

*Impact of increased horizontal resolution  
in coupled and atmosphere-only models of  
the HadGEM1 family upon the climate  
patterns of South America*

Article

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Figures

de Souza Custodio, M., da Rocha, R. P., Ambrizzi, T., Vidale, P. L. ORCID: <https://orcid.org/0000-0002-1800-8460> and Demory, M.-E. (2017) Impact of increased horizontal resolution in coupled and atmosphere-only models of the HadGEM1 family upon the climate patterns of South America. *Climate Dynamics*, 48 (9). pp. 3341-3364. ISSN 0930-7575 doi: 10.1007/s00382-016-3271-8 Available at <https://centaur.reading.ac.uk/69093/>

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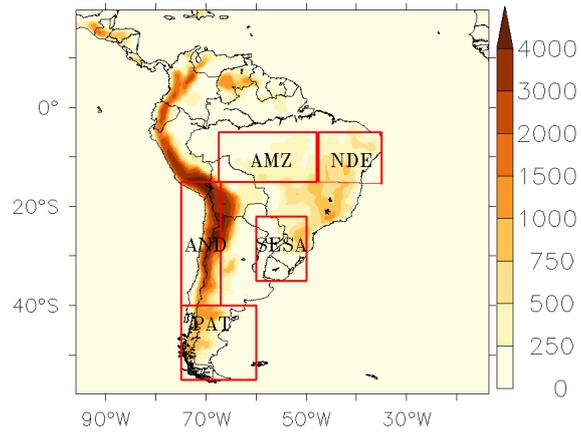
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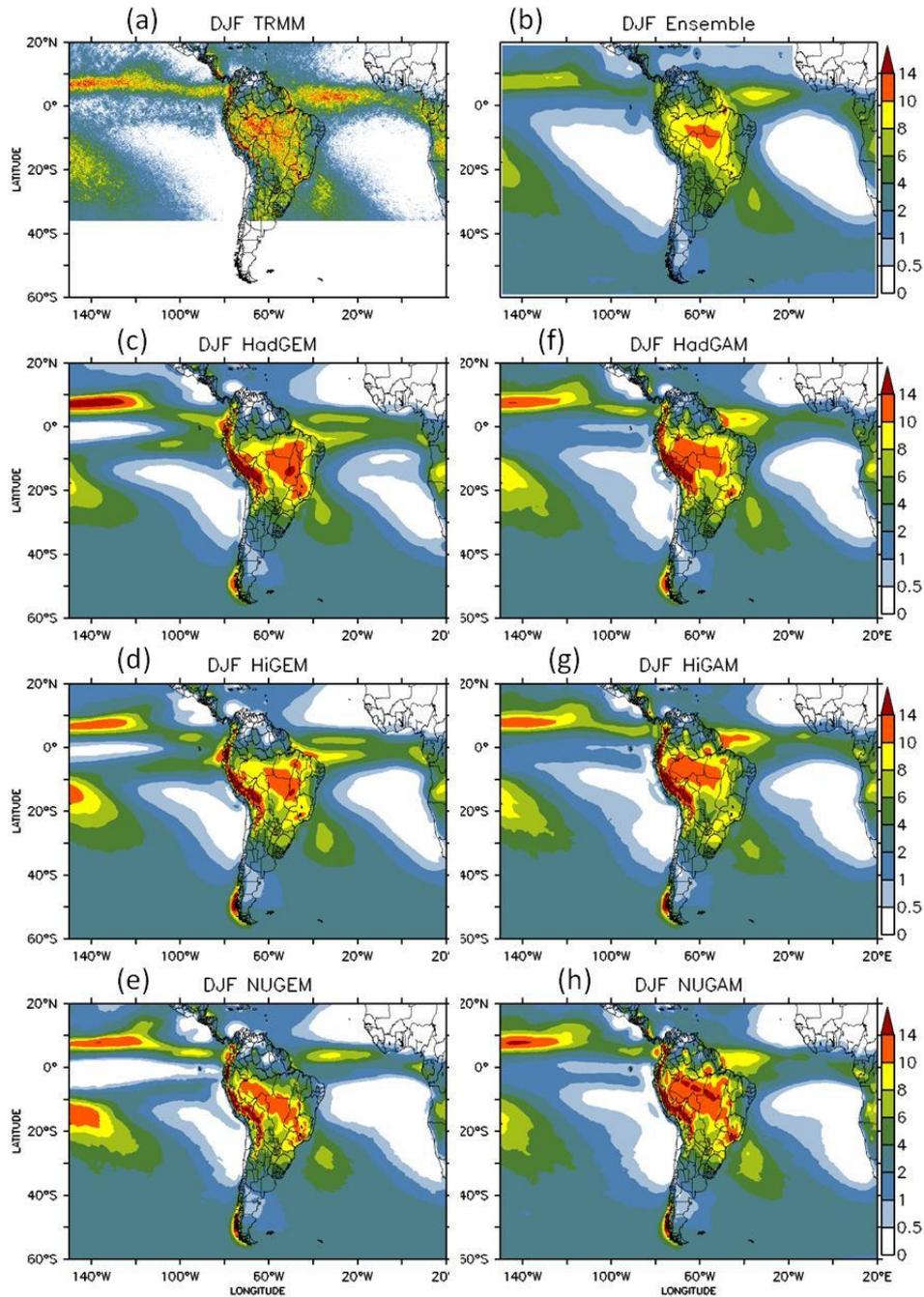
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**Table 1.** Configurations of the high resolution global climate model from the HadGEM family and the nomenclatures used hereafter to refer each simulation.

