

RV New Horizon Cruise (July 10 - August 8, 2008) - GoCAL & Beyond!
 GoCALxy CTD or ARR#, where x ≡ cruise (4), y ≡ station (cast or deployment number)

In Transit sample ship's flow-thru system every 3-4hrs on each transit for:
 POC/PN, pigments, biomarkers, nutrients

Day/Date	Event	Local Time	CTD / Array Sampling Plan
10-Jul-2008	Depart from La Paz, Mexico (24.14N, 110.32W)	0900	
	Test CTD - Rosette Operation	1500	
11-Jul-2008	Arrive Station #1 (26.5N, 110.5W, 142nm ~15hrs)	0200	
	GoCAL41-1 (Hydrocast)	0800	0-100m: 100, 70, 50, 40, 35, 30, 25, 20, 15, 10, 5, 0 nutrients (including SRP, TDP), DIC, DI13C, POC/PIC, pigments, microscopy
	GoCAL41-2 (Optics Package)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL41-3 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL41-4 (Hydrocast)	1600	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL41-5 (Hydrocast)	1800	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL41-6 (234Th)	2000	Challenger Pumps in tandem: 4 depths
12-Jul-2008	GoCAL41-7 (Array Cast #1)	0130	collect water for Array #1 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL41-8 (Array Cast #1)	0245	collect water for Array #1 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL41-9 (Array Cast #1 - supplemental?)	0400	collect water for Array #1 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	Deploy GoCAL41-Array#1 (w/ 13C / 15N incubations)	0600	
	GoCAL41-10 (C2H2 / 15N2 on-deck)	0700	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL41-11 (Hydrocast)	0900	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL41-12 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL41-13 (Hydrocast)	1400	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL41-14 (234Th Cast)	1600	Challenger Pumps in tandem: 4 depths
	GoCAL41-15 (234Th Cast)	2000	Challenger Pumps in tandem: 4 depths
13-Jul-2008	open wire time	0000	
	Recover GoCAL41-Array#1	0600	

GoCAL41-16 (C2H2 / 15N2 on-deck)	1000	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
GoCAL41-17 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
GoCAL41-18 (234Th)	1300	234Th cast: 0-400 @25m, 450m, 500-1000m @100m
GoCAL41-19 (234Th)	1500	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
GoCAL41-20 (234Th)	1700	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
14-Jul-2008 GoCAL41-21 (Array Cast #2)	0130	collect water for Array #2 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
GoCAL41-22 (Array Cast #2)	0245	collect water for Array #2 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
GoCAL41-23 (Array Cast #2 - supplemental?)	0400	collect water for Array #2+E115 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
Deploy GoCAL41-Array#2 (w/ 13C / 15N incubations)	0600	
GoCAL41-24 (C2H2 / 15N2 on-deck)	0700	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
GoCAL41-25 (Hydrocast)	0830	0-100m: 100, 70, 50, 40, 35, 30, 25, 20, 15, 10, 5, 0 nutrients (including SRP, TDP), DIC, DI13C, POC/PIC, pigments, microscopy
open wire time	1030	
GoCAL41-26 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
GoCAL41-27 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
GoCAL41-28 (Hydrocast)	1600	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
GoCAL41-29 (Hydrocast)	1800	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
open wire time	2000	
15-Jul-2008 Recover GoCAL41-Array#2	0600	
GoCAL41-30 (234Th Cast)	0800	Challenger Pumps in tandem: 4 depths plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
GoCAL41-31 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
Depart for Station#2 (23.5oN, 108.5W, 210nm, ~22hrs)	1300	
16-Jul-2008 Arrive Station#2	1100	
GoCAL42-1 (optics)	1200	optics cast
GoCAL42-2 (Hydrocast)	1400	0-100m: 100, 70, 50, 40, 35, 30, 25, 20, 15, 10, 5, 0 nutrients (including SRP, TDP), DIC, DI13C, POC/PIC, pigments, microscopy

