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International Centre for Theoretical Physics**



**2148-Presentations**

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Models**

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**Investigating the Performance of RegCM4 in Simulating the West African Monsoon  
during Wet and Dry years**

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# Investigating the Performance of RegCM4 in Simulating the West African Monsoon during Wet and Dry years

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**5<sup>th</sup> ICTP Workshop on the Theory and Use of Regional Climate Models  
May 31, 2010 – June 11, 2010**

# Objectives

- Validation of the latest version of RegCM over the West African domain
- Sensitivity test of the Diurnal SST Scheme

# Experiment setup

RegCM4-RC1 (ICTP,2010)

1<sup>st</sup> simulation set : Dry Year

JJA 1997 (with one month spin-up)

- DCSST (Diurnal SST Scheme)

- Control Run

2<sup>nd</sup> simulation set : Wet Year

JJA 1999 (with one month spin-up)

- DCSST (Diurnal SST Scheme)

- Control Run

## Model setup

All runs use:

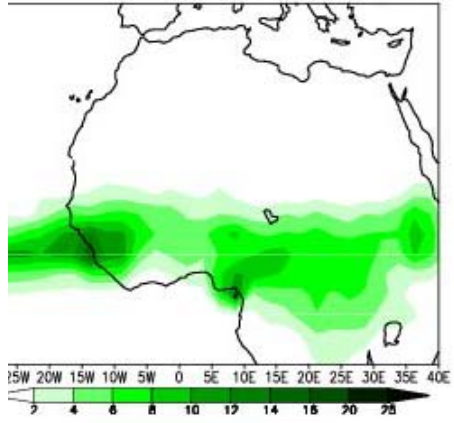
- Grell Convection scheme (Fritsch & Chapel Closure assumption)
- 50 km horizontal resolution
- Default 18 vertical levels
- Lateral and boundary conditions from ERA interim 15 and OI\_WK

