

North Pacific Ocean

WARMING of the CALIFORNIA CURRENT

An eddy resolving models of the California Current is combined with 52 year long in situ observations of Temperature and Salinity from the California Cooperative Fisheries Investigation, to elucidate the dynamics of upper ocean warming and their effect on ocean biology.

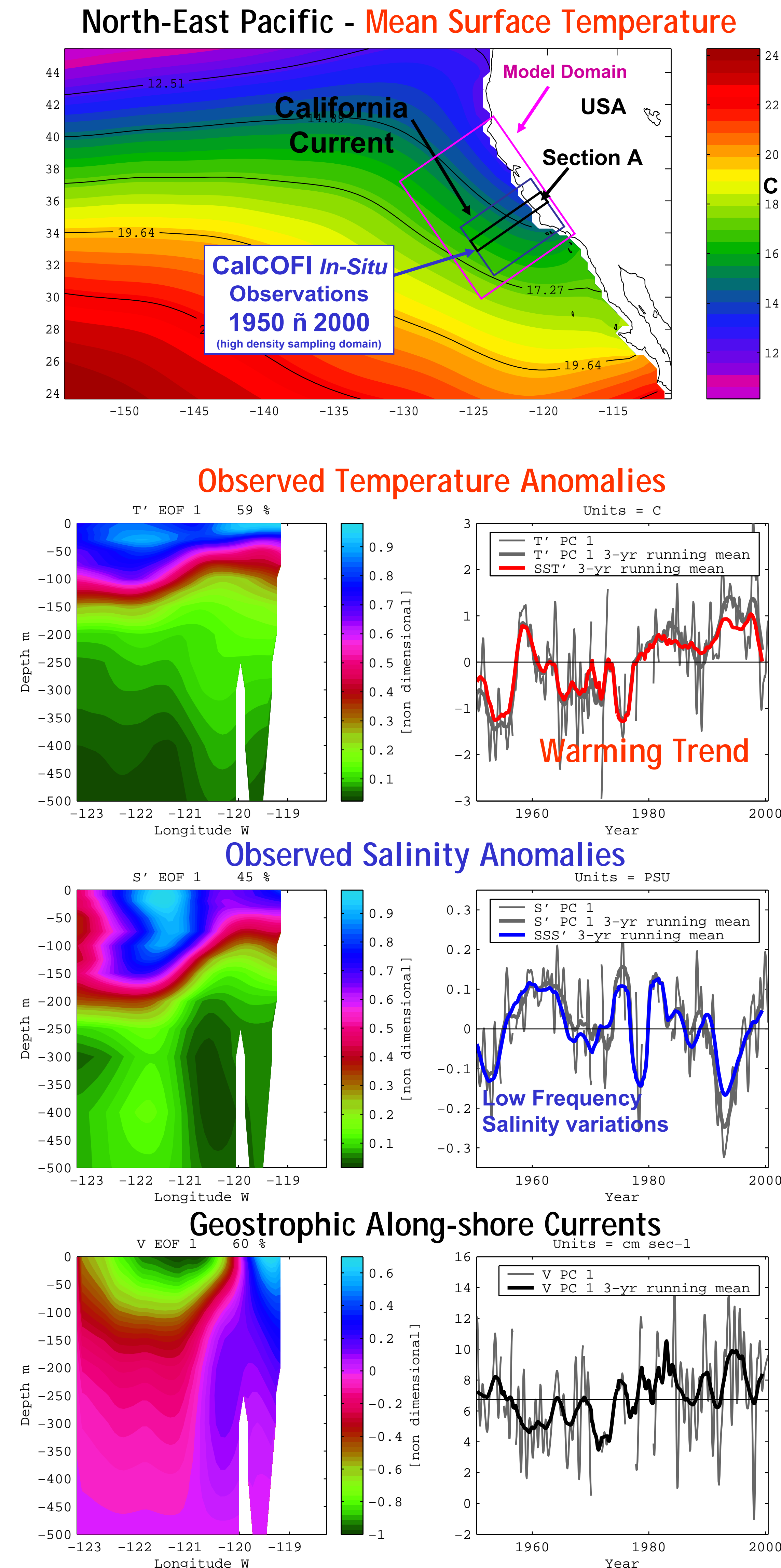
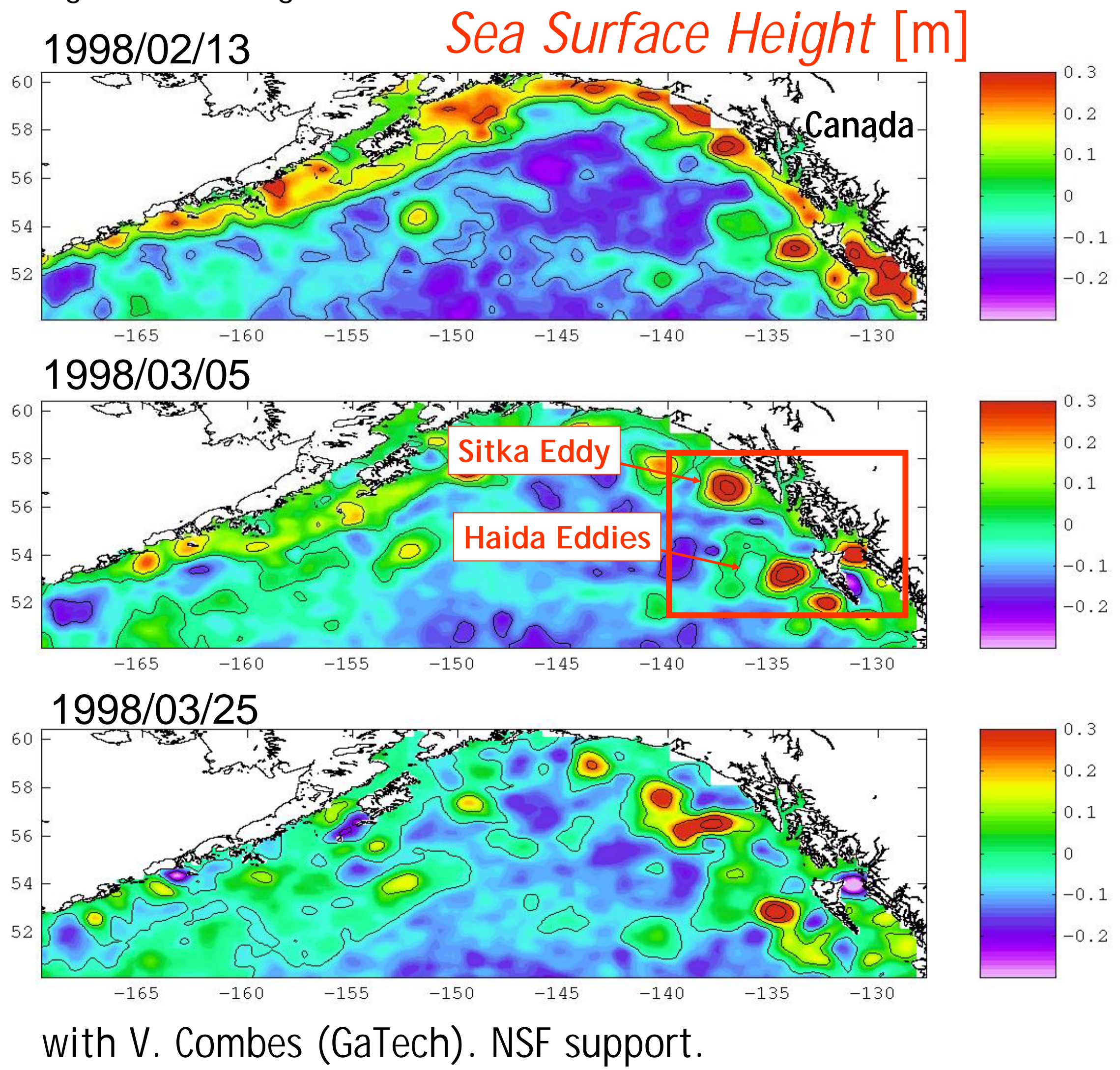