	GoCAL42-3 (234Th)	1600	234Th cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL42-4 (234Th)	1800	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL42-5 (234Th)	2000	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
17-Jul-2008	GoCAL42-6 (Array Cast #3)	0130	collect water for Array #3 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL42-7 (Array Cast #3)	0245	collect water for Array #3 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL42-8 (Array Cast #3 - supplemental?)	0400	collect water for Array #3 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	Deploy GoCAL42-Array#3 (w/ 13C / 15N incubations)	0600	
	GoCAL42-9 (C2H2 / 15N2 on-deck)	0700	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL42-10 (Hydrocast)	0830	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL42-11 (Hydrocast)	1030	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL42-12 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL42-13 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL42-14 (Hydrocast)	1600	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL42-15 (Hydrocast)	1800	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL42-16 (234Th Cast)	2000	Challenger Pumps in tandem: 4 depths
18-Jul-08	GoCAL42-17 (234Th Cast)	0000	Challenger Pumps in tandem: 4 depths
	Recover GoCAL42-Array#3	0600	
	GoCAL42-18 (234Th Cast)	0700	Challenger Pumps in tandem: 4 depths
	GoCAL42-19 (C2H2 / 15N2 on-deck)	1000	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL42-20 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	Depart for Station#3 (20.50n, 106.5W, 212nm, ~22hrs)	1300	
19-Jul-08	Arrive at Station#3	1100	
	GoCAL43-1 (optics)	1200	optics cast
	GoCAL43-2 (Hydrocast)	1400	0-100m: 100, 70, 50, 40, 35, 30, 25, 20, 15, 10, 5, 0 nutrients (including SRP, TDP), DIC, DI13C, POC/PIC, pigments, microscopy
	GoCAL43-3 (234Th)	1600	Challenger Pumps in tandem: 4 depths

	GoCAL43-4 (234Th)	2000	Challenger Pumps in tandem: 4 depths
20-Jul-08	GoCAL43-5 (Array Cast #4)	0130	collect water for Array #4 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL43-6 (Array Cast #4)	0245	collect water for Array #4 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL42-7 (Array Cast #4 - supplemental?)	0400	collect water for Array #4 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	Deploy GoCAL43-Array#4 (w/ 13C / 15N incubations)	0600	
	GoCAL43-8 (C2H2 / 15N2 on-deck)	0700	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL43-9 (Hydrocast)	0830	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL43-10 (Hydrocast)	1030	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL43-11 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL43-12 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL43-13 (Hydrocast)	1600	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL43-14 (Hydrocast)	1800	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL43-15 (234Th Cast)	2000	Challenger Pumps in tandem: 4 depths
21-Jul-08	open wire time	0000	
	Recover GoCAL43-Array#4	0600	
	GoCAL43-16 (C2H2 / 15N2 on-deck)	1000	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL43-17 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL43-18 (Hydrocast)	1400	0-100m: 100, 70, 50, 40, 35, 30, 25, 20, 15, 10, 5, 0 nutrients (including SRP, TDP), DIC, DI13C, POC/PIC, pigments, microscopy
	GoCAL43-19 (234Th Cast)	1600	234Th cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL43-20 (234Th Cast)	1800	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL43-21 (234Th Cast)	2000	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
22-Jul-08	GoCAL43-22 (Array Cast #5)	0130	collect water for Array #5 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL43-23 (Array Cast #5)	0245	collect water for Array #5 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?