# Observations

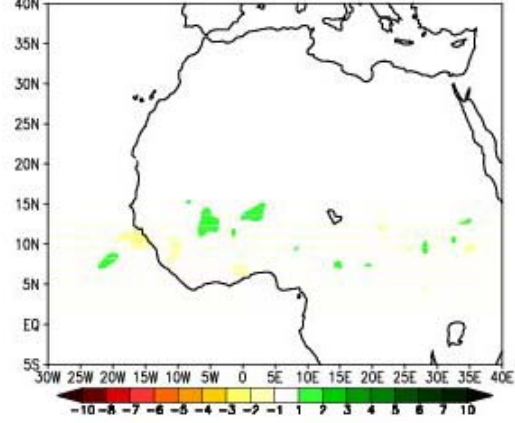
- GCPC
- CRU
- ERA Interim wind fields

# Results

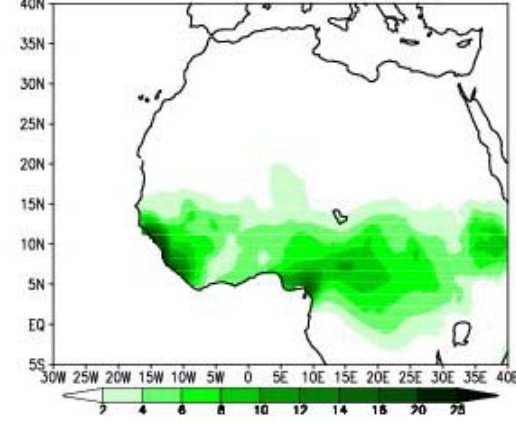
GPCP Precip JJA 1997



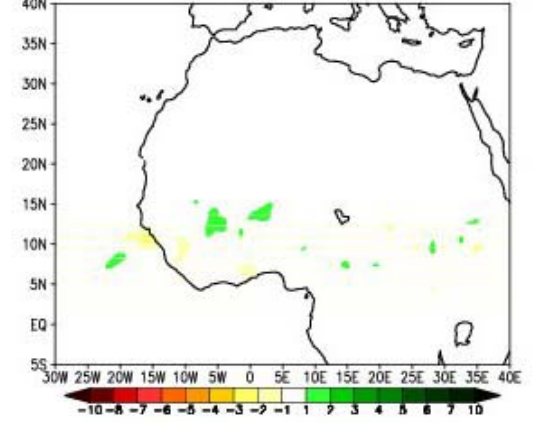
ReGCM4 Precip (DCSST-CTL) JJA 1997