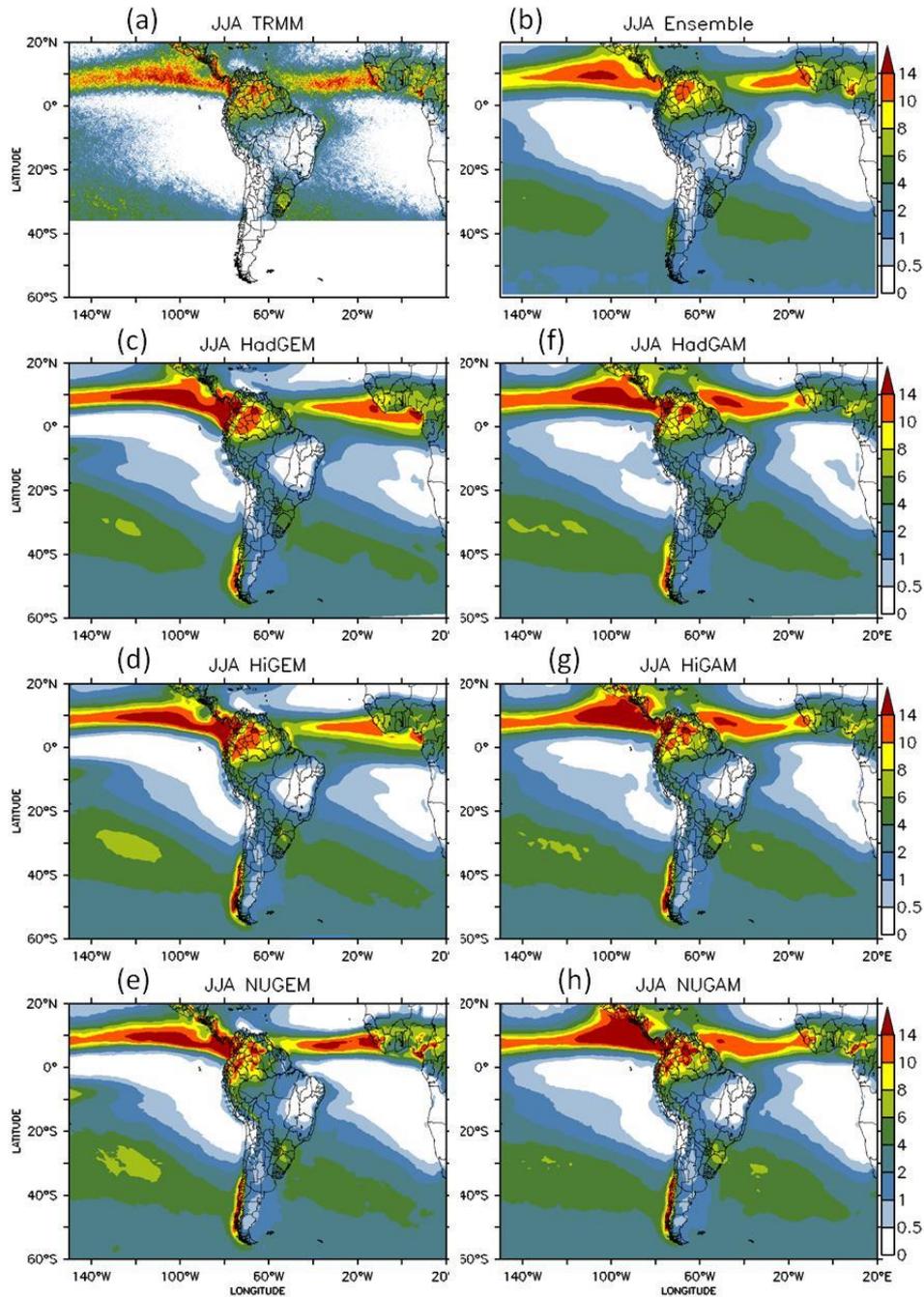
<b>Short name of configuration</b>	<b>Resolution</b>	<b>Resolution in Atmosphere Lat x Lon</b>	<b>Resolution in km Atmosphere/ocean</b>	<b>Simulation period</b>
<b>Coupled models</b>				
HadGEM	N96	1.25 x 1.875°	135/100 km	100 yr
HiGEM	N144	0.83 x 1.25°	90/30 km	100 yr
NUGEM	N216	0.55 x 0.83	60 km	22 yr
<b>Atmosphere only models</b>				
HadGAM	N96	1.25 x 1.875°	135 km	24 yr
HiGAM	N144	0.83 x 1.25°	90 km	24 yr
NUGAM	N216	0.55 x 0.83°	60 km	26 yr



