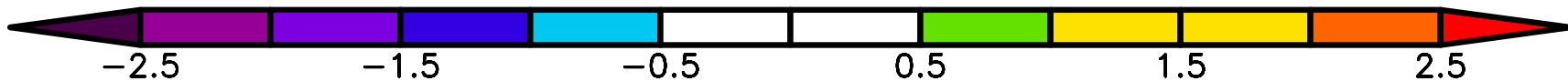
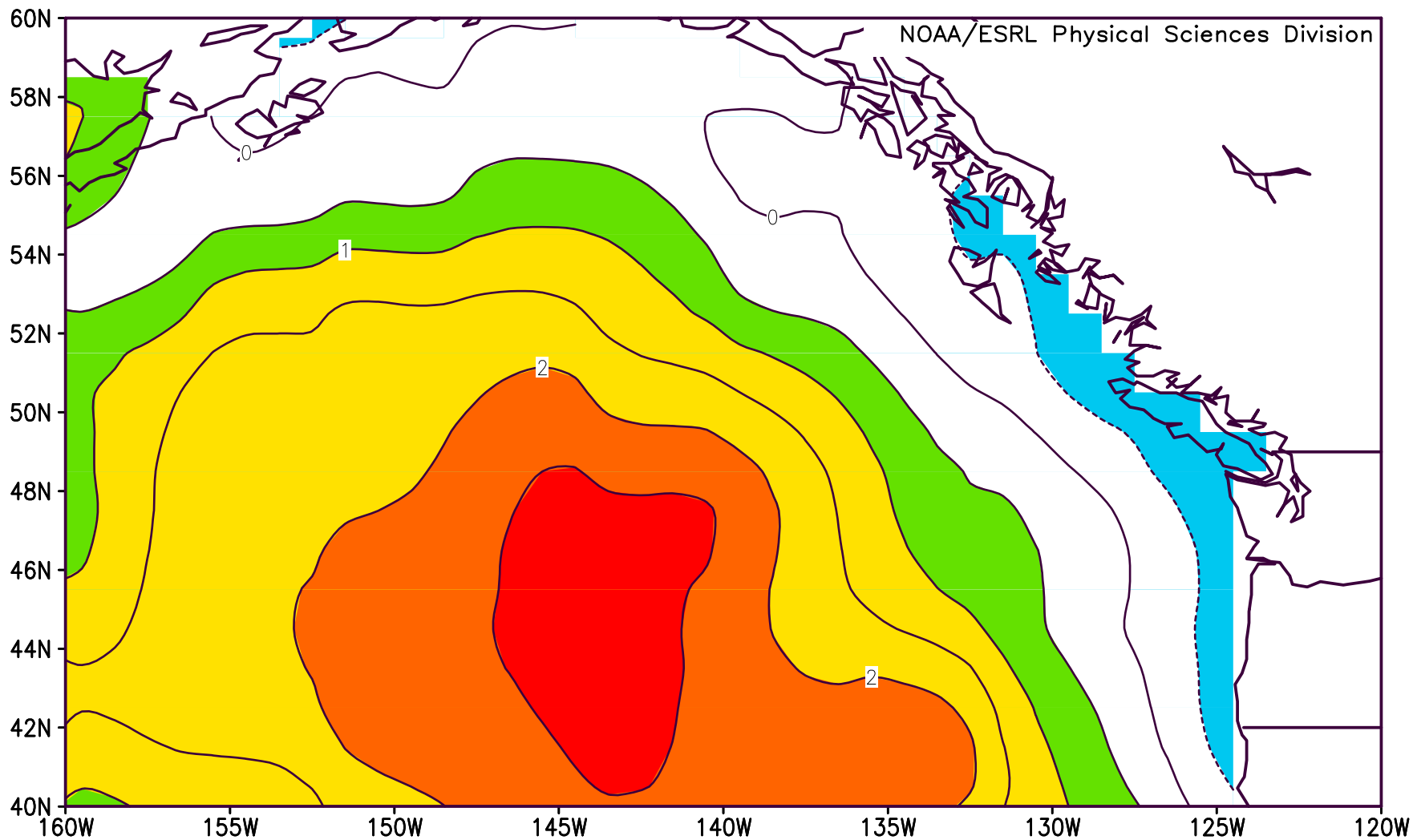


NOAA OI SST
Surface SST (C) Composite Anomaly 1981–2010 climo



INDESCRIBABLE...

INDESTRUCTIBLE!

NOTHING CAN STOP IT!

THE BLOB



STEVEN
McQUEEN

ANITA CORSEAUT · EARL ROWE

PRODUCED BY JACK H. HARRIS · IRVIN S. YEAWORTH, JR. · THEODORE SIMONSON AND KATE PHILLIPS
DIRECTED BY

SCREENPLAY BY
FROM AN IDEA BY IRVING W. THILLGATE
A TONY IN PRODUCTION · LEE J. DE LORE

Recent NE Pacific Warming or: How I Learned to Stop Worrying and Love the Blob (with apologies to Stanley Kubrick)

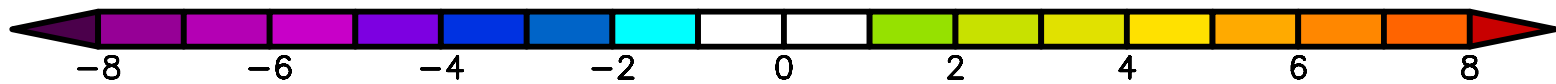
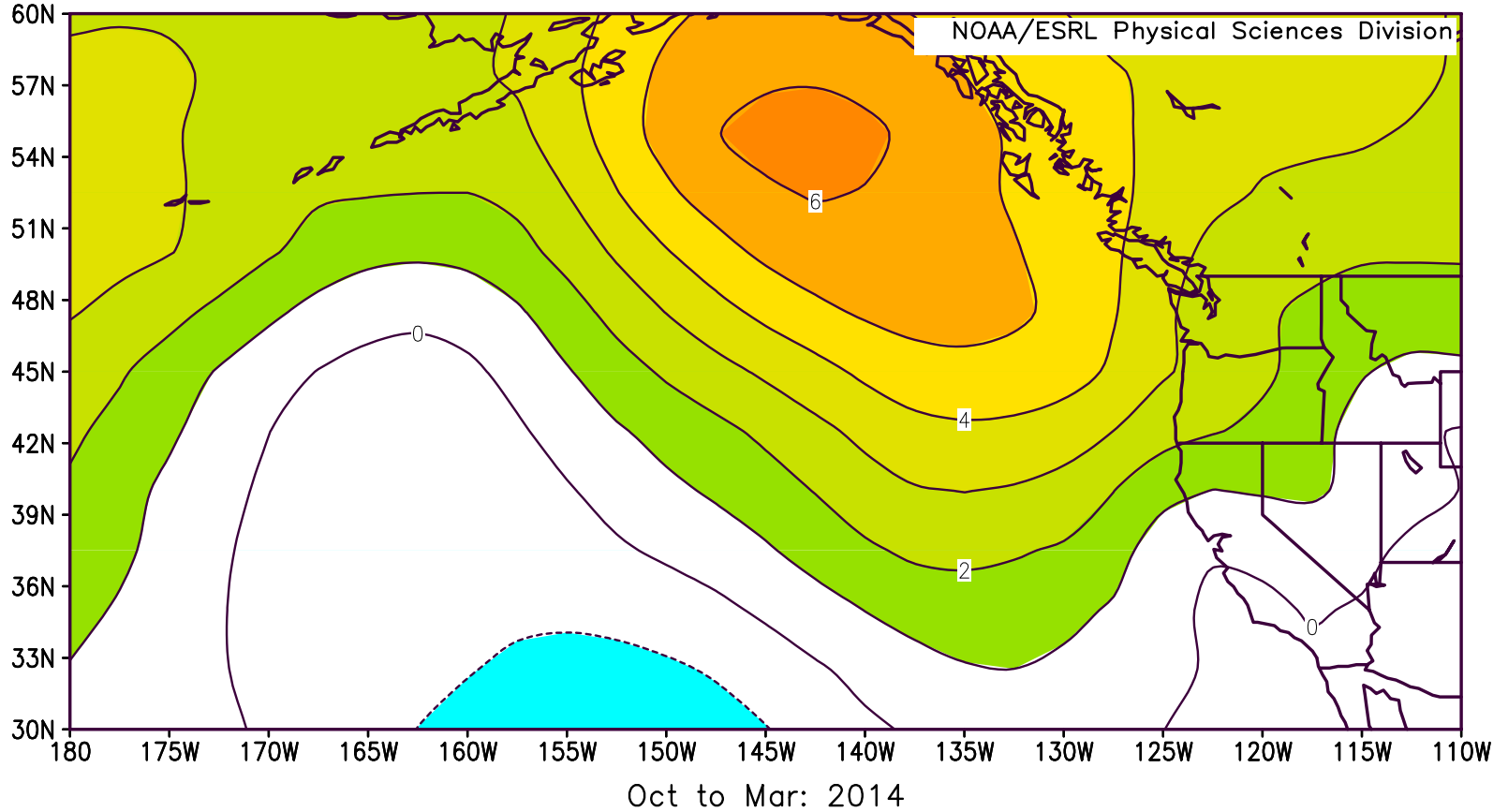


