

State of the Ocean Climate 2005-6

Albert Fischer, Gildas Mainsant, D. E. Harrison

OOPC-11, Tokyo, Japan, May 2006



GCOS
The Global Climate
Observing System



The Global Ocean
Observing System

WCRP

World Climate
Research Programme



IOC



WMO



UNEP



ICSU

Two goals

- Introduce the OOPC “State of the Ocean” web site, tracking ocean climate indices
 - called for since OOPC-8 (2003)
 - goal of helping in evaluation of and communication about the ocean observing system
 - request **feedback**
- State of the Ocean Climate 2005-6
 - mild Niña-like cooling in tropical Pacific
 - peak in N. Atlantic SST anomalies
 - reduction in last few years of North Atlantic current (subtropical and subpolar gyre transport), due mostly to changes in subpolar gyre

OOPC State of the Ocean site

- OOPC-8 (Ottawa, 2003) actions:
 - to submit suggestions for ocean climate indices
 - to develop links on the OOPC web site to existing climate index time series
 - to host experimental ocean climate index time series and provide process for feedback on the OOPC web site
- Goals:
 - Along with uncertainty estimates, provide a tool for evaluation of the observing system (simpler than OSEs or OSSEs, but vulnerable in the same way: answer depends on question)
 - A tool for communication about the ocean observing system
 - A quick overview of the state of the ocean
- **ioc.unesco.org/oopc/**

Sources and calculations

- Sea surface temperature: NOAA/NCDC (Reynolds)
 - satellite, ship, and drifting buoy SST analysis, including error estimate
- Subsurface temperature and salinity: Coriolis North Atlantic (2000-2004) and global (2005-present) analysis
 - objective analysis of all profile data available in real time (Argo, XBT, XCTD, moorings, ship), including error estimate
- Calculated climate indices from NOAA/CPC
 - 500 mb geopotential: AO, NAO, AAO, PNA; SLP: SOI
 - SSTA: PDO, AMO
- System built on:
 - Calculations and graphics: Matlab
 - Automation: shell scripting and nco tools - weekly retrieval of latest analyses
 - Web interface: php and html
 - PowerMac G5 in my office, web server at IOC