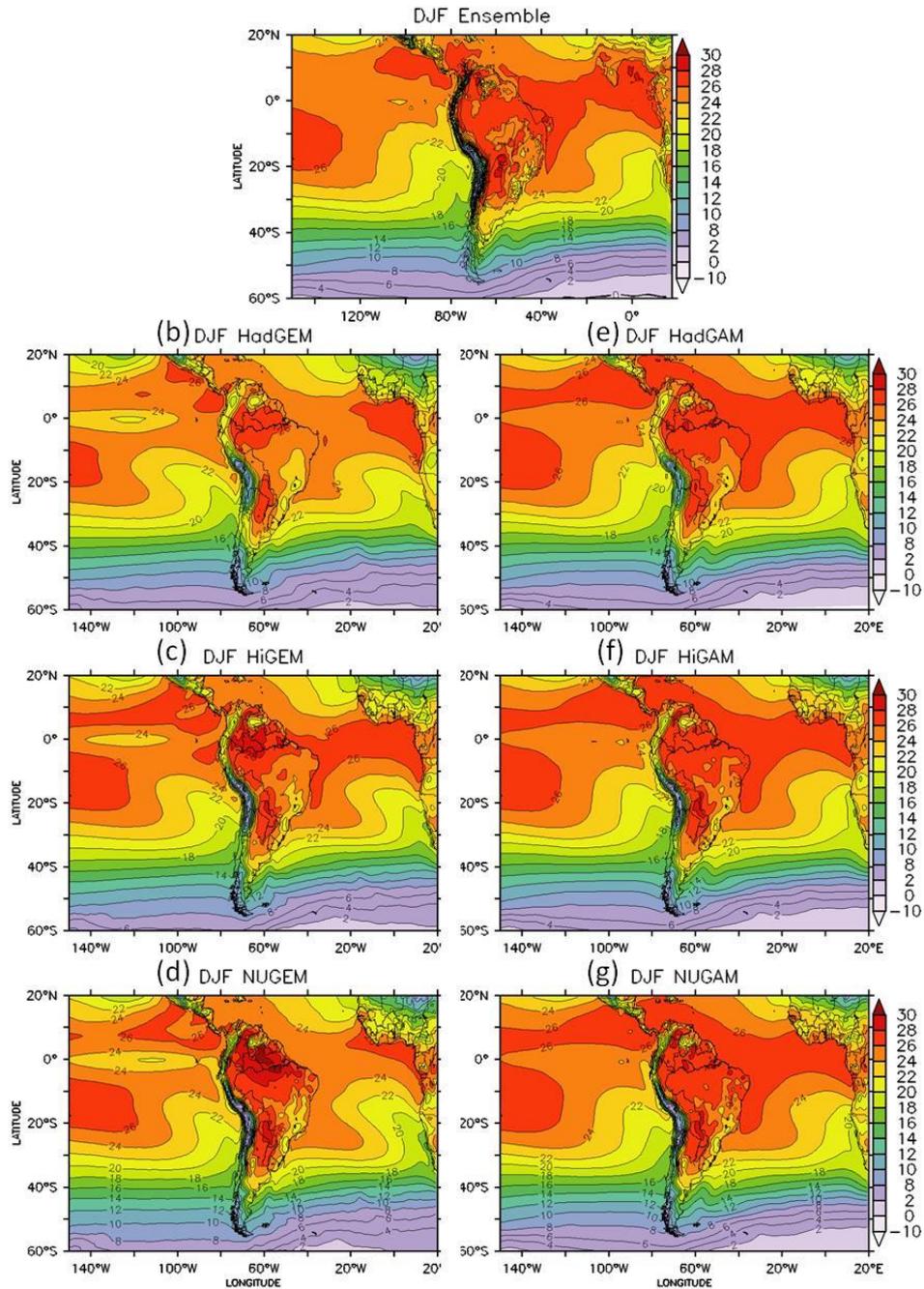
**Figure 1.** South America topography (shaded, in m) and location of five subdomains for annual cycle analysis.



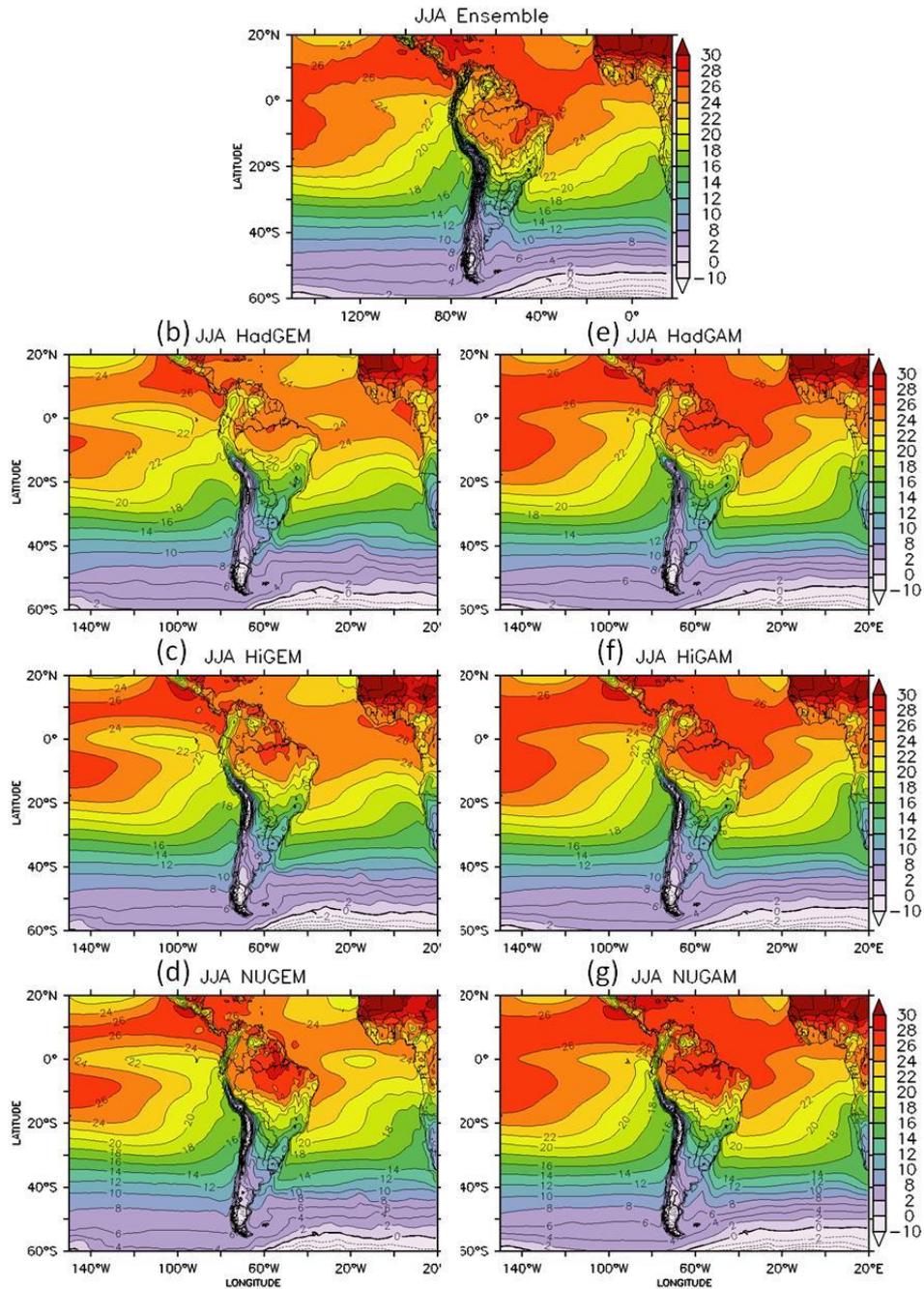
**Figure 2.** Seasonal climatology of precipitation ( $\text{mm day}^{-1}$ ) in South America in the summer (DJF) from observations TRMM(a) and ensemble (b), coupled models HadGEM (c), HiGEM (d) and NUGEM (e) and atmospheric models HadGAM (f), HiGAM (g) and NUGAM (h).