Nick Bond, Meghan Cronin^{*}, Howard Freeland, Nate Mantua

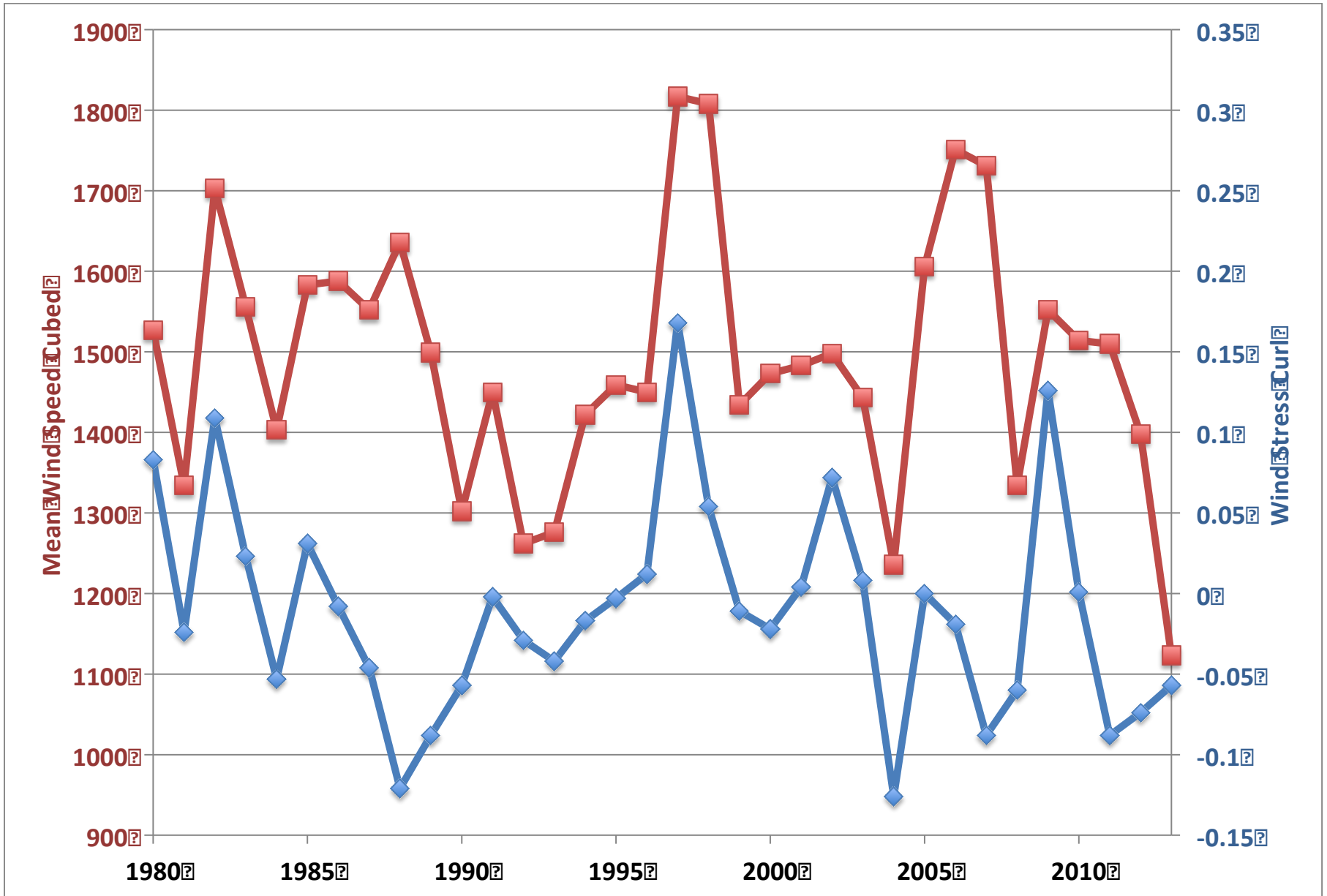
Topics

- Atmospheric Forcing of the Blob
- Regional Impacts of NE Pacific SST Anomalies

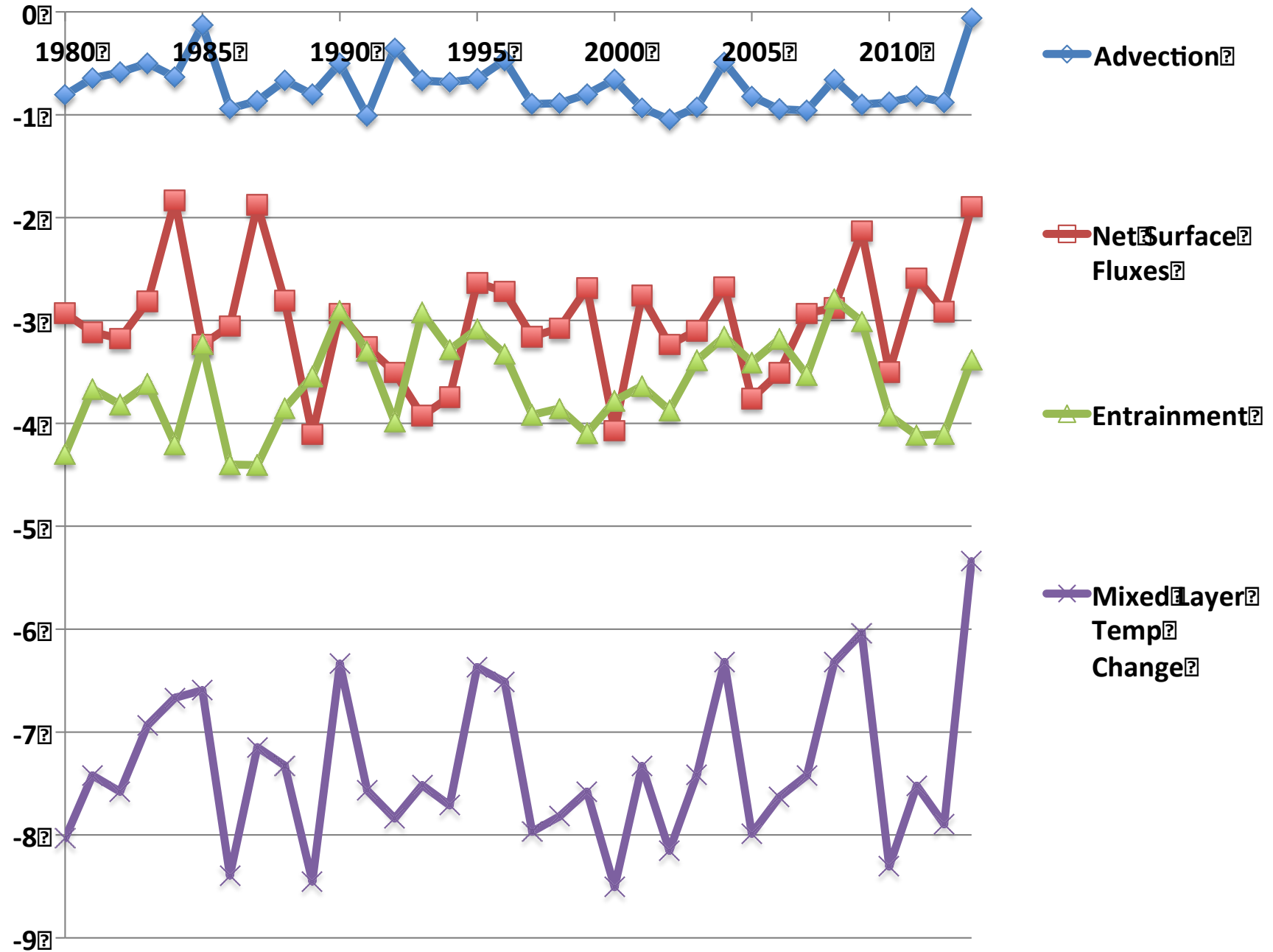
NCEP/NCAR Reanalysis
Sea Level Pressure (mb) Composite Anomaly 1981–2010 climo



Atmospheric Forcing (40-50°N, 150-135°W)

