HB06 – Project Update

SCCOOS BOG Meeting
June 11, 2007
SCCWRP
Coupling Nearshore to Shelf and Beyond

- Complexity of shelf processes:
  - Remote forcing of currents
  - Internal wave and tide processes
  - Surf zone / transition zone exchange
  - Alongshelf transport from other possible contaminant sources

- Related processes:
  - Ecosystem dynamics
    - Phytoplankton blooms including HABS
    - Bioluminescence
Components

- Surf Zone (UCSD)
- Moorings (USGS, OCSD, UCSD)
- Drifters (UCSB)
- AUVs – REMUS (CPSLO)
- AUVs – Gliders (CPSLO, UCSD)
- HF Radar (USC, UCSD)
- Numerical Models (UCLA, JPL)
- Meteorology (JPL, UCSD, OCSD)
- Dye Studies (UCSD, USC, OCSD)
- Microbiology (OCSD)
- Biology (USC, UCSD, CPSLO)
A Few of the Funding Sources
Instrument Array

Surf Zone – 1 km x 200 m

Shelf Transition Zone

Regional Scale
Surf Zone Array

Surf Zone Tripods

Surf Zone Drifters

Surf Zone T, S, currents

Surf zone mapping, dye studies, drifters
Transport & dilution of pollutant runoff in surf zone: Where to put this?

Guza, Feddersen, & O’Reilly
SIO
NOWCASTS= Realtime  http://cdip.ucsd.edu/hb06/
HB06 : Surfzone nowcast model test (Sep-Oct 06)
Drifter Mapping of Currents
Ohlman - UCSB

- HB06 drifter data (Ohlmann, UCSB)
- real-time data at www.drifterdata.com
- accurate Lagrangian surface (1 m) current measurements
Transition Zone Moorings

- USGS Moorings
- OCSD Moorings
- SC公益 Offshore Moorings (Sept-Oct)
- Met Runway (CMR)
- Aanderra ADCP (July, Aug-Sept, Sept-Oct)

Huntington Beach Channel

San Pedro Shelf

Main Transect

- Aanderra APCP here
  Early Aug - Sept
- USC Fluorometers

40-HLP Mean Temperatures Main Transect
7/26/2001 to 10/3/2001
Mn = 10.9°C Max = 20.17°C
2 SIO moorings

Telemetry:
- ADCP
- Microcat T/S, 3 depths
- both subsampled to 30min

ADCP (300kHz): 2m
microcat (T,S): 1,7,13m
T-Logger: 3,5,9,11m, bottom
bottom-pressure
Real-time current vectors at surface and near bottom, showing large vertical and horizontal gradients.

Surface vectors dark, bottom vectors pale.
UCSD Glider – Large Scale
Rudnick/Davis
Data: Spray 011
Mapping Integrated Currents
Remus AUV
Moline – Cal Poly SLO
Modeling (ROMS – JPL, UCLA)
Summary

- Unprecedented set of surf zone / transition zone observations that directly apply to managerial issues in the coastal ocean
- Proof of concept of data and modeling predictions available in real-time
- Combined observations valued at $2 - 3 million
- Synergism of a host of regional, state and national funding agencies