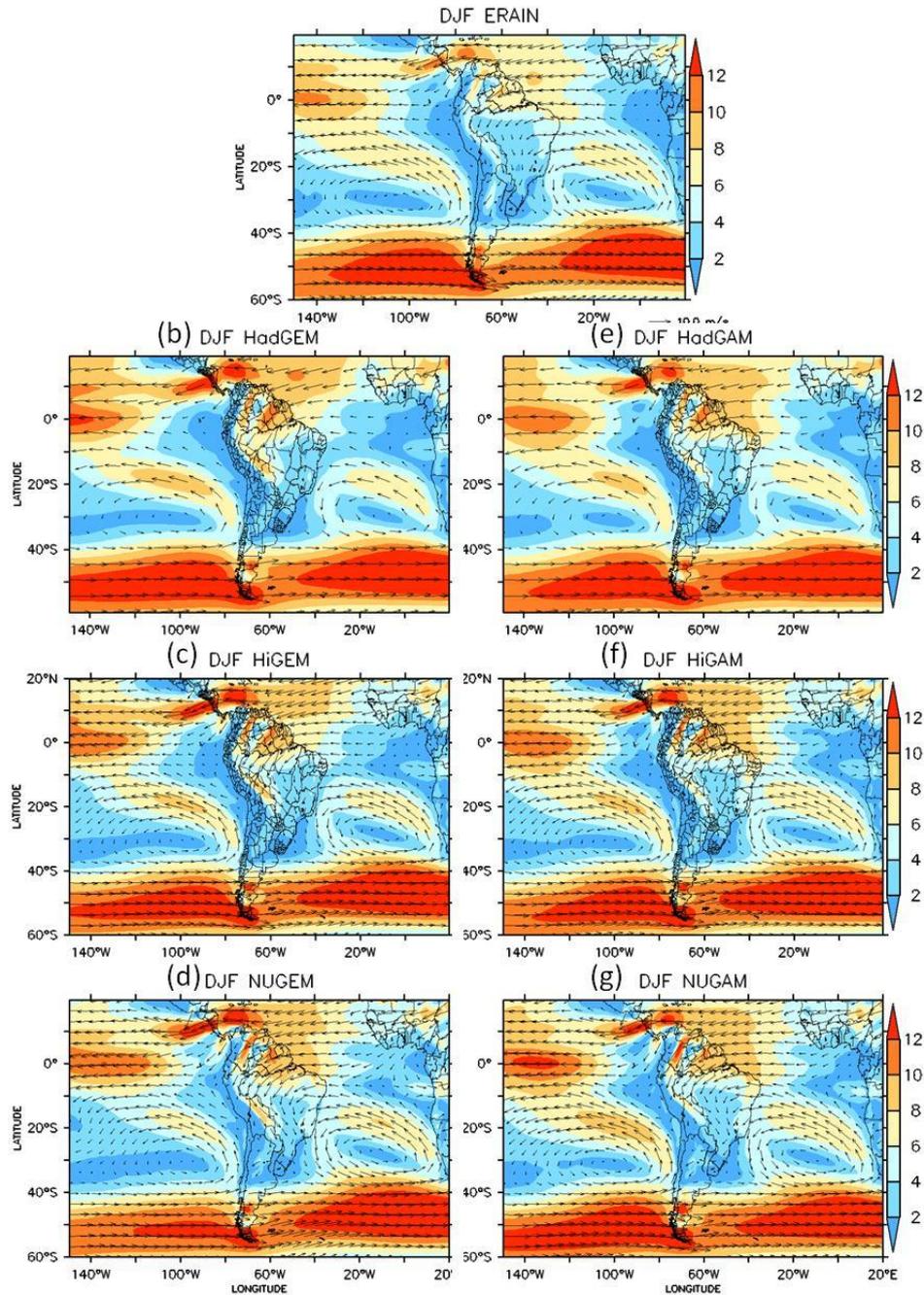
**Figure 3.** Seasonal climatology of precipitation ( $\text{mm day}^{-1}$ ) in South America in the winter (JJA) from observations TRMM(a) and ensemble (b), coupled models HadGEM (c), HiGEM (d) and NUGEM (e) and atmospheric models HadGAM (f), HiGAM (g) and NUGAM (h).



