

Prediction of El Niño and Indian Ocean Dipole teleconnections to WA

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- **Review teleconnections of El Niño and Indian Ocean Dipole to WA**

Oceanic teleconnection of ENSO > Leeuwin Current

Atmospheric teleconnection: rainfall and winds

Indian Ocean SST/rainfall key driver of WA teleconnection for El Niño/IOD

- **Review ability of POAMA to predict El Niño/IOD and their teleconnection**

Regional forecast skill=

skill to predict occurrence of El Niño/IOD X ability to simulate the teleconnection

- **Skill to predict El Niño/IOD, but regional skill is hampered by bias/error in teleconnection**

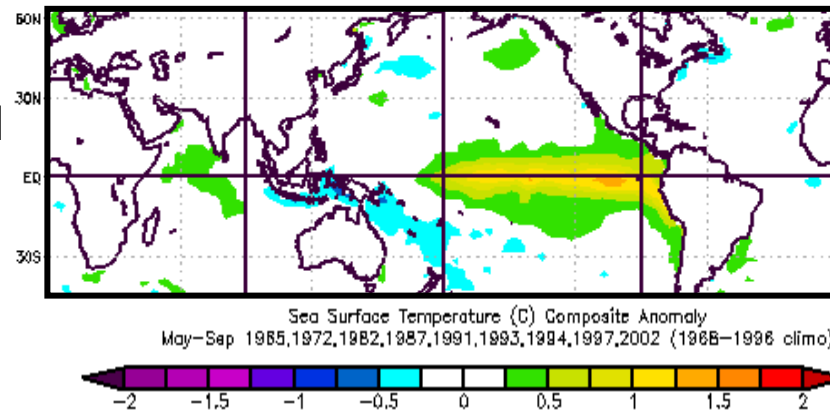
stems partly from bias in mean state (rainfall in east IO and extratropical jet)

improved forecasts needs to focus on alleviating mean state bias

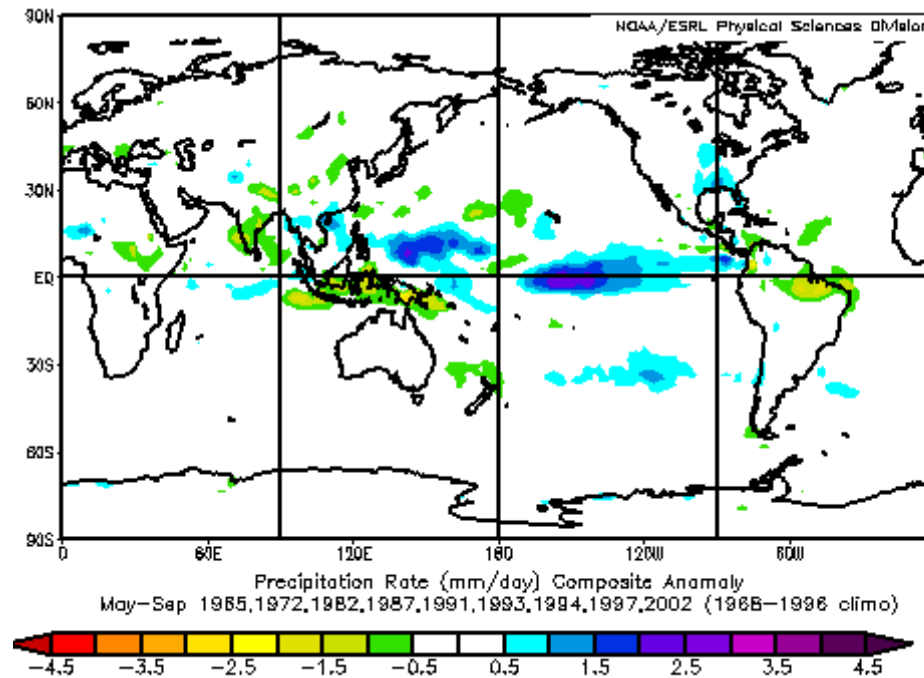
Atmospheric Teleconnections from ENSO/IOD