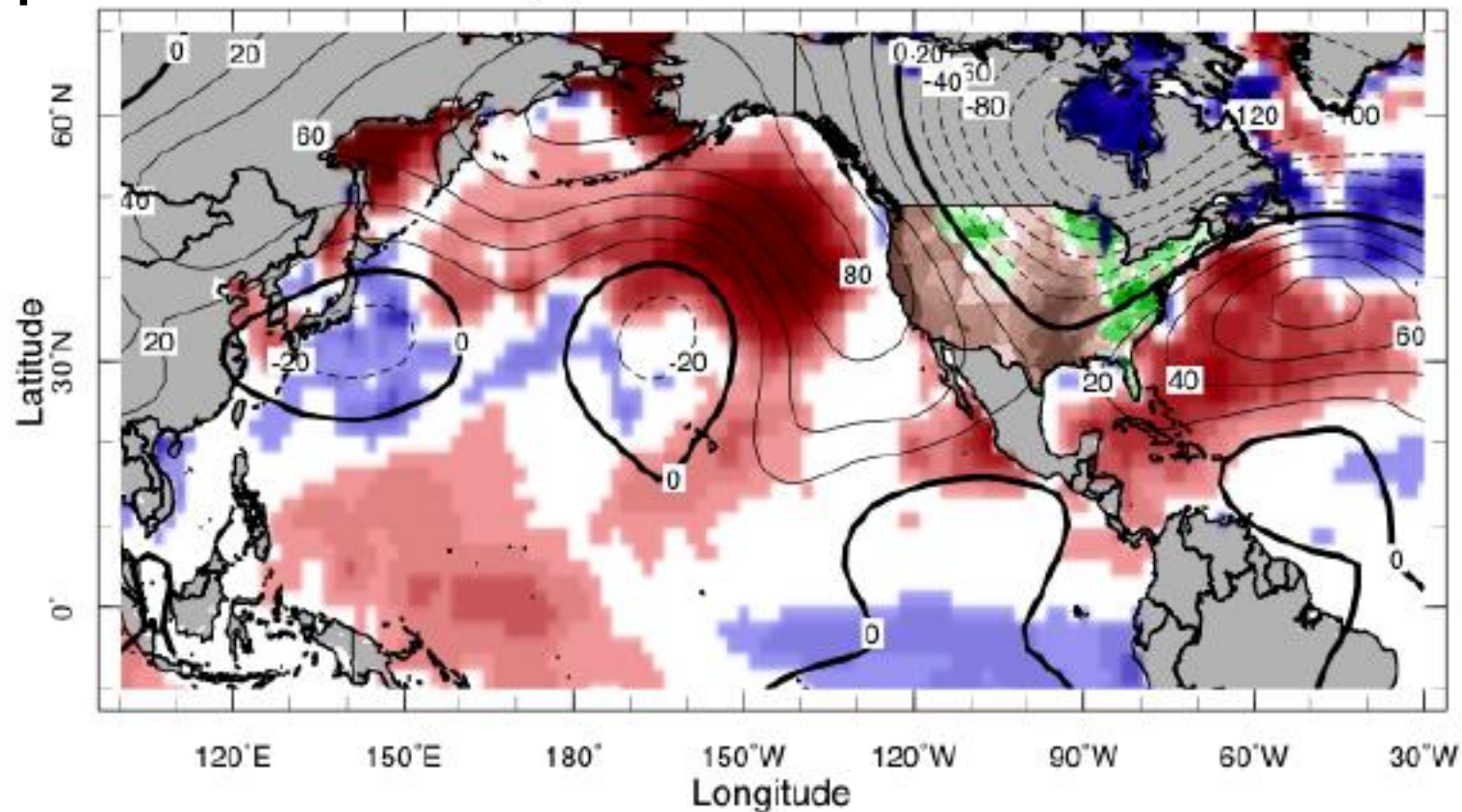


Terms in Oceanic Mixed Layer Heat Budget (Oct-Feb)



Observed 200 hPa Z, SST & Precipitation Anomalies (c) 2013-2014

Seager et al. (2014)



Nov 2013 - Apr 2014

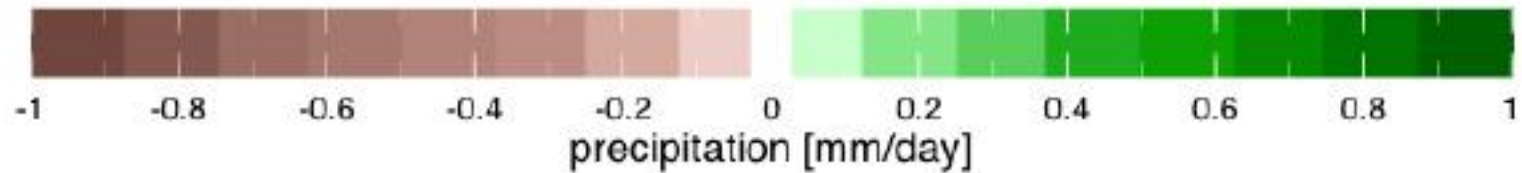
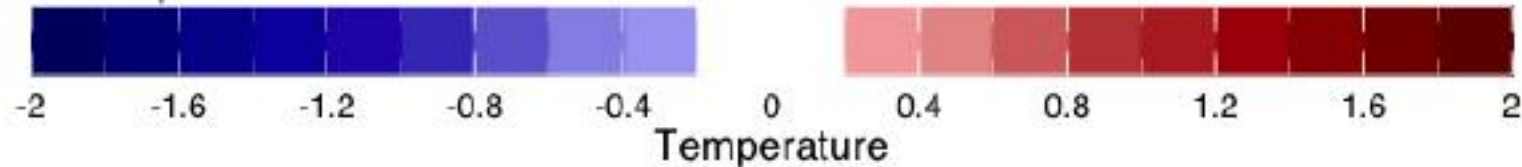
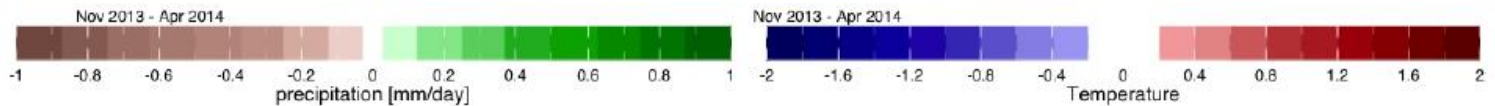
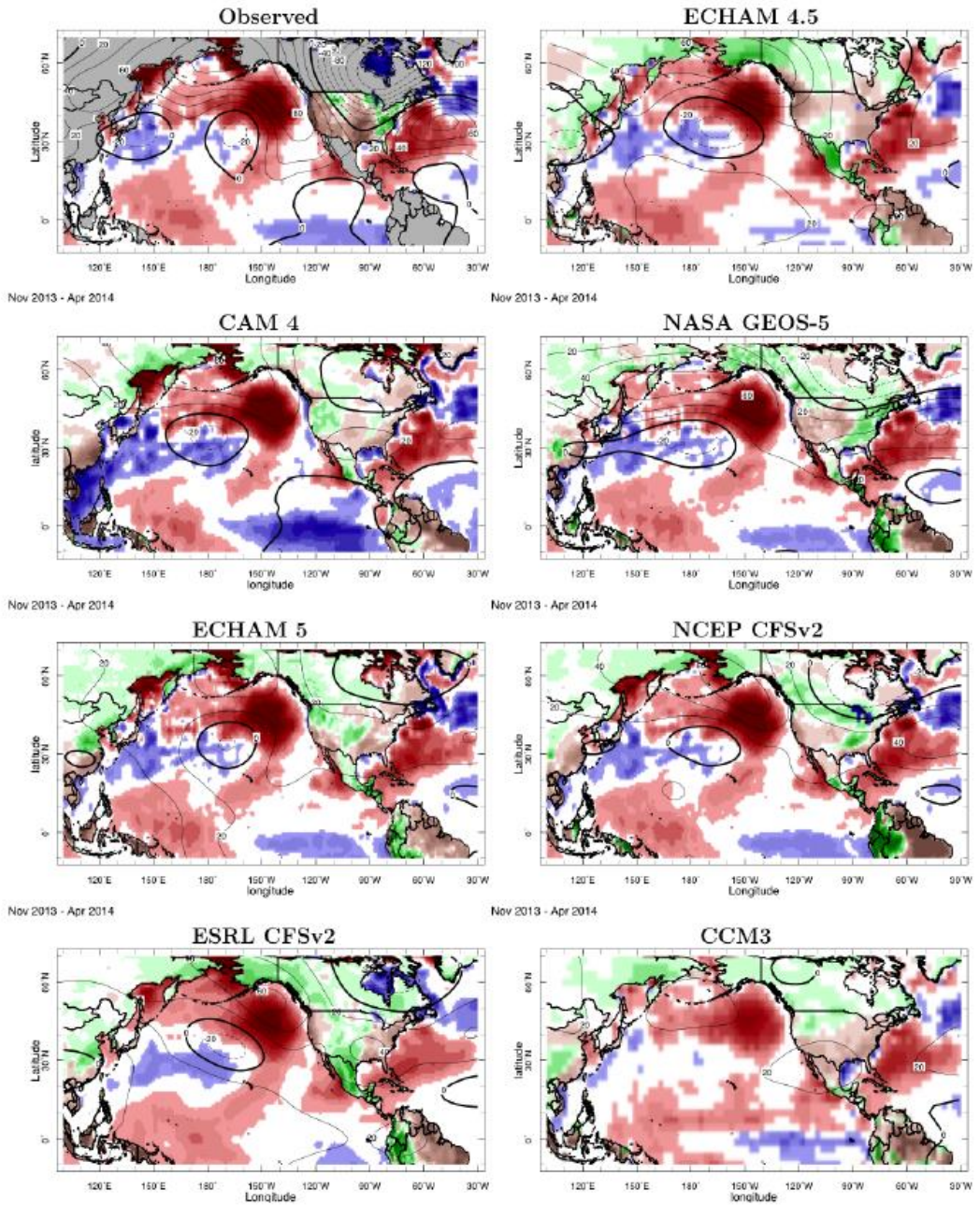


