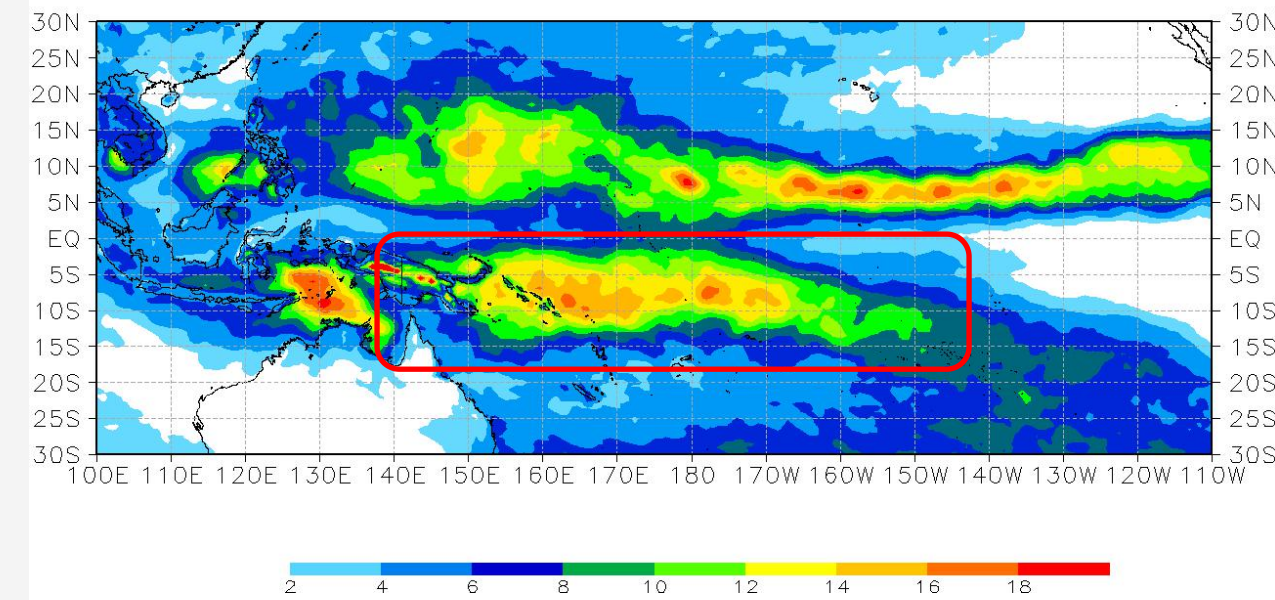


Results

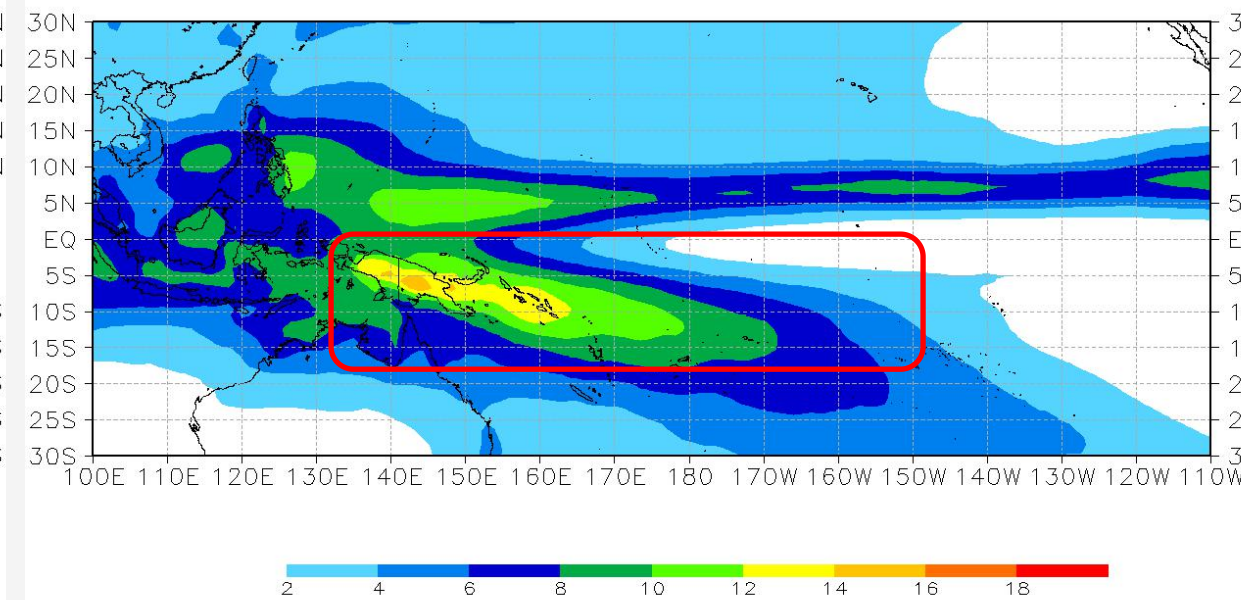
■ South ITCZ



TCM