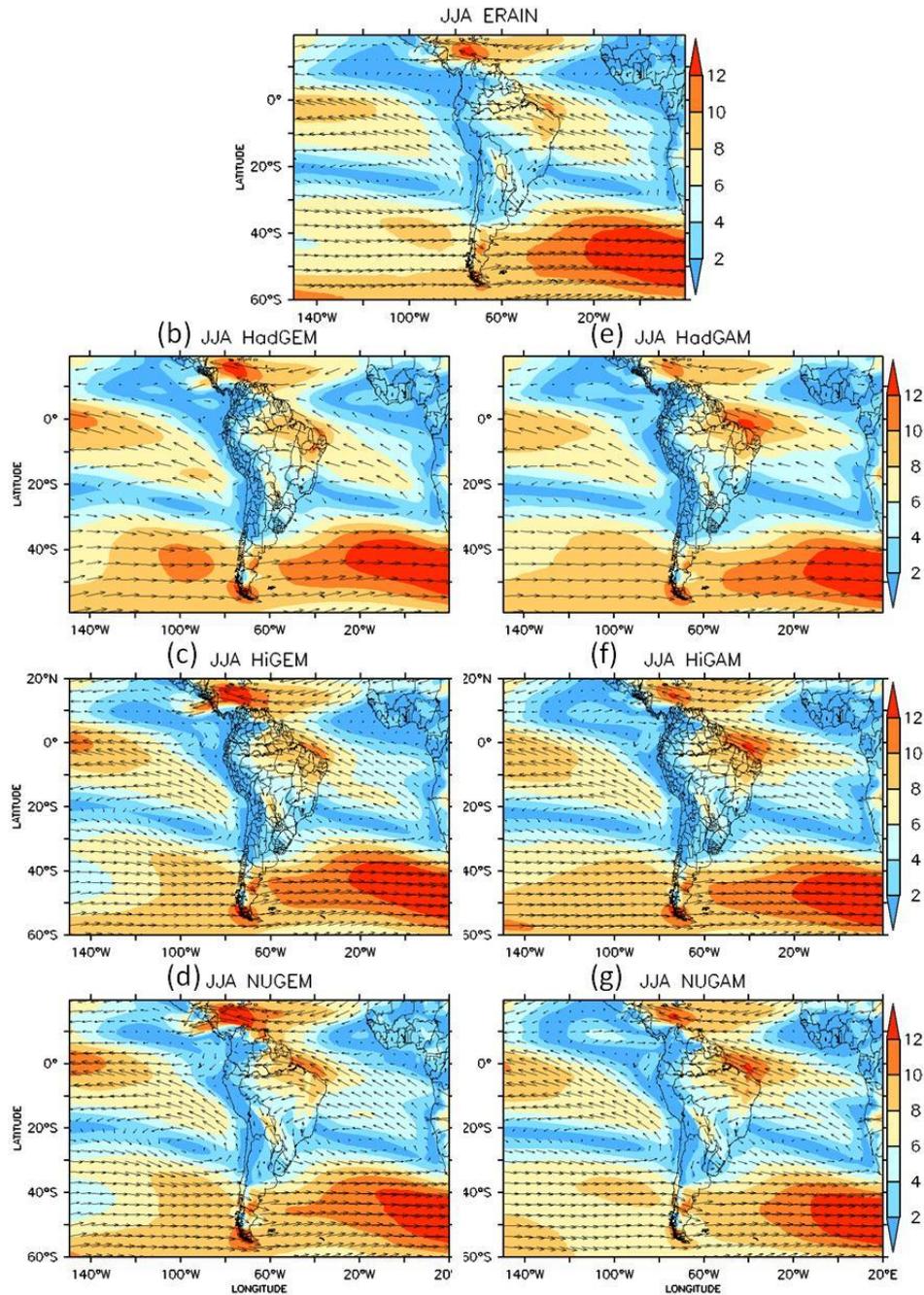
**Figure 4.** Seasonal climatology of temperature (°C) in South America in the summer (DJF) from ensemble (a), coupled models HadGEM (b), HiGEM (c) and NUGEM (d) and atmospheric models HadGAM (e), HiGAM (f) and NUGAM (g).