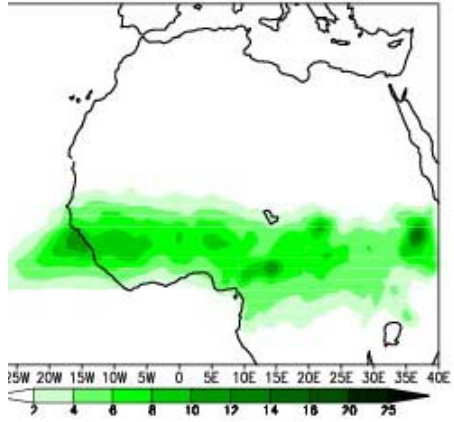
CRU Precip JJA 1997



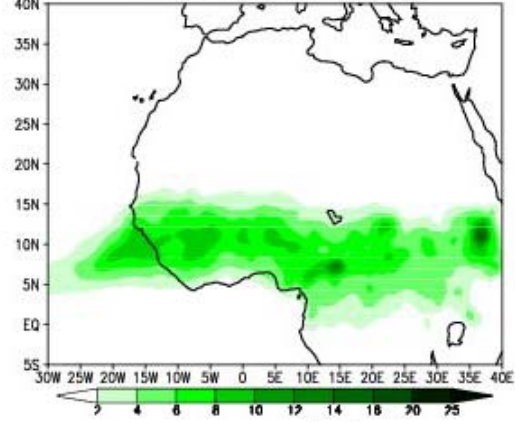
ReGCM4 Precip (DCSST-CTL) JJA 1997



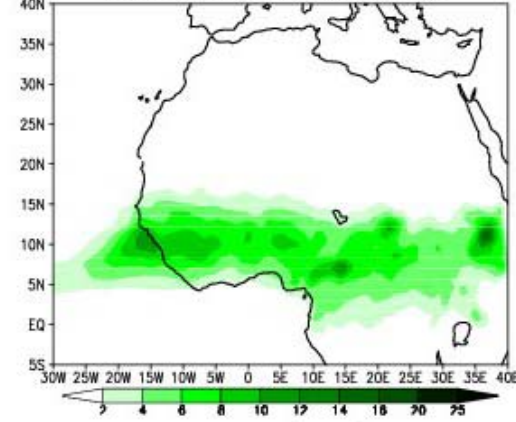
RegCM4 Precip (DCSST) JJA 1997



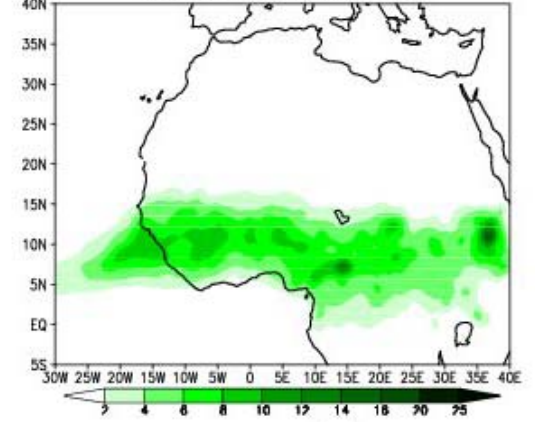