	GoCAL43-24 (Array Cast #5 - supplemental?)	0400	collect water for Array #5 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	Deploy GoCAL43-Array#5 (w/ 13C / 15N incubations)	0600	
	GoCAL43-25 (C2H2 / 15N2 on-deck)	0700	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL43-26 (Hydrocast)	0830	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL43-27 (Hydrocast)	1030	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL43-28 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL43-29 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL43-30 (Hydrocast)	1600	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL43-31 (Hydrocast)	1800	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL43-32 (234Th Cast)	2000	Challenger Pumps in tandem: 4 depths
23-Jul-08	open wire time	0000	
	Recover GoCAL43-Array#5	0600	
	GoCAL43-33 (C2H2 / 15N2 on-deck)	1000	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL43-34 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	Depart for Station#4 (21.5oN, 109.5oW, 178nm, ~19hrs)	1300	
24-Jul-08	Arrive at Station#4	0800	
	GoCAL44-1 (optics)	1200	optics cast
	GoCAL44-2 (Hydrocast)	1400	0-100m: 100, 70, 50, 40, 35, 30, 25, 20, 15, 10, 5, 0 nutrients (including SRP, TDP), DIC, DI13C, POC/PIC, pigments, microscopy
	GoCAL44-3 (234Th Cast)	1600	Challenger Pumps in tandem: 4 depths
	GoCAL44-4 (234Th Cast)	2000	Challenger Pumps in tandem: 4 depths
25-Jul-08	GoCAL44-5 (Array Cast #6)	0130	collect water for Array #6 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL44-6 (Array Cast #6)	0245	collect water for Array #6 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL44-7 (Array Cast #6 - supplemental?)	0400	collect water for Array #6 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	Deploy GoCAL44-Array#6 (w/ 13C / 15N incubations)	0600	
	GoCAL44-8 (C2H2 / 15N2 on-deck)	0700	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison

			plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL44-9 (Hydrocast)	0830	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL44-10 (Hydrocast)	1030	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL44-11 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL44-12 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL44-13 (Hydrocast)	1600	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL44-14 (Hydrocast)	1800	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL44-15 (234Th Cast)	2000	234Th cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL44-16 (234Th Cast)	2200	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
26-Jul-08	GoCAL44-17 (234Th Cast)	0000	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
	Recover GoCAL44-Array#6	0600	
	GoCAL44-18 (234Th Cast)	0700	Challenger Pumps in tandem: 4 depths
	GoCAL44-19 (C2H2 / 15N2 on-deck)	1000	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL44-20 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	Depart for Station#5 (24.7oN, 113.3oW, 284nm, ~29hrs)	1300	
27-Jul-08	Arrive at Station#5	1800	
	GoCAL45-1 (234Th Cast)	2000	234Th cast: 0-400 @25m, 450m, 500-1000m @100m
28-Jul-08	GoCAL45-2 (234Th Cast)	0000	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL45-3 (234Th Cast)	0400	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL45-4 (Hydrocast)	0800	0-100m: 100, 70, 50, 40, 35, 30, 25, 20, 15, 10, 5, 0 nutrients (including SRP, TDP), DIC, DI13C, POC/PIC, pigments, microscopy
	GoCAL45-5 (Hydrocast)	1000	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL45-6 (Optics Package)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL45-7 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL45-8 (Hydrocast)	1600	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL45-9 (234Th Cast)	1800	Challenger Pumps in tandem: 4 depths

29-Jul-08	GoCAL45-10 (Array Cast #7)	0130	collect water for Array #7 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL45-11 (Array Cast #7)	0245	collect water for Array #7 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL45-12 (Array Cast #7 - supplemental?)	0400	collect water for Array #7 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	Deploy GoCAL45-Array#7 (w/ 13C / 15N incubations)	0600	
	GoCAL45-13 (C2H2 / 15N2 on-deck)	0700	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL45-14 (Hydrocast)	0830	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL45-15 (Hydrocast)	1030	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL45-16 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL45-17 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL45-18 (Hydrocast)	1600	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL45-19 (Hydrocast)	1800	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL45-20 (234Th Cast)	2000	Challenger Pumps in tandem: 4 depths
30-Jul-08	GoCAL45-21 (234Th Cast)	0000	Challenger Pumps in tandem: 4 depths
	Recover GoCAL45-Array#7	0600	
	GoCAL45-22 (C2H2 / 15N2 on-deck)	1000	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL45-23 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	Depart for Station#6 (27.5oN, 117.5oW, 282nm, ~29hrs)	1300	
31-Jul-08	Arrive at Station#6	1800	
	GoCAL46-1 (234Th Cast)	2000	Challenger Pumps in tandem: 4 depths
1-Aug-08	GoCAL46-2 (234Th Cast)	0000	Challenger Pumps in tandem: 4 depths
	GoCAL46-3 (Hydrocast)	0800	0-100m: 100, 70, 50, 40, 35, 30, 25, 20, 15, 10, 5, 0 nutrients (including SRP, TDP), DIC, DI13C, POC/PIC, pigments, microscopy
	GoCAL46-4 (Hydrocast)	1000	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL46-5 (Optics Package)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL46-6 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy

	GoCAL46-7 (Hydrocast)	1600	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL46-8 (234Th Cast)	1800	234Th cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL46-9 (234Th Cast)	2000	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL46-10 (234Th Cast)	2200	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
2-Aug-08	GoCAL46-11 (Array Cast #8)	0130	collect water for Array #8 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL46-12 (Array Cast #8)	0245	collect water for Array #8 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL46-13 (Array Cast #8 - supplemental?)	0400	collect water for Array #8 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	Deploy GoCAL46-Array#8 (w/ 13C / 15N incubations)	0600	
	GoCAL46-14 (C2H2 / 15N2 on-deck)	0700	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL46-15 (Hydrocast)	0830	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL46-16 (Hydrocast)	1030	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL46-17 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL46-18 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL46-19 (Hydrocast)	1600	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL46-20 (Hydrocast)	1800	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL46-21 (234Th Cast)	2000	Challenger Pumps in tandem: 4 depths
3-Aug-08	Recover GoCAL46-Array#8	0600	
	GoCAL46-22 (C2H2 / 15N2 on-deck)	1000	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL46-23 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	Depart for Station#7 (32.5oN, 120.5oW, 338nm, ~34hrs)	1300	
4-Aug-08	Arrive at Station#7	2300	
5-Aug-08	GoCAL47-1 (234Th Cast)	0200	234Th cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL47-2 (234Th Cast)	0400	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m
	GoCAL47-3 (234Th Cast)	0600	210Pb cast: 0-400 @25m, 450m, 500-1000m @100m

	GoCAL47-4 (Hydrocast)	0800	0-100m: 100, 70, 50, 40, 35, 30, 25, 20, 15, 10, 5, 0 nutrients (including SRP, TDP), DIC, DI13C, POC/PIC, pigments, microscopy
	GoCAL47-5 (Hydrocast)	1000	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL47-6 (Optics Package)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL47-7 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL47-8 (Hydrocast)	1600	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL47-9 (234Th Cast)	1800	Challenger Pumps in tandem: 4 depths
6-Aug-08	GoCAL47-10 (Array Cast #9)	0130	collect water for Array #9 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL47-11 (Array Cast #9)	0245	collect water for Array #9 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	GoCAL47-12 (Array Cast #9 - supplemental?)	0400	collect water for Array #9 w/ 13C, NH4 oxidation, 15N fixation, to - microscopy?
	Deploy GoCAL47-Array#9 (w/ 13C / 15N incubations)	0600	
	GoCAL47-13 (C2H2 / 15N2 on-deck)	0700	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL47-14 (Hydrocast)	0830	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL47-15 (Hydrocast)	1030	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL47-16 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	GoCAL47-17 (Hydrocast)	1400	3 depths from photic zone POC/PN, pigments, biomarkers, nutrients, microscopy
	GoCAL47-18 (Hydrocast)	1600	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL47-19 (Hydrocast)	1800	Oxygen Minimum Cast - Ammonia Oxidation Work / d15N-d18O Nitrate Work
	GoCAL47-20 (234Th Cast)	2000	Challenger Pumps in tandem: 4 depths
7-Aug-08	GoCAL47-21 (234Th Cast)	0000	Challenger Pumps in tandem: 4 depths
	Recover GoCAL47-Array#9	0600	
	GoCAL47-22 (C2H2 / 15N2 on-deck)	1000	hydrocast for water to do acetylene reduction / 15N2 assessment / comparison plus net sampling of surface water for large diazotrophs, in particular Tricho colonies
	GoCAL47-23 (optics)	1200	mid-day PAR evaluation - detailed euphotic zone optics
	Depart for San Diego (32.7oN, 117.2oW, 169nm, 17hrs)	1600	

8-Aug-08 [Arrive in San Diego](#)

0900