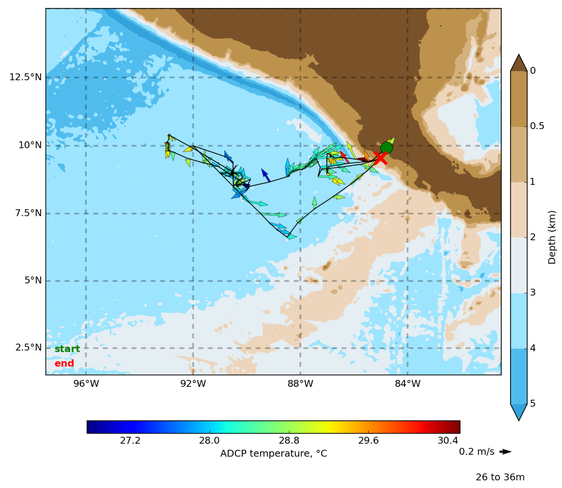
OSM 2014
Session 127
Poster 3247
2014/02/24

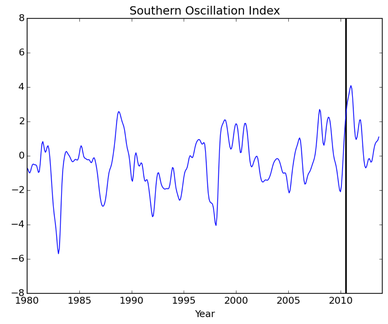
Costa Rica Dome: Physical Context of the FLUZiE Cruise in June-July 2010

Eric Firing and Julia M. Hummon
Department of Oceanography,
School of Ocean and Earth Science and Technology,
University of Hawaii at Mānoa

Shipboard ADCP Velocities



Southern Oscillation Index



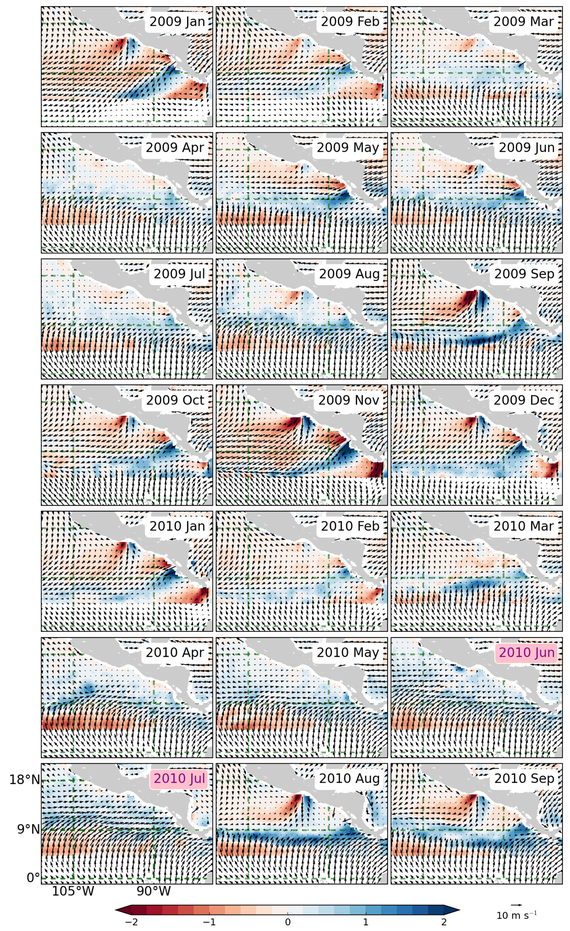
Southern Oscillation Index was rising toward the strong 2010-2011 La Niña.

- Costa Rica Dome Flux and Zinc Experiments (FLUZiE) cruise, R/V Melville, 22 June to 25 July 2010.
- Activity concentrated near 9°N, 90.5°W.
- Relatively weak currents, warm SST.

