

# A warm and weird central California in 2014 and 2015

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# Key messages

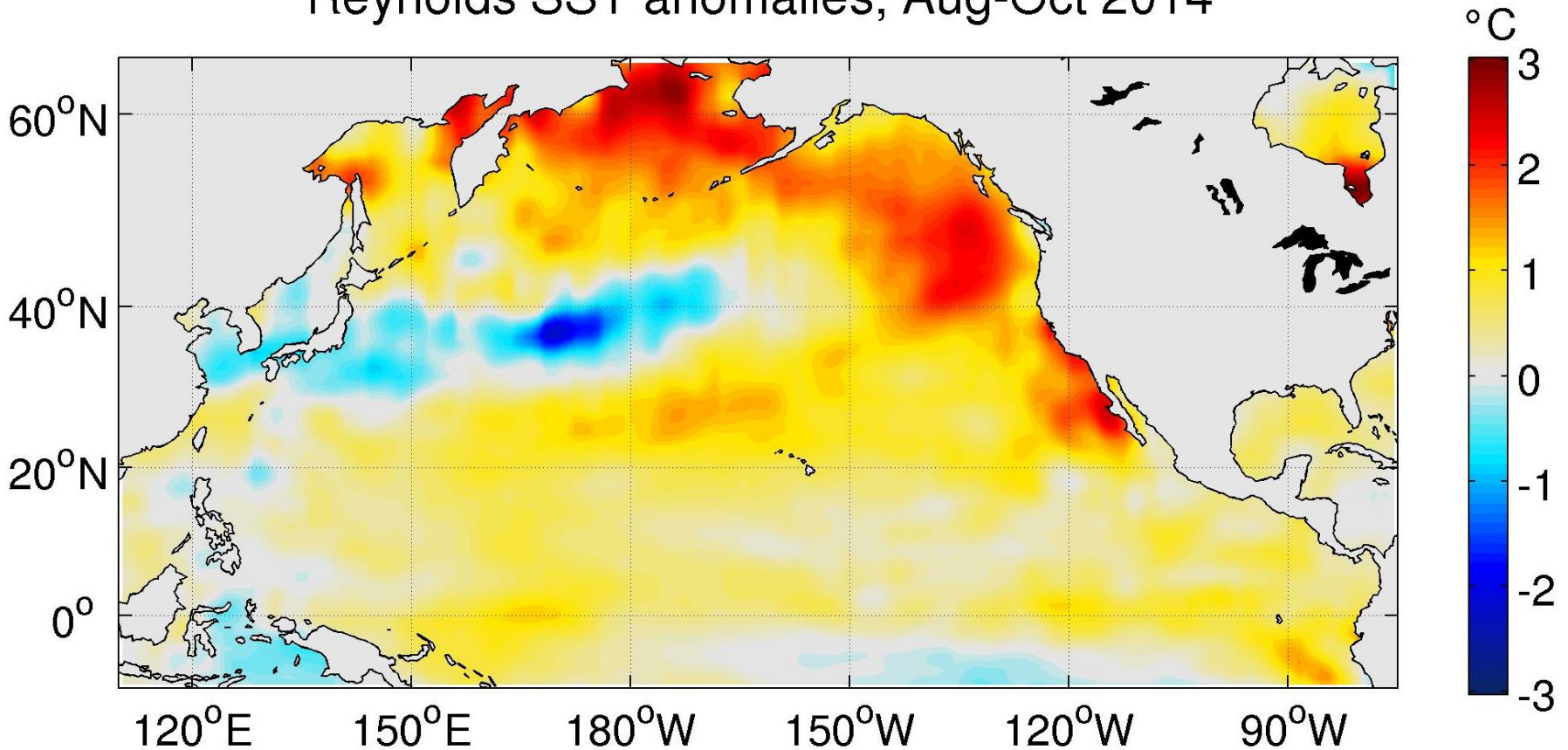
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- Lowest nitrate levels since 2002 mooring record started
- Low but not exceptionally low chlorophyll
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- Anomalous southern biota common

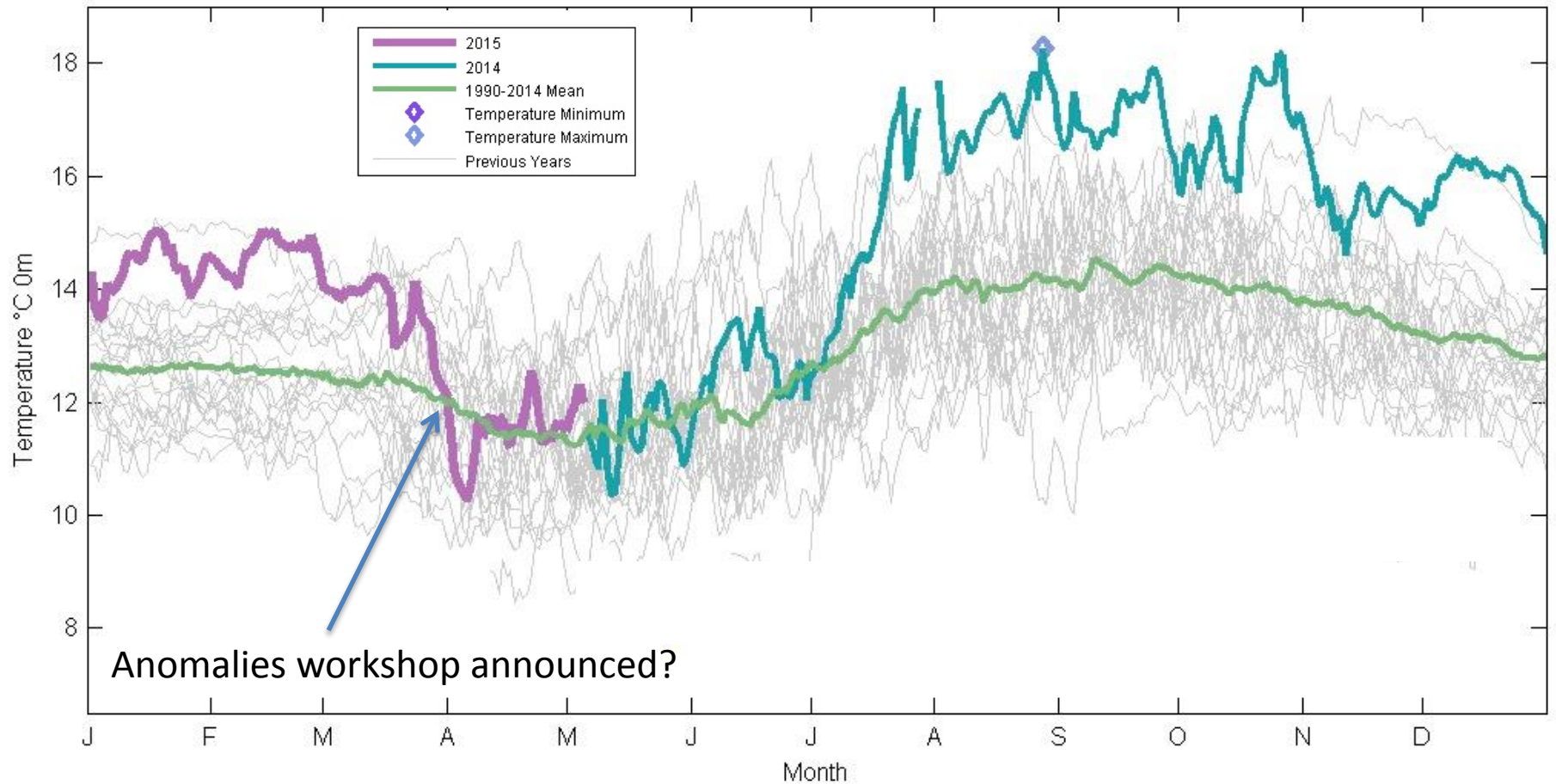
# Large scale North Pacific El Niño-like SST warming pattern without tropical anomalies

