

AnSlope Planning Meeting Notes (Draft)
Lamont-Doherty Earth Observatory
27-28 June 2002

In attendance: Arnold Gordon (LDEO), Bruce Huber (LDEO), Stan Jacobs (LDEO), Jay Simpkins (OSU), Jim Holik (RPSC), Stian Alesandrini (RPSC), Karl Newyear (RPSC)

Unless otherwise noted, all comments pertain only to AnSlope I (NBP 03-02, depart MCM 25 February, arrive LYT 11 April 2003).

USAP = United States Antarctic Program
CHC = Christchurch, NZ
MCM = McMurdo Station, Antarctica
CDC = Clothing Distribution Center, Christchurch, NZ
ECW = Extreme Cold Weather clothing, normally issued by CDC
HUE = Port Hueneme, CA
LYT = Lyttelton, NZ
TNB = Terra Nova Bay, Antarctica

General

- Arnold Gordon to be Chief Scientist for AnSlope I (NBP 03-2)
- Stan Jacobs to be Chief Scientist for AnSlope II (NBP 03-6)
- Martin Visbeck to be Chief Scientist for AnSlope III (NBP 04-2)

NBP schedule

- NBP will be at HUE 31 October - 8 November 2002. This is an opportunity to onload small boxes of personal items to help offset limits on military luggage limits on CHC-MCM flight. **ACTION ITEM 1:** Karl Newyear will confirm packing and shipping information and provide this information to AnSlope PIs.
- The NBP is currently scheduled to be in LYT 4-12 December 2002, though this is subject to minor modification pending discussions regarding cruise NBP 02-9 (LYT-MCM). See “NBP 02-9” section below for more details.
- The NBP will be at the Ice Pier at MCM 20-25 February 2003. All science personnel will join the vessel for AnSlope I at this time.
- The NBP will arrive in LYT on 11 April 2003 at the end of AnSlope I. Immediately after this date the NBP is uncommitted, and the end date of AnSlope I may change depending on various contingencies including delays due to weather or ice conditions; decisions on this topic will be made during the cruise. Future NSF-directed commitments of the NBP may remove this flexibility.
- NBP will refuel with JP-5 fuel throughout the austral summer using the MCM infrastructure. Although a full load of fuel will be taken on, JP-5 provides less power and is less fuel efficient than the diesel fuel normally used. Fuel usage rates and remaining stores must be considered when making science plans in the field. The ship’s captain must have enough fuel and reserves available for the transit from the study area back to NZ, and the end date for science operations may depend on this decision, notwithstanding the above point.
- See “Cargo” section for further details on science gear movement during these port calls.

Personnel

- RPSC Staffing: We generally agreed that RPSC would provide 10 staff for the cruise. The current staffing schedule includes 5 Marine Technicians (MTs), 1 Electronics Technician (ET), 2 Network Specialists (ITs), 1 Marine Projects Coordinator (MPC) for a total of 9. RPSC recommends that one additional ET sail to properly operate the TeraScan system. RPSC feels that a Marine Science Technician (MST) is not needed, and that lab waste disposal can be covered by other staff.

ACTION ITEM 2: Karl Newyear will consult with Senior Technicians at RPSC to finalize staffing schedule, including consideration of staffing needs for LYT-MCM cruise and MG&G cruises immediately prior to AnSlope I.

- There was discussion of participation by NASA personnel in the cruise, including the appropriateness and the level of support required. RPSC believes there is sufficient bunk space available, though Arnold Gordon was reluctant to add this component.

ACTION ITEM 3: The AnSlope PIs will determine if NASA participation is warranted, and will inform Karl Newyear of any changes or additions to deploying science party members including the naming of TBD spots requested in the SIP.

ACTION ITEM 4: Arnold Gordon will provide further personal details (date of birth, etc.) to Karl Newyear for individuals named in SIP. A list of persons lacking information was provided by Karl to Arnold. This information is needed to begin PQ process. (NOTE: **this ACTION ITEM** has already been accomplished)

- Foreign Citizen Participation: Two Italians, one German, and one New Zealander will participate in AnSlope I. It is possible that two Americans will sail a cruise on the *Italica* as a result of this collaboration. Please see attached sheet for details on various personnel movement plans. It is the PI's and participant's decision on whether to PQ via the USAP or via their own national Antarctic programs.