(monthly) Averaged Winds (5-day)

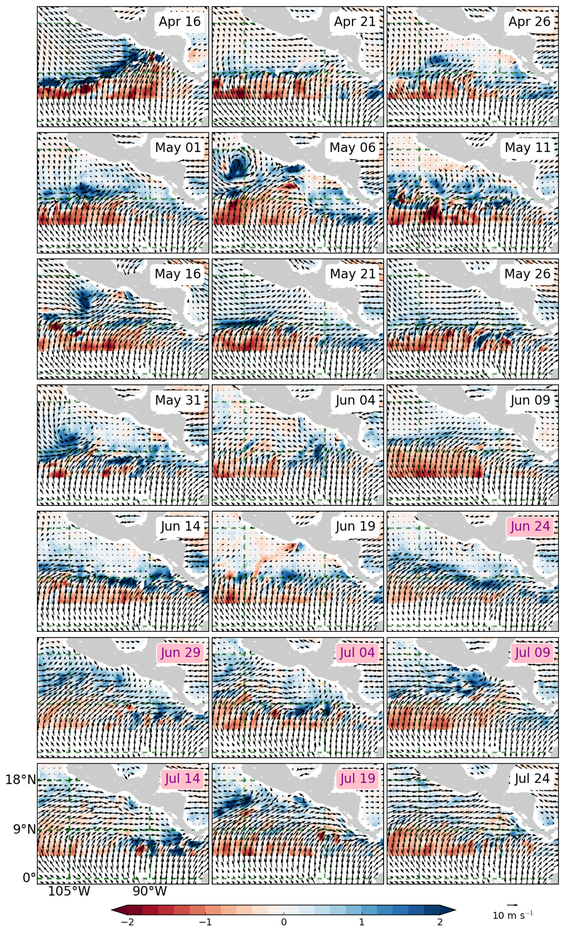
The CCMP wind product (Atlas et al., 2011) shows strong Tehuantepec and Papagayo wind jets in some months, particularly in winter. FLUZiE winds were weak.

2009-2010 CCMP monthly averaged winds



Light winds and moderate upward Ekman pumping also prevailed in the 5-day averaged product during FLUZiE.

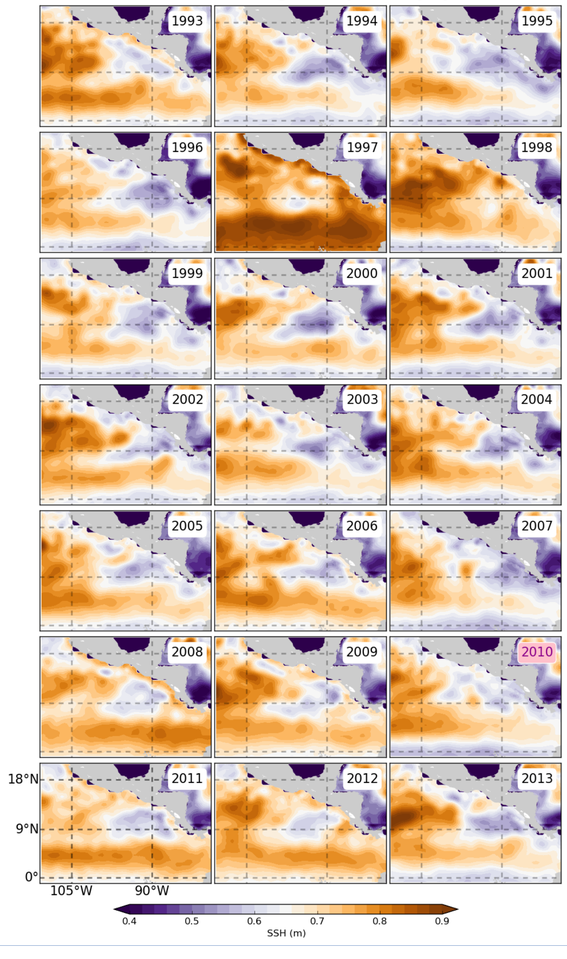
2010 CCMP 5-day averaged winds



(yearly) Sea Surface Height (weekly)

