

CCE-P0810

Pre-Cruise Meeting, 21 August 2008

UPDATED 8 September

Vessel: R/V MELVILLE (<http://www.shipsked.ucsd.edu/ships/melville/index.html>)

Depart: 30 Sept 2008

Stops: 17 Oct. \pm 1 day (Santa Barbara) – mid-cruise personnel transfer

Return: 29 October 2008

MELVILLE Schedule per SIO Website:

23 Sept (Tues) Arrives transit from Dutch Hbr - press confr, no refueling

24 Sept, (Wed) VIP shipboard function, no refueling

25 Sept (Thurs) Early loading? (vans, MVP, acoustics?), refueling day?

26-28 Sept **Loading (Friday – Monday)**

30 Sept (Tues) **Cruise departure (0800 sharp)**

29 Oct (Wed) **Cruise return, unloading**

30 Oct (Thurs) Complete unloading

30 Oct-5 Nov Maintenance, next cruise starts 9 Nov.

SCIENTIFIC OBJECTIVES

This will be the 3rd “process” cruise of the CCE LTER (California Current Ecosystem, Long-Term Ecological Research) Program, the objective of which is to understand the coupling of physical, chemical and biological dynamics in the California Current ecosystem and, ultimately, the system responses to long-term climate variability. On this cruise, we will investigate the relationships among water-column light, temperature, nutrients, thermocline and nutricline depths, phytoplankton and zooplankton standing stocks, phytoplankton growth and production rates, and micro- and meso-zooplankton grazing rates. This will be during the stratified, “calm” period of the year, a seasonal contrast to previous springtime cruises.

GENERAL OVERVIEW OF THE SCIENCE PLAN

The science plan is based around Activity Cycles in which water masses of differing initial characteristics are marked with a drogued drift array and studied over the course of a few days. In the first half of the cruise, we will conduct 3 cycles of 4 days each at sites situated along the axis of CalCOFI sampling line 80 (off Point Conception, California). In addition, we will do exploratory station sampling at a frontal feature between cycles. During the second part of the cruise, 4 “mini” cycles of 2 days each will be conducted at different locations with similar hydrographic properties south of Pt. Conception to test variability in food web responses.

Initial and daily CTD sampling at approximately 0200 will be conducted to assess daily changes in water mass characteristics. The same water collection will also be used for experimental incubations on the drift array (i.e., daily predawn recovery and redeployment of the drift array). A drifting sediment trap array will also be deployed during each cycle. Both drift arrays are instrumented with satellite GPS tracking.

Using the drift array as a moving frame of reference, additional CTD sampling will be conducted at mid-day for bio-optical studies and shipboard assessments of primary production, and typically in the evening for additional shipboard experimental studies. We will also have a full round-the-clock schedule of other sampling activities including:

- 1) MOCNESS tows around mid-day and mid-night for stratified zooplankton collections;
- 2) Bow-tie surveys of the station area with a Moving Vessel Profiler (MVP, 4-h, approx. daily);
- 3) Mid-water trawl tows for migratory mesopelagic fish (Oozeki Trawl);
- 4) Plankton net tows (bongo nets, mid-day and mid-night) for zooplankton biomass, gut pigment and live animal experiments
- 5) Go-Flo or trace-metal pump sampling for iron (Fe) analyses and experiments
- 6) Over the side pump sampling (McLane pump) for suspended particulates

New measurements for this cruise:

Video Profiling, zooplankton & aggregates (Picheral)
Bio-acoustical sampling of mesopelagics (Koslow)
15-N experiments of “new” production (Stukel)
Viral lysis/mortality impact on phytoplankton (Pasulka)
Zooplankton physiological indices (Powell)
Thin-layer sampling of bacterial activity (Samo)
Station sampling (between cycles) at frontal features (many)

Vans:

Isotope van -- the “notch”
Trace metal (Moffett van) -- stbd fantail
Cold van -- port fantail
Isotope waste -- 01 deck

Deck Operations:

CTD/basic 24 10-L bot rosette, fluor, trans, O₂, PAR – starboard forward hydroboom
ISUS nitrate sensor, Underwater Video Profiler (UVP) – on CTD
Drift array – starboard aft, deployed/recovered by hand
Sediment Trap Array – free drift, deployed/recovered on A-frame, capstan
Trace metal, Go-Flos – starboard aft, Alaska crane
Moving Vessel Profiler – port stern, has its own winch
Multi-frequency acoustics. – port-side aft
Oozeki Trawl (5 m²) – trawl winch stern
MOCNESS – starboard, conducting hydrowire
IOC/FRRF/Bio-optics package – starboard, hydrowire
Radiometer – fantail, free-fall, no winch
Large-volume surface pump (Aluwihare) – stbdr side, no winch
McLane Pump (C:Th) – starboard hydrowire
Bongo nets – starboard hydrowire
Incubators – port side, out of way of winch and lines

Ship Constraints:

- Sinks – 4 total: aft hangar (zoopl sample preservation), photo/wet lab, main lab (filtration system drainage), analytical lab (Mill-Q water system) possibility of adding another portable sink outside (forward hangar)
- Lower Lab – is unavailable (this is the optimal space for microscopy). Microscope will be set up in lieu of 2 berths in the 4-person stateroom (Taylor, Wick)
- Upper Lab – suitable only for computers, dry instrumentation

Target CCE-P0810 Science Schedule:

- 0800, 30 Sept. – Depart MarFac
- 1300, 30 Sept. – Test station (MVP, CTD/UVP, Go-Flos. MOCNESS, Oozeki net)
- 0000, 2 Oct. – Begin CYCLE 1, (Offshore)
- 0700, 6 Oct. – End CYCLE 1, Begin onshore transit (12-14 h)
- 0000, 7 Oct. – Begin CYCLE 2, (Ca Current)
- 0900, 11 Oct. – End CYCLE 2, begin front sampling (day)
- 1900, 11 Oct. -- Front sampling through night
- 0800, 12 Oct. -- End front sampling, MVP inshore transect to CYC #3
- 0000, 13 Oct. – Begin CYCLE 3, inshore
- 0800, 17 Oct. – End CYCLE 3, transit to Santa Barbara/personnel transfer
- 0000, 18 Oct. – Begin mini-CYCLE 4, vicinity of CYCLE 1
- 0900, 20 Oct. – End CYCLE 4, south transit
- 0000, 21 Oct. – Begin mini-CYCLE 5
- 0900, 23 Oct. – End mini-CYCLE 5, south transit
- 0000, 24 Oct. – Begin mini-CYCLE 6
- 0900, 26 Oct. – End mini-CYCLE 6, south transit
- 0000, 27 Oct. – Begin mini-CYCLE 7
- 0600, 29 Oct. – End mini-CYCLE 7, south transit
- 1200, 29 Oct. – Return San Diego

*CYCLES to be preceded by MVP/ALF site survey

Berthing and Lab Space Assignments:

- Berth assignments will be posted in the Main Lab on loading day. All participants are encouraged to sleep on the ship on Monday (29 Sept.) night.
- Lab space assignments will not be made until the ship is in port and the layout of the lab benches, sinks, and built-in ship's equipment can be noted. You can expect some chatter about space on 23-24 Sept. Per usual, we will have a working plan by the first loading day (25 Sept.), though slight adjustments to that may continue through the weekend.

CRUISE PERSONNEL:

1. Michael Landry	mlandry@ucsd.edu	SIO Chief Scientist
2. Mark Ohman	mohman@ucsd.edu	SIO Project PI
3. Ralf Goericke	rgoericke@ucsd.edu	SIO Project co-PI
4. Tony Koslow	tkoslow@ucsd.edu	SIO CalCOFI Director
5. Alexander Chekalyuk	chekaluk@ldeo.columbia.edu	LDEO Researcher
6. Konstantin Semyanov	kas2187@ldeo.columbia.edu	Proj Sci (LDEO)
7. Marc Picheral	marc.picheral@obs-vlfr.fr	Visiting Sci. (Villefranche)
8. Kristen Buck	kbuck@ucsd.edu	Post-doc (Barbeau lab)
9. Ana Lara Lopez	analigia@yahoo.com	JIMO Post-doc (Koslow)
10. Qian Li	qian@coast.ucsd.edu	SIO Post-doc (Franks)
11. Brian Hopkinson	bhopkins@Princeton.EDU	Post-doc (Princeton)
12. Ian Ball	gball@ucsd.edu	SIO Grad Student
13. Allison Cawood	acawood@ucsd.edu	SIO Grad Student
14. Moira Decima	mdecima@ucsd.edu	SIO Grad Student
15. Pete Davison	pdavison@ucsd.edu	SIO Grad Student
16. Jenna Losh	jlosh@princeton.edu	Grad Student (Princeton)
17. Ally Pasulka	apasulka@ucsd.edu	SIO Grad Student
18. Byron Pedler	bpedler@ucsd.edu	SIO Grad Student
19. Jessie Powell	jpowell@coast.ucsd.edu	SIO Grad Student
20. Kelly Roe	kroe@ucsd.edu	SIO Grad Student
21. Ty Samo	tsamo@ucsd.edu	SIO Grad Student
22. Mike Stukel	mstukel@ucsd.edu	SIO Grad Student
23. Darcy Taniguchi	datanigu@ucsd.edu	SIO Grad Student
24. Andrew Taylor	agtaylor@coast.ucsd.edu	SIO Grad Student
25. Megan Roadman	meroad@yahoo.com	SIO Res Tech (Goericke)
26. Haili Wang	HWang@spg.ucsd.edu	SIO Res Tech (Mitchell)
27. Brian Seegers	bseegers@spg.ucsd.edu	SIO Res Tech (Mitchell)
28. Dan Wick	dwick@ucsd.edu	SIO Res Tech (Landry)
29. Jean-Baptiste Romagnan	jbaptiste.romagnan@gmail.com	SIO Res Tech (Ohman)
30. Jian Liu	jianliu1961@yahoo.com	SIO Res Tech (Koslow)
31. Dave Jensen	dwjensen@ucsd.edu	Volunteer (Ohman)
32. Christy Millsap	cmillsap@powayusd.com	CCE Teacher-at-Sea
33. Jim Dorrance	jdorrance@ucsd.edu	MarFac STS Res Tech
34. John Calderwood	jcalderwood@ucsd.edu	STS MOC/CTD Tech
35. Kristopher Weeks	kweeks@ucsd.edu	STS Computer Tech

YELLOW highlight = Leg #1 only (disembark Santa Barbara; van transport to San Diego)

Leg #2

1. Mark Hafez	hafez@osb1.wff.nasa.gov	NASA Tech (Chekalyuk)
2. Ryan Rykaczewski	rrykacze@ucsd.edu	SIO Grad Student
3. Debra Brice	debra.brice@smusd.org	CCE Teacher-at-Sea
4. Laurie Guest	lguest@mitacademy.org	CCE Teacher-at-Sea