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PhD in Oceanography, University of Cape Town (2019).

PhD Thesis: On the role of the Agulhas Current on weather and climate of South Africa.

Supervisors: Prof. Mathieu Rouault, Prof. Noel Keenlyside

Current position: Postdoc at GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel, Germany.

Supervisors: Prof. Mojib Latif, Dr. Wonsun Park

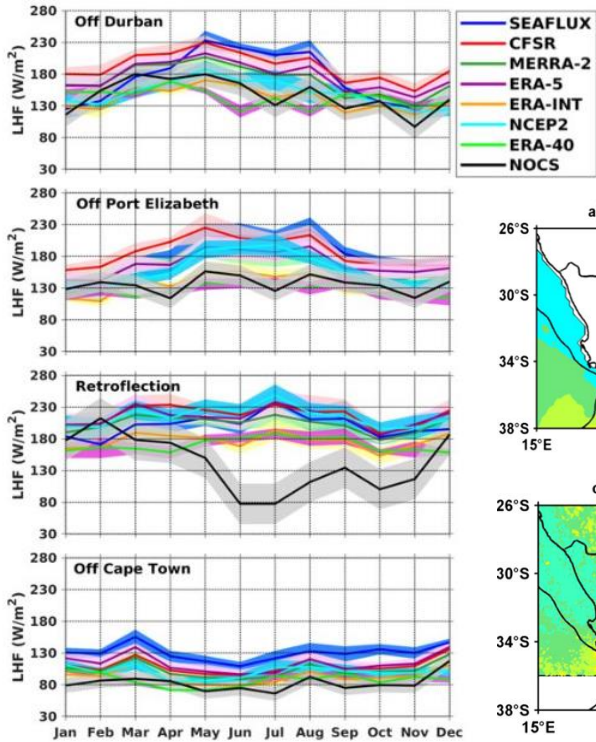
Research interests:

- ❖ CO2 impact on Tropical Atlantic precipitation using CMIP5 models;
- ❖ Impact of Antarctic meltwater input on Southern Ocean climate and ocean circulation using the Kiel Climate Model.

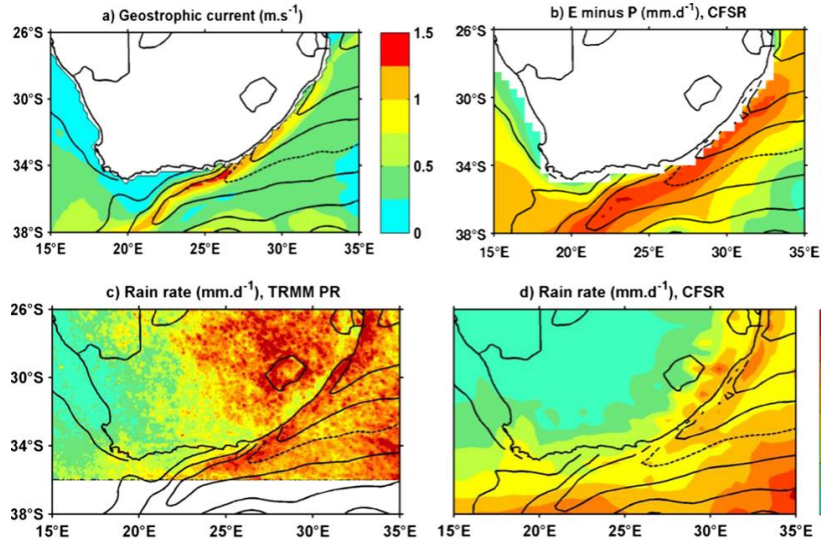
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RESEARCH FOR GRAND CHALLENGES