ACTION ITEM 5: AnSlope PIs will consult with foreign participants in their groups to determine how to PQ and deployment/redeployment needs, and to determine deployment/redeployment needs of US participants on *Italica* cruise as noted on attached sheet. Information will be forwarded to Karl Newyear who will make necessary arrangements with RPSC Travel and Logistics (i.e. MCM) personnel.

ACTION ITEM 6: AnSlope PIs will determine if foreign participants will require ECW from USAP or their home nation's Antarctic program. AnSlope PIs will determine if US participants in *Italica* cruise require ECW from USAP. Information will be forwarded to Karl Newyear who will make necessary arrangements. All USAP-issued ECW must be returned after use.

- Both science party members and RPSC staff will deploy to MCM via CHC. The CHC-MCM military flight imposes restrictions on volume/weight of luggage and personal gear that may be brought to the NBP. Certain items of ECW are required to be worn during the CHC-MCM flight and do not count against your weight limits.

ACTION ITEM 7: Karl Newyear will clarify what items may be carried on your person (as opposed to palletized "checked" luggage) for use during the CHC-MCM flight including laptop computers, cameras, etc. Karl Newyear will confirm that people can use their own luggage (subject to weight restrictions) and do not need to fit everything into the two orange issue bags. Karl Newyear will clarify what ECW issue from the CDC can be rejected. Information will be forwarded to AnSlope PIs.

ACTION ITEM 8: RPSC will investigate what ECW items can be borrowed from the clothing stocks in the Punta Arenas warehouse. These items will be unloaded to the NBP in Punta Arenas

to be available for use on AnSlope I and will not count toward luggage weight limits for CHC-MCM flight. Information will be forwarded to AnSlope PIs.

Cargo

- RPSC will procure one 20' open top container and one standard 20' closed container. They will be delivered to OSU to be packed with mooring equipment. Someone from HUE will fly to OSU to oversee container packing. Jay Simpkins will fly to HUE to oversee unload of the containers and/or to inspect the NBP regarding deck and lab layout.
- Glass ball floats with hard hats and possibly the HPU and/or traction winch will be packed in the open top container. All other mooring gear will be packed in the closed container.
- It is likely that 3 each wooden boxes, approximately 4'x4'x4' will be unloaded to the NBP while in HUE in November 2002.
- Mooring anchors will be sent to HUE as breakbulk. HUE will package them appropriately for southbound shipment.
- Containers and anchors will be sent to MCM on the Green Wave cargo vessel. They will be unloaded to the NBP during the 20-25 February 2003 port call.
- Empty containers will be stored in CHC after AnSlope I.
- Logistics of getting containers back onto NBP for AnSlope III mooring recovery will be decided after AnSlope I in consultation with RPSC Logistics personnel.
- Scientific instruments and major hardware will be repacked into closed container during AnSlope III and must return to home institution in 2004. Glass ball floats will be re-packed in open top container during AnSlope III and can remain in NZ until the northbound Green Wave trip in 2005.

ACTION ITEM 9: Jay Simpkins will provide approximate weights for the mooring containers and "Do Not Freeze" boxes of instruments to Karl Newyear. Karl Newyear will check the weight limits for containers going on the Green Wave.

ACTION ITEM 10: Karl Newyear will check with Laurie Padman regarding the volume and weight of the microstructure instrumentation to be used on the cruise.

ACTION ITEM 11: Bruce Huber will provide Karl Newyear with information on the volume and weight of cargo originating at LDEO (CFC system, etc.)

ACTION ITEM 12: Karl Newyear will investigate the possibility of LDEO cargo being retrograded directly to New York, bypassing HUE. Bruce Huber will provide further details of this request to Karl Newyear.