RegCM4 Precip (CTL) 1997



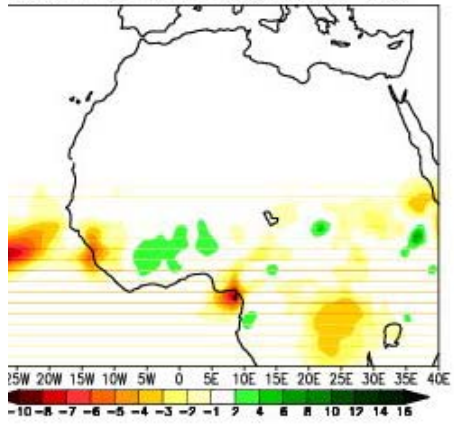
RegCM4 Precip (DCSST) JJA 1997



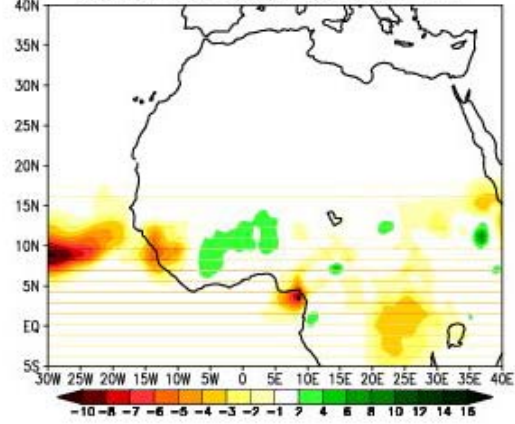
RegCM4 Precip (CTL) 1997



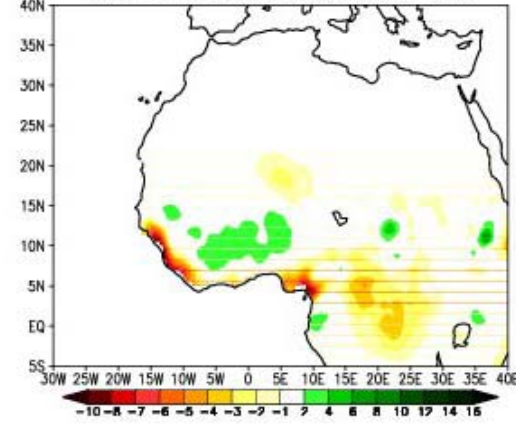
GPCP minus RegCM4(DCSST) JJA 1997