AMIP Ensemble



Cmorph

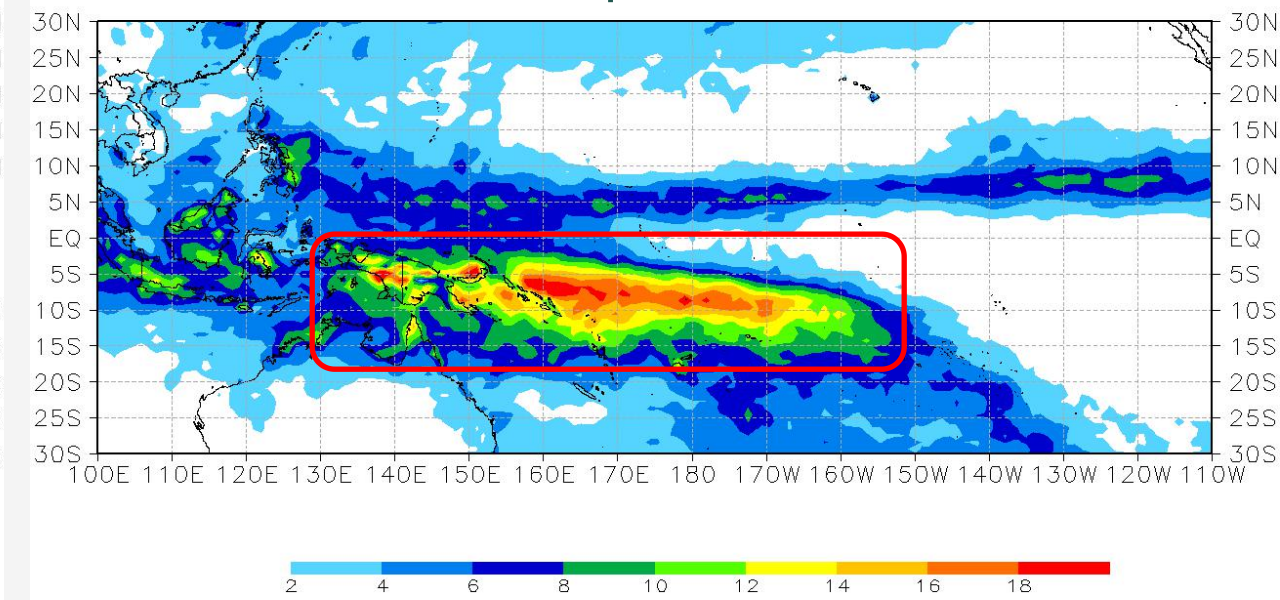


Figure 2. Spatial distribution of the South ITCZ.