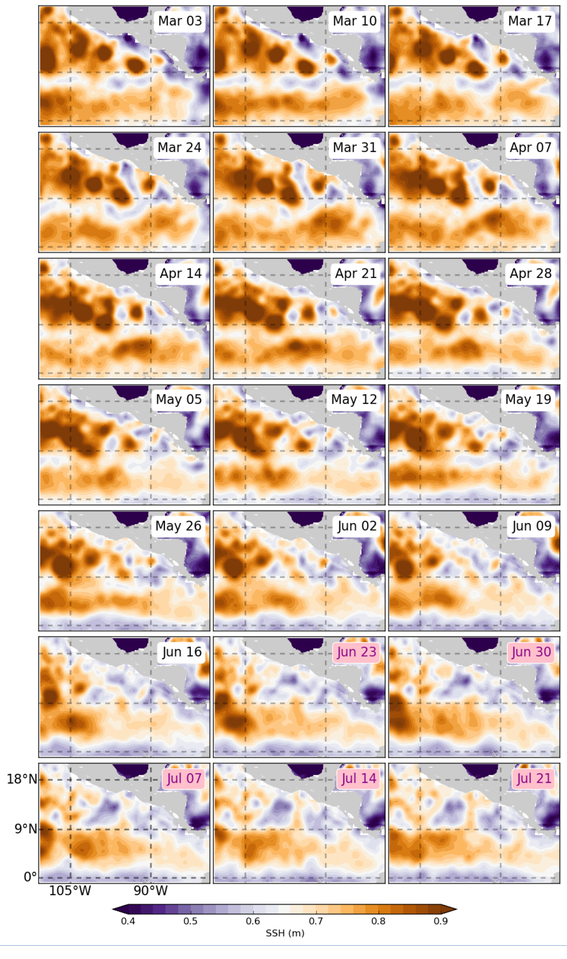
The sea-surface depression associated with the Costa Rica Dome (CRD), the blue area near 9°N, 90°W, was moderately weak in 2010 compared to the same season in other years.

AVISO MADT, averaged May 15 to July 31



On the intraseasonal time scale, SSH contrasts were weakening during the spring. By early summer there was little eddy activity.

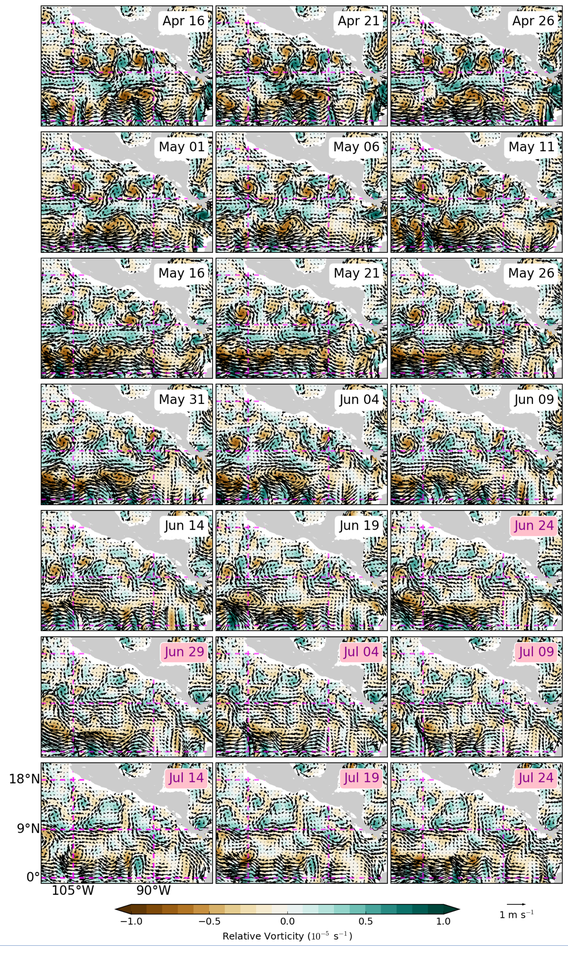
2010 AVISO MADT, weekly



Surface Ocean Currents (5-day)