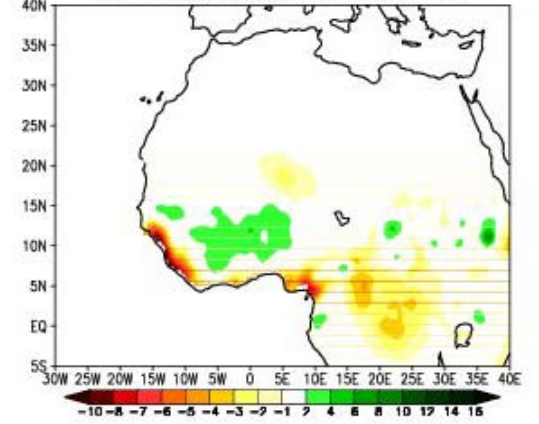
GPCP minus RegCM4 (CTL) JJA 1997



CRU minus RegCM4(DCSST) JJA 1997

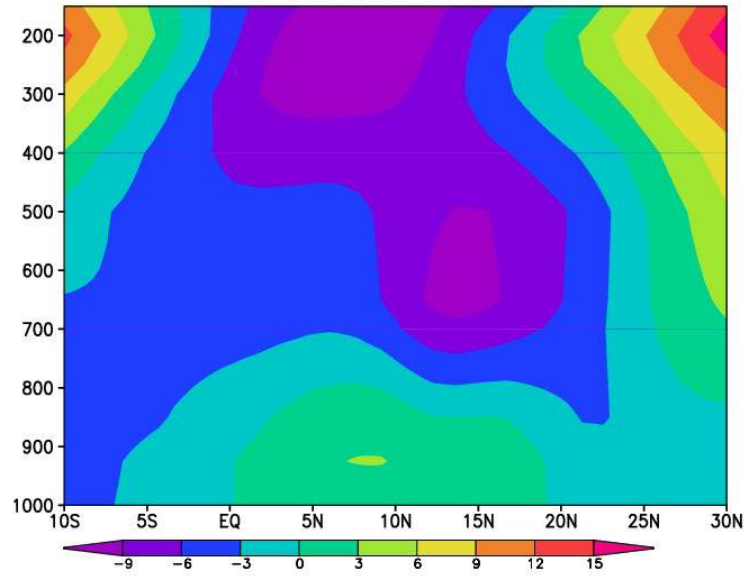


CRU minus RegCM4 (CTL) JJA 1997

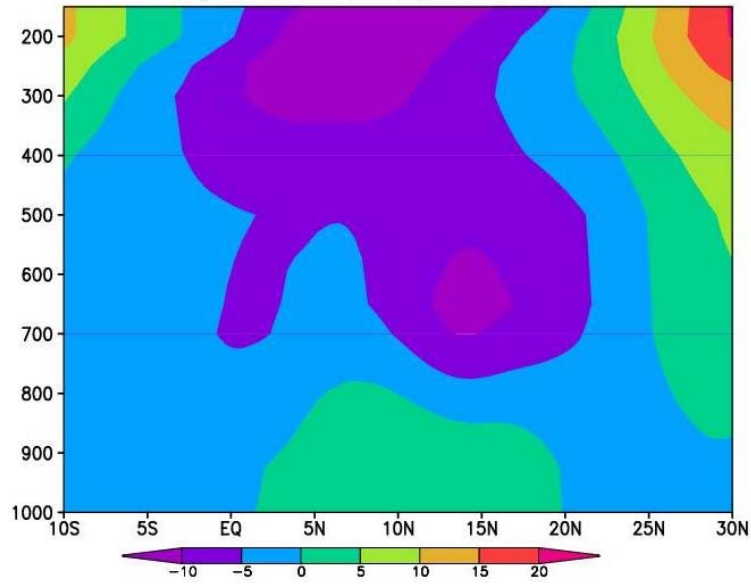




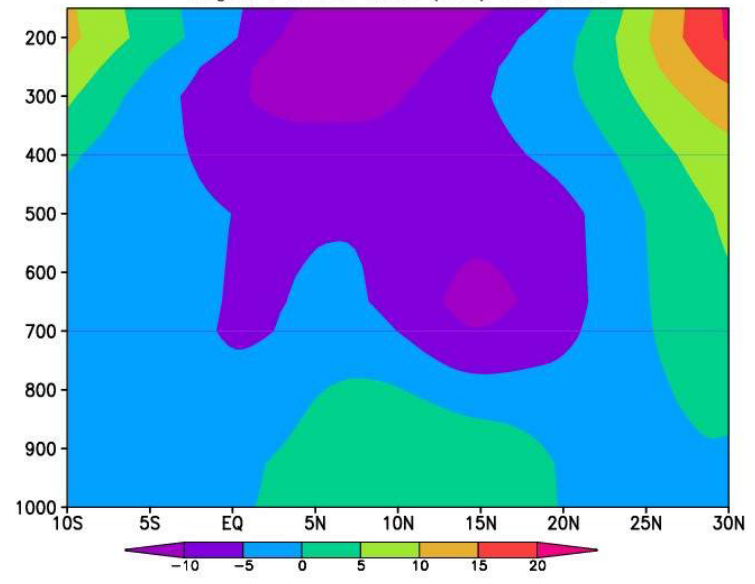