Reynolds SST anomalies, Aug-Oct 2014

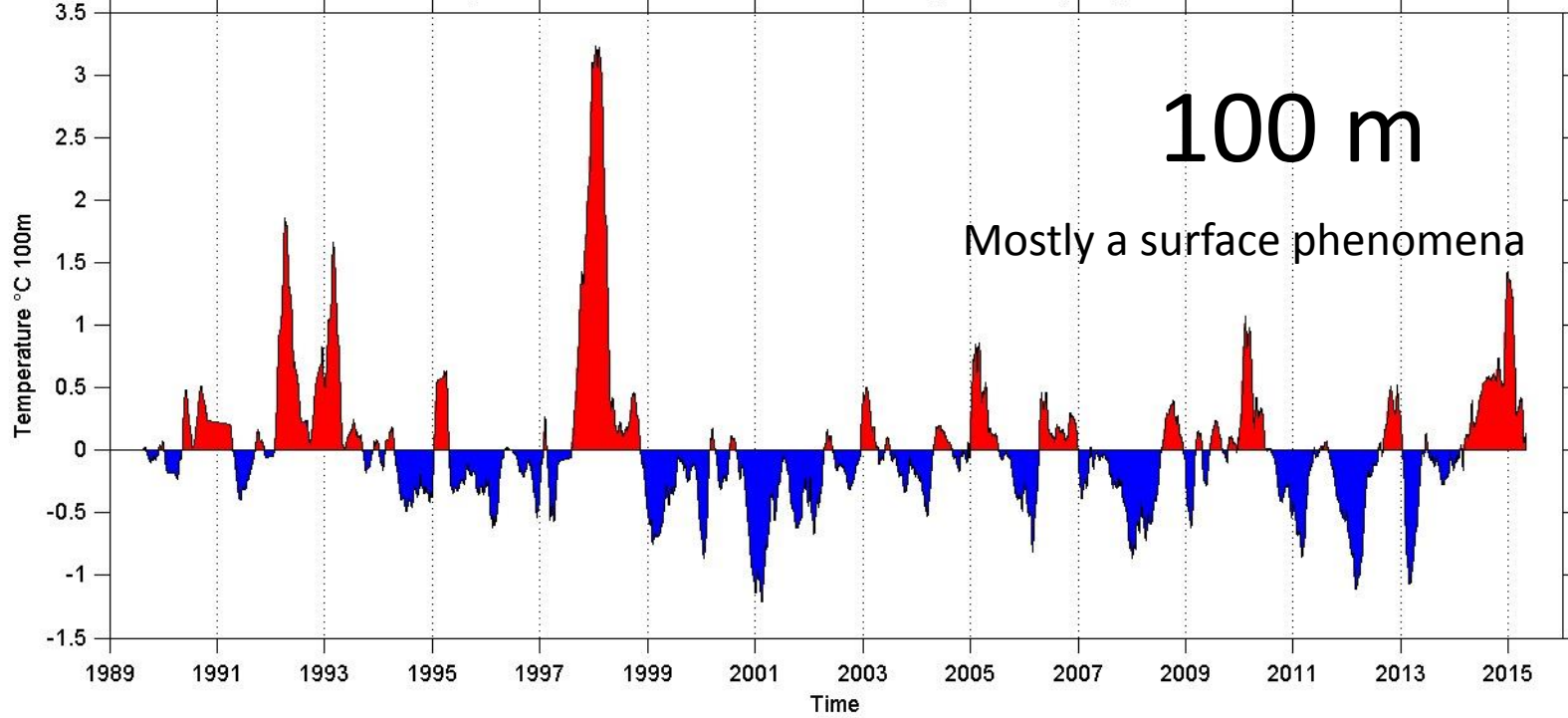
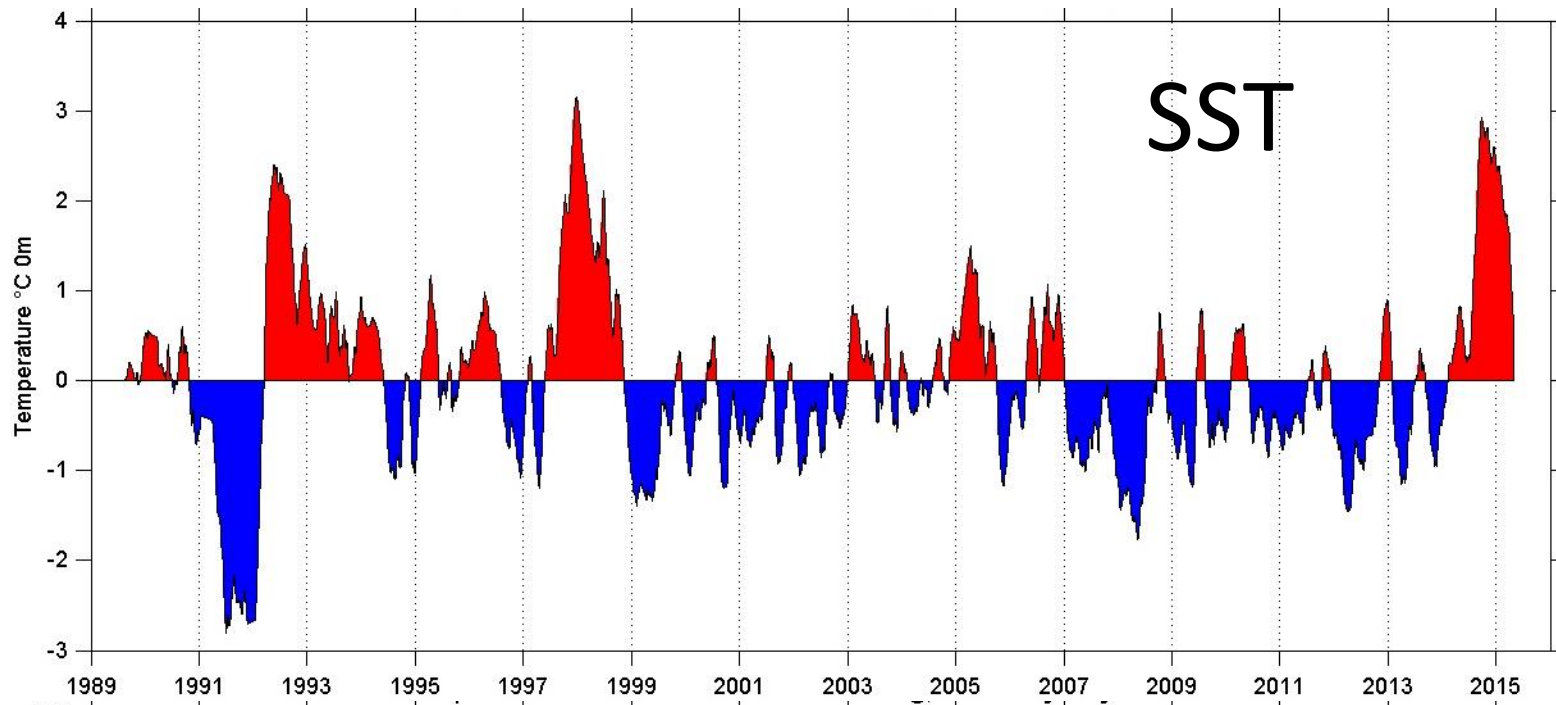