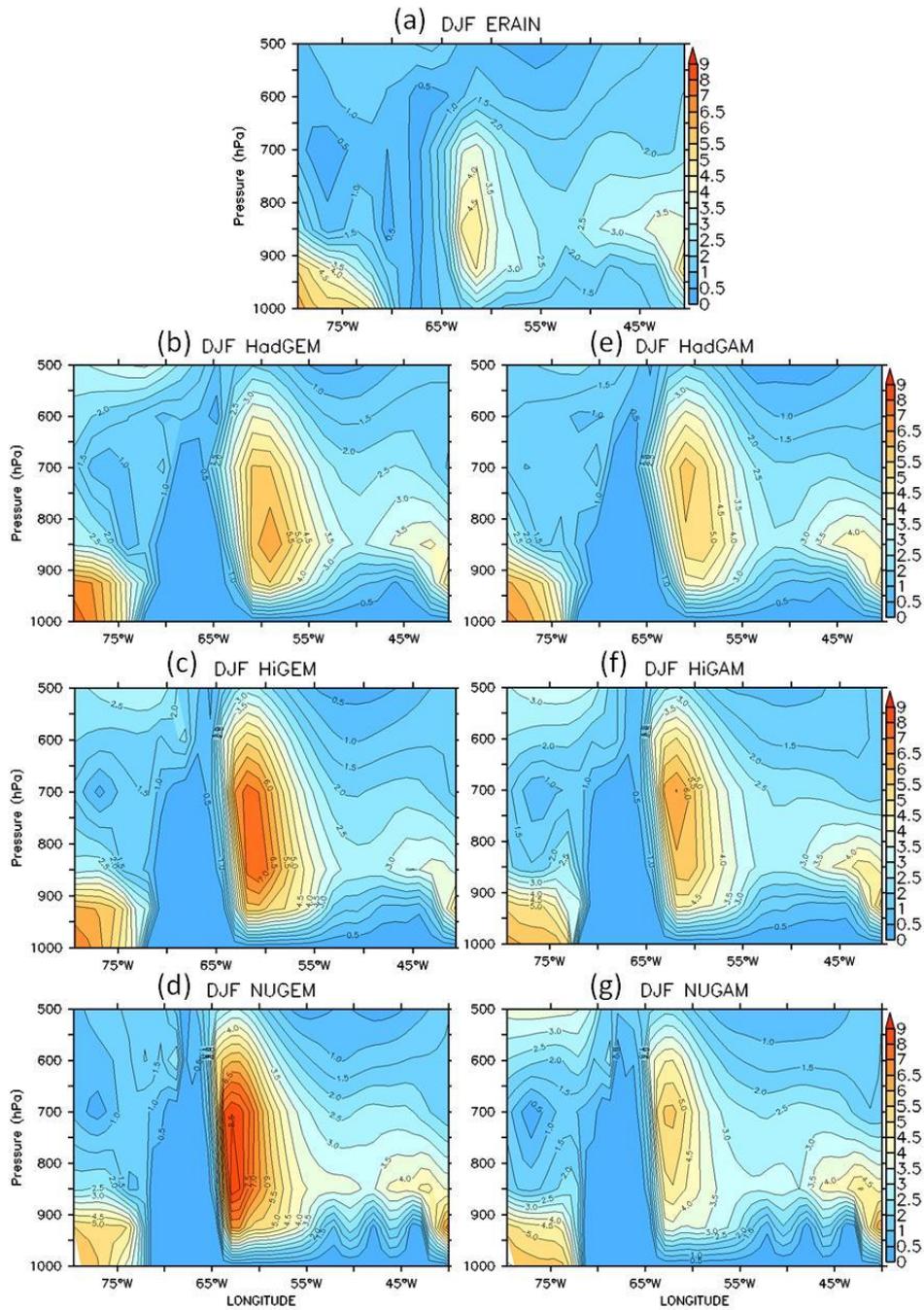
**Figure 5.** Seasonal climatology of temperature (°C) in South America in the winter (JJA) from ensemble (a), coupled models HadGEM (b), HiGEM (c) and NUGEM (d) and atmospheric models HadGAM (e), HiGAM (f) and NUGAM (g).