FIGURE 9

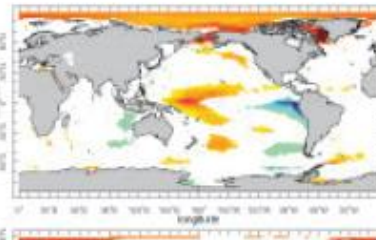
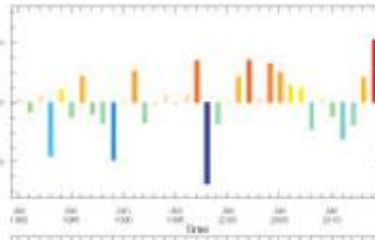
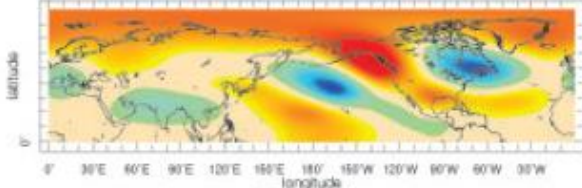
**Winter 2013-14 SSTA
(ocean), Precip (land), 200
mb Height (contour)**

Same as Figure 6 but for the winter of
November 2013 to April 2014.

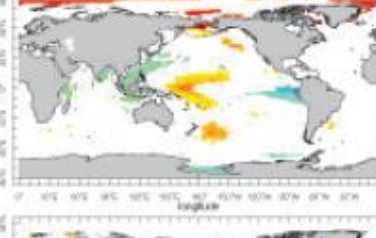
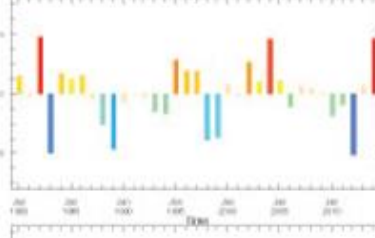
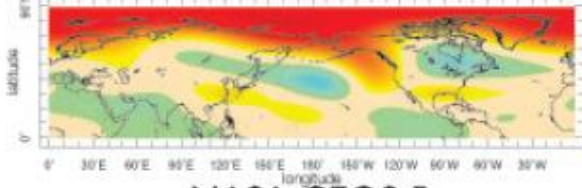


Model Anomalies w/ EOF3 200 hPa

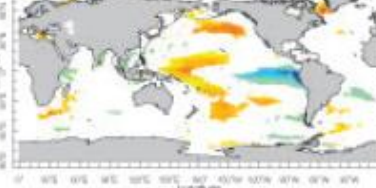
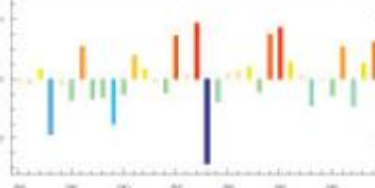
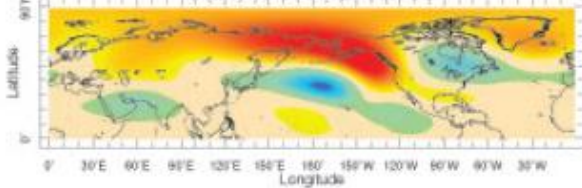
ECHAM 4.5



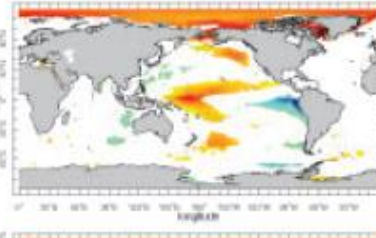
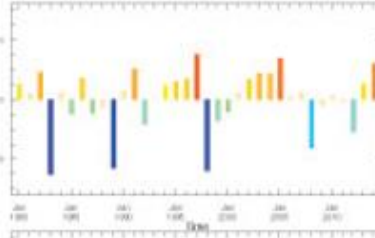
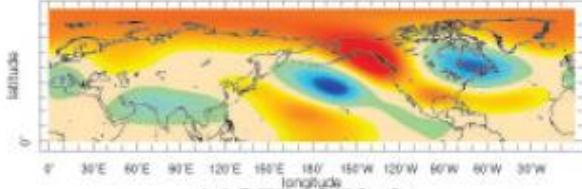
CAM4



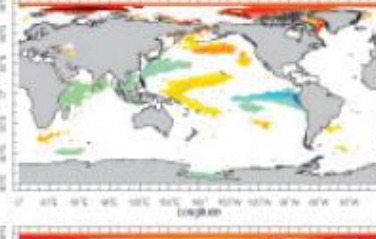
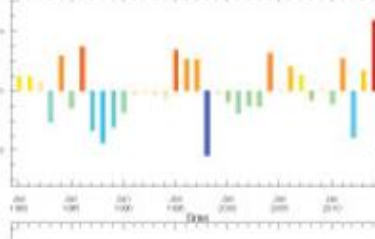
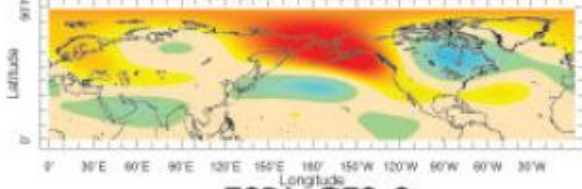
NASA GEOS-5



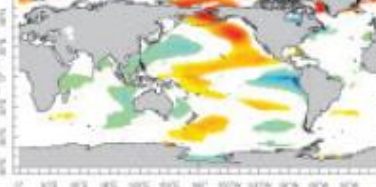
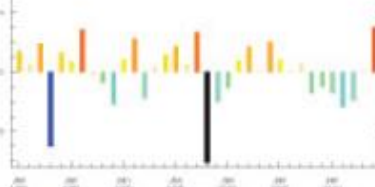
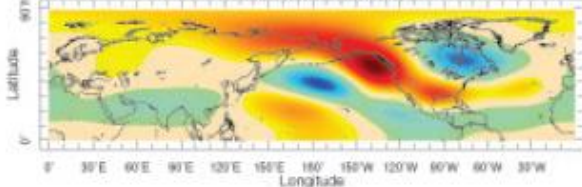
ECHAM 5



NCEP CFSv2

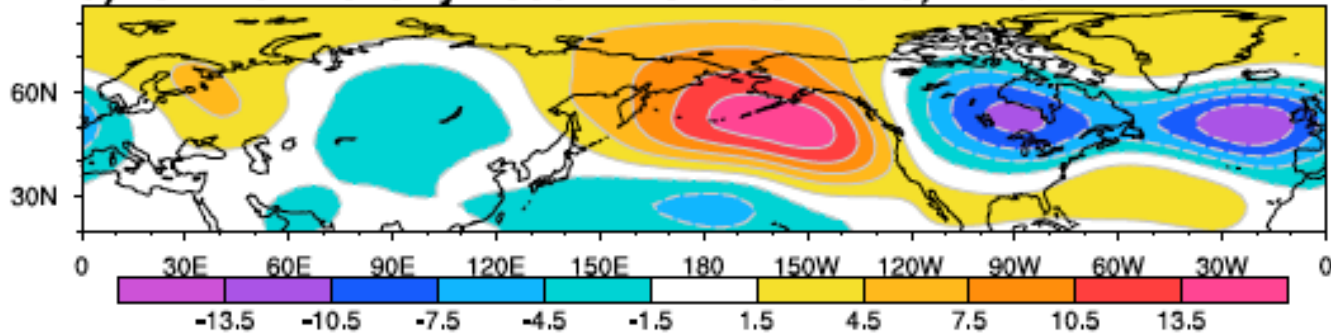


ESRL CFSv2

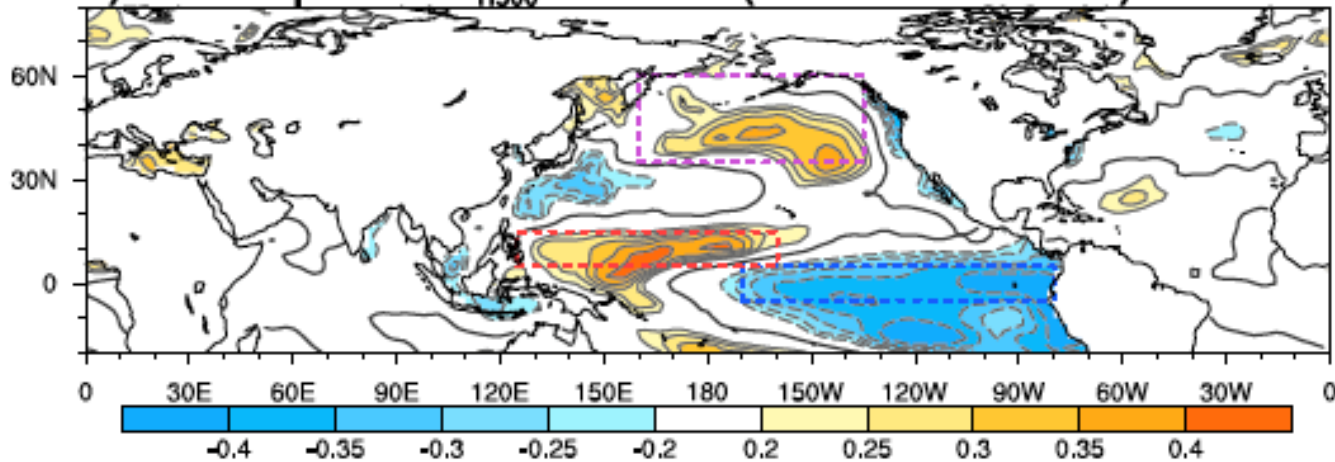


Lee et al. (2015)