ERA-Interim Zonal Wind JJA 1997

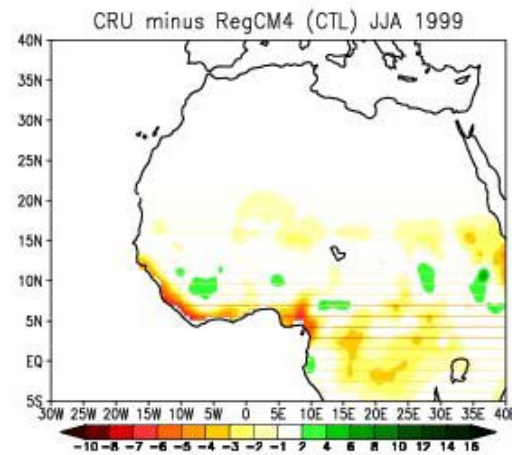
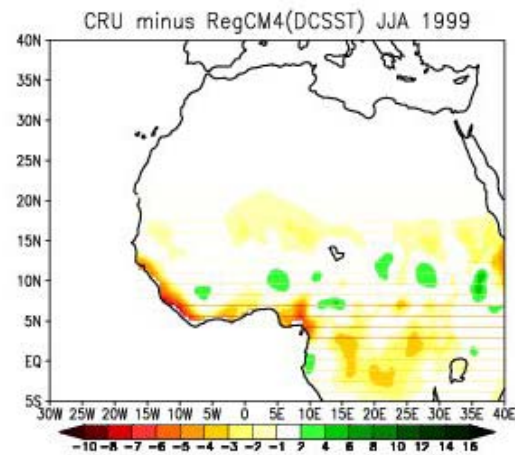
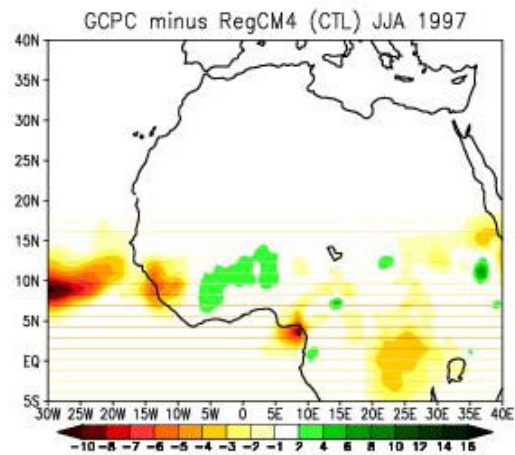
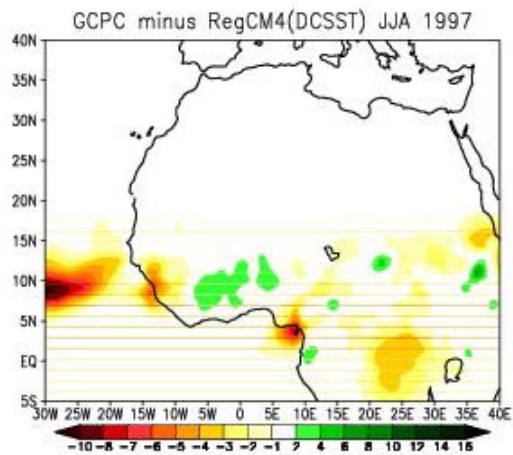
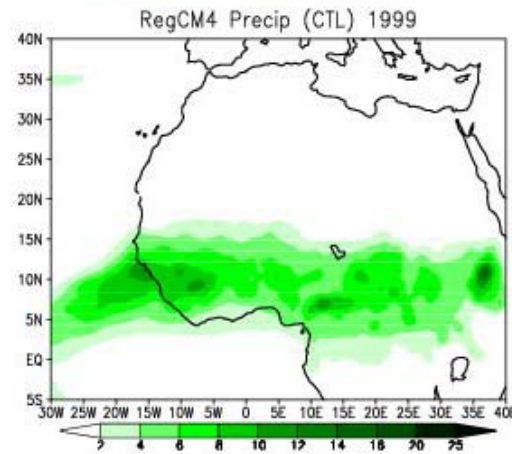
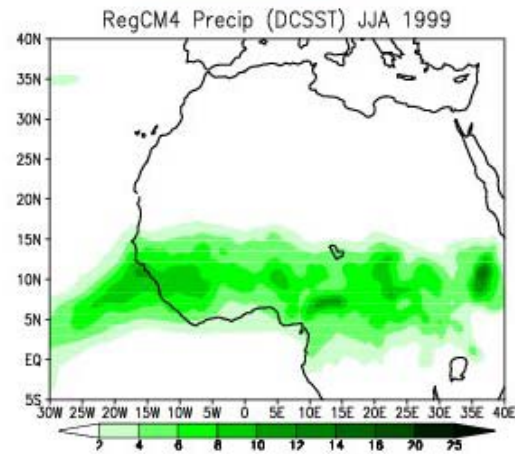