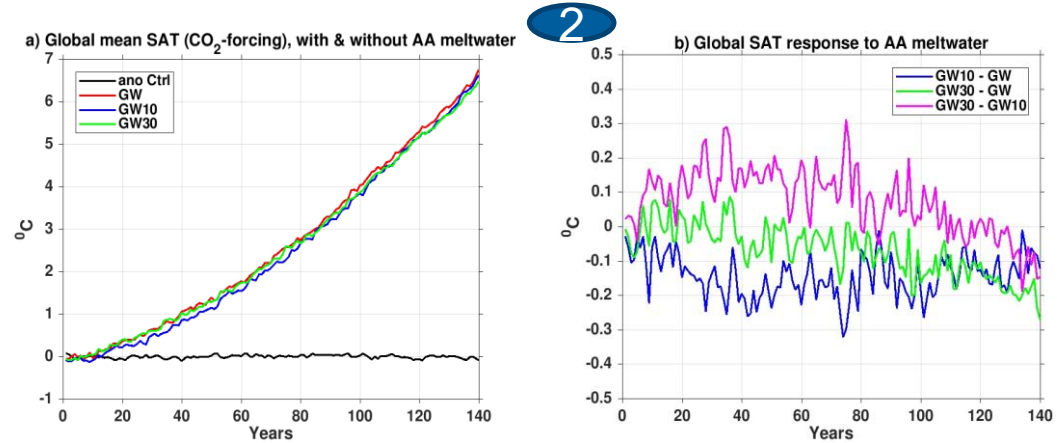
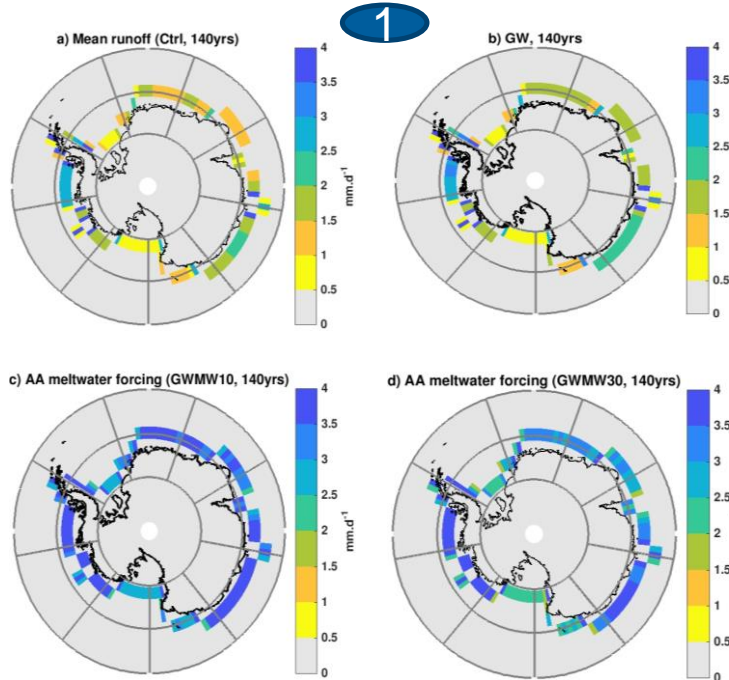


The amplitude of the annual cycle of Latent heat flux in the Agulhas Current is either driven by the specific humidity (off Durban), the wind speed (Retroflexion region) or both parameters (off Port Elizabeth) cf. Imbol Nkwinkwa et al. 2019 <https://doi.org/10.3390/rs11131576>



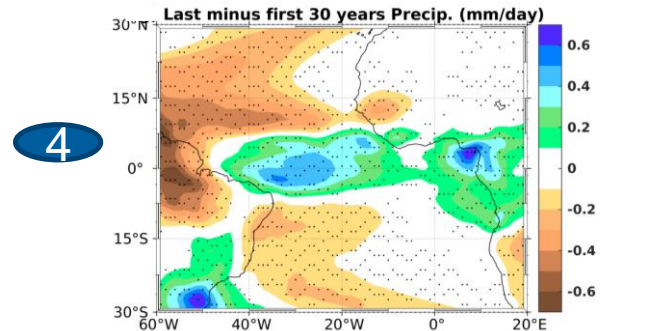
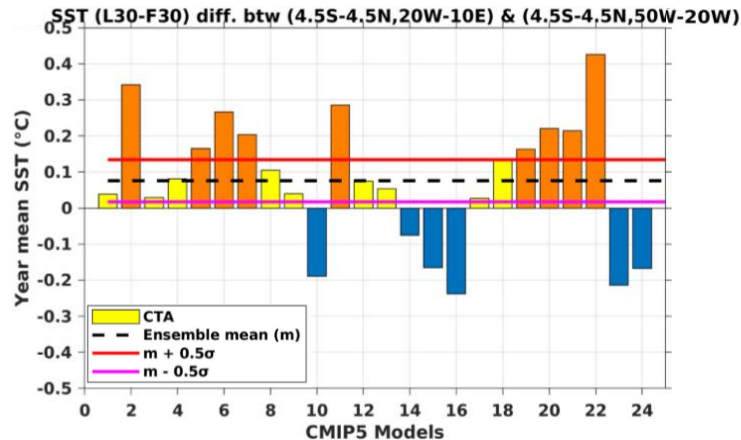
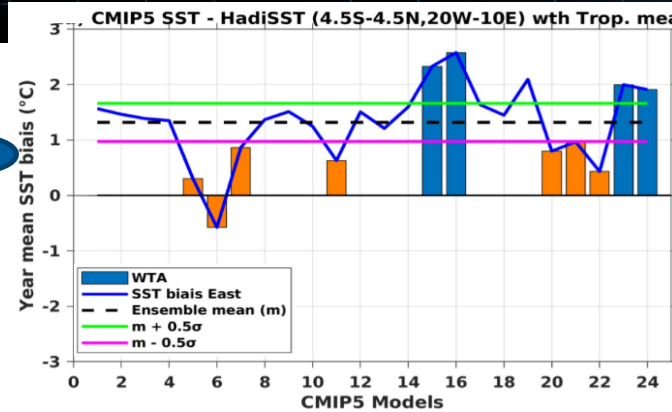
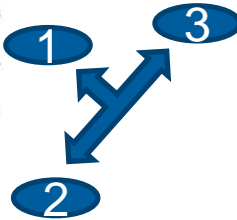
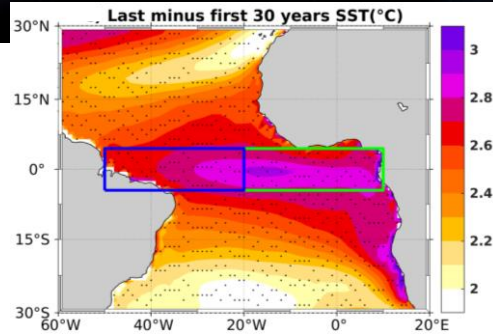
Along the eastern coast of South Africa, the warm core of the Agulhas current is associated with sharp sea surface temperature gradients and a co-located band of precipitation cf. Nkwinkwa Njouodo et al. 2018 <https://doi.org/10.1029/2018GL077042>