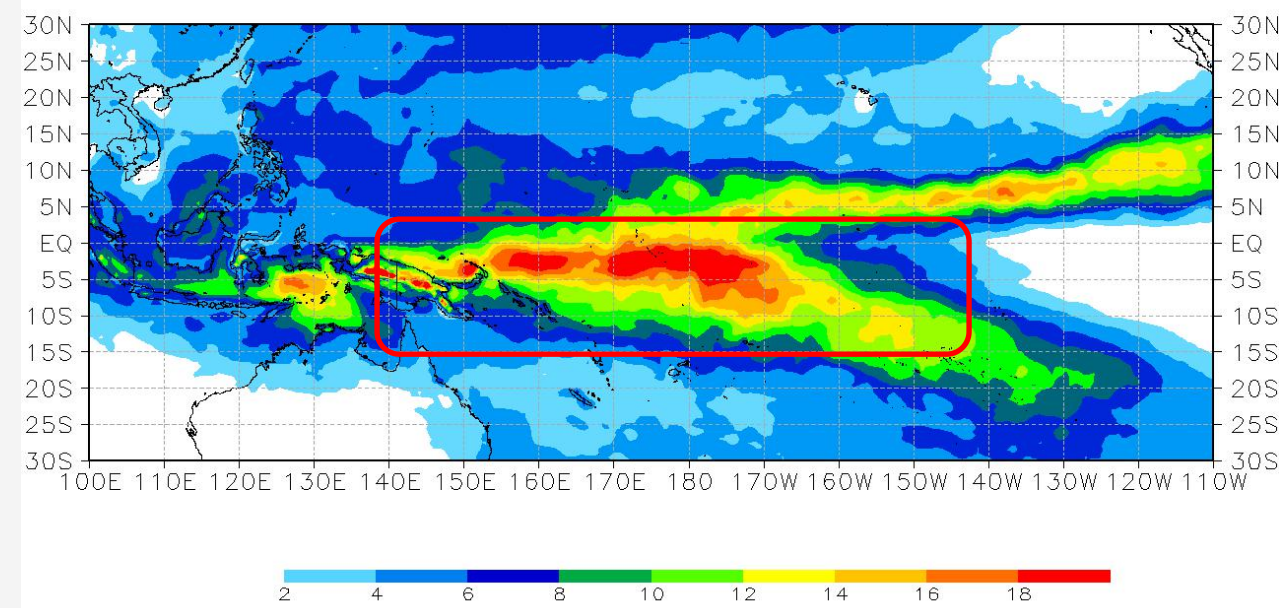


Results

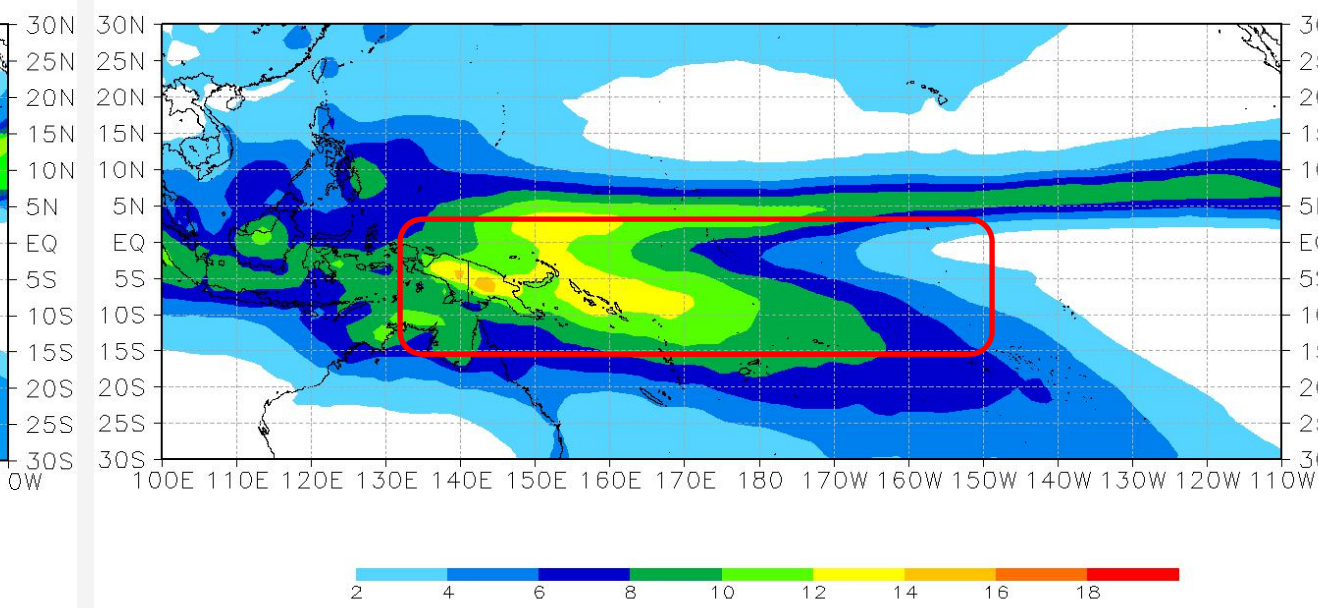
Equador ITCZ



TCM