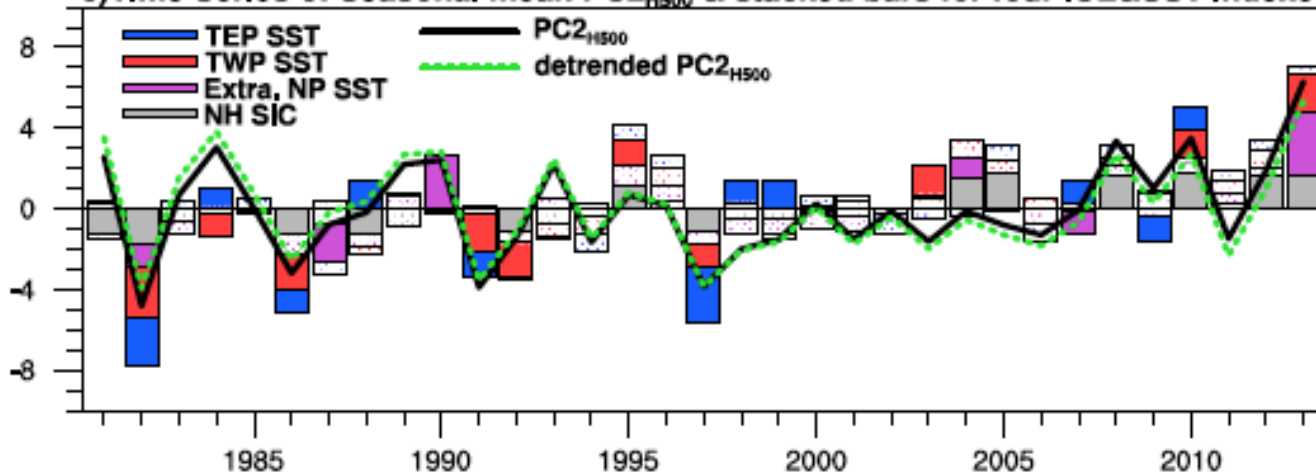
a) EOF 2 of monthly H500 in DJF 1981-2013, 14.2%



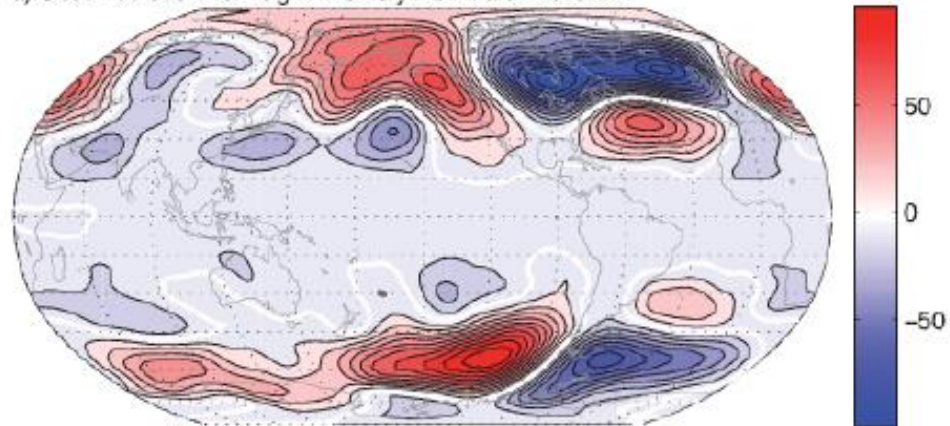
b) Corr. map for PC2_{H500} & ERSST (D-J-F In 1981-2013)



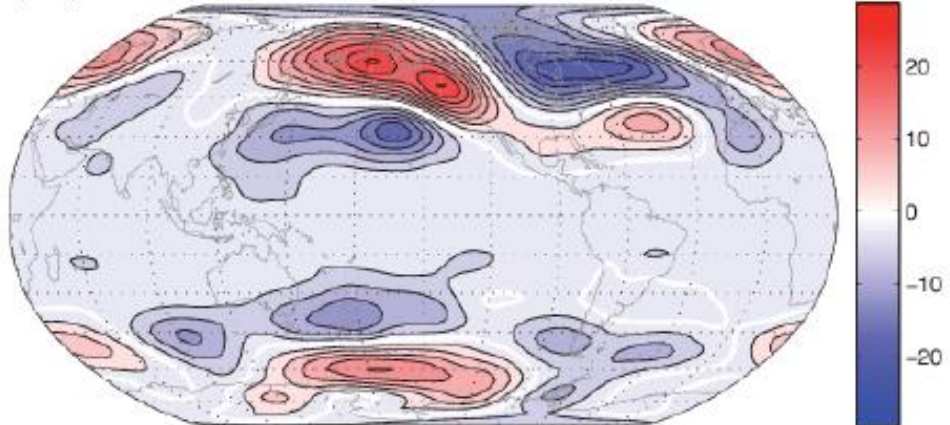
c) Time Series of Seasonal mean PC2_{H500} & stacked bars for four ICE&SST Indexes



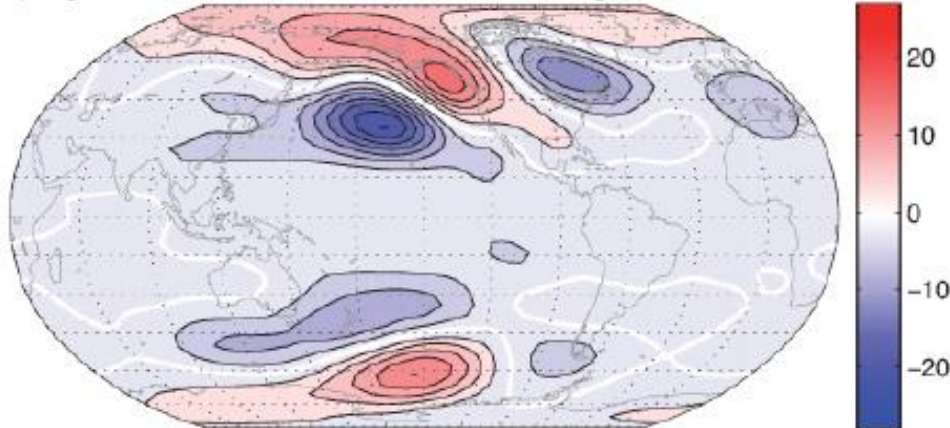
a) Observed 500 hPa Height Anomaly Nov-March 2013-14