Impact of Antarctic meltwater input on Southern Ocean Climate



- KCM model; period: 140 years; 1% CO_2 increase per year
 - GW = Global Warming experiment (1b)
 - GMMW10 = Global Warming with 0.1 sv of Meltwater input (1c)
 - GMMW30 = Global Warming with 0.3 sv of Meltwater input (1d)
 - SAT = Surface Air Temperature (2a,b)
- Air temperature increases when there is more meltwater input with an increased CO_2 concentration.

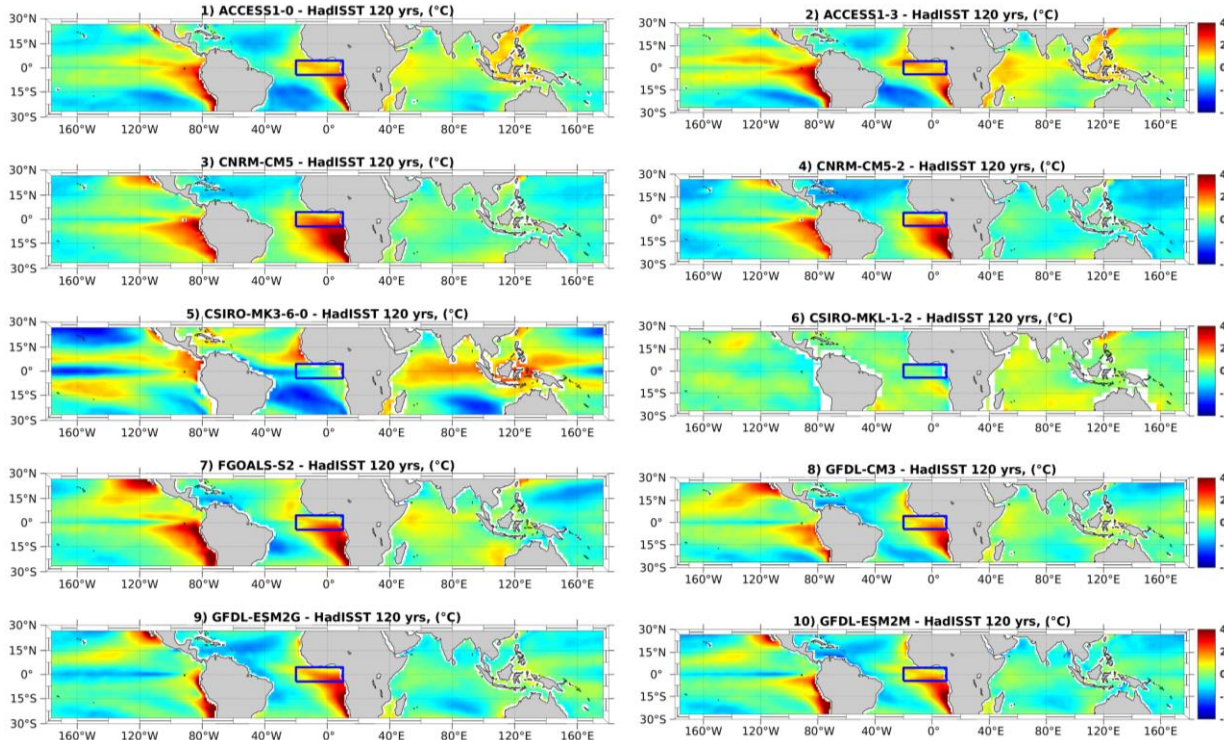
CO2 concentration impact on Tropical rainfall, using CMIP5 models



- CMIP5 models; period: 140 years,
- F30 = First 30 yrs
- L30 = Last 30 yrs
- ETA = East Tropical Atlantic
- CTA = Central Tropical Atlantic (2)
- WTA = West Tropical Atlantic (3)

Enhanced precipitation during the last 30 years along the equator (4).

Contribution to TRIATLAS Summer School



SST Bias for 10 CMIP5 models. SST bias is obtained from the difference between each model and HadISST observation, over the period 1870 - 1989.

Warm bias is found over the upwelling regions for most of the models. CSIRO models have either negative bias (5) or no bias (6).