



Raytheon

Polar Services

UNITED STATES ANTARCTIC PROGRAM

**NBP07-09 SIMBA
Cruise Planning Meeting
Friday, 30 March 2007**



CRUISE OBJECTIVES

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- **SCIENCE OUTLINE AND GOALS**



CRUISE SCHEDULE

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- **OVERALL TIMEFRAME**
 - **Discussed at AGU:**
 - 15 days transit to drift station
 - 10 days on drift station
 - 3-4 days off station placing buoy
 - 7 days back on same drift station
 - 3-4 days off station placing buoy
 - 7 days back on same drift station
 - 15 days transit to PA



CRUISE SCHEDULE

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- **ESTIMATES FOR PLANNING**
 - **Based on experience from similar cruise in 2005:**
 - Drift station may not hold together for 10 days
 - 1.5-2 knots is more realistic in the Amundsen Sea at the time of year
 - Getting back to the same floe as the original drift station may be very difficult
 - Estimates for open water transit times are probably OK
 - **Plan stop at Palmer Station at beginning**
 - Pick up second snowmobile



MAJOR OPERATIONS

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- **ICE BUOYS**
- **DRIFTERS**
- **SEAL TAGS**
- **CTD DEPLOYMENTS + XBTs**
- **SWATH BATHYMETRY**
- **NUTRIENT ANALYSIS**
- **TRACE METAL WORK**
- **ICE CORING**
- **14C? 3H? 55Fe**
- **O₂ TITRATIONS + SALINITY MEASUREMENTS**
- **ROV? AUTOSUB?**



MAJOR OPERATIONS

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- **SEAL TAGS**
 - Number of animals to be tagged?
 - Target species?
 - What else (blood or tissue samples?)



MAJOR OPERATIONS

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- **CTD DEPLOYMENTS**
 - **Options:**
 - Moonpool
 - Aft
 - **XBTs**
 - 72 ea. T-6 probes
 - Deployed where, and frequency?



MAJOR OPERATIONS

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- **SWATH BATHYMETRY (MULTIBEAM)**
 - Where?



MAJOR OPERATIONS

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- **NUTRIENT ANALYSIS**
 - **Options for 12hr operations:**
 - RPSC MST runs nutrients (requested in SIP)
 - Member of science party runs nutrients (training required)
 - **RPSC provides nutrient tech**
 - 12 hr operations: would need dedicated technician, i.e. 2 MSTs and 1 nutrient tech (see personnel), also need 1 of science party for assistance
 - **Science party provides tech**
 - Need to set up training
 - Need a minimum of 2 MSTs to provide backup for nutrients (see personnel)
 - **IF 24hr operations:**
 - need at least one member of science party and RPSC tech, or two to three members of science party to run instrument



MAJOR OPERATIONS

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- **TRACE METAL WORK**
 - **Equipment**
 - Trace metal rosette?
 - Science party must provide
 - TMC garage van
 - Lab space sufficient?
 - **Lab setup**
 - Clean room?
 - Equipment needed?
 - Laminar flow hoods needed?
 - **Winch/wire setup?**
 - RPSC can provide cleaned Dynacon winch and Spectraline (ca. 5000ft, 5mm)
 - **Supplies needed?**
 - No trace metal work-specific lab supplies requested in SIP



MAJOR OPERATIONS

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- **TRACE METAL WORK: 'garage van'**



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ICE CORING

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- **EQUIPMENT**



MAJOR OPERATIONS

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- **Radioisotopes (14C, 3H, 55Fe)**
 - **Permitting**
 - Under which license?
 - Info needed: chemical form, activity?
 - **Equipment**
 - Lab equipment needed?
 - Two rad vans?
 - Will isotopes be restricted to vans?
 - **Deck incubations?**
 - UV-transparent incubators, 4x4ft, usually on helo deck
 - **Supplies needed?**
 - No supplies listed in SIP (e.g. scint cocktail and vials)
 - **Waste**
 - Any mixed or biohazard waste (what type of experiment?)



MAJOR OPERATIONS

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- **OXYGEN TITRATIONS**
 - Supplies needed?
 - Who will run instrument?
 - Training needed?
- **SALINITY MEASUREMENTS**
 - Who will run instrument?



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- **ROV**
 - **Vern Asper's ROV mentioned at AGU meeting**
 - Is Asper aware?
 - Needs assembly – by who, and when?
 - Training needed? Test run? When?
 - Deckspace?
 - Hyball alternative?

- **AUTOSUB**
 - **Availability?**



MAJOR OPERATIONS

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- **VAN REQUIREMENTS**
 - Freezer van (temperature?)
 - TMC garage van
 - Rad van – two?
 - ROV van?
 - Moonpool van?
 - Autosub vans (2 vans and gantry crane)

- **DECK SPACE??**



DECK SETUP

- **WINCH/WIRE CONFIGURATION**
 - CTD
 - Trace metal rosette
- **VAN PLACEMENTS**
 - **Helo deck**
 - Rad vans
 - **Main deck**
 - TMC garage van
 - Freezer van
 - Autosub, ROV, etc...
- **DECK INCUBATIONS?**
 - **Helo deck**





LAB SETUP

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- **LAB SPACE ALLOCATION**
 - Ice core processing
 - Trace metal work?
 - **LAB EQUIPMENT NEEDS**
 - Vessel lab equipment
 - Items requested from Crary lab / McMurdo (for seal work?)