AMIP Ensemble



Cmorph

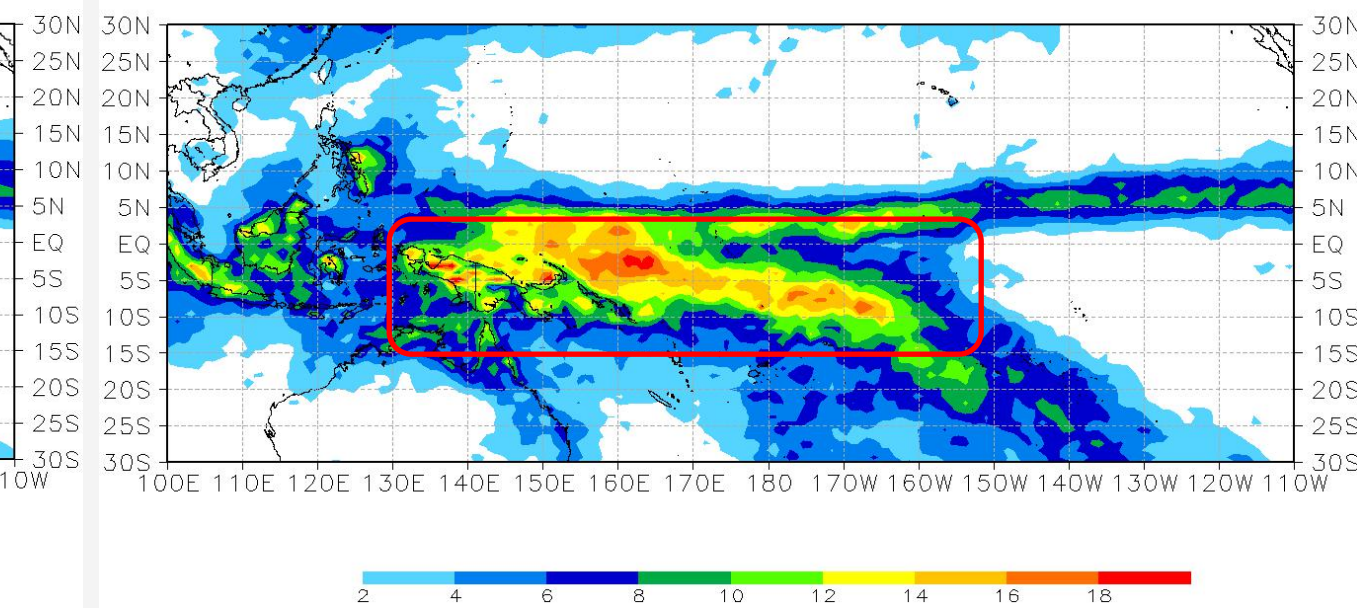


Figure 3. Spatial distribution of the Equador ITCZ.