# SST at M1 mooring

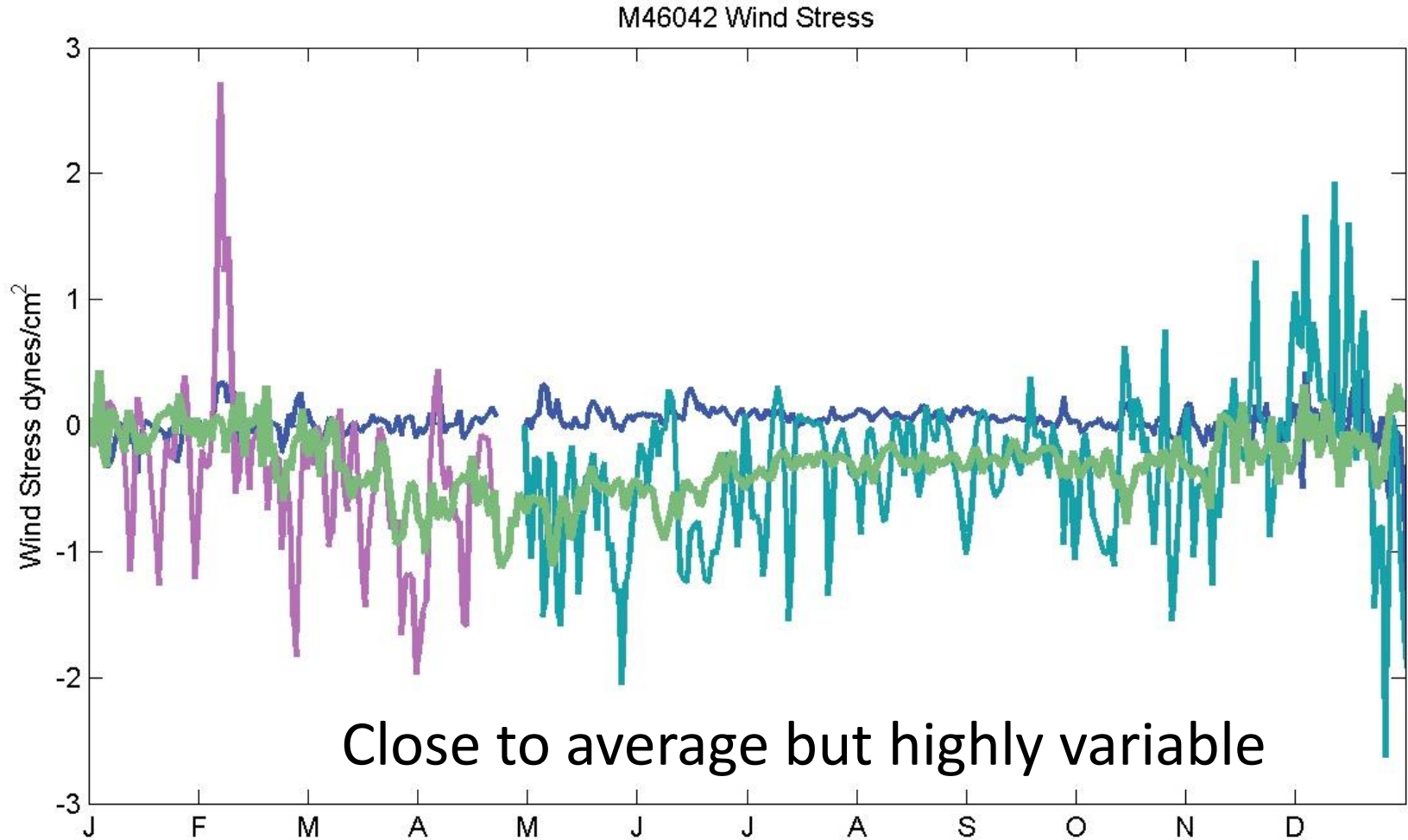
Surface Temperature at the M1 Mooring (36.7N, -122W), Monterey Bay CA



