

Results from the C20C Integrations at ICTP

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This presentation is intended to give an overview of the ICTP's results regarding the C20C integrations. Focus of investigations will be:

- i) Decadal NAO variability
 - ii) Interannual and decadal Sahel rainfall variability
 - iii) Interannual and decadal Indian Monsoon rainfall variability.
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- i) The connection of decadal NAO variability with the western tropical Pacific SST variability is analysed using large ensembles of SST forced experiments in selected basins. Although amplitudes are small, it is shown that from the western tropical Pacific emanates a wavetrain that projects positively onto the NAO. This finding is consistent with observations.
 - ii) Using large ensembles of SST-forced experiments, it is shown that the Sahel rainfall variability is reproduced (although with too small amplitude) on interannual and decadal timescales. The SST patterns responsible for this variability are identified.
 - iii) Using the same ensemble as above, an investigation of the Indian Monsoon reveals that approaches using global SST forcing fail to reproduce the Indian Monsoon rainfall (IMR) variability on interannual time scales. The likely reason for this is an over-sensitivity to Indian Ocean SST anomalies. On the other hand, on the decadal timescale, the IMR variability is well reproduced. Here Indian Ocean and ENSO interfere constructively.
 - iv) Pacemaker experiments (i.e. SSTs prescribed only in the ENSO region) are shown to provide a much superior hindcast tool regarding the Indian Monsoon rainfall because of interactive fluxes in the Indian Ocean.

Results from iii) are verified performing an intercomparison of C20C models.