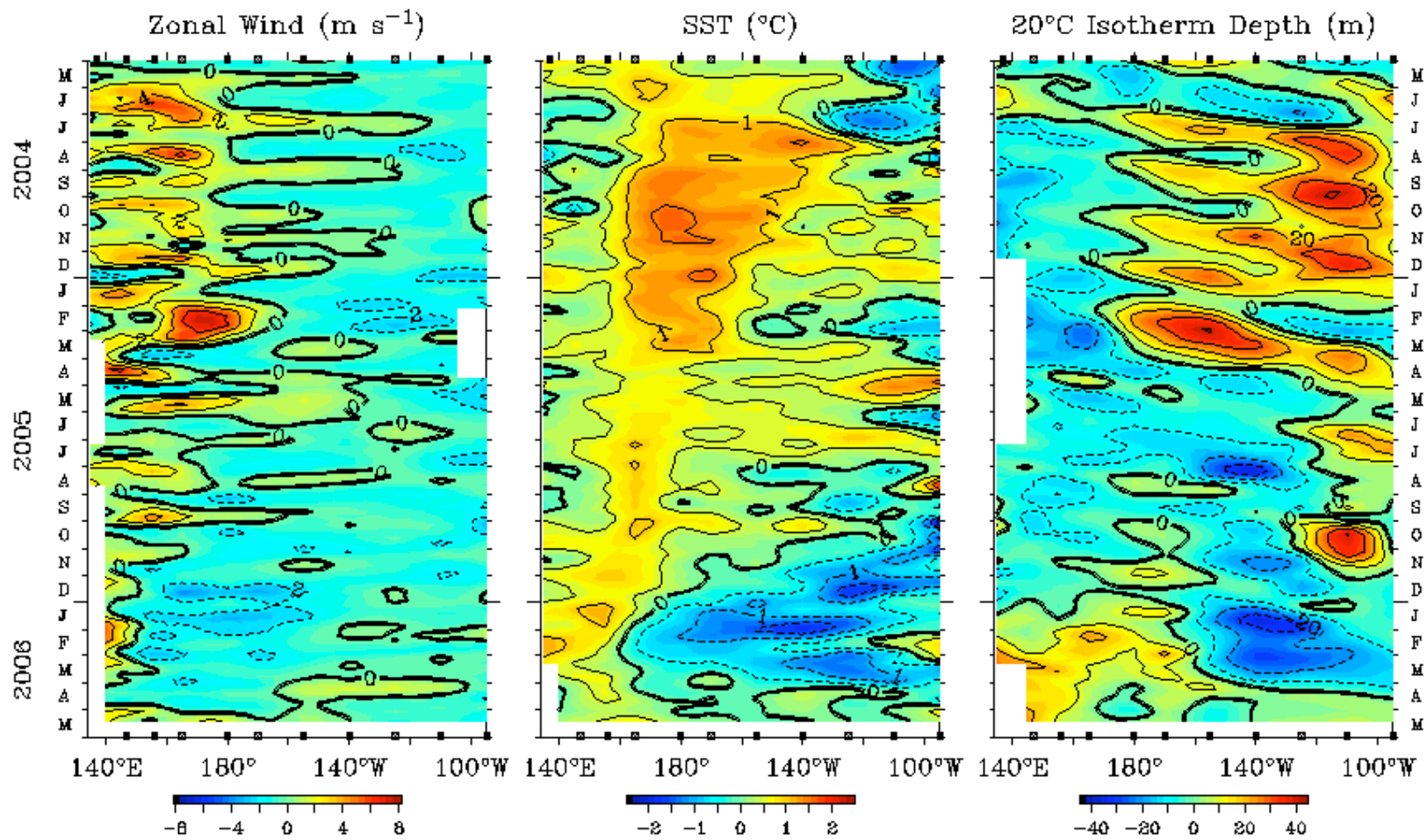


look at tropical Pacific:

http://ioc3.unesco.org/oopc/state_of_the_ocean/sur/

TAO/TRITON

Five Day Zonal Wind, SST, and 20°C Isotherm Depth Anomalies 2°S to 2°N Average

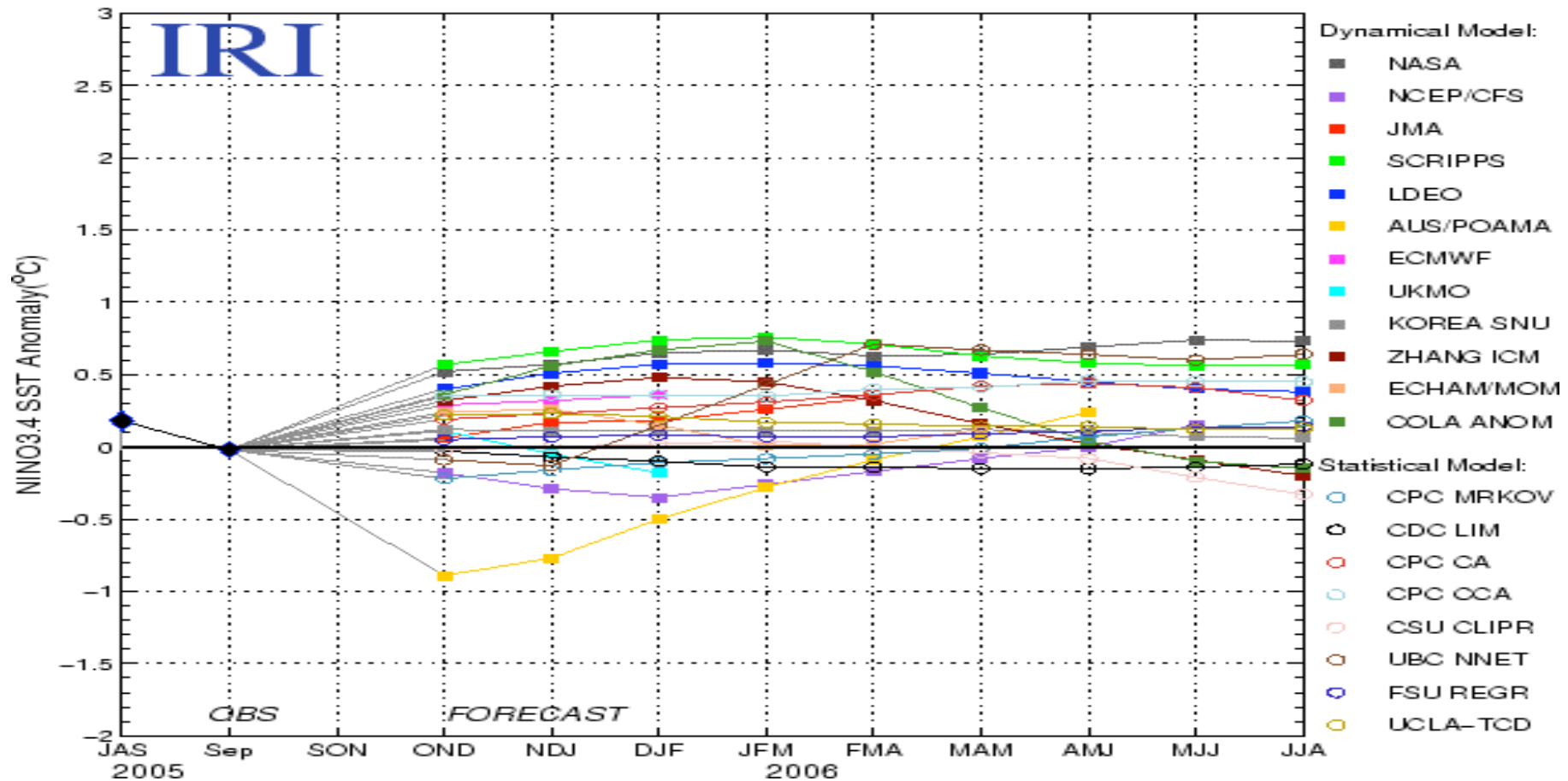


TAO Project Office/PMEL/NOAA

May 18 2006

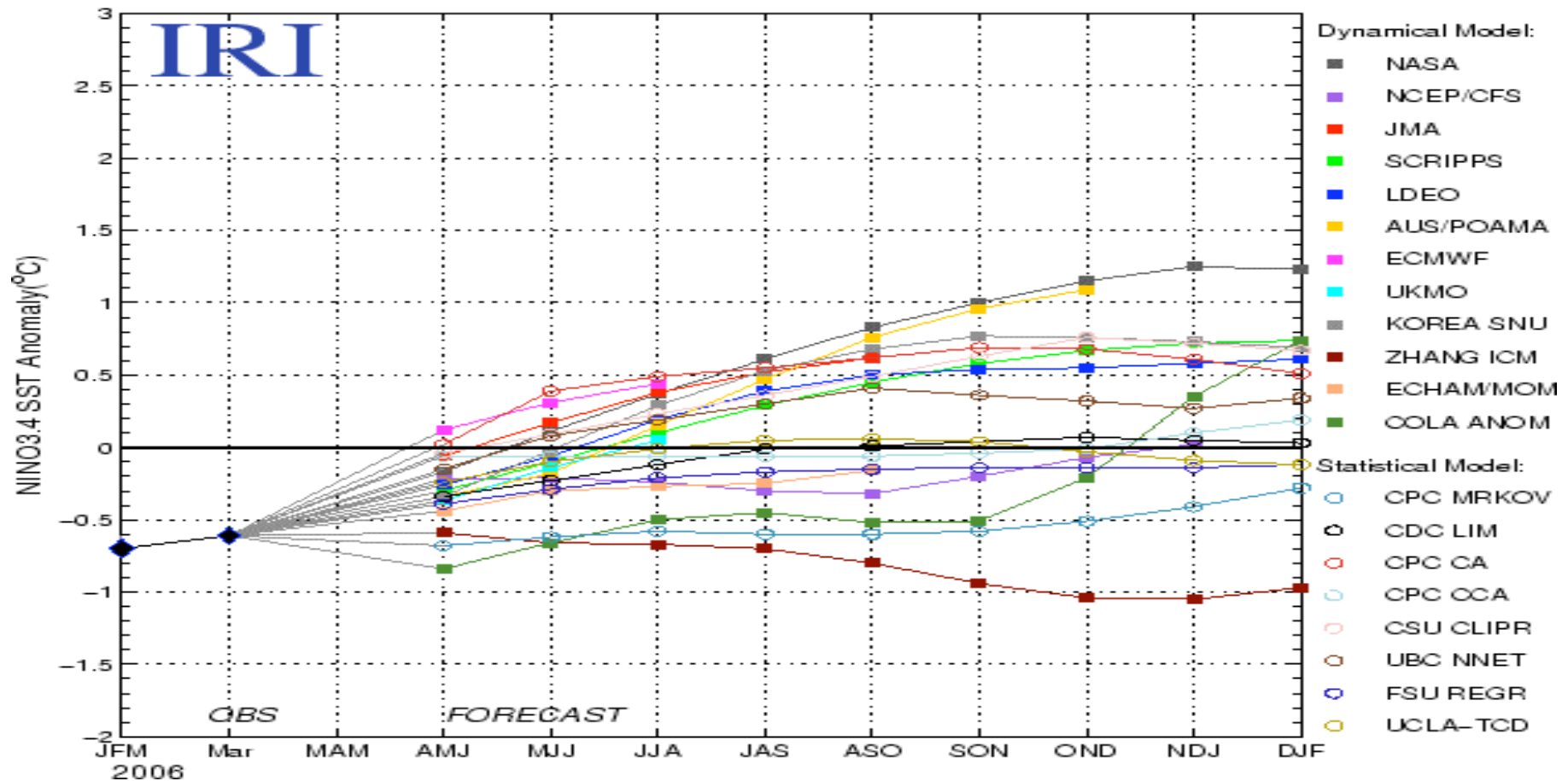
ENSO forecasts

Model Forecasts of ENSO from *Oct 2005*

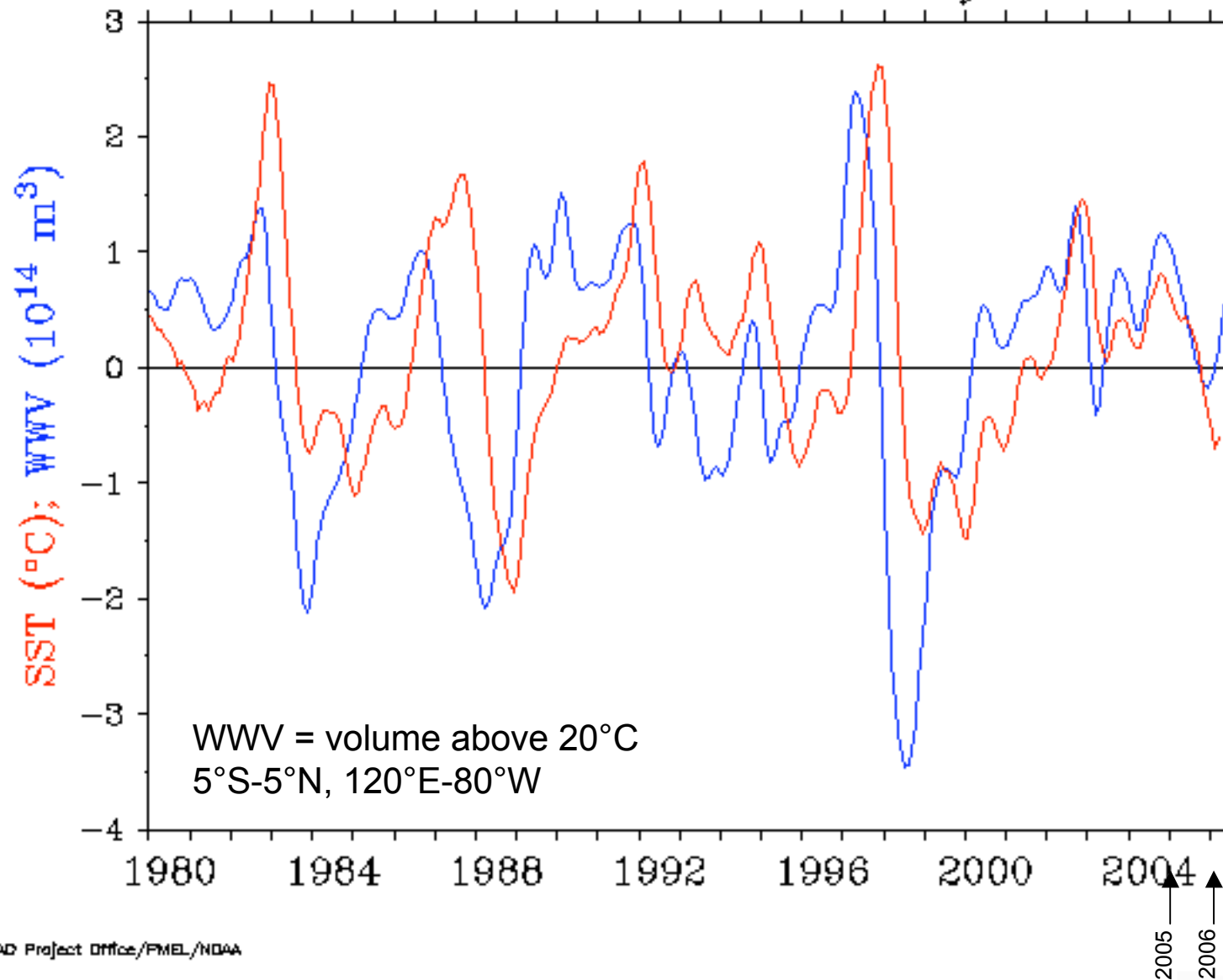


ENSO forecasts

Model Forecasts of ENSO from *Apr 2006*



Warm Water Volume (5°N–5°S, 120°E–80°W) and NINO 3.4 SST Anomaly



TAD Project Office/PMEL/NOAA

NOAA/PMEL

GCOS • GOOS • WCRP

OPPC

look at tropical and north Atlantic, Indian Ocean

http://ioc3.unesco.org/oopc/state_of_the_ocean/sur/atl/