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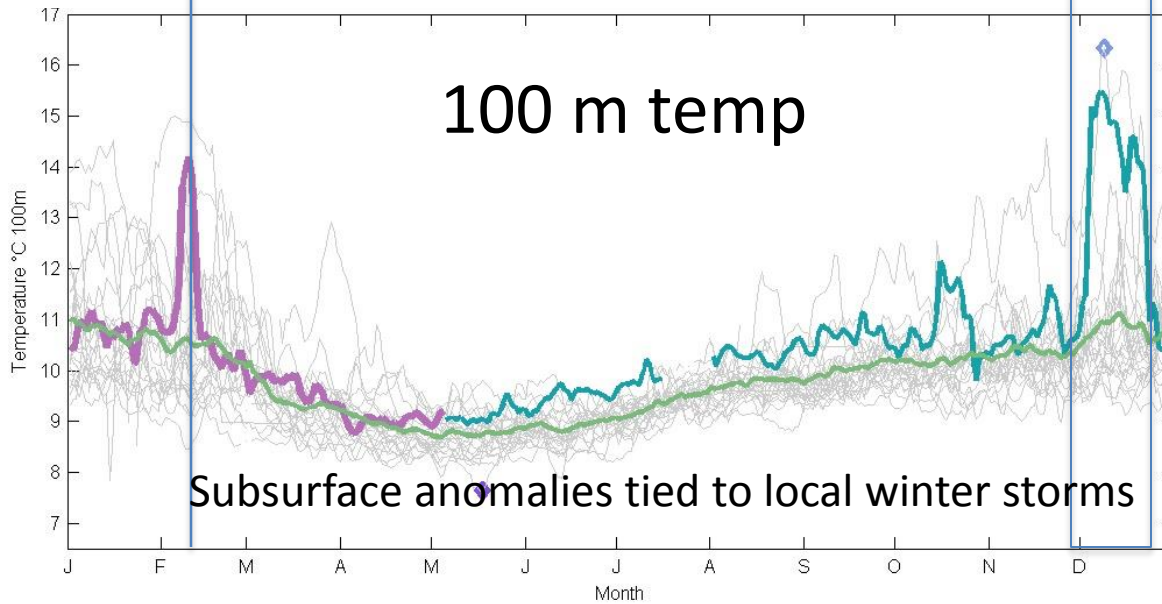
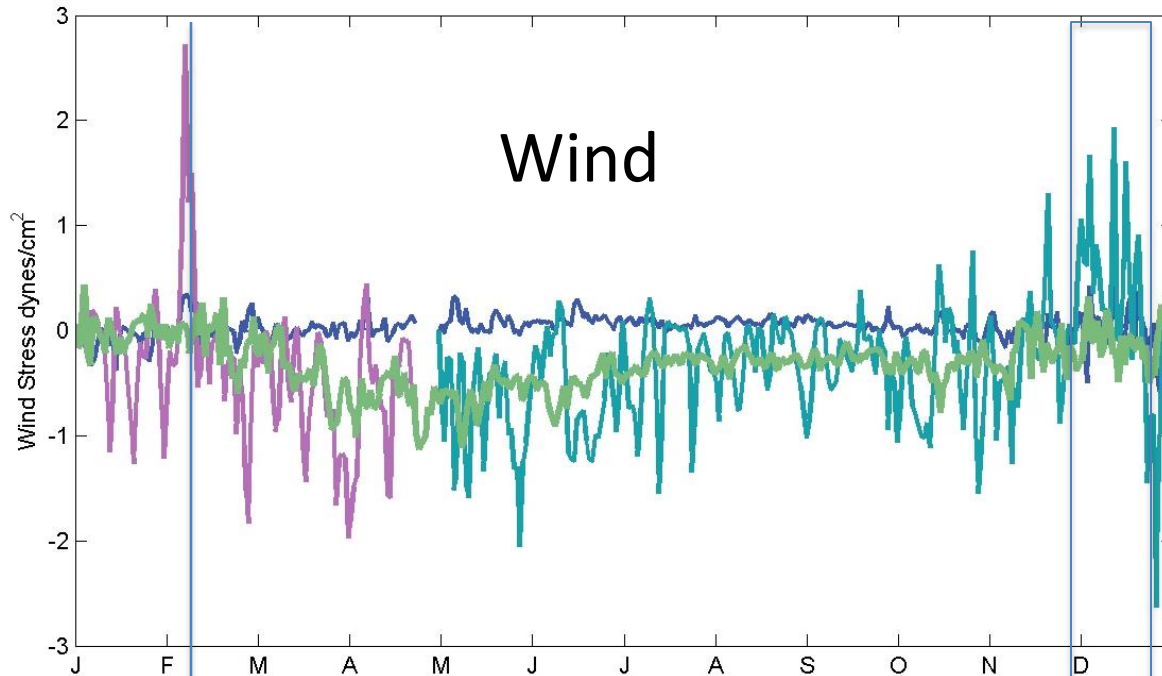


# Alongshore winds



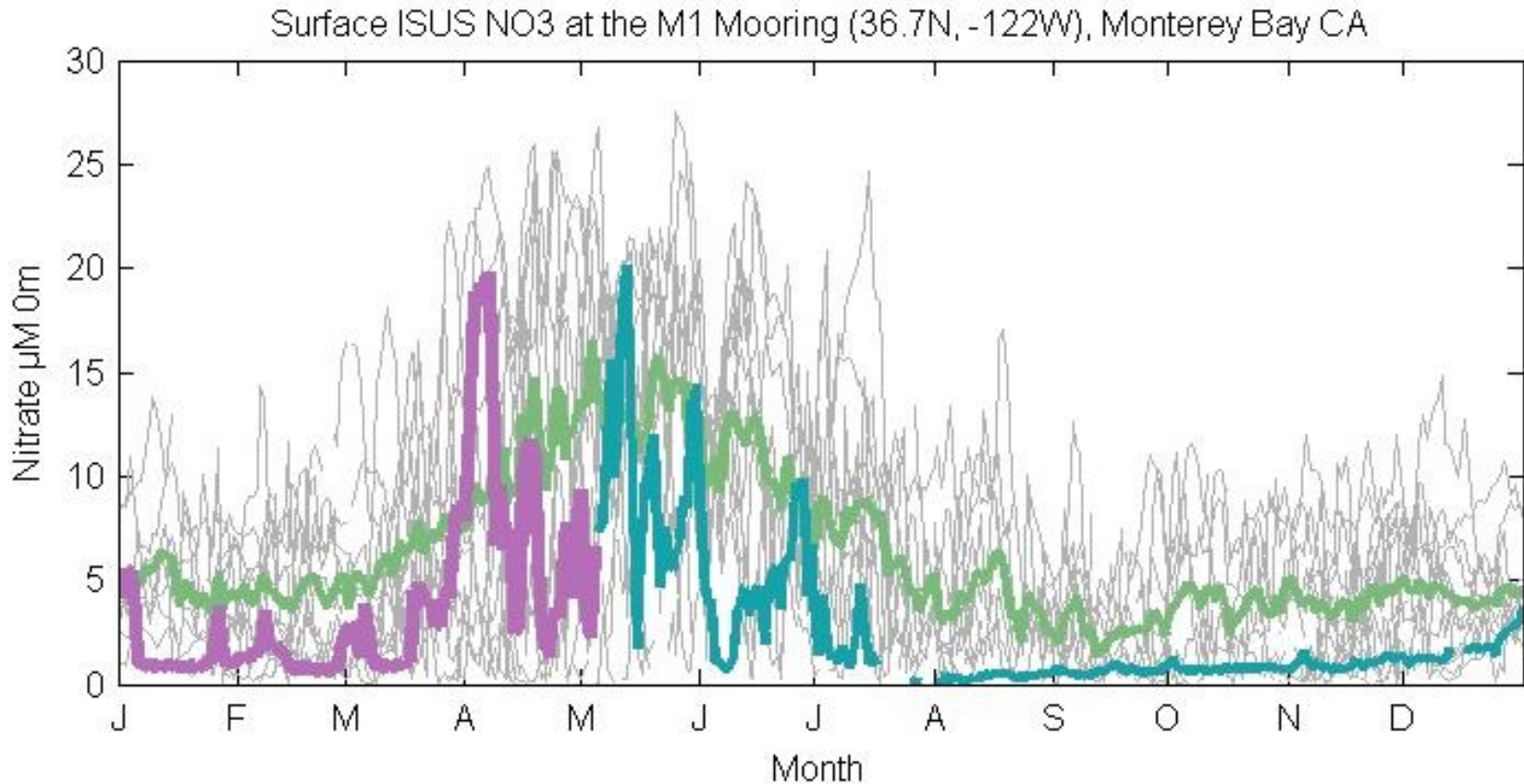
Upwelling index at 37 N shows close to average conditions