b) Regression of NCEP/NCAR Reanalysis onto EOF2 of global SST 1979-2014



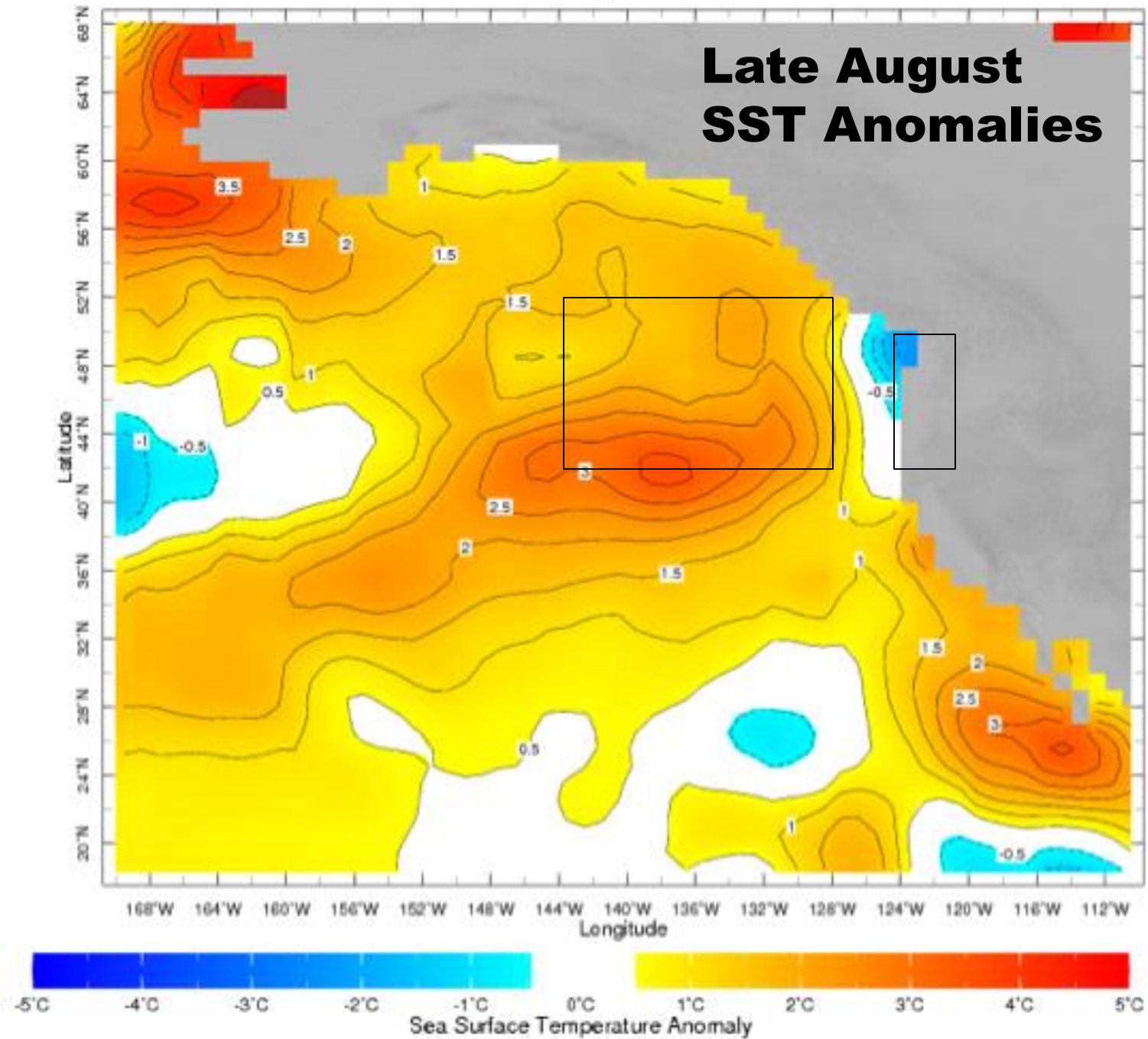
c) Regression of ESRL-GFSv2 Ensemble onto EOF2 of global SST 1979-2014



Hartmann (2015)