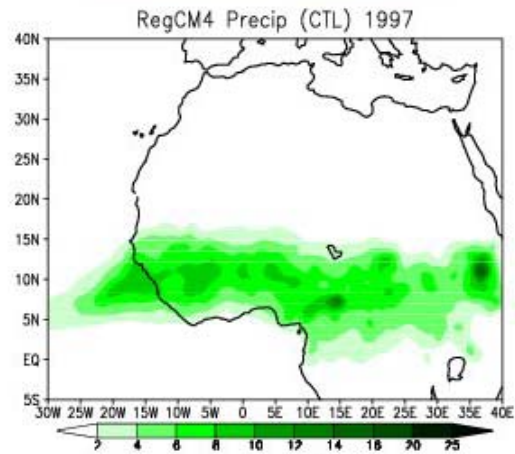
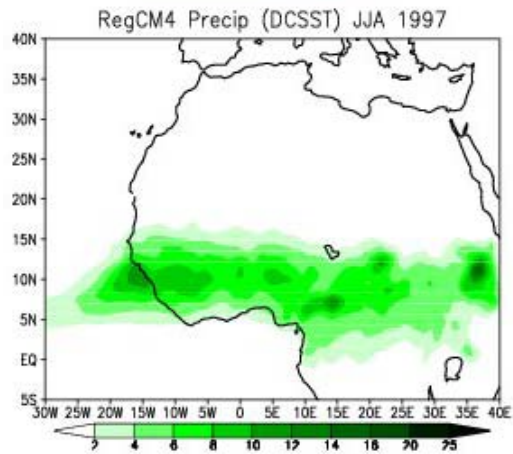
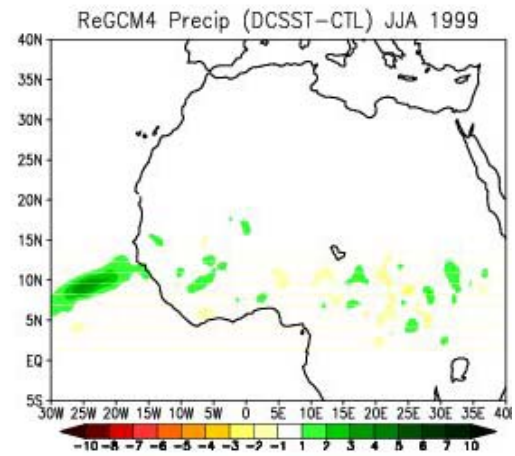
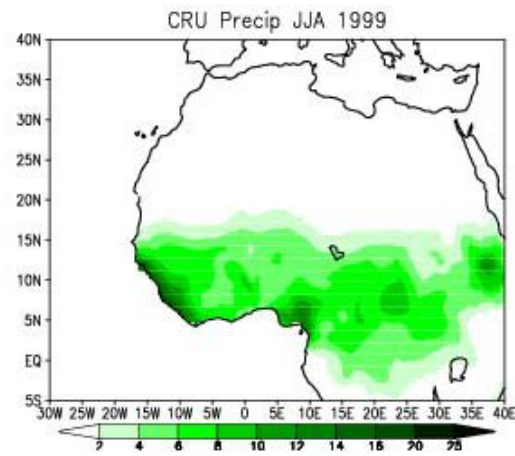
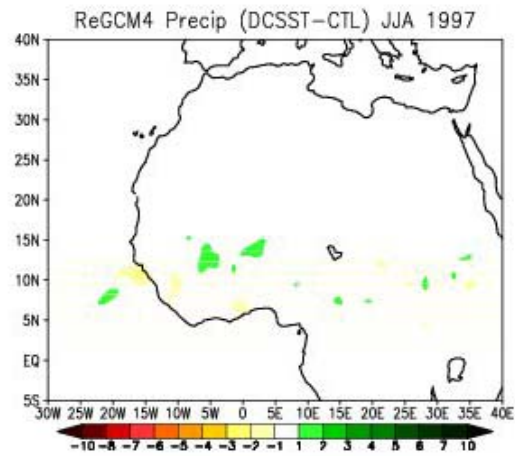
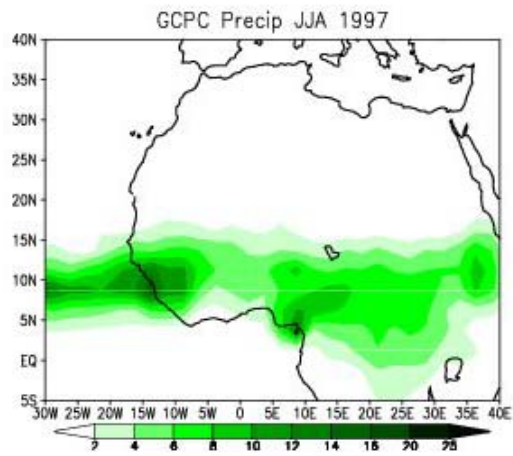


