Ridge 2000 Steering Committee Meeting
26-27 October 2004
University of North Carolina, Chapel Hill

Attendance

Program Chair: Chuck Fisher

Executive Committee: Mike Perfit, Debbie Smith

Steering Committee: Donna Blackman, Dave Butterfield, Suzanne Carbotte, Charlie Langmuir, Bob Lowell, Doug Nelson, Anna-Louise Reysenbach, Andreas Teske, and Doug Wiens

National Science Foundation: Dave Epp

Staff: Sharon Givens, Patty Nordstrom

Absent: Debbie Kelley (Executive Committee), Earl Davis and Rick Thompson (Steering Committee); Phil Taylor (NSF); Liz Goehring (Program E&O Coordinator)

Opening Remarks: Chuck Fisher

We're into the final year of Penn State's hosting the R2K office. At this meeting we have a full agenda, including a number of important decisions to make, not the least of these being the office rotation, along with rotation off the Steering Committee of 5 members: Earl Davis and Rick Thompson, who provide a Canadian perspective; Doug Nelson; and Debbie Smith.

ORION and NEPTUNE Canada are becoming more and more of a reality. The Relevancy Review Panel considered an ORION-type proposal that will be brought to the entire Steering Committee because of the potential impact such a proposal would have on Ridge 2000 research funding. This is an issue we need to discuss. Copies of the ORION newsletter are in your notebooks, and I call your attention to the article about the VENUS project and the move from VENUS to NEPTUNE.

Also, at this meeting we should revisit the Integrated Studies Site oversight committees.

Minutes: C. Fisher. The minutes from the Steering Committee meeting of 20-21 April 2004 were approved with changes. The minutes will be posted on the web: www.Ridge2000.org.

Budget Report: C. Fisher. At the end of the first three years of operation, the R2K office budget was overspent in some categories (notably staffing and computer services), and

under spent in others. Of note, the program budget for participant support was used efficiently, and R2K workshops and institutes attracted more participants than were anticipated, but stayed under budget. Regarding the question of charging a registration fee for workshops, this money is not income for the R2K office, as all fees are transferred to the organizers. Fees are not charged for core meetings, such as the Boulder workshop. The office found that a registration fee serves to keep people motivated to attend and detracts those who are looking for a free trip.

The fourth-year budget was submitted as a supplement, and includes about $20,000 in extra support for participants to attend meetings not budgeted, such as the Lau group meeting last July. Salaries also include some carryover for the office transition, including staffing for AGU, computer transfer, and education and outreach. The E&O coordinator will continue full-time through June 2006.

Of note, the office is receiving invaluable assistance from Dr. Catherine Williams a new researcher in the Penn State Biology Department. Catherine has experience in program evaluation and assessment, as well as website management, and is paid by the dean's office, not from R2K funds.

Website: P. Nordstrom. The R2K website continues to require feedback. We are attempting to expand the employment opportunities page. We now have the capacity to receive registration fees online via a secure server operated by Penn State. Visa and Master Card credit cards can be used. We have also made changes to accommodate the Americans with Disabilities Act. Because of R2K's close working relationship with InterRidge, it was suggested that a page be developed on the website to explain who/what InterRidge is.

R2K brochure: S. Givens. The three-panel brochure is undergoing revision and will be reprinted in time for distribution during AGU. Suggestions included changing the cover image and adding accomplishments at the three integrated studies sites.

Relevancy Review Panel Report: C. Fisher

The Relevancy Review Panel met 25 October and rated 12 straight science research proposals, 4 modeling proposals, and 2 postdoctoral proposals. The panel used the revised guidelines, which direct proposal writers to use recommendations and needs outlined in the Boulder workshop report and newsletters; the guidelines and documents are available on the R2K website. The guidelines continue to be tweaked as the program matures, this time with a prime rating on the sequencing categories to indicate that data are important (but not necessarily essential) and should go forward sooner rather than later. It was noted that a ranking of "partial" or "peripheral" relevance reflects expenditure of R2K funds, and has no bearing on a proposal's scientific merit or NSF's decision to fund the proposed work from another budget. The panel received several other proposals that were not submitted for R2K funding, and directed the NSF project manager to negotiate some R2K funding for one of these, as the work will benefit R2K. As a group, the proposals did a good job of integrating the disciplines. The Steering

Committee agreed that Relevancy Review should occur after the committee meets, so that panel members will have heard budget reports and up-to-date information on the integrated studies sites and time critical studies before making decisions on proposal relevance. It was noted that reviewers need more awareness of discipline integration. It was also noted that some proposals still are not addressing NSF's broader-impact requirement, and that E&O is only one of several types of broader impact. Instrument development is another category.

NSF Report: D. Epp

For 2004, the federal budget *deficit* is about 3.5% of the gross domestic product (GDP) compared to the year 2000 budget *surplus* of about 2.5% of GDP. The deficits do not bode well for NSF funding. The total budget for R2K was $5.4 million in FY03 and FY04, and is projected to continue at that level through FY07, but those projections are subject to change. Of note, R2K awards for FY03 and FY04 were significantly greater (> $1M) than the budgeted funding levels. Overhead is approximately 15% of the total program. Funding for instrumentation and for theoretical work is less than what it could be. The annual budget does not include ship time, which increases spending about 30%. R2K did not get hit with ship additional charges in 2004 because of schedule changes, which affected the Lau cruises. Funding for Lau was expected to be heavy in 2003 and 2004, while Endeavour and 9°N were expected to remain steady. NSF is in the final stage of interviewing candidates for director of the Ocean Sciences Division.