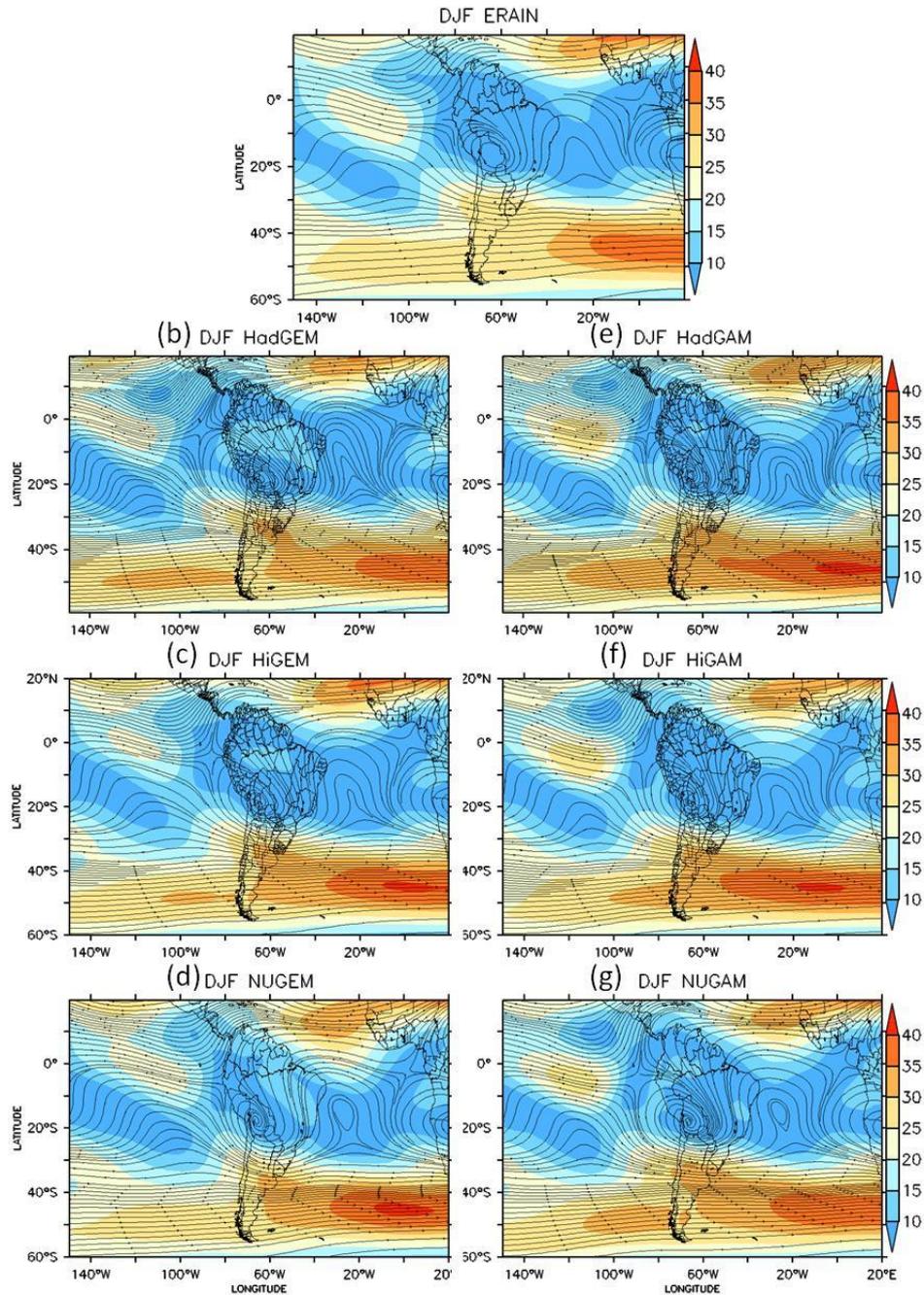
**Figure 6.** Seasonal climatology of wind at 850 hPa in South America in the summer (DJF) from ensemble (a), coupled models HadGEM (b), HiGEM (c) and NUGEM (d) and atmospheric models HadGAM (e), HiGAM (f) and NUGAM (g).



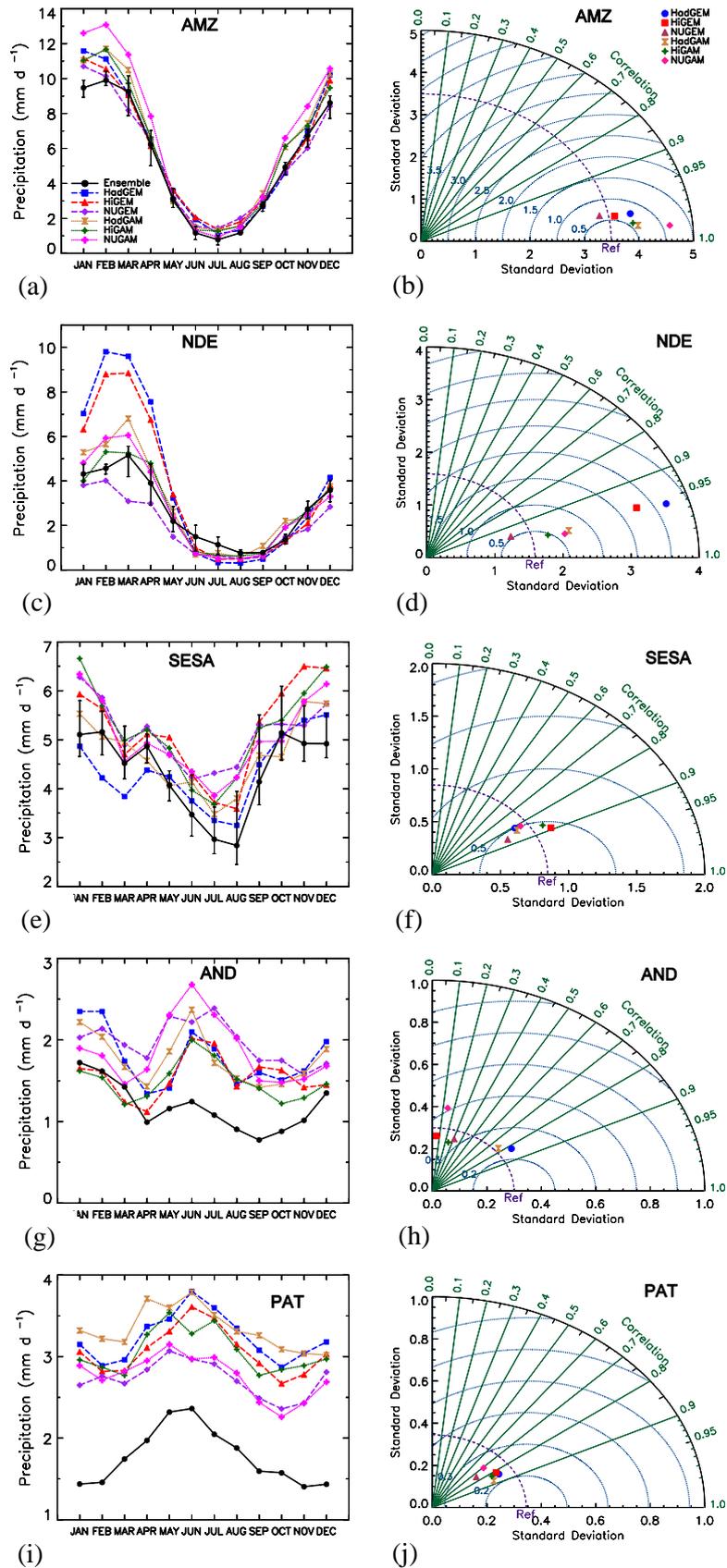
**Figure 7.** Seasonal climatology of wind at 850 hPa in South America in the winter (JJA) from ensemble (a), coupled models HadGEM (b), HiGEM (c) and NUGEM (d) and atmospheric models HadGAM (e), HiGAM (f) and NUGAM (g).