RegCM4 Zonal Wind (DCSST) JJA 1997

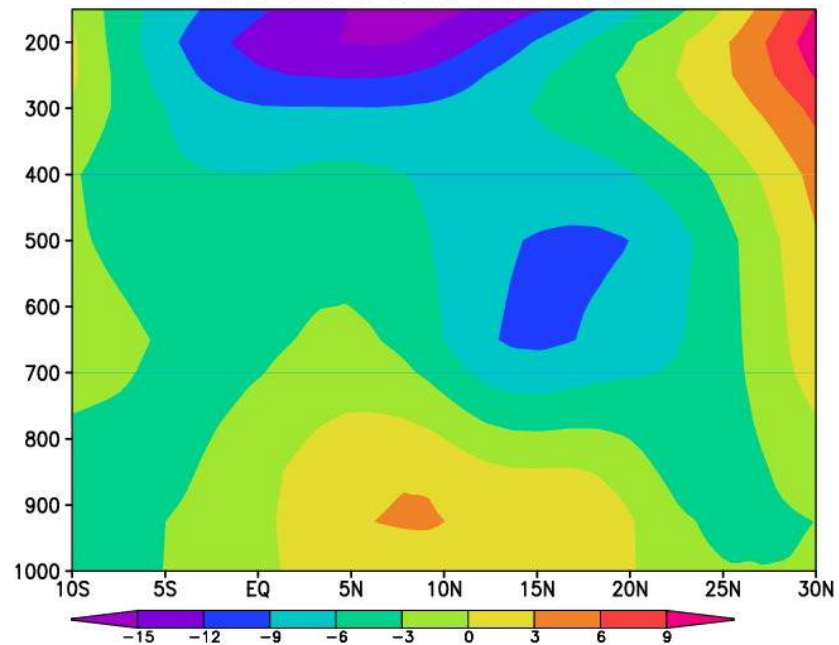


RegCM4 Zonal Wind (CTL) JJA 1997

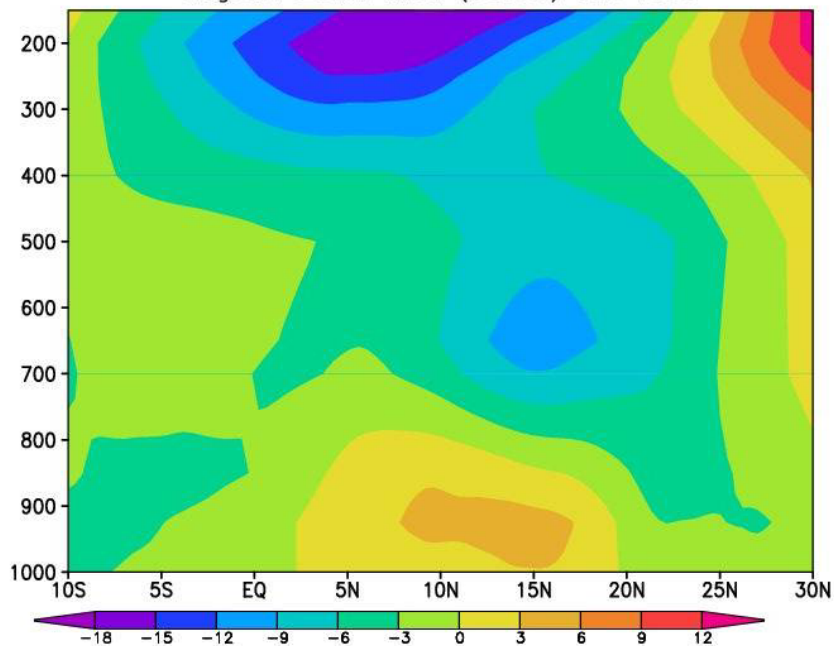




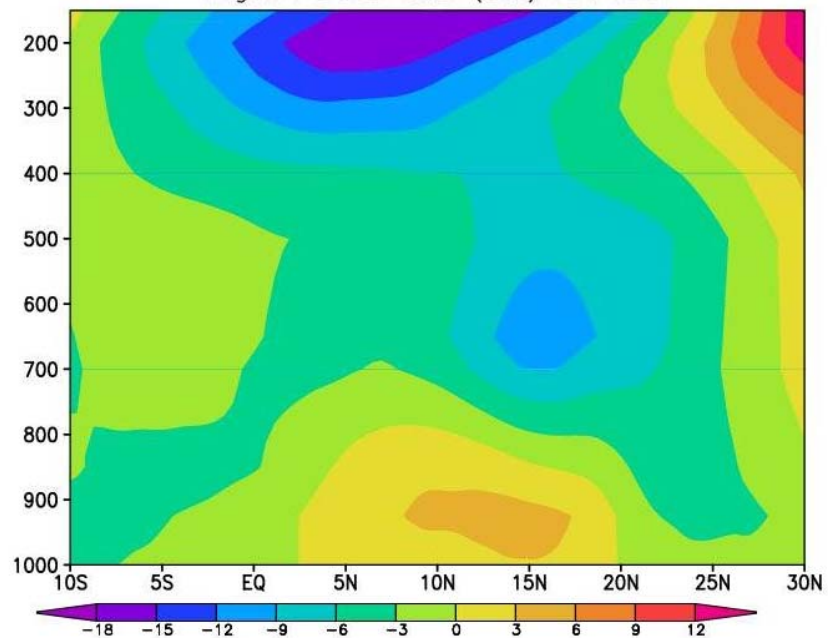
ERA-Interim Zonal Wind JJA 1999



RegCM4 Zonal Wind (DCSST) JJA 1999



RegCM4 Zonal Wind (CTL) JJA 1999



# Acknowledgements

Bamba, Graziano, Fabien, Nellie