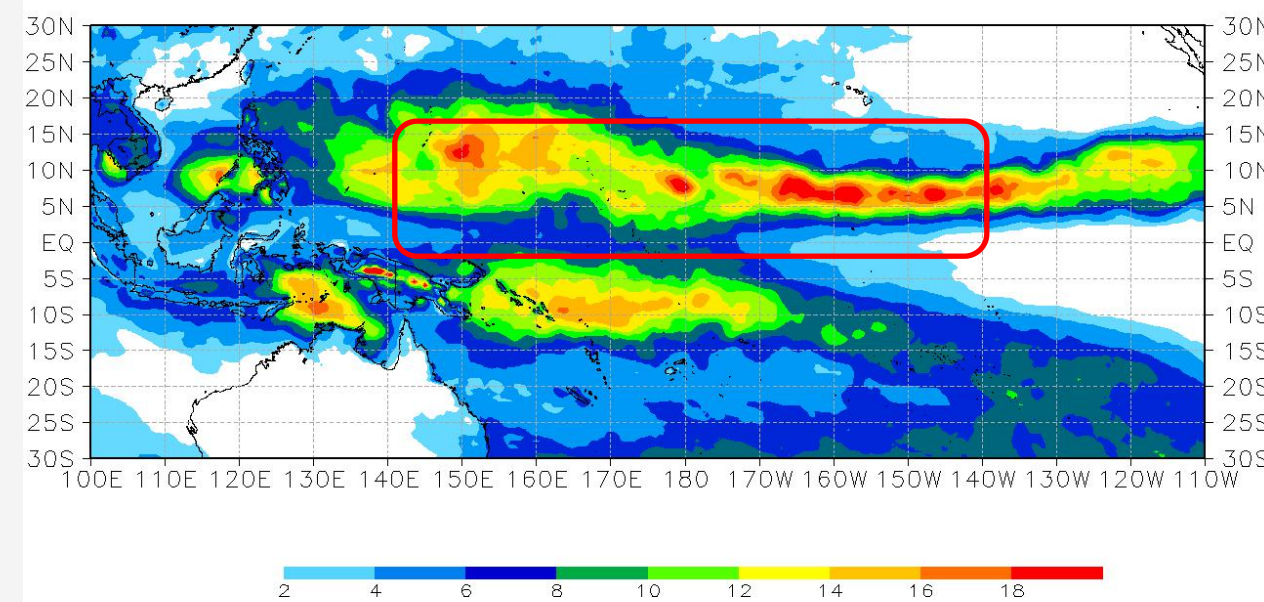


Results

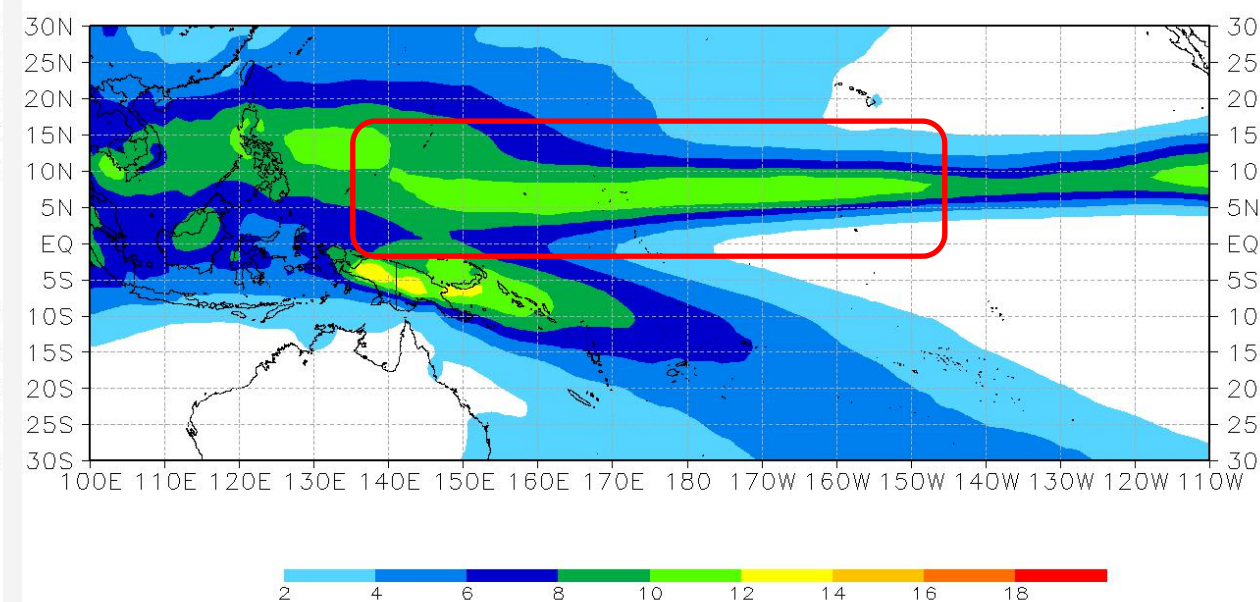
■ North ITCZ



TCM



AMIP Ensemble



Cmorph

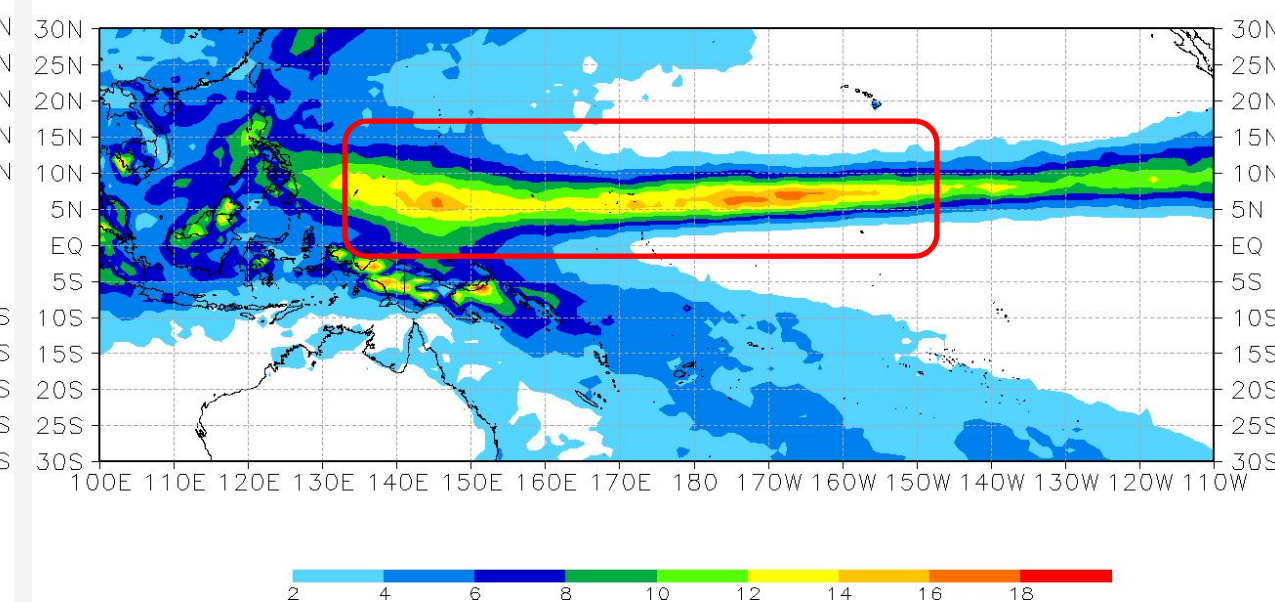