NBP Lab and Deck Issues

- A gas chromatograph containing a sealed source of radioisotope (^{63}Ni) will be used for CFC analysis. Proper clearances for entry of this item into NZ will be obtained through normal rad use permit process. RPSC will send PI instructions on how to proceed.
Plan A: unload GC to NBP in HUE and it remains on board until the end of AnSlope I.
Plan B: send the GC to CHC and unload it to NBP in LYT. It remains on board until the end of AnSlope I.

ACTION ITEM 13: AnSlope PIs will inform Karl Newyear what is to be done with the GC between AnSlope I and II. Storage on the NBP is likely to be easier than offloading in NZ.

- Grantees will provide cylinders of standard gas for CFC work. These will be shipped to HUE and unloaded to NBP there.
- Nitrogen to be provided by RPSC should be the same purity as that used on NBP 00-8.

- Approximately 150 full-depth CTD casts are expected, with about 2400 samples drawn for each of oxygen analysis and bottle salinity measurements. Grantees will run these samples. RPSC will provide instrumentation and dispose of haz waste.
- AnSlope PIs request at least 96 each flasks for oxygen sampling and at least 150 each bottles for salts. RPSC will check stocks and order new bottles as necessary.
- No aquarium tanks are needed on the starboard side of Aquarium Room. This space will be left open.
- New Main Crane with a lifting capacity of 50,000 lbs. will be added to NBP prior to AnSlope I. The current main crane will remain in place.
- All fencing around the helo deck will be hinged to allow for vertical or horizontal placement.
- AnSlope PIs recommend conducting a few CTD casts to exercise the system between GLOBEC IV and NBP 02-9. The ship will cross the Equator twice during this time and system performance may degrade if not checked. It is recommended to recalibrate all sensors and to pack the rosette away to keep it clean.
- General lab usage will be as follows:
 - Forward Dry Lab – CTD, XBT, ADCP, multibeam, and DAS system operations
 - Aft Dry Lab – mooring instrument staging, LADCP servicing, microstructure instrument staging, He/T gear storage
 - Baltic Room – CTD sampling
 - Wet Lab – staging for mooring
 - Aquarium Room – mooring instrument staging
 - Hydro Lab – CFC analysis
 - Bio Lab – oxygen titrations, salinity analysis
 - Coolers – walk-in coolers will not be used

ACTION ITEM 14: Karl Newyear will ensure that RPSC provides full oxygen titration system hardware including spares. Karl Newyear will check whether RPSC has received new dissolved oxygen sensors for CTD system. AnSlope PIs will be informed of the findings.

ACTION ITEM 15: Karl Newyear will provide digital photos of the Aft Dry Lab to Jay Simpkins after the shipyard period to allow him to better plan mooring operations.

ACTION ITEM 16: RPSC will look into purchasing an XBT autolauncher. Karl Newyear will review compatibility of autolauncher with various types of XBTs.

ACTION ITEM 17: Karl Newyear will investigate whether deck sockets will be installed on the helo deck and in the helo hangar of the NBP.

ACTION ITEM 18: Karl Newyear will forward information regarding real-time SeaWiFS permits to Arnold Gordon.

Mooring hydraulics

Plan A: NBP supplies electric power as necessary to OSU-provided HPU. HPU powers traction winch for mooring deployments/recoveries. Line is staged on reels.

Plan B: If OSU-provided HPU fails or is not used, NBP can provide hydraulic power to traction winch from lines on main deck.

Plan C: If OSU-provided winch fails, NBP will have seismic gun winch and seismic streamer winch available. These winches will be on board anyway, from use on previous MG&G cruises. If either of these winches needs to be used then the gun bundle or streamer will need to be unspooled and stored as appropriate.

- RPSC recommends Plan B to avoid use of high voltage/amperage electricity on deck in possibly very wet conditions. Standard seismic winch operation on NBP includes power provided by deck hydraulics.

ACTION ITEM 19: Jay Simpkins will provide Karl Newyear with information on the hydraulic fittings for the traction winch including line diameter, thread size, and gender for quick-connect fittings and the feed lines themselves in case the quick-connect fittings must be removed. Karl Newyear will ensure that proper fittings are available on the NBP.