OSCAR surface current estimates (Bonjean and Lagerloef, 2002) show weak flow near 9°N, 90°W throughout the field program.

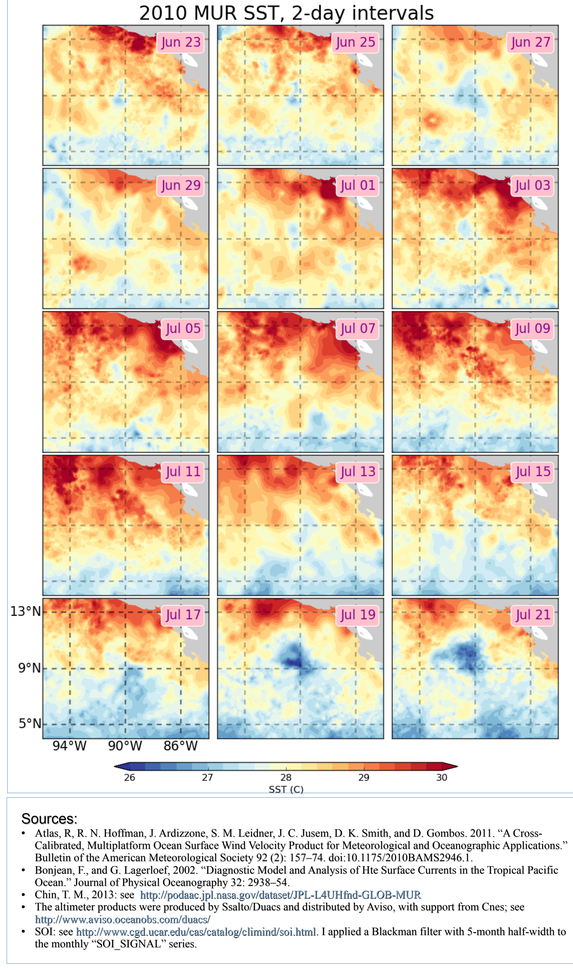
2010 OSCAR 5-day surface currents



Sea Surface Temperature (2-day)

Multi-sensor Ultra-high Resolution (MUR) SST analysis (Chin et al., 2013) shows weak SST minimum near 9°N, 90°W, strengthening at the end of the field program.

2010 MUR SST, 2-day intervals



Sources:
- Atlas, R, R. N. Hoffman, J. Ardizzone, S. M. Leidner, J. C. Jusem, D. K. Smith, and D. Gombos. 2011. "A Cross-Calibrated, Multiplatform Ocean Surface Wind Velocity Product for Meteorological and Oceanographic Applications." Bulletin of the American Meteorological Society 92 (2): 157–74. doi:10.1175/2010BAMS2946.1.
- Bonjean, F., and G. Lagerloef, 2002. "Diagnostic Model and Analysis of Hte Surface Currents in the Tropical Pacific Ocean." Journal of Physical Oceanography 32: 2938–54.
- Chin, T. M., 2013: see http://podaac.jpl.nasa.gov/dataset/JPL-L4UHfnd-GLOB-MUR.
- The altimeter products were produced by Ssalto/Duacs and distributed by Aviso, with support from Cnes; see http://www.aviso.oceanobs.com/duacs/
- SOI: see http://www.cgd.ucar.edu/cas/catalog/climind/soi.html. I applied a Blackman filter with 5-month half-width to the monthly "SOI_SIGNAL" series.