- Tropical SST drives tropical rainfall anomalies

ENSO/IOD tropical SST anomaly



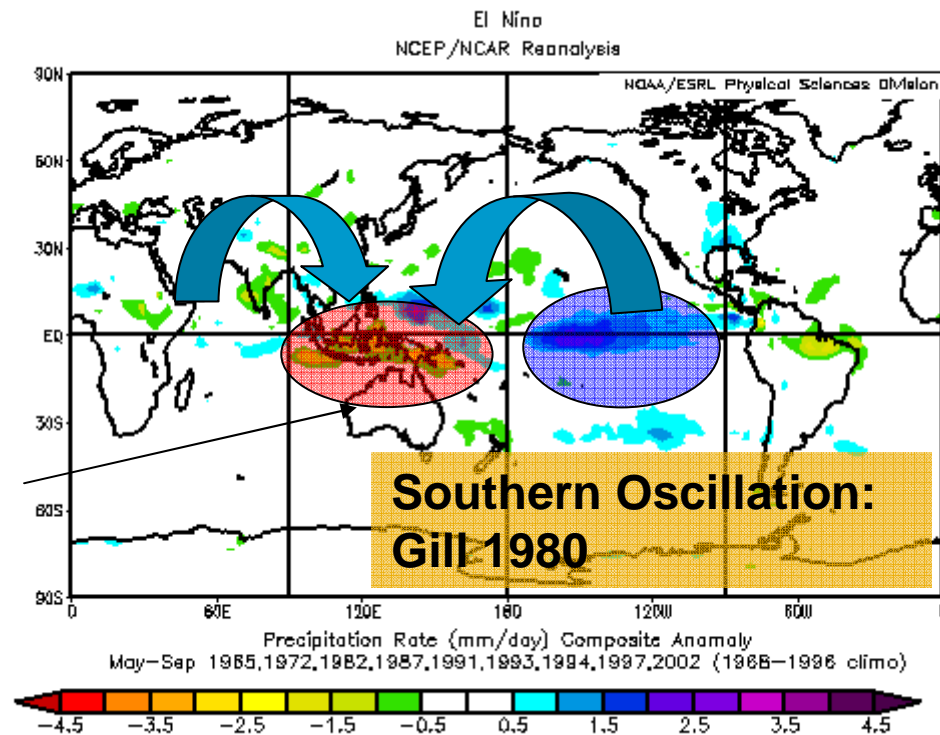
Rainfall anomaly



Atmospheric Teleconnections from ENSO/IOD

- Tropical SST drives tropical rainfall anomalies
- Tropical rainfall drives tropical circulation anomaly (SOI)

directly drives
reduced rainfall in
NE Australia

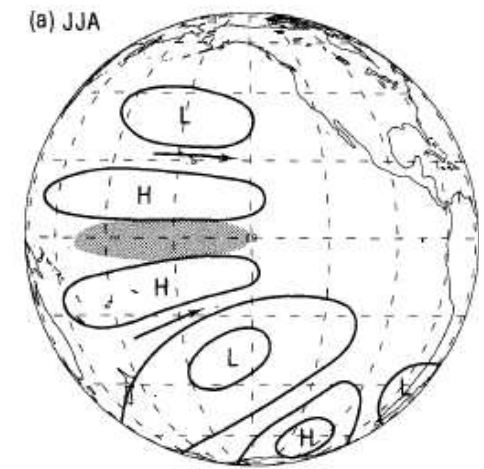
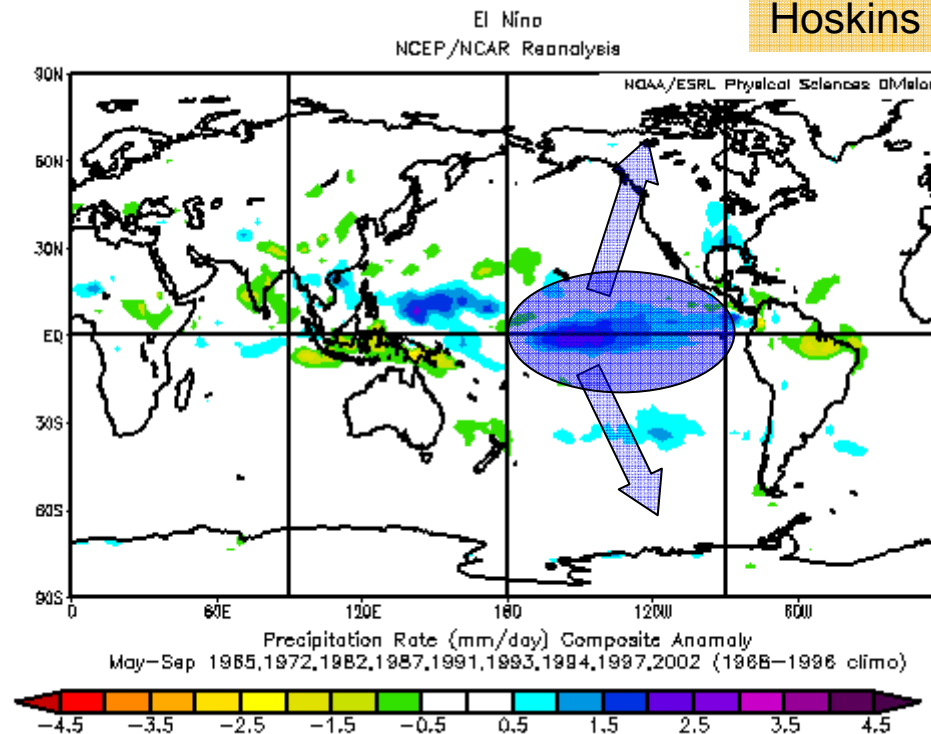


Atmospheric Teleconnections from ENSO/IOD

Tropical SST drives tropical rainfall anomalies

- Tropical rainfall excites Rossby waves into extra-tropics

PNA: Horel and Wallace 1981
Hoskins and Karoly 1981



PSA: Karoly 1989