- None of the three plans for mooring winch hydraulics presents difficulties for NBP systems or capabilities (as per conversation with Jay Ardai on 28 June 2002). Exact placement of winch and HPU was left undetermined. Final decisions will be made during the MCM port call. Some considerations:
 - If Plan A is used, RPSC might need to make electrical pigtails.
 - If Plan B is used, AnSlope grantees and RPSC must ensure proper fittings are available.
- NBP deck hydraulic system provides approximately 2250 psi but may be lower when system is cold. This is less than ideal for the OSU winch according to information provided by Jay Simpkins. The NBP can provide more than 25 gpm at this pressure, but the flow rate is adjustable.
- It is not anticipated that there are any incompatibilities in hydraulic fluid between the NBP deck hydraulic system and the grantee-provided traction winch.
- NBP deck hydraulics are designed for closed center, open loop winches. If OSU winch is open center then we can install a valve and either the OSU winch or other deck hydraulics may be used at once. If OSU winch is closed center then no additional preparations are needed and multiple hydraulic systems may be used simultaneously.

ACTION ITEM 20: Jay Simpkins will provide information on winch design (open center, closed center, closed loop) to Karl Newyear to ensure proper compatibility with NBP deck hydraulics.

ACTION ITEM 21: Jay Simpkins will provide footprint diagram for HPU and traction winch to assist with decision on placement on the deck. It is possible that deck plates will need to be used if the equipment does not have a 2' bolt pattern.

Mooring Operations

- Instruments include 29 ea. Anderaa current meters, 20 each MicroCats, 1 SeaCat pressure gauge, 1 ea. upward looking SonTek ADCP. There will be 11 moorings, but only 9 will be recovered and redeployed on AnSlope I.
- RPSC can provide 8 ea. 17" glass ball floats as backup for grantee-provided gear.
- Grantees have already procured mooring anchors, so RPSC will not provide these.
- 3/8" Samson braid rope will be used on moorings. Breaking strength is approx. 7200 lbs.
- Grantees will provide HPU (440 V, 3 phase), traction winch, spooler, reel stand, deck cleats, turning lines, sheave, quick releases, grappling hooks, instruments. RPSC will provide large sheave (capable of 1500 lb. load), chain and binders for anchors, tugger winches, electric/hydraulic power, extra hydraulic lines, fittings, hoses, connectors, and regulators
- Instruments will have battery power for 30 months at initial deployment so that data is not lost if recovery is not possible at the end of AnSlope I or AnSlope III.
- All moorings are single-release.
- Recovery will be conducted during daylight hours only because moorings do not have radio beacons, strobe lights, or other means of location.

- NBP should be prepared to drag for moorings that don't release properly. 9/16" wire rope currently on trawl winch should be sufficient. Drag hooks might need to be fabricated.
 - Grantees are providing deck release boxes.
- ACTION ITEM 22:** RPSC will investigate the possibility of adapting their Benthos deck boxes to communicate with Edgetech releases. RPSC will investigate the possibility of hooking Benthos deck release through hull-mounted transducers to communicate with Edgetech BACS 8202 and 8242XS releases. RPSC will investigate possibility of plugging Edgetech deck release (8011A) to hull-mounted transducer. Karl Newyear will inform AnSlope PIs of results.
- ACTION ITEM 23:** Stan Jacobs will obtain information regarding the expected keel depth for icebergs B-16 and C-19 and forward it to Jay Simpkins. This might affect mooring design and placement of weak links.

Multibeam Survey / NBP 02-9

- Discussions are ongoing between RPSC, Joann Stock, Steve Cande, and Stan Jacobs regarding collaboration on cruise NBP 02-9 to conduct a multibeam survey of the AnSlope study area. It is up to the PIs involved to decide how the science time should be allotted to the various activities.
- As per conference call on 3 July 2002 involving RPSC, Joann Stock, Steve Cande, and Stan Jacobs 4 extra days have been added to cruise NBP 02-9. These days were taken from port calls at either end of the cruise and no other cruise date changes were necessary.
- A cruise planning meeting for NBP 02-9 will likely be held in August 2002. Jim Holik at RPSC will organize this meeting since Karl Newyear, the POC for both Stock/Cande and AnSlope will be at sea from late July to late September 2002.