Figure 4. Spatial distribution of the North ITCZ.



Results

Double ITCZ

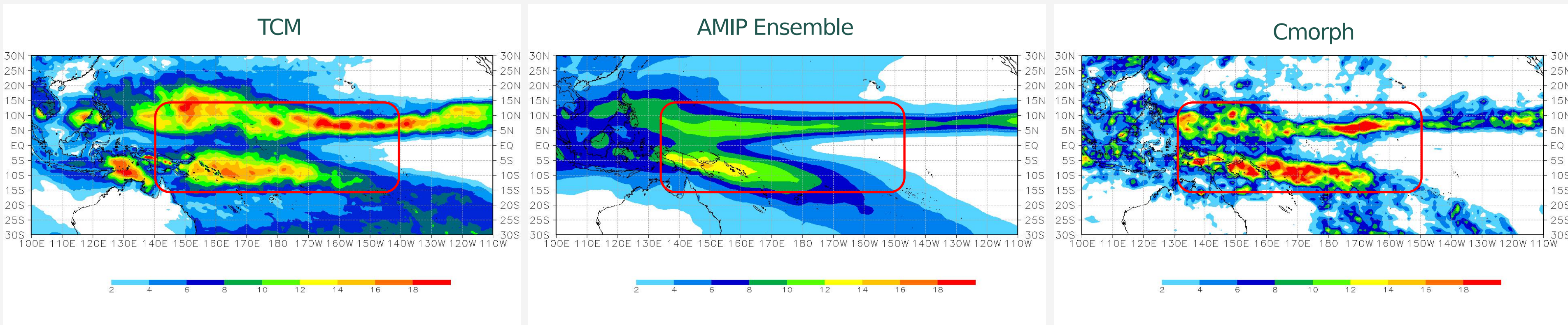


Figure 5. Spatial distribution of the Double ITCZ.