Education & Outreach: M. Perfit & C. Fisher (L. Goehring, written report)

Major E&O efforts are reaching out to three targeted audiences: precollege students and teachers, the general public, and the R2K science community. For the precollege audience, the Student Experiments At Sea, or SEAS, program has received two grants from NSF Geosciences Education to develop, test, and evaluate a deep-ocean curriculum, website, and infrastructure for teaching inquiry science to middle and high school students, who develop real experiments that can be conducted at sea on R2K research cruises. The first cruise successfully ran five student experiments (April 2004 EPR cruise with Lutz, Shank, Luther, Vetriani, and Tolstoy) and relied on scientists for reviewing student proposals and working via Internet with student teams to refine the experiments. R2K E&O presentations on SEAS have been made at National Science Teachers Association conferences, ASLO, and AGU. R2K work also will be featured in a special edition of the National Marine Education Association's journal, *Currents*, to be published in April.

For public outreach, a dedicated website was developed to feature Lau Basin integrated studies site cruises: http://www.southpacificodyssey.org. Cruise 1 was summarized and cruise 2 was featured "live," with a reporter on board sending text and images back to the R2K office for uploading to the website. A press release was sent out via "Newswire" to 23,000 subscribers, and received follow up from *Wired* magazine, *Marine Scientist*, the *Fiji Sun*, and several other media. The R2K office staff concluded that announcing a new website is not news, but announcing a discovery will get media attention. Steering

Committee members generally liked the website, but noted that images are too small to see details. They asked for a link between the small image and a larger version.

For undergraduate education, the focus has been on RODES/Data Tips, a program that brought scientists and educators together last summer to develop ridge-related, data-based lessons targeted at undergraduate and high school classes. The lessons are being tested this academic year. Three K-12 educators are involved in the project, and distribution will be via the DLESE (Digital Library for Earth System Education) Earth Exploration Toolbook. The goal is to have the system accessible for all by the end of the year. DLESE is the. In a related effort, R2K is exploring development of a ridge-related undergraduate course, based on successful web module approaches through NSF's Course, Curriculum and Lab Instruction program.

For science community and public outreach, R2K inaugurated a Distinguished Lecturer Series in 2003-04. Four lecturers—Andy Fisher, Charlie Langmuir, Meg Tivey, and Cindy Van Dover—visited 16 institutions and presented two lectures at each, one to a general audience and a second to a science audience. The cost was approximately $15,000, primarily for publicity and air travel. Host institutions paid for ground transportation, lodging, and meals. Lecturers for year 2 are Ed Baker, Melanie Holland, Debbie Kelley, and Ken Macdonald. The Steering Committee agreed that small institutions would benefit more from the program than large research institutions.

Two other public outreach activities—a Cameron IMAX film and a collaborative effort with the Ocean Institute for a SeaFloor Science Exhibit—have engaged R2K scientists and involved office coordination. R2K assisted in finding and funding scientists to collaborate with James Cameron on the film, *Aliens of the Deep.* The film is "very Hollywood" with simplified but correct science; some science fiction at the end, but no confusion. Cameron is looking for local Ridge 2000 scientists to attend opening nights across the country and to help with teacher workshops. A preview is being considered for AGU. R2K has worked closely with the Ocean Institute to identify collaborators for its NSF SeaFloor exhibit scheduled to open in 2005. The Ocean Institute, located on Dana Point in southern California, is an informal science education center.

R2K has "bought" the April issue of *Currents*, the national marine educator's journal, to present deep-ocean ridge material to the K-12 educator audience. SEAS will be featured along with other R2K related E&O efforts.

For the future of R2K education and outreach, staff would like to see a long-term collaborative arrangement between SEAS and REVEL, a University of Washington program for teachers. It was pointed out that participating teachers need to receive credit, stipends, travel funding, administrative support, web support, and funding for curriculum development and evaluation. The SEAS program is garnering the attention of Penn State's development office and could receive foundation support.

R2K may be interested in working with Georgia Tech's Center for Teaching and Learning, which is interested in developing online courses for teachers to meet a growing demand for professional development.

R2K staff is also considering the possibilities of hosting a COSEE focused on deep ocean science. The deadline for proposals is March 2005.

Two international activities—the International Year of Planet Earth (2006) and the International Polar Year (2007-08)—will also offer outreach possibilities for R2K. For the latter, the Steering Committee has approved a collaborative workshop with NSF's polar research program. Henry Dick of WHOI is co-chairing the organizing committee in collaboration with InterRidge scientists.

E&O coordinator Liz Goehring will continue with the program through at least June 2006.

Meeting Reports: C. Fisher

IODP: Dave Christie will continue to represents R2K's interests, and he is pursuing a joint meeting with R2K and IODP.

MARGINS: Mike Perfit will continue as liaison to the Steering Committee, and Suzanne Carbotte serves as liaison for data management.

ORION: The R2K chair has sent a letter to the ORION Executive Committee outlining common interests, particularly in planning NEPTUNE as well as technology and data, and requested an exchange of Steering Committee representation.

Ridge 2000–InterRidge Theoretical Institute in Korea: C. Fisher. The Theoretical Institute on Back-arc Basins held on JeJu Island, Korea, attracted researchers from Japan, Korea, France, England, Germany, and China, as well as the US, to share research. For R2K, the meeting offered an excellent opportunity to learn about these systems, which differ quite dramatically from the mid-ocean ridge integrated studies sites at EPR and Endeavour. The institute was held just after the Martinez et al. R2K cruise to the Lau Basin, which inaugurated R2K's work at a back-arc basin integrated studies site. R2K invited two Tongan and Fijian scientists to attend the institute as part of ongoing