PERSONNEL MOVEMENTS

Please see "Personnel" section above for details on ECW for these persons.

Foreign Nationals on NBP

Two Italians, one German, and one New Zealander are scheduled to participate in AnSlope I.

- One Italian (Enrico Zambianchi) will meet other AnSlope participants in CHC. USAP is responsible for flying him to MCM with others.

ACTION ITEM 24: AnSlope PIs will inform Karl Newyear how Enrico will redeploy from LYT after the cruise (i.e. is it a USAP responsibility?) Karl Newyear will make necessary arrangements.

- One Italian (Andrea Bergamasco) will be on an *Italica* cruise ending at TNB ~22 Feb 2003.
Plan A: Italians will provide him with transportation to MCM where he will meet other AnSlope participants and board the NBP.
Plan B: He remains at TNB. The NBP stops at TNB to pick him up.
Plan C: USAP provides transportation from TNB to MCM.

Other than Plan B above there are no plans for NBP to stop at TNB during AnSlope I.

ACTION ITEM 25: Karl Newyear will investigate whether Plan C is viable, depending on availability of USAP aircraft during station closing.

ACTION ITEM 26: AnSlope PIs will inform Karl Newyear how Andrea will redeploy at the end of the cruise.

- One German (Karen Assmann) will fly from Bremerhaven to US independent of USAP support. She will deploy to MCM from US with other AnSlope participants. Commercial airfare from US to CHC and military flight CHC-MCM to be provided by USAP.

ACTION ITEM 27: AnSlope PIs will inform Karl Newyear how Karen will redeploy at the end of the cruise. Karl Newyear will make the necessary arrangements.

- One New Zealander (Basil Stanton) will meet other AnSlope participants in CHC. USAP is responsible for flying him to MCM with others. He will redeploy to Wellington independent of USAP support.

US Nationals on *Italica*

- Two Americans might sail a cruise on the *Italica*. If so, it is USAP's responsibility to deploy them from the US to CHC. The *Italica* is scheduled to depart LYT ~5 January 2003.

Deployment:

- Plan A: They embark the *Italica* in LYT.
- Plan B: USAP flies them to MCM; Italians provide transportation to TNB.
- Plan C: USAP flies them to MCM and provides transportation to TNB.

Redeployment:

- Plan AA: They will remain on the *Italica* until it returns to LYT (~2 March 2003). USAP will provide redeployment from CHC to US.
- Plan BB: They will disembark from the *Italica* at TNB. The Italian program will provide transportation from TNB to MCM. USAP will redeploy them from MCM to US.
- Plan CC: They will disembark from the *Italica* at TNB. USAP will provide transportation from TNB to MCM. USAP will redeploy them from MCM to US.

ACTION ITEM 28: Karl Newyear will investigate whether Plan C is viable, depending on availability of USAP aircraft during station closing.

ACTION ITEM 29: AnSlope PIs will inform Karl Newyear of the requested redeployment plan and the associated dates. Karl Newyear will make necessary arrangements.

Note: one “American” might be Raul Guerrero, coming from Argentina. There are possible Swiss participants.

Other

- One Italian (Giancarlo Spezie, Chief Scientist for *Italica* cruise and head of Italian Antarctic Program) requests USAP to provide CHC-MCM flight on ~15 January 2003 to meet *Italica* at TNB. He is unable to join the *Italica* in LYT because of other commitments in Italy. The Italian program will provide transportation from MCM to TNB. It is presumed the Italian program is providing redeployment.

ACTION ITEM 30: AnSlope PIs will provide further details to Karl Newyear, including a justification on why the Italian program is not providing all logistical support for Giancarlo.

- *Italica* cruise is in conjunction with AnSlope, so his participation in *Italica* is somewhat justified.
- His logistics could match those of the two “Americans” possibly going on *Italica*.