M46042 Wind Stress



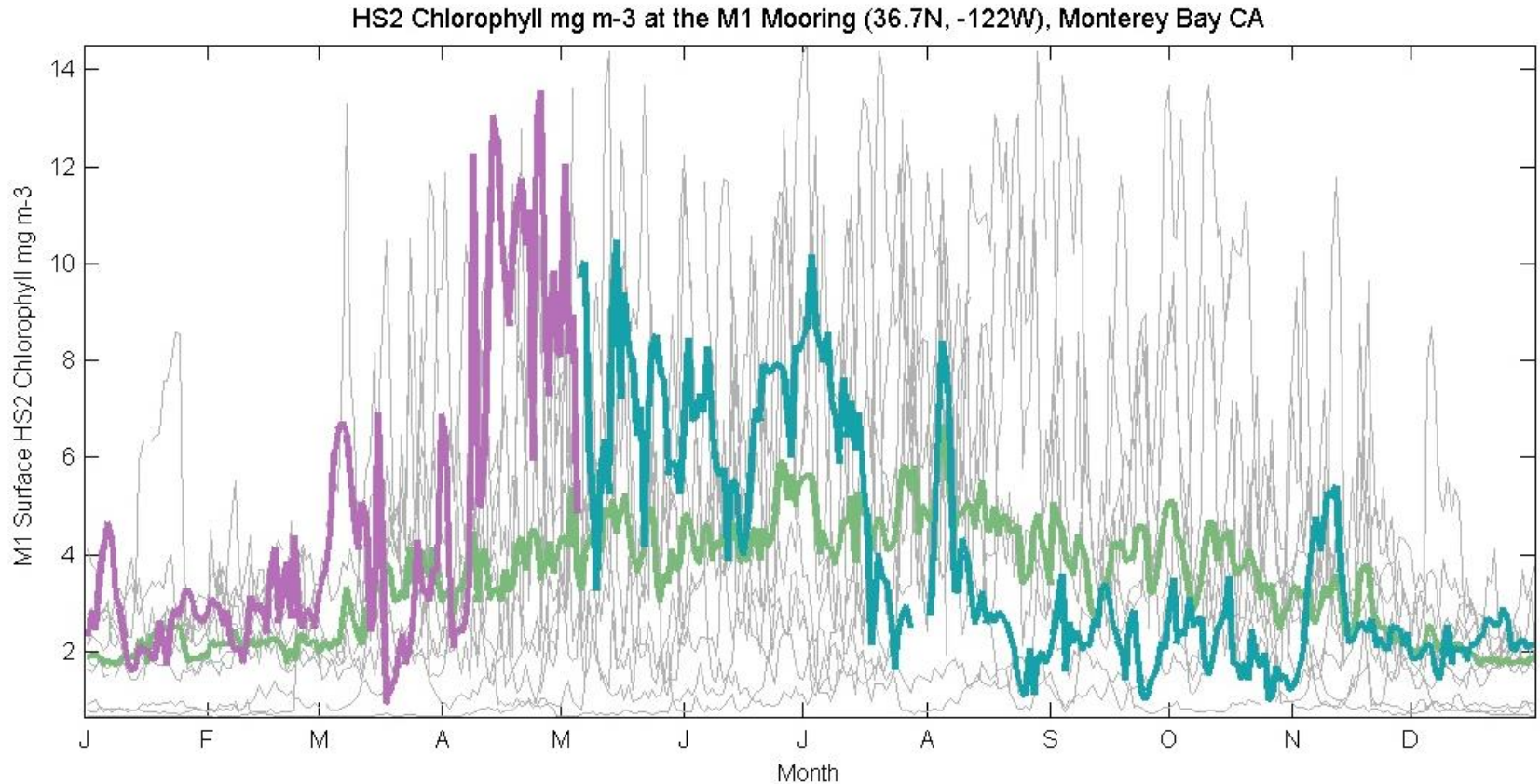


# Surface nitrate at M1 mooring



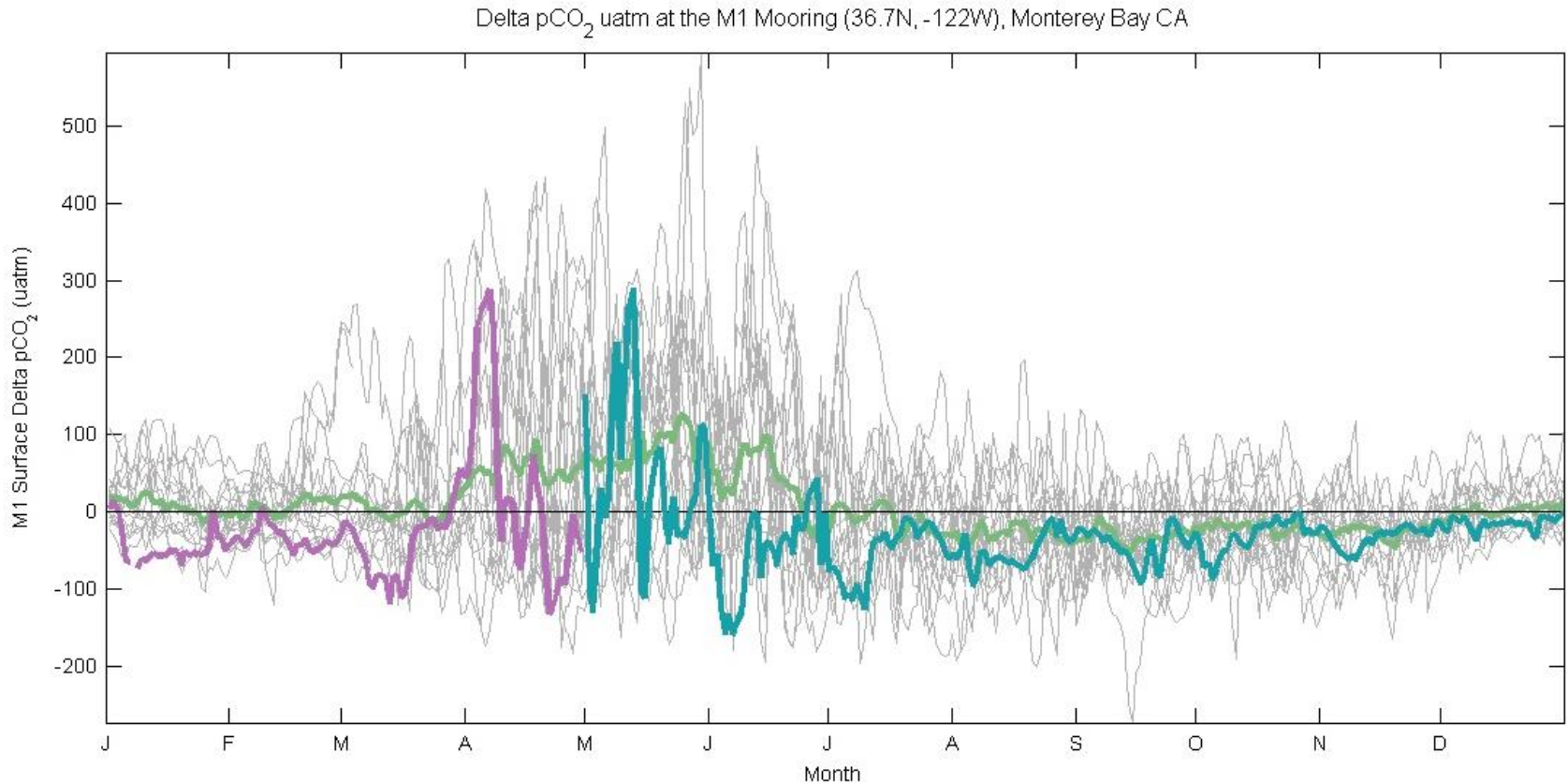
Lowest monthly nitrate levels since mooring record started in 2002