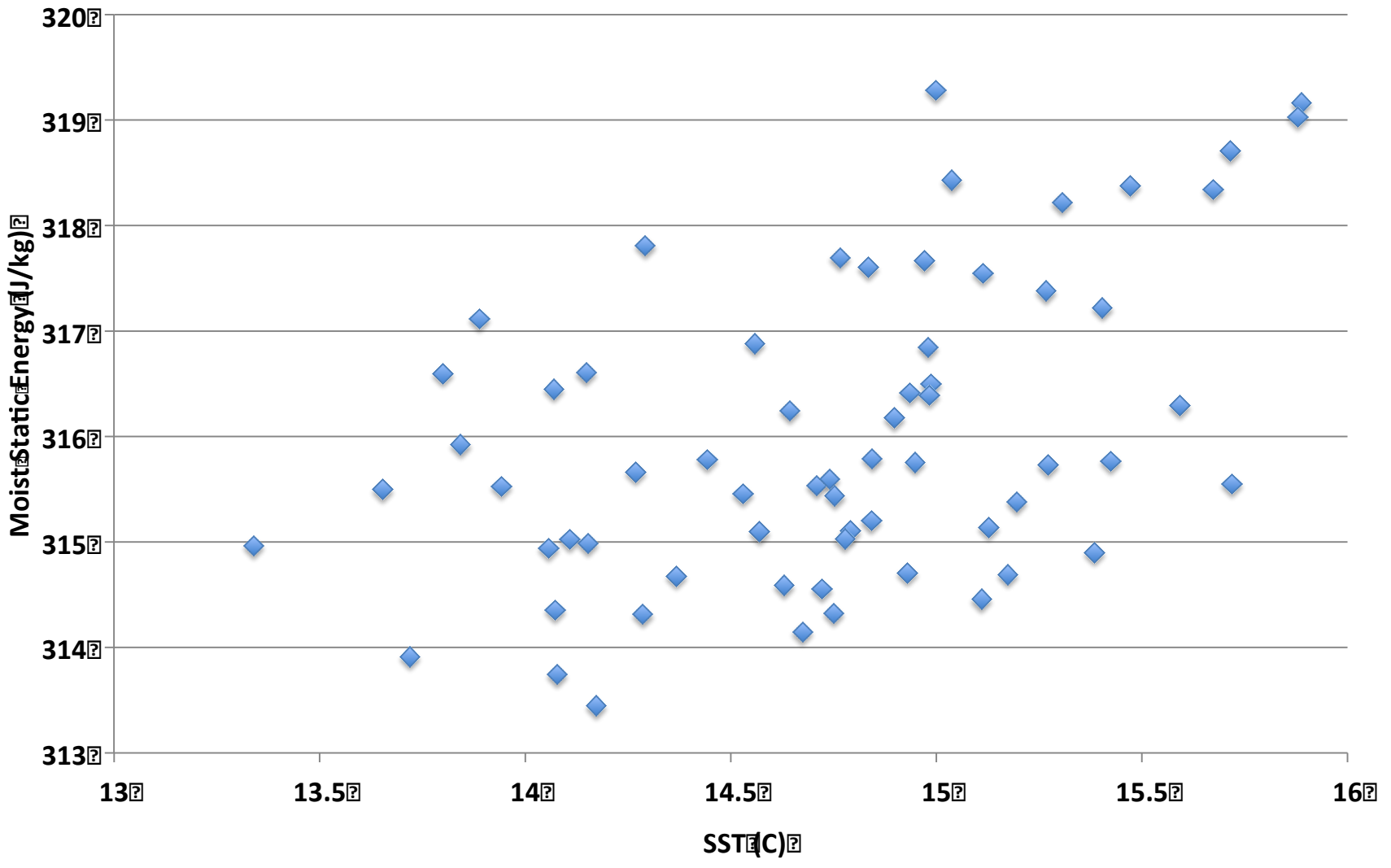
24-30 Aug 2014

Late August SST Anomalies

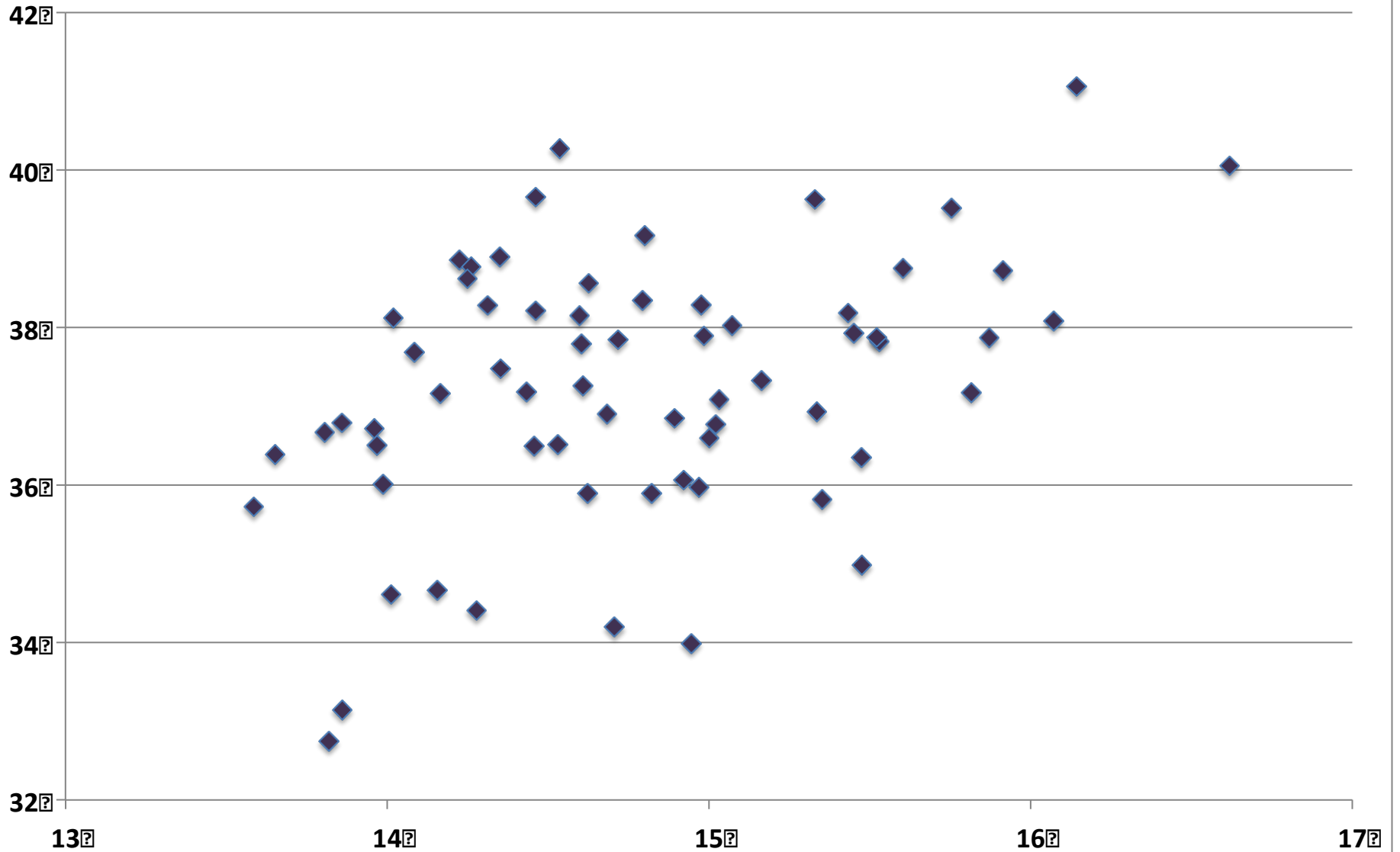


Moist Static Energy West of Cascades vs. Offshore SST (JAS)

2014 *

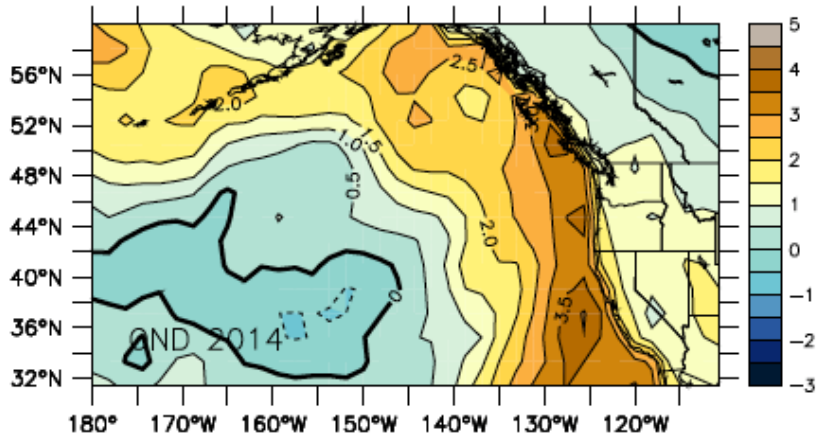
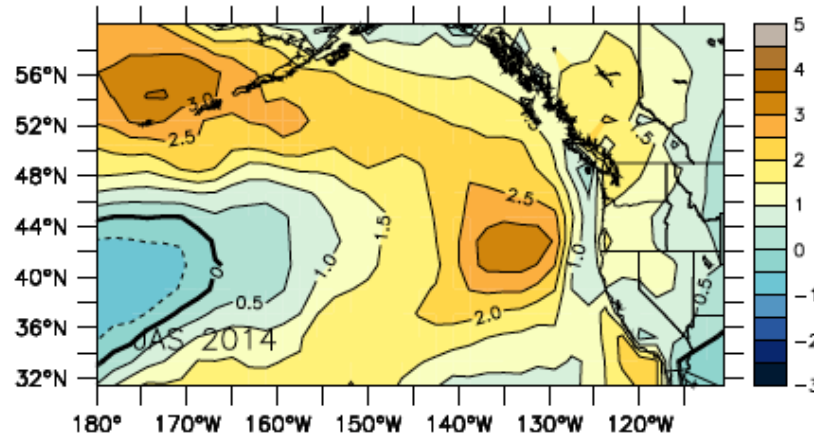
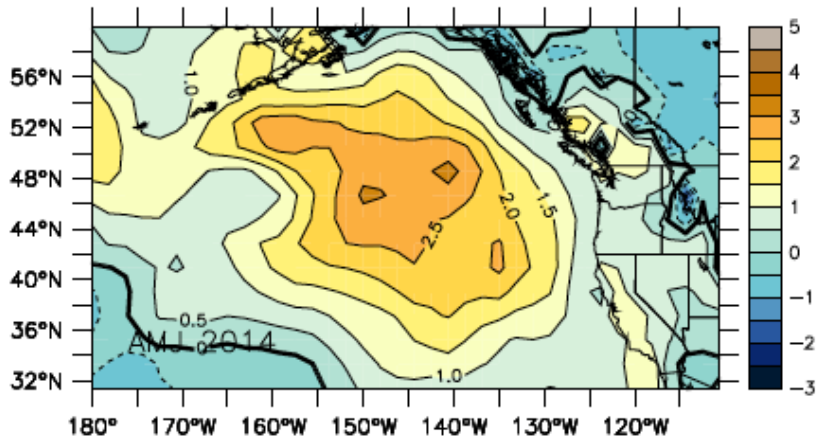
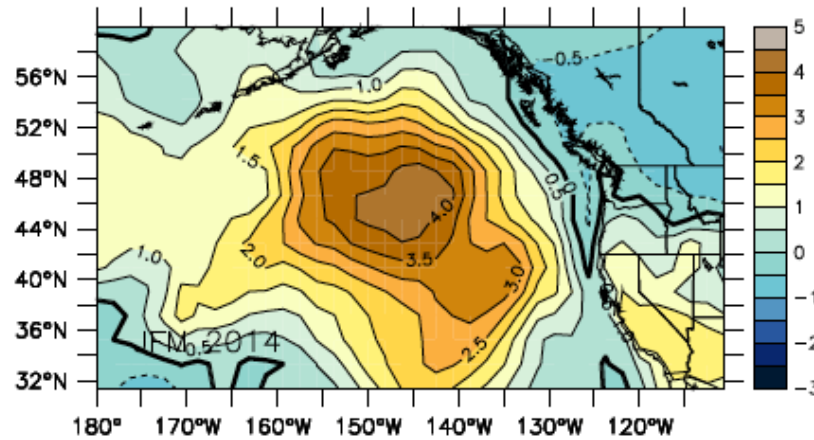
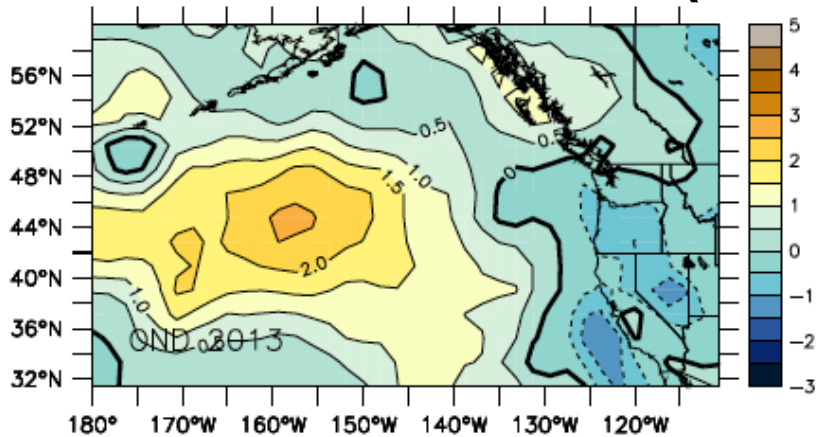
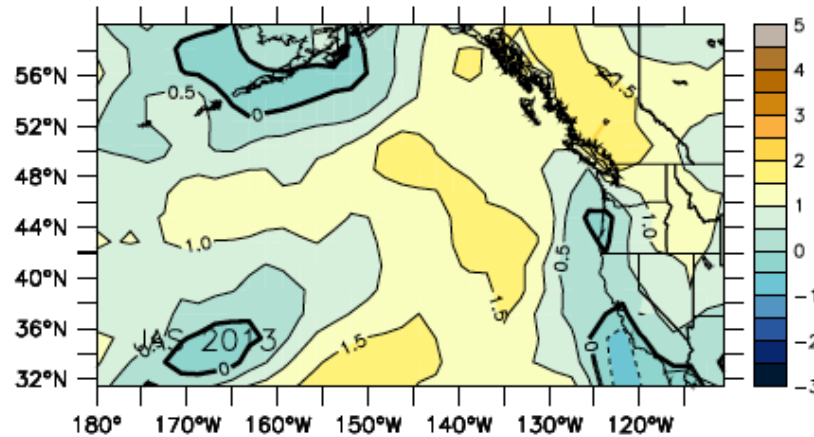


October SST (C) versus WA State NDJFM Temperature (F)