Notes from Anslope planning meeting 6/27/02
Stian Alesandrini

MST Issues:

Minimum of 96 oxygen titration flasks required
Minimum of 200 salts bottles required
Overhaul and calibration of Autosals requested
Peristaltic sampling pumps for Autosals requested

Mooring information for ANSLOPE 1:

Summary of mooring work:

The mooring group will be deploying eleven moorings early in the cruise, recovering them towards the end of the cruise and will quickly turn them around and re-deploy them (total of 22 deployments). Nine moorings will be large current profiling deployments while the remaining two moorings will be small pressure profilers. The nine moorings will range up to 1200 meters in length. Deployments will be anchor last, ice conditions permitting. A tension winch supplied by the grantees will be used for deployment and recovery allowing for easy deployment and storage of wet line inside, away from the cold. The onboard seismic and streamer winches will serve as reserves. The mooring line will run through a block suspended from another block located on the center tang of the aft A-frame. The mooring line block (see important requirements below) will be height adjustable, being suspended by a tugger winch cable run through the block mounted to the center tang. A second tugger winch cable will be run to another block mounted on an adjacent tang. This second cable will be terminated with a quick release and be used to deploy the mooring anchors.

Moorings lines will be comprised of 3/8" Dacron line. Single releases will be used. Complete information on the winch, HPU and moorings may be found in the packet supplied to Karl Newyear by the grantees.

All mooring recoveries will be done during daylight hours and there will be no strobes, flags or other location aids added to the mooring floats.

Detailed mooring and winch information is available in the packet supplied to Karl Newyear by the grantees

Grantee to provide:

- All mooring materials and instrumentation (including anchors, floats, releases, line and hardware)
- Traction winch (hydraulic) with base plates set for (2' center) deck holes
- HPU for traction winch (440 v 3 phase)
- Line spooler (110v)
- Block for mooring deployment and recovery
- Quick release for mooring deployment
- Deck units for releases (but want ability to use ships transducers, see below)

RPSC to provide:

- Block for mooring deployment and retrieval (spare). See block specs/requirements below.
- Block for height adjustment of above block
- Block for tugger cable used for anchor deployment
- Tugger winches (two, located on 01 catwalk). SERVICE REQUIRED???
- Hydraulic hoses, fittings and any needed valves/regulators. See requirements below.
- Ability to talk to releases through the ship's transducers
- Recovery hook (needs to be fabricated) for trawling for lost moorings with 9/16" mechanical wire. This hook can be built to any standard specs.

Block Requirements:

1. Block for mooring deployment and retrieval should have a sheave to handle 3/8" dacron mooring line. The block must be able to handle hardware up to a full size pear ring. The sheave must fit tightly against the cheeks to avoid pinching the line
2. The above block must be height adjustable by suspended from the aft A-frame via a cable from a tugger (mounted 01 catwalk) and a block mounted on A-frame (center tang).
3. Block for second tugger winch cable (for quick release used for anchor deployment)

Hydraulics requirements:

- Tension winch (supplied by grantee) to be plumbed into boat hydraulics.
- HPU supplied by grantees is to supply the above tension winch and is being brought as a spare.
- RPSC will need to design and fabricate deck plates to secure the spare HPU to the deck.
- Hydraulic hoses and fittings (supply, return, case drain) for plumbing tension winch to boat.
- Hydraulic hoses and fittings to supply tension winch from spare HPU located on helo deck.
- Any necessary flow regulators or other hardware needed to adapt the tension winch to the boat's hydraulics.
- Check that the winch's hydraulic requirements may be supplied by the boat. See winch and mooring info supplied to Karl Newyear by the grantees.

ET Issues regarding moorings:

- Grantees will be using EGG 8202 and 8241xs releases and an EGG 8011A deck box.
- Do we currently have the ability to talk to these releases from the dry lab?
- If not, is there a card available that allows our Benthos deck unit to talk to the EGG releases?
- Are we able to add an input jack that would allow the grantees' deck box to be plugged into the dry lab allowing the ship's transducers to be utilized?