# Chlorophyll fluorescence at M1 mooring

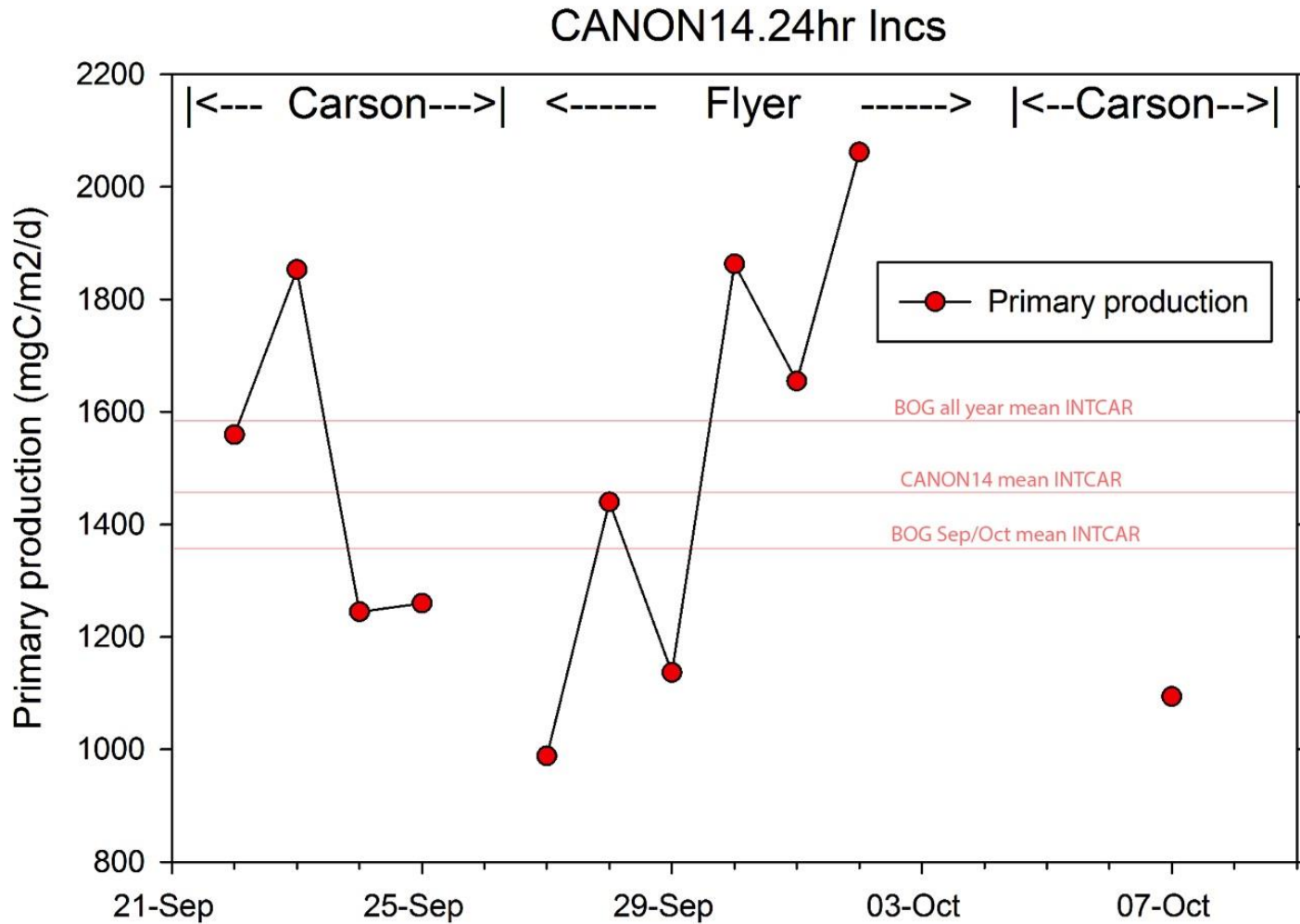


Low but not exceptionally low chlorophyll supported by variable upwelling?

# Delta pCO<sub>2</sub> at M1 mooring

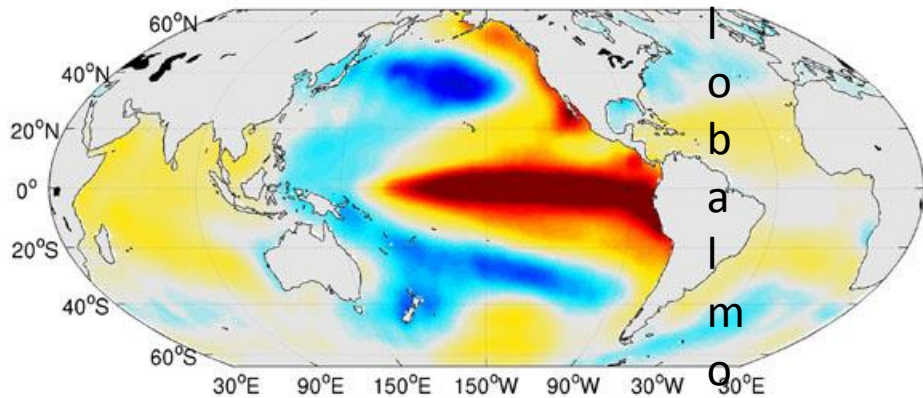


Lower than atmospheric pCO<sub>2</sub> due to biological productivity driven by local upwelling; lower acidity compared to other years?