**Figure 8.** Vertical profile of wind at 17.5°S longitude in South America in the summer (DJF) from ensemble (a), coupled models HadGEM (b), HiGEM (c) and NUGEM (d) and atmospheric models HadGAM (e), HiGAM (f) and NUGAM (g).



**Figure 9.** Seasonal climatology of wind at 200 hPa in South America in the summer (DJF) from ensemble (a), coupled models HadGEM (b), HiGEM (c) and NUGEM (d) and atmospheric models HadGAM (e), HiGAM (f) and NUGAM (g).



**Figure 10.** Annual cycle of precipitation ( $\text{mm day}^{-1}$ ) (left column) and Taylor diagram (right column) for coupled (HadGEM, HiGEM e NUGEM) and atmospheric simulations (HadGAM, HiGAM e NUGAM) and observations ensemble.

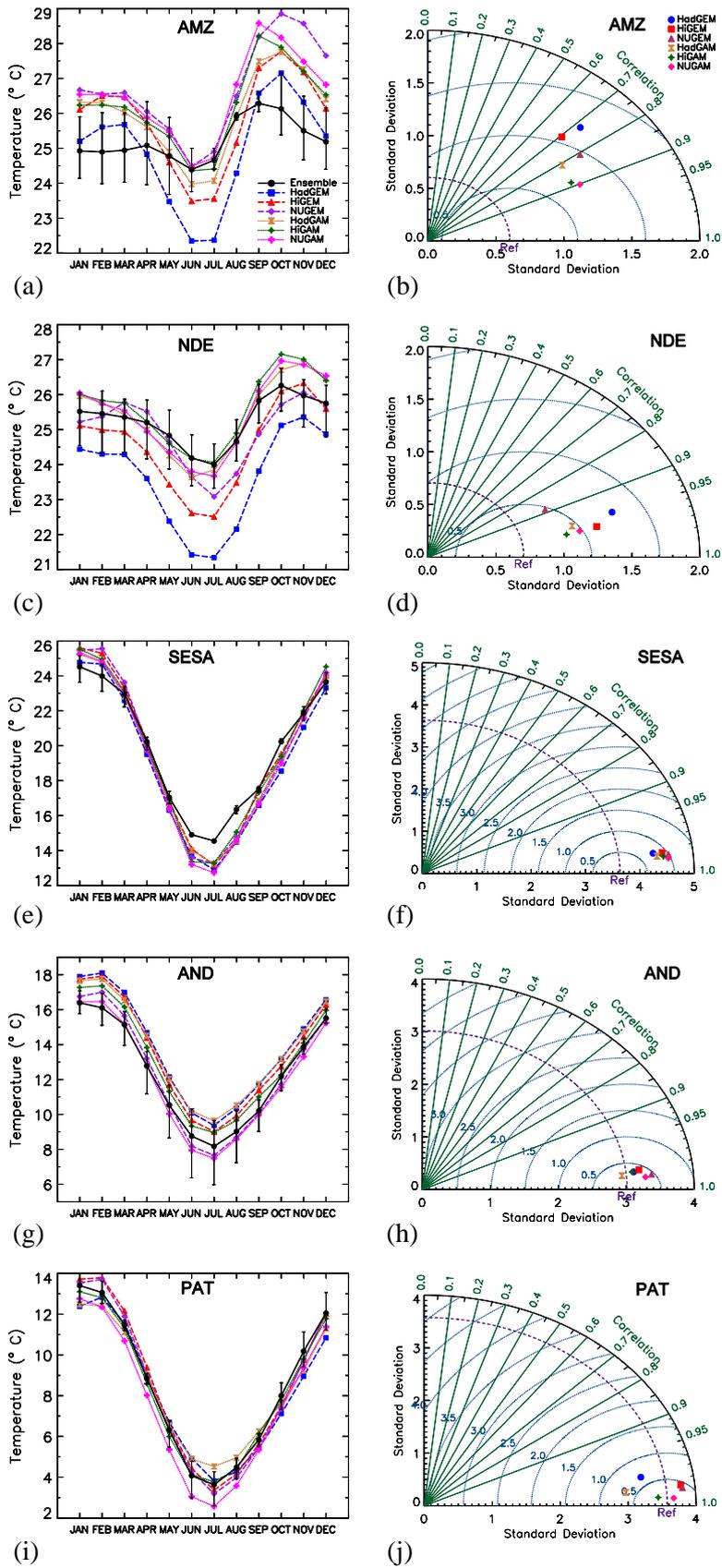


Figure 11. As in Figure 10, albeit for temperature.