

North Pacific Sea Surface Temperature Climatology and Variability in an Ensemble of AOGCMs

Introduction

Research highlight

Other work

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GOAPP Science Day 2009
Victoria BC



Canadian Foundation for Climate
and Atmospheric Sciences (CFCAS)

Fondation canadienne pour les sciences
du climat et de l'atmosphère (FCSCA)

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Global Ocean-Atmosphere
Prediction and Predictability

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Other work

- Processes residing in the Pacific Ocean substantially control predictive skill at seasonal, interannual and longer time-scales for much of Canada
- Evaluation of extratropical North Pacific SST climatology and variability in an ensemble of thirteen state-of-the-art GCMs
- Provide a regional North Pacific benchmark against which the Canadian Coupled Data Assimilation and Prediction System can be usefully compared

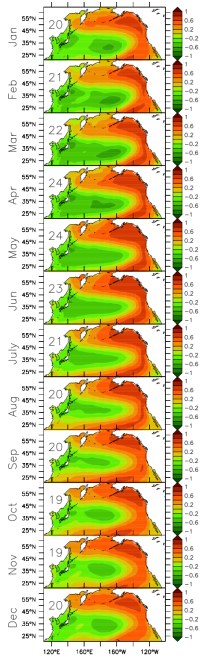
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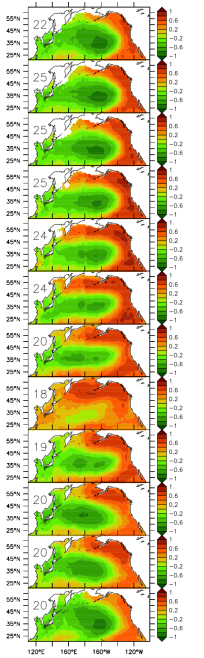
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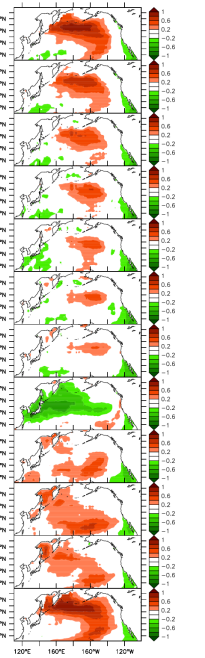
Other work



Model ens EOF1 SST



EOF1 SST HadISST



Model ens - HadISST

SST leading EOF pattern

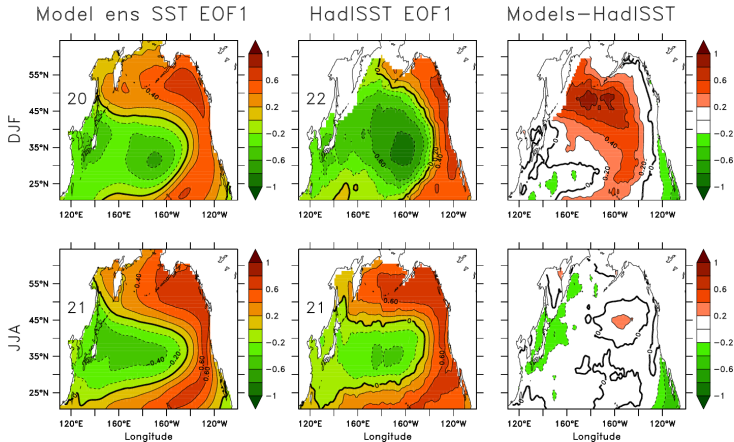
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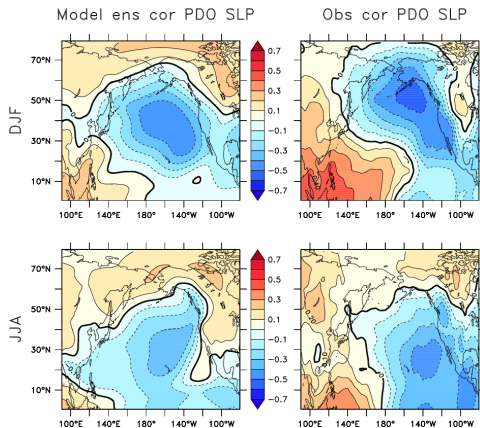
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- PDO pattern well simulated in models; Biases in DJF
- Similar variances explained by first EOF of total SST variance

Cor(PDO, SLP)



- Obs: PDO phase associated with lower than normal SLP in Aleutian Low in DJF
- Models: Weaker coupling; Shifted coupling pattern

Cor(ENSO, SLP)

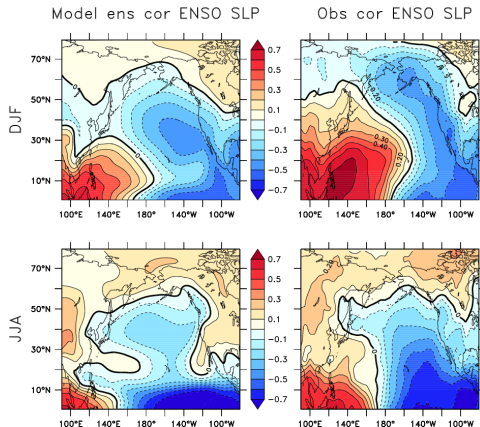
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- Obs: ENSO phase associated with lower than normal SLP along west-coast of North America
- Models: Weaker association, reaching only central North Pacific

Partial cor(PDO, SLP) w/o ENSO

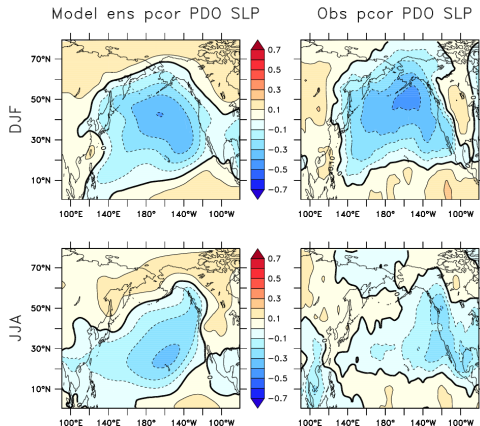
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- ENSO biases lead to PDO biases
- PDO biases most pronounced in part that is correlated with ENSO

Other work

- Understanding climatological SST biases caused in part by thermal advection (meridional wind/temperature biases)
- Understanding delayed North Pacific response to ENSO using simple mechanistic model: we find that biases in delay are due to biases in the mixed layer depth

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