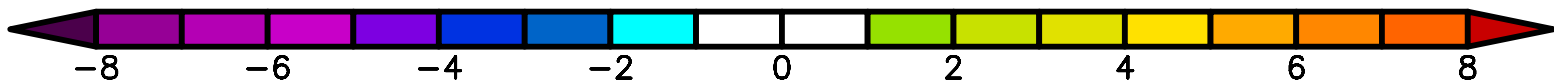
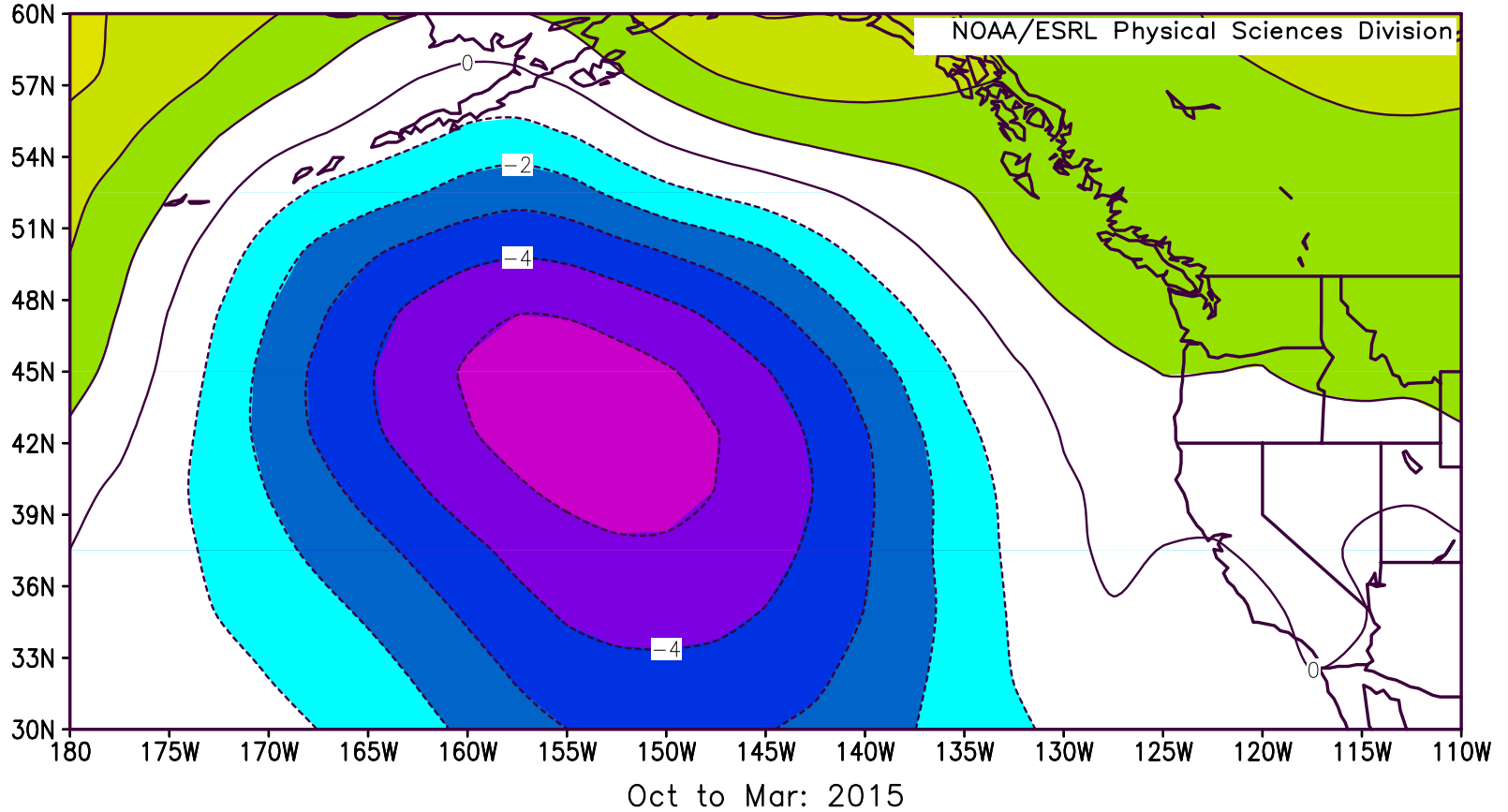


SST

Evolution of Normalized SST Anomalies in NE Pacific (2013-14)



NCEP/NCAR Reanalysis
Sea Level Pressure (mb) Composite Anomaly 1981–2010 climo



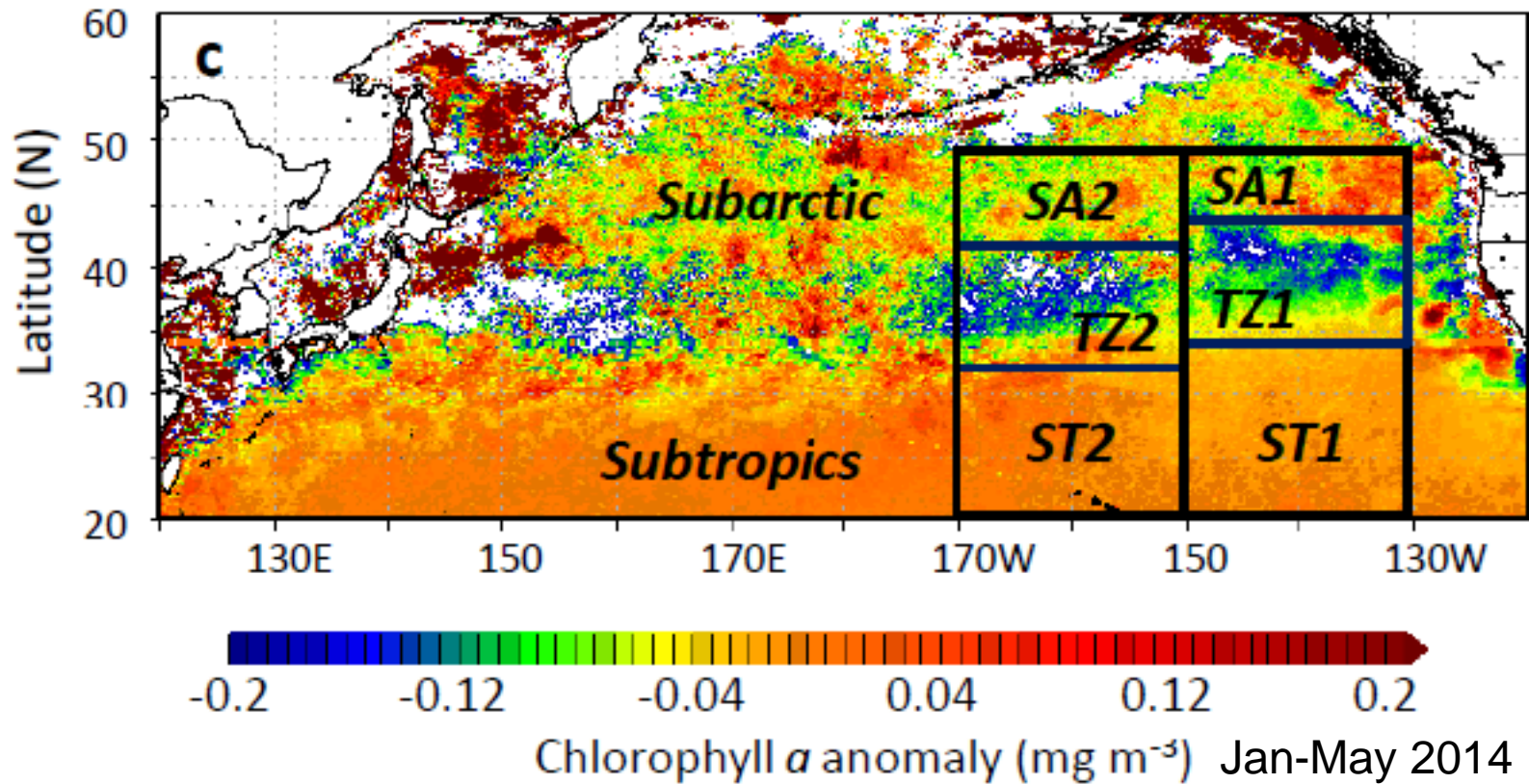
Take-Aways

- A strong and persistent ridge of high pressure over the NE Pacific from October 2013 into February 2014 resulted in suppressed cooling of the upper ocean
- The ridge represented a remote response to warm SSTs in the far western tropical Pacific (at least in part)
- The SST offshore corresponds with the temperature and humidity in WA state throughout the year
- The winters in future decades are liable to resemble those of 2013-14 (ocean) and 2014-15 (inland)

Data Sources

Upper Ocean Properties and Atmospheric Forcing (1980-2014) from NOAA/NCEP's Global Ocean Data Assimilation System (GODAS)

SST and Atmospheric Boundary Layer Properties (1948-2013) from NCEP Reanalysis



Whitney 2015