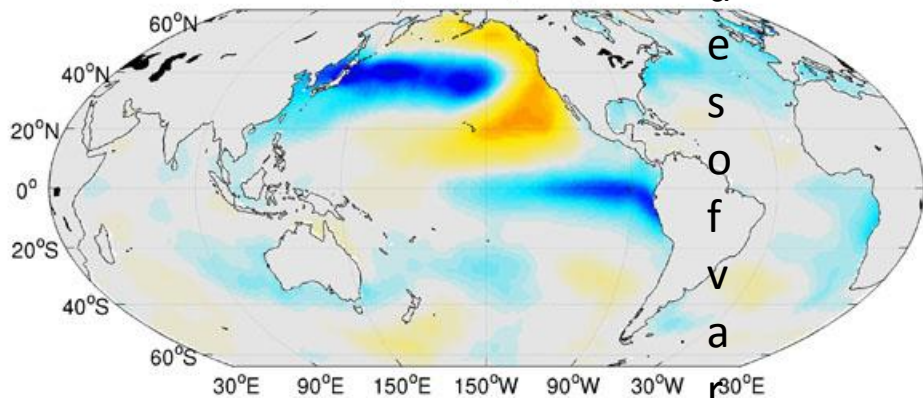


Primary production in Fall of 2014 higher than long term average

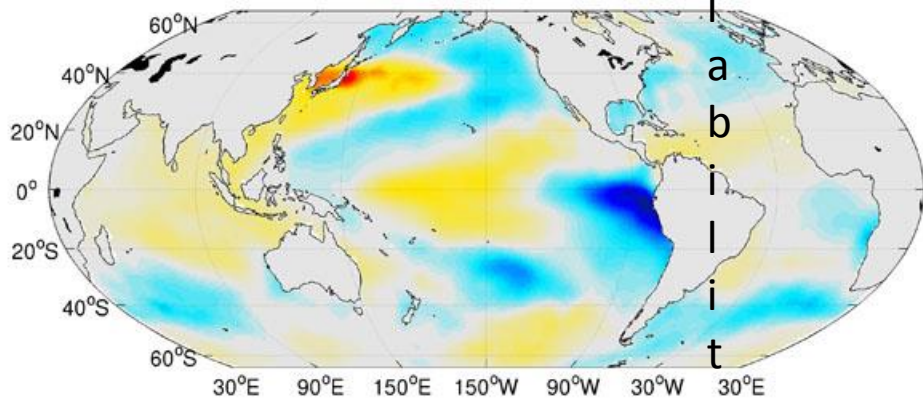
a) Mode 1 (18.1%)



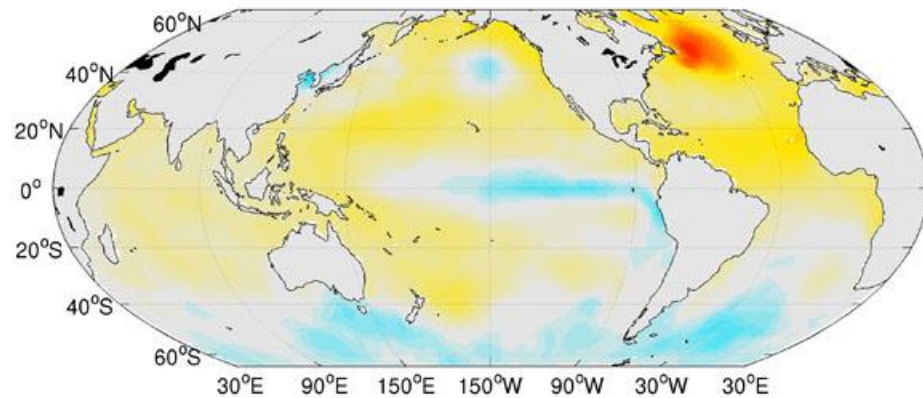
c) Mode 3 (4.7%)



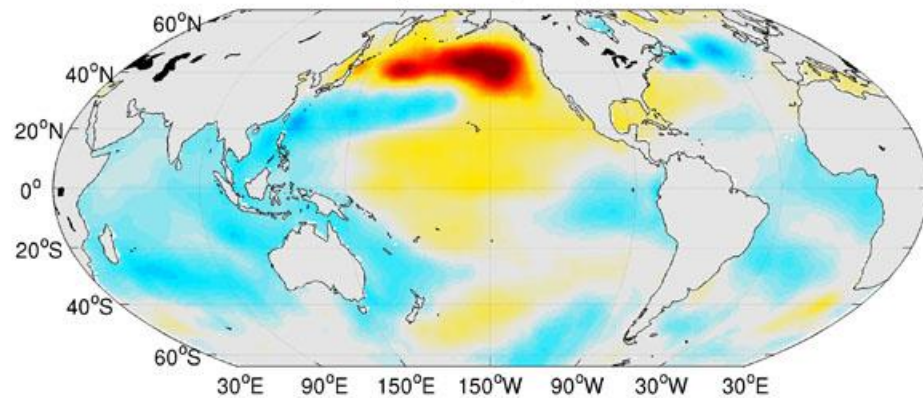
e) Mode 5 (3.3%)



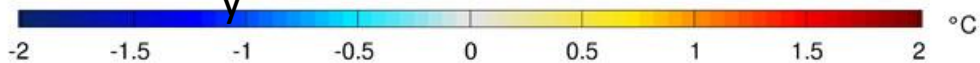
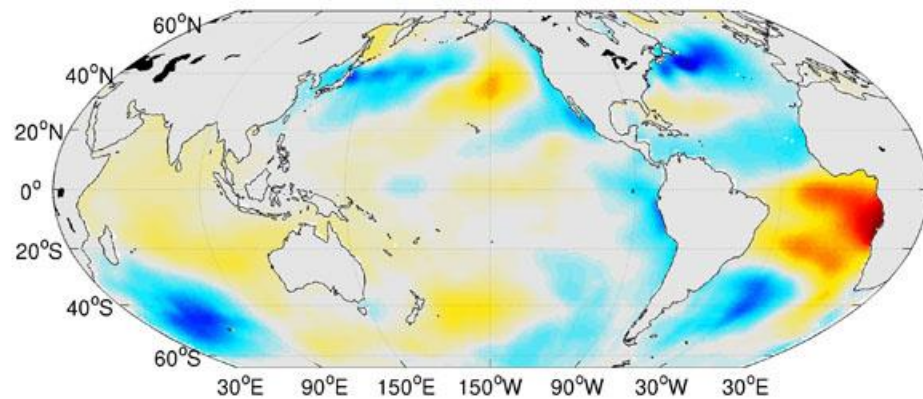
b) Mode 2 (5.3%)