Results

Full ITCZ



TCM

AMIP Ensemble

Cmorph

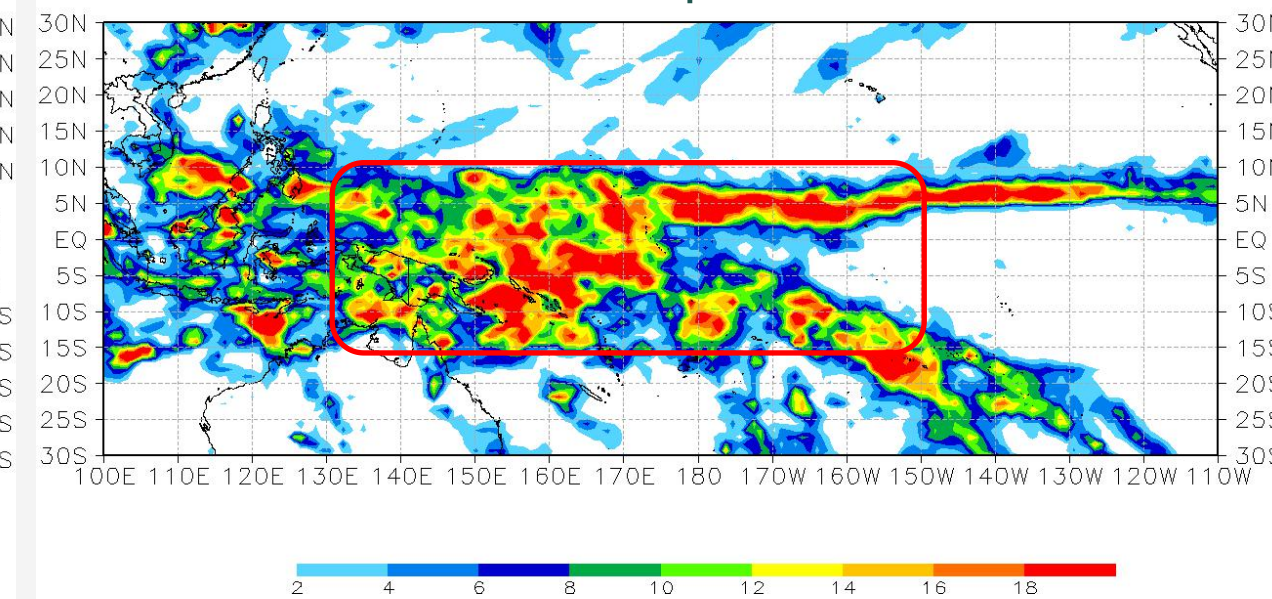
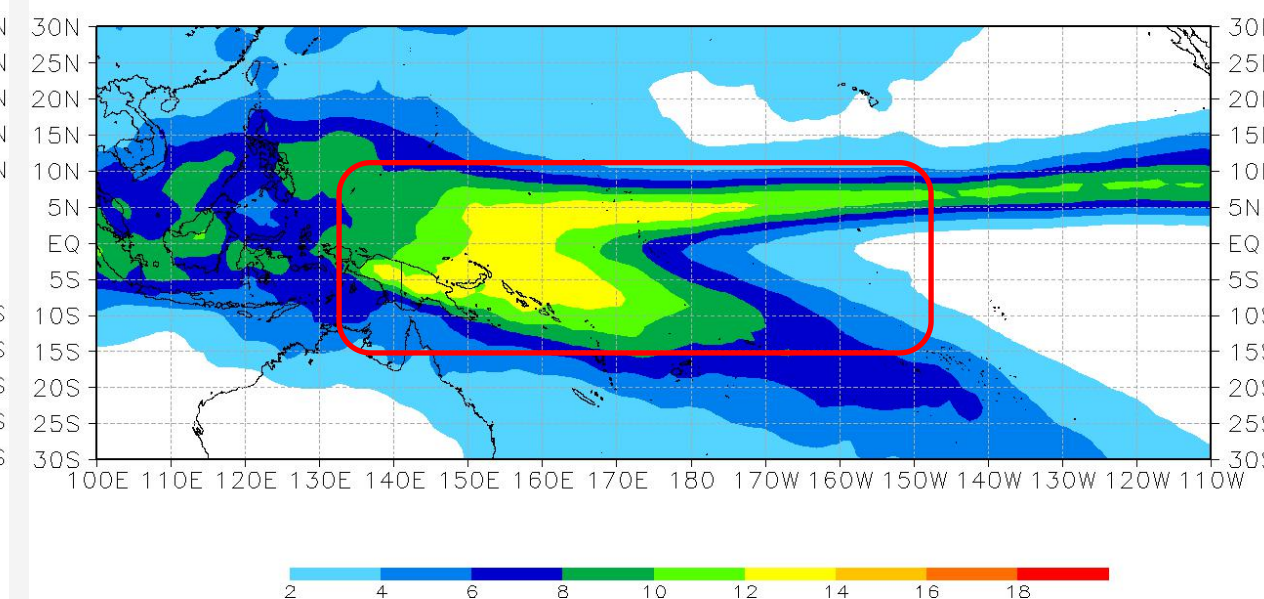
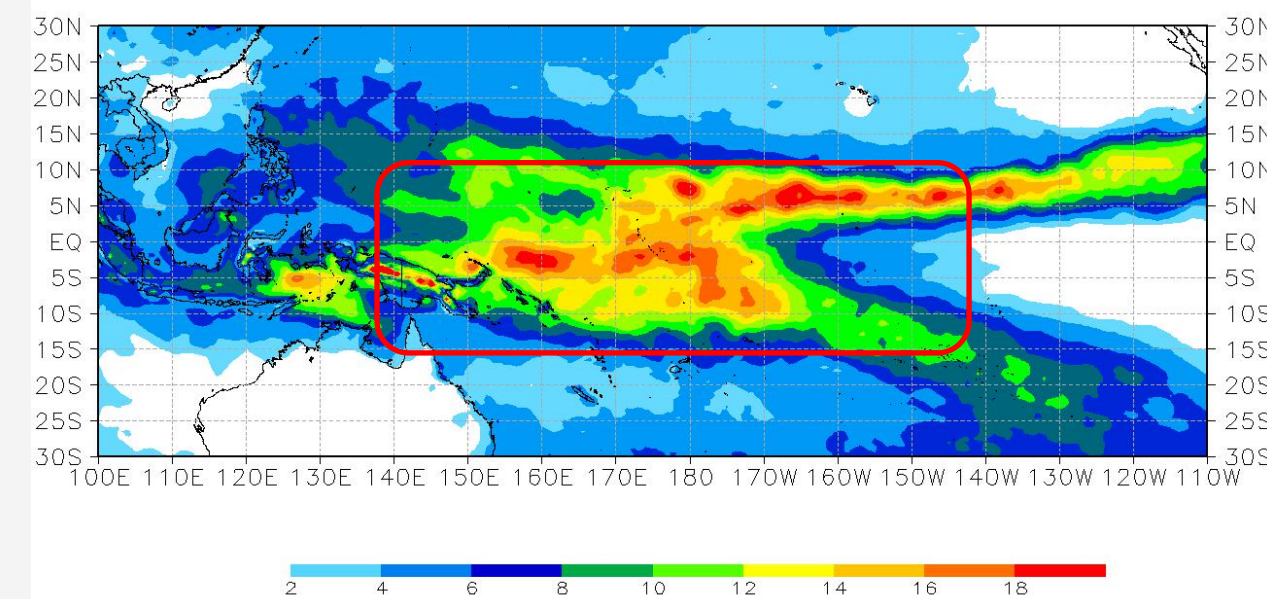