SUPPLIES

- **REQUESTED SO FAR:**
 - ice mass balance buoys
 - 10 ea. drifters
 - satellite trackers
 - XBTs
 - **Flags and Poles**
 - Options:
 - Pole diameter $\frac{3}{4}$ ", length 8 ft – 1" / 10 ft also available
 - Flag material UV-inhibited nylon or vinyl
- **OUTSTANDING(?):**
 - salinity standards
 - trace metal supplies and chems
 - filters for laminar flow hoods
 - supplies for radioisotope work
 - nutrient analysis supplies and chems
 - oxygen titration supplies and chems



BUDGET

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- **NUMBERS...**
 - **~\$160K budgeted for SIMBA cruise**
 - **Current SIP supplies total \$117K**
 - **Buoy assembly estimated at ~\$60K**
 - **Not included:**
 - Lab supplies for radioisotope work
 - Lab supplies for trace metal work (incl. HEPA filters)
 - Nutrient supplies and chems
 - Oxygen titration supplies and chems
 - XBTs
 - Salinity standards
 - **Current total: ~\$170K**
 - **Grand total?**



PERSONNEL

- **RPSC SUPPORT STAFF ROLES (NBP)**
 - **Marine Projects Coordinator - MPC**
 - is the senior RPSC person on board
 - **Marine Science Technicians - MSTs**
 - vessel lab operations, assists with lab instrument set up, hazardous waste disposal, sample packaging, and monitors radioisotope use
 - **Marine Technicians - MTs**
 - deployment of all over-the-side operations, deck safety
 - **Electronics Technicians - ETs**
 - electronic science equipment and some of the ship's operational systems
 - **IT staff – network admins and systems analysts**
 - maintain the ship's network, handle satellite data transfers, assist with setup and networking of personal computers, Terascan support, multibeam data processing, compile end-of-cruise data report



PERSONNEL

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BERTHING ALLOCATIONS

- **Science Party:**
 - ORW lists 20 cruise participants
 - SIP lists 30 participants
- **Reality:**
 - RPSC: 13 (1 MPC, 3 MSTs, 4 MTs, 2 ETs, 3 IT staff)
 - Science: 20 (as listed in ops review), maybe up to 6 more
- **RPSC staffing rationale:**
 - MSTs: three for nutrients, autosal, and maybe oxygen titrations, as well as trace metal work and rads
 - MTs: four, since it will be a very long cruise with a lot of CTD casts, both normal and trace metal, and on-ice work
 - ETs: standard
 - IT: two network admins standard, plus a dedicated senior analyst for multibeam operations



DEPLOYMENT DETAILS

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- **PQ PROCESS**
 - **US cruise participant PQ**
 - PQ deadline: at least three weeks before the cruise
 - PQ status can be checked online in POLAR ICE
 - **Foreign participant PQ**
 - All personnel must be listed on SIP
 - Foreign participant PQ status will be tracked together with all other cruise participants
- **TICKETING OPTIONS**
 - **‘Normal’ ticketing through RPSC travel**
 - **Reimbursement options**
 - MUST be worked through RPSC travel office
 - Flights MUST be booked on US flag carrier or code share flight
 - Reimbursement can only be up to the amount RPSC would have spent on a ticket from the US



CARGO

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- **SHIPPING ITEMS TO THE VESSEL**
 - **Items must arrive in Port Hueneme, CA, by:**
 - 24 June for surface shipment (comsur)
 - 7 August for air shipment (comair)
 - **Packing and shipping information can be found at:**
 - <http://www.usap.gov/logistics/>
 - **Heavy, bulky, or hazardous items:**
 - please accommodate for extra time
 - **Shipping chemicals or hazardous substances:**
 - Don't. If you have to, include all paperwork (MSDS) and make sure packaging is in accordance with IATA regulations
 - **Wooden crates:**
 - USDA-Aphis regulations on wood packaging materials – e.g. wooden crates
 - Check <http://www.aphis.usda.gov/ppq/wpm/import.html>.



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- **HANDCARRYING ITEMS**
 - American Airlines only allows 2 pieces of checked luggage that weigh no more than 50 pounds each
 - **DIRECT SHIPMENTS TO CHILE**
 - Please inform your POC of items to be shipped (number, size, etc.), approximate arrival dates, and tracking numbers if available



CARGO

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- **SAMPLE SHIPMENT**
 - **Sample shipment via Port Hueneme**
 - **Types of samples listed in SIP:**
 - Seawater (Keep Chilled)
 - Filters with residue (Frozen a-20 to -70C/dry ice)
 - Water samples (No refrigeration required)
 - Biomedical samples from seals (Frozen a-20 to -70C/dry ice)
 - Biomedical samples from seals (formalin)
 - Biomedical samples from seals (ethanol)
 - **Size of sample container in SIP is missing**
 - Small or large inner box
 - Dry shipper
 - Ice core box



IT ISSUES

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- **MULTIBEAM**
- **SATELLITE IMAGERY**
 - Terascan Support
 - Radarsat Imagery
- **EXCESS DATA TRANSFER**
 - **SIP lists 500kB/day excess data**
 - Is this for outreach? If not, need to request more
 - Need justification for outreach
- **INFOSEC REQUIREMENTS**
- **INMARSAT FOOTPRINT**



PERMITS

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- **ENVIRONMENTAL RELEASES**
 - Buoy
 - Drifters
 - Satellite tags
 - **MARINE MAMMAL PERMIT**
 - **ACA PERMIT**
 - **USDA REQUIREMENTS**
 - **CITES?**



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QUESTIONS?

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Revised 8/19/03