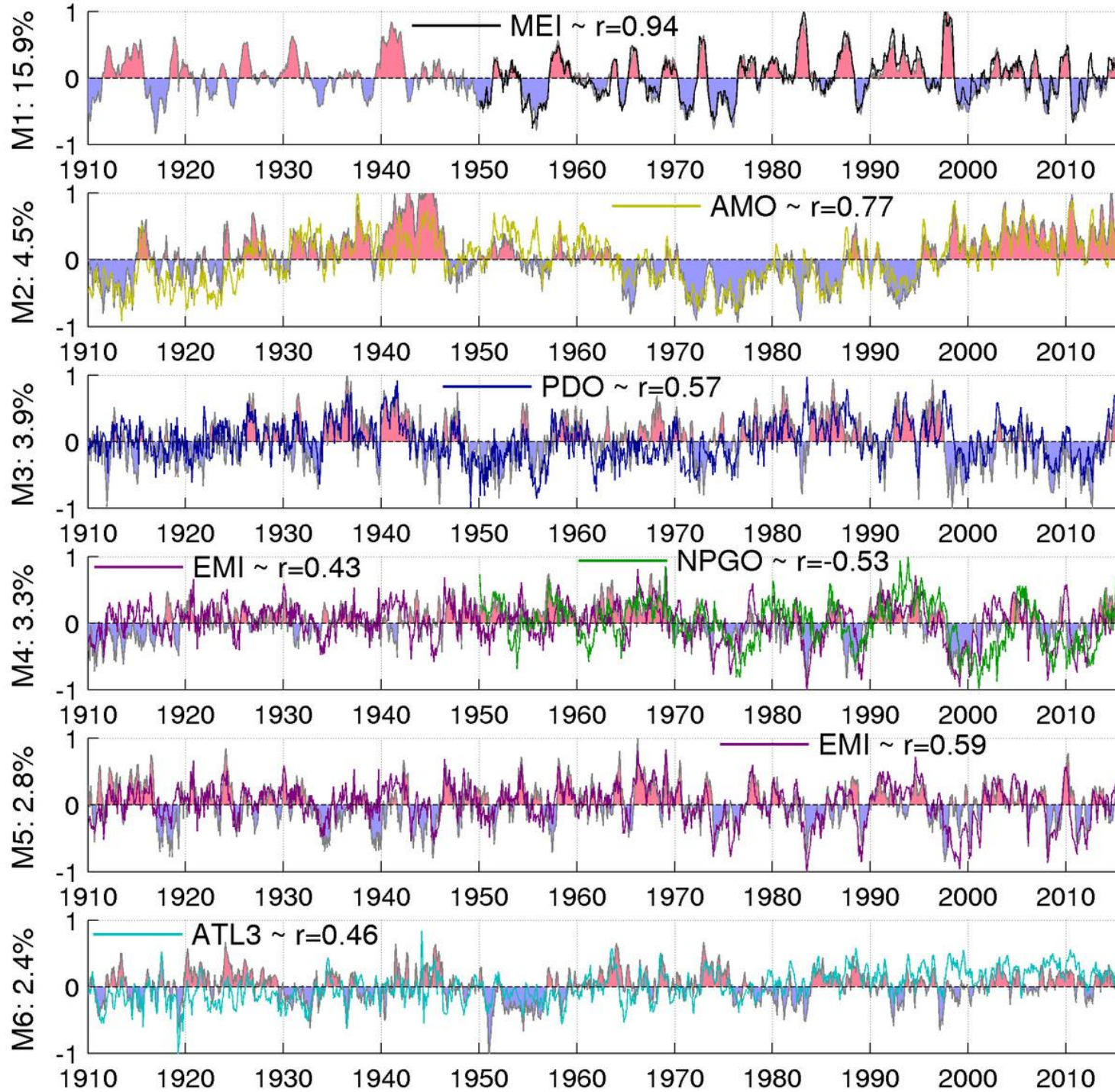
d) Mode 4 (4.0%)



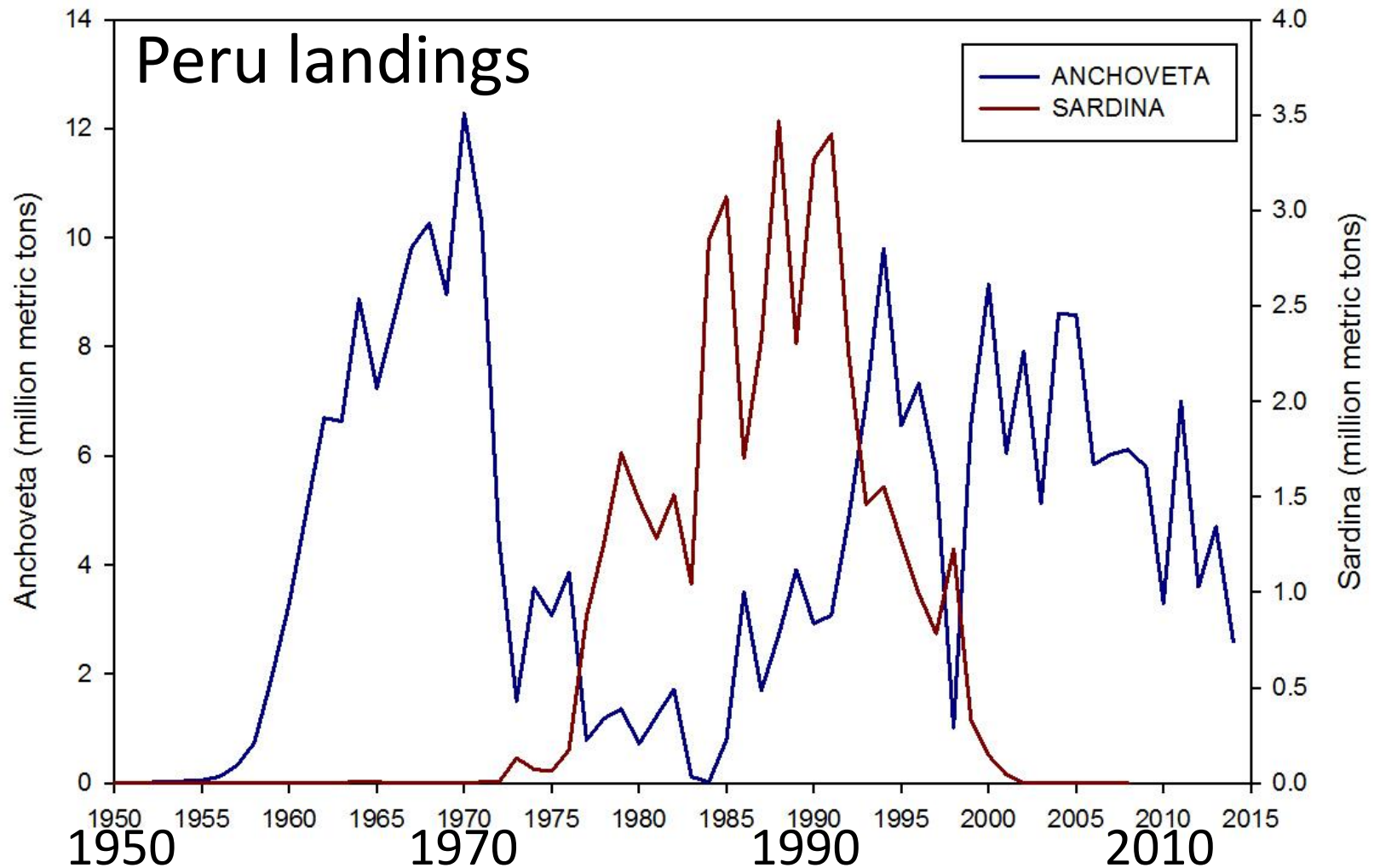
f) Mode 6 (2.8%)



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Conditions in 2014-15 have been very unusual – like an El Niño but not – does it signal a new shift?



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