Figure 6. Spatial distribution of the Full ITCZ.



Results



Weak ITCZ

- There were no results of weak ITCZ for TCM

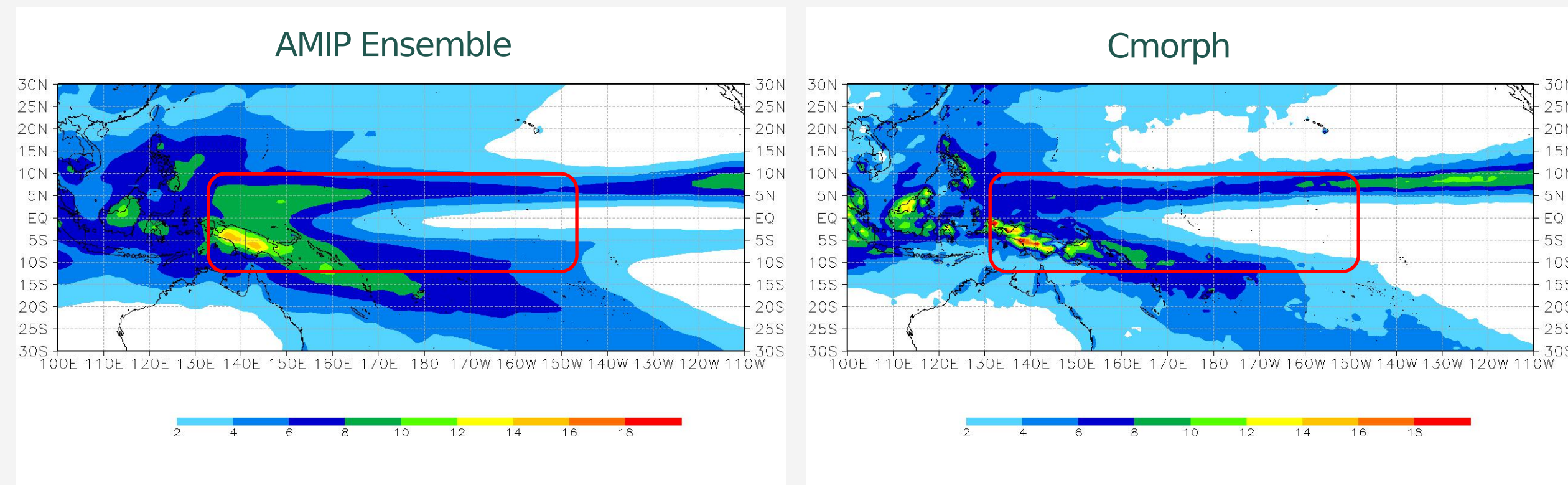


Figure 7. Spatial distribution of the weak ITCZ.



Conclusion



Preliminary results show that TCM-WRF was able to represent the spatial pattern of the ITCZ, but with a more northerly shift from the south ITCZ. Moreover, the TCM was unable to predict the weak ITCZ. The possible reasons behind such performance of the TCM and whether or not these biases were rectified in the AMIP6 models will be investigated.



References



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Thanks!

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