Figure (above) : Vertical EOFs 1 along SECTION A for the CalCOFI temperature and (c,d) salinity anomalies. The seasonal cycle is removed. (e,f) EOF 1 for geostrophic alongshore currents relative to 500 m. In (b) and (d) the black line represent the domain average.

with N. Schneider (UH), A. Miller (Scripps), J. McWilliams (UCLA). NSF, NASA support.

CLIMATE CHANGE and EDDIES in the GULF of ALASKA

Global Warming may lead to increase precipitation over Alaska and Canada. We investigate the effects of enhanced coastal buoyancy fluxes on the generation/dynamics of large scale coastal eddy dynamics and on large scale mixing of nutrients in the Gulf of Alaska.

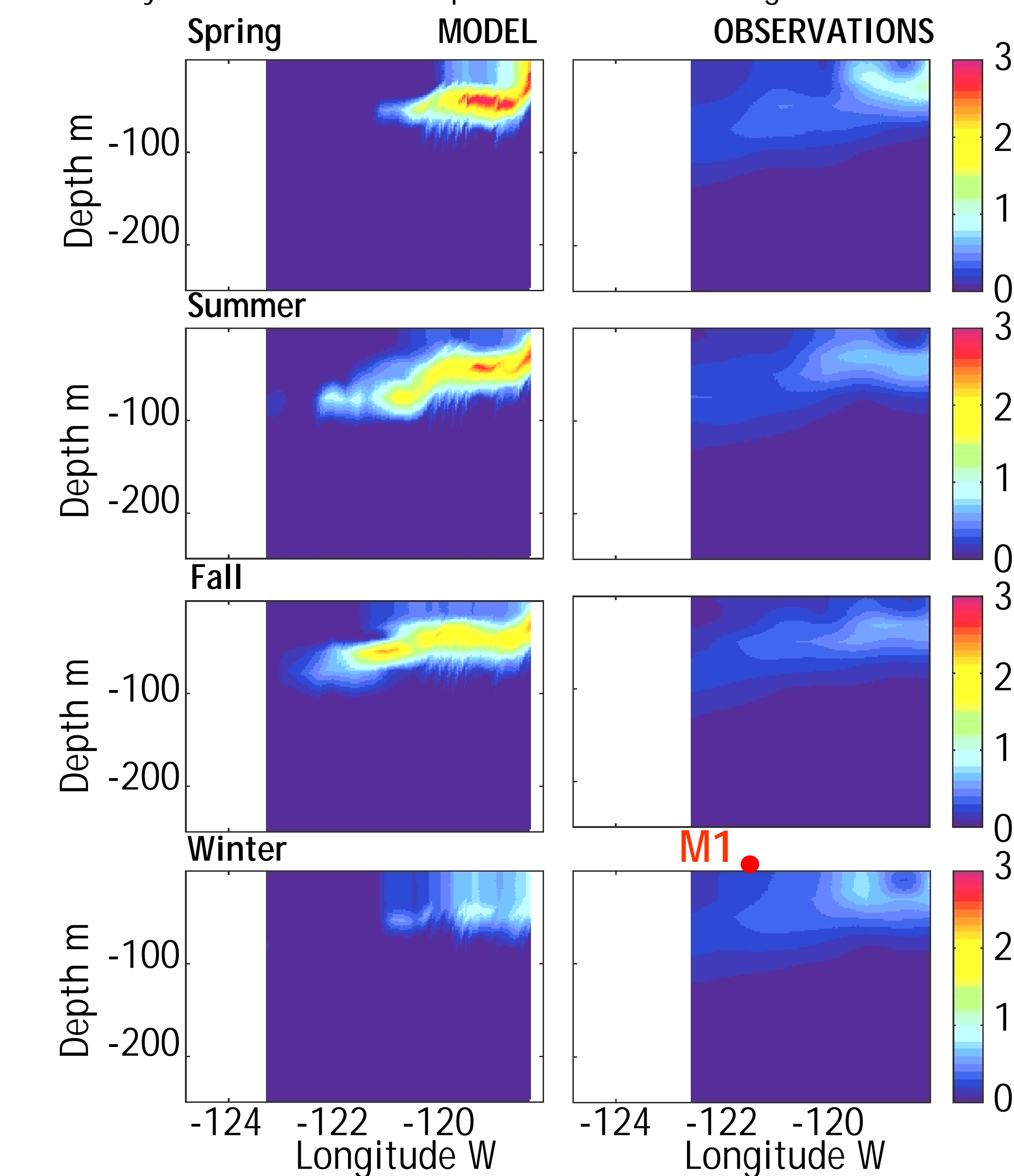


with V. Combes (GaTech). NSF support.

Biological Modeling

SPATIAL/TEMPORAL VARIABILITY OF CHLOROPHYLL-A

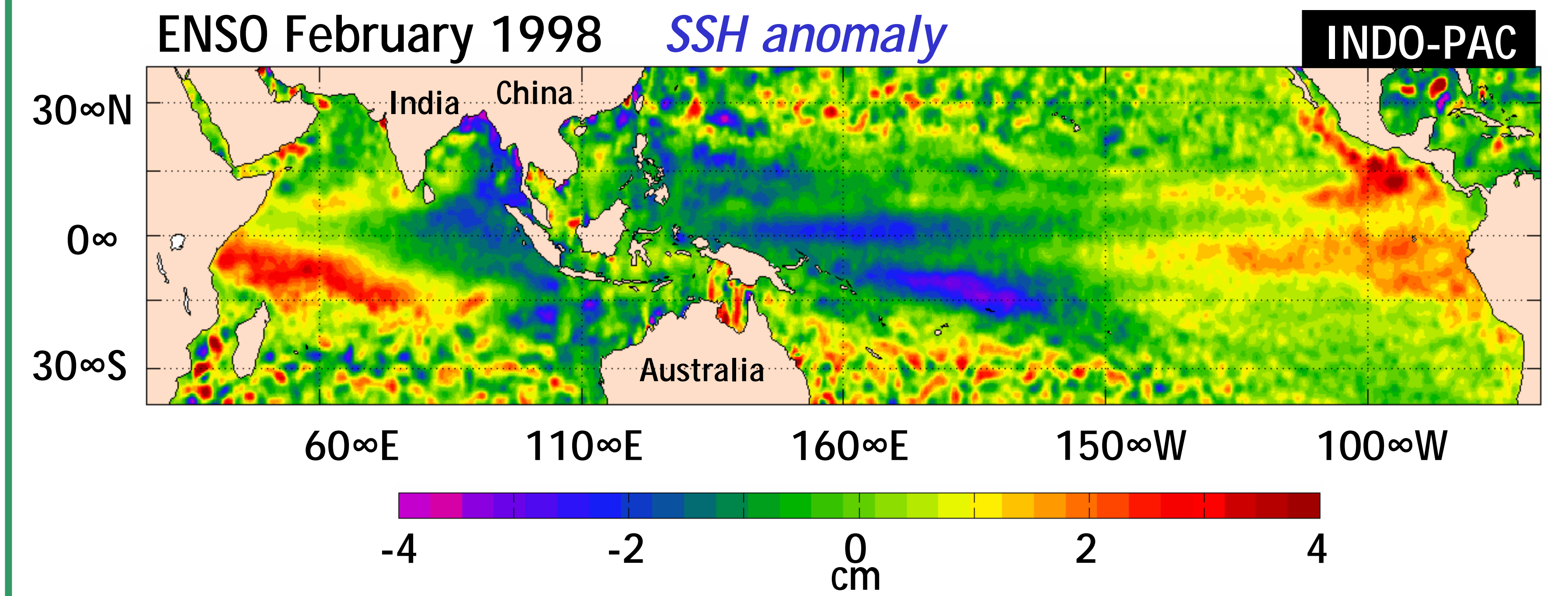
Ecosystem models forced by coastal ocean models are used to the variability of CHL-A and its response to climate change.



Indian Ocean

INDO-PACIFIC THERMOCLINE DYNAMICS, Coupled Ocean-Atmosphere Modeling Approach

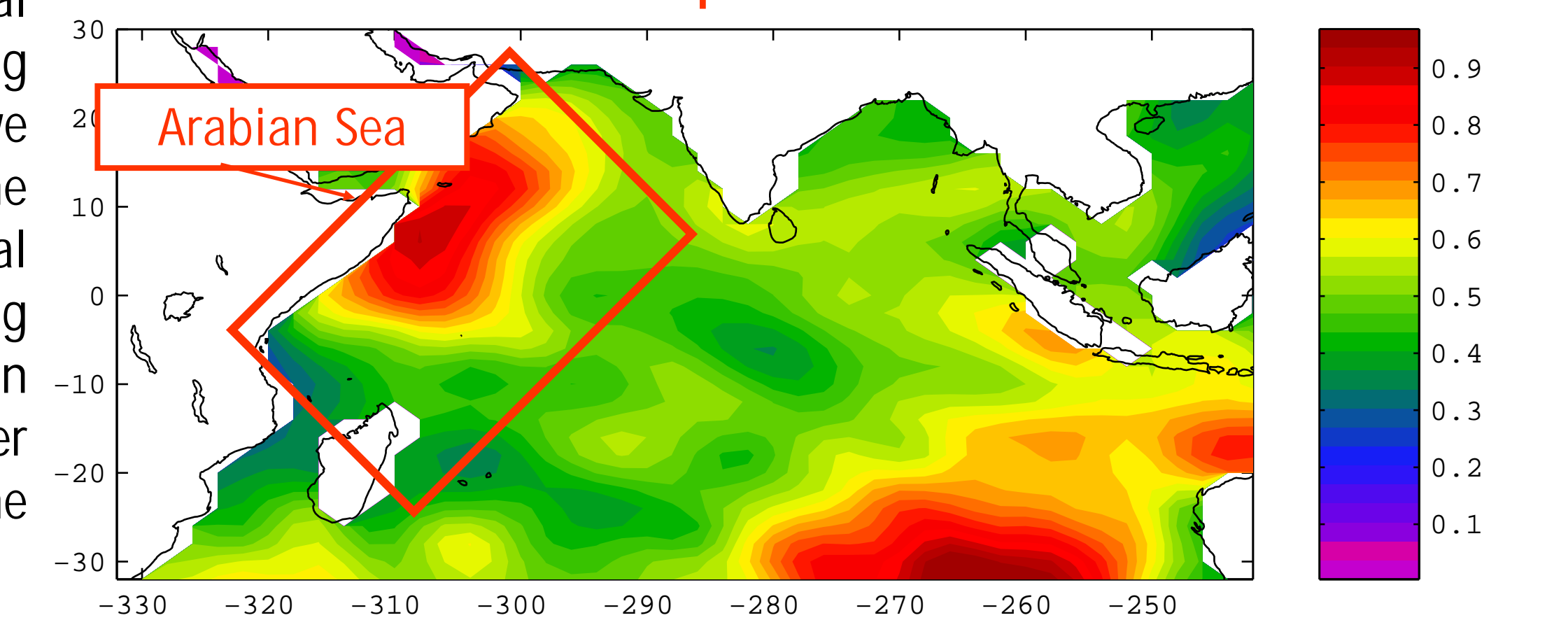
A coupled ocean-atmosphere model is used to investigate the dynamics of the indo-pacific thermocline on decadal and ENSO timescale. In particular we investigate the relationship between upwelling and the Indian Ocean dipole mode.



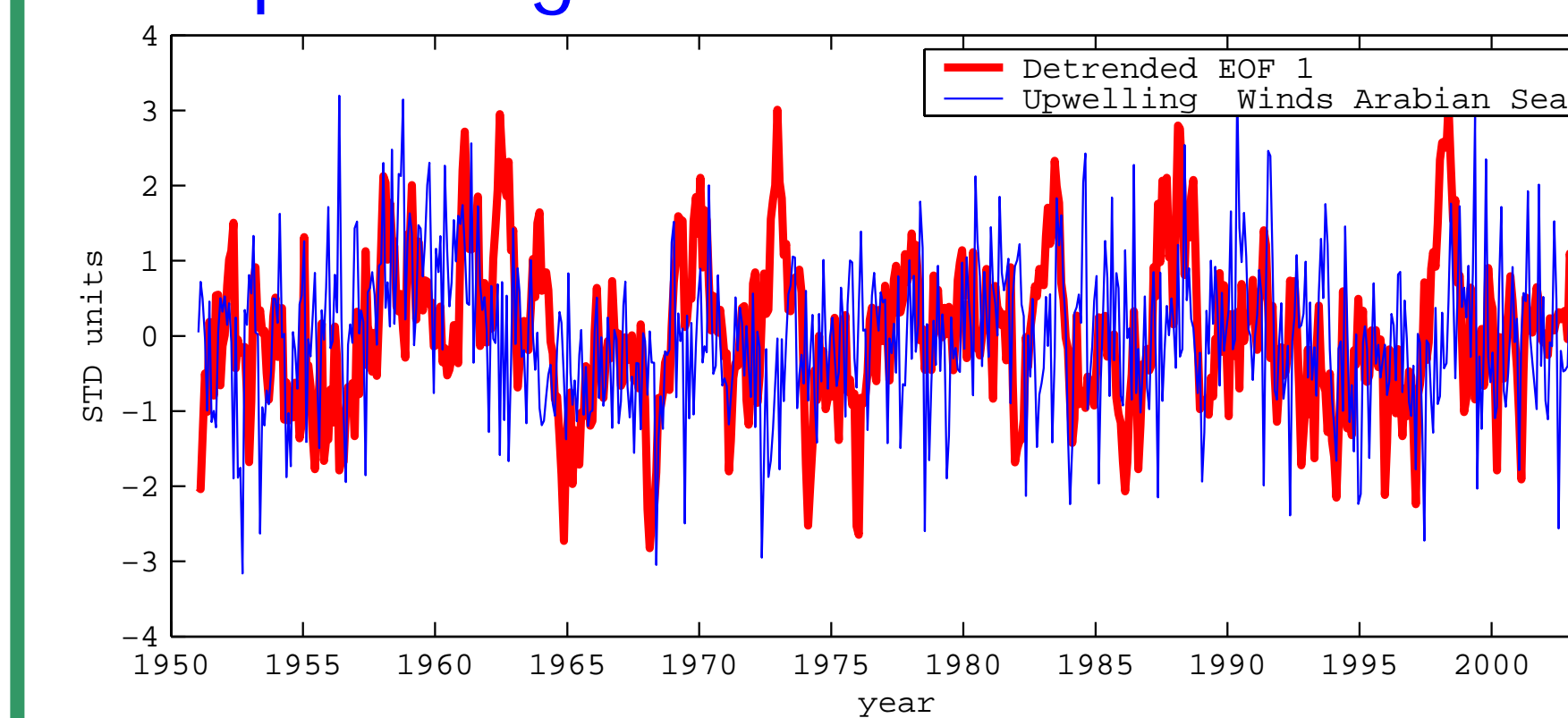
UPWELLING in the ARABIAN SEA and INDIAN OCEAN WARMING TREND

The dynamics leading to the spatial pattern of the Indian Ocean warming trend are investigated. In particular we focus on the dynamical controls of the Arabian upwelling and biological productivity, to isolate the competing effects associated with changes in monsoonal upwelling winds, upper ocean stratification and thermocline depth.

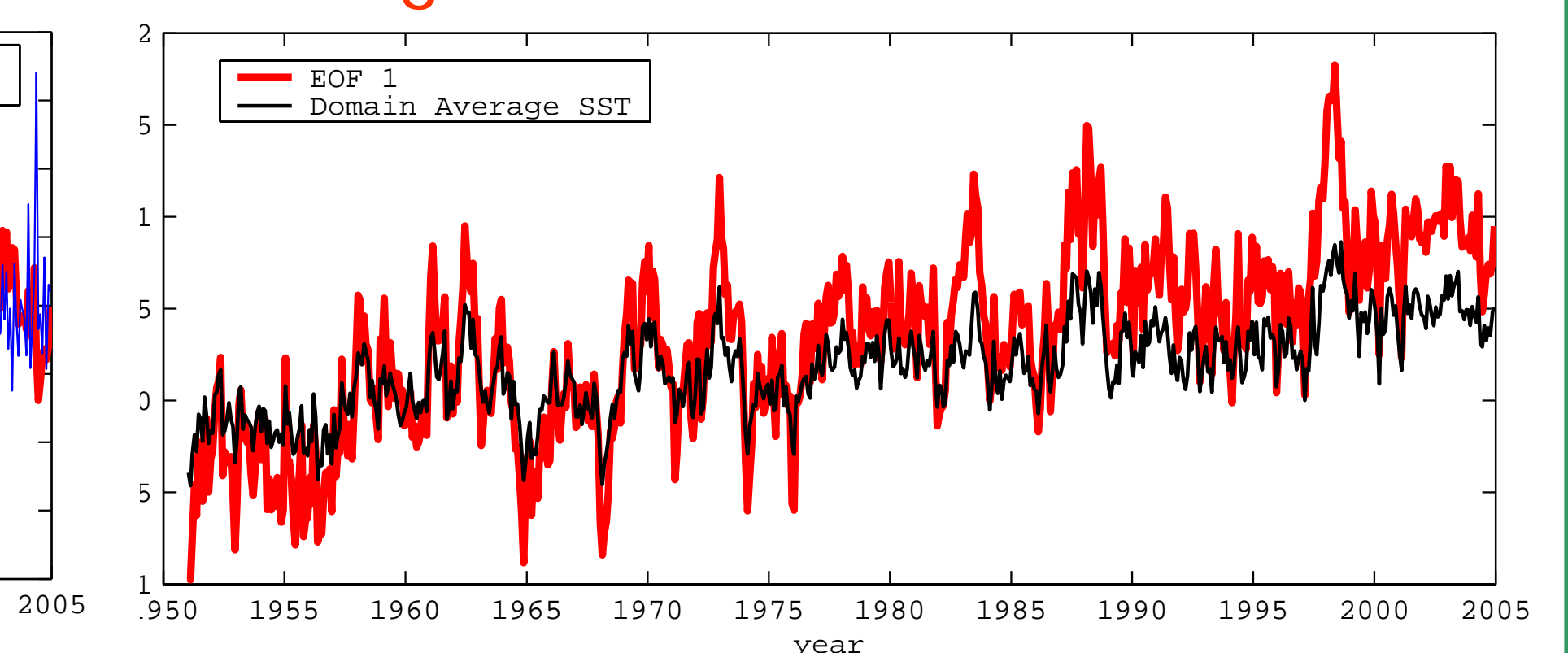
Sea Surface Temperature – EOF 1



Upwelling Winds vs. detrended SST

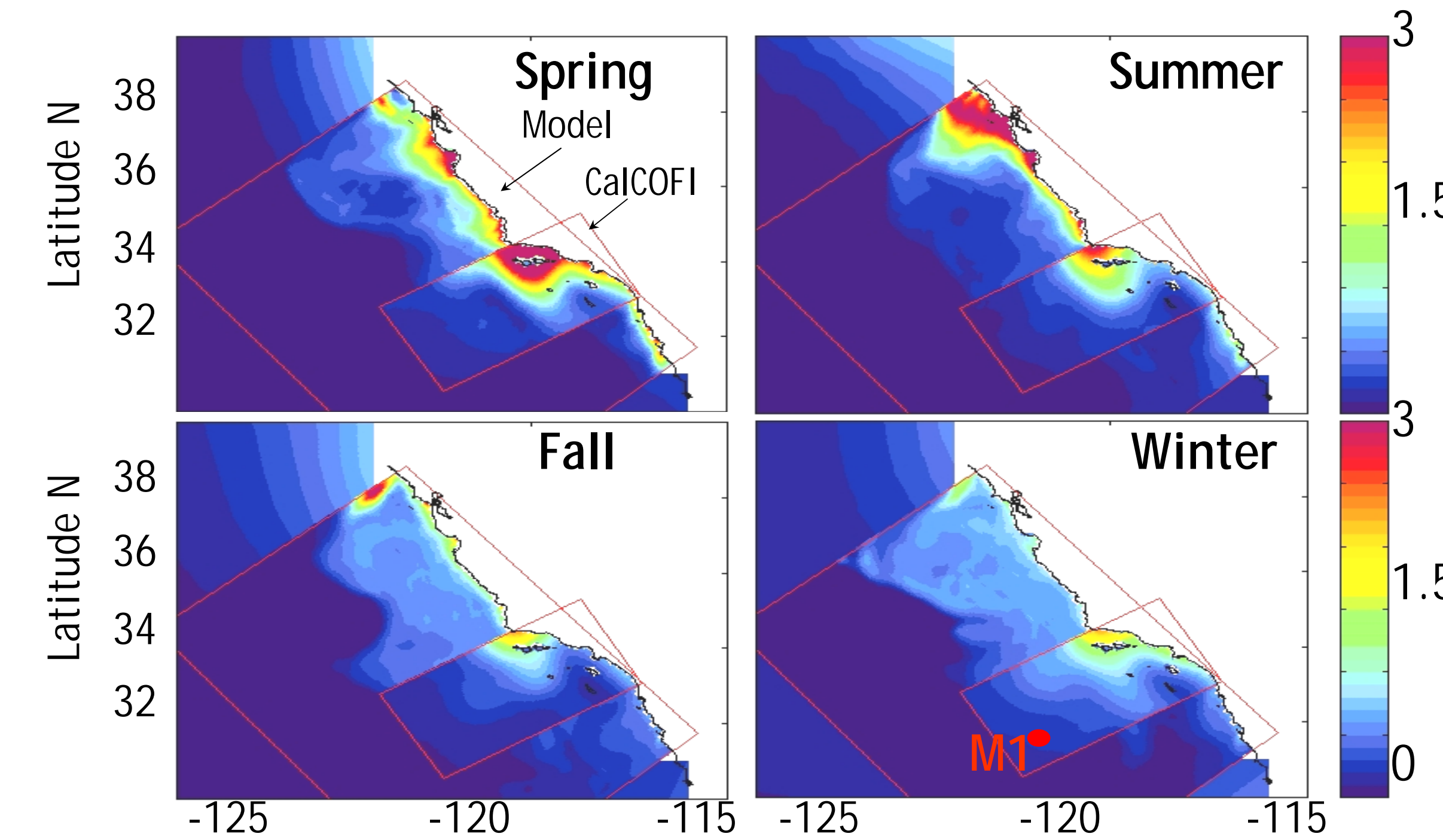


Warming Trend over the Indian Ocean



with S. Vieira and P. Webster (GaTech), A. Bracco (WHOI). NSF support.

Southern California Coast



MODELING BIOLOGICAL OBSERVATIONS

The Ecosystem model forced by coastal are compared to the CalCOFI observations and used to diagnose the relationship between physical costal dynamics and biological productivity.

part of NSF-LTER site project in the California Current