look at subsurface: North Atlantic Circulation Index

http://ioc3.unesco.org/oopc/state_of_the_ocean/sub/berm_lab_trans.php

look at overview

http://ioc3.unesco.org/oopc/state_of_the_ocean/all/

Summary of ocean climate

- mild Niña-like cooling in tropical Pacific, back to close to neutral
 - WWV close to normal (slightly+)
- peak in N. Atlantic SST anomalies, recent reduction
- high intraseasonal variability in tropical Indian, no clear interannual signal for moment
- reduction in last few years of North Atlantic current (subtropical and subpolar gyre transport), due mostly to changes in subpolar gyre

Thanks to

- Gilles Reverdin
- Pierre-Yves Le Traon and Sylvie Pouliquen
- Dick Reynolds
- Ruth Curry

- NOAA/CPC for atmospheric teleconnection indices

Points for discussion

- Who is the audience?
 - scientific? funding agencies? larger public?
 - How to improve our communication with these audiences: an overview based on impacts?
- The ocean climate indices/indicators chosen
 - surely will be debate
 - missing: sea level, upper ocean heat content, indices of salinity changes, your favorite index...
 - what process to include an index?
 - SSTA anomalies easy to add; subsurface S and T fairly easy to add
 - How to limit complexity of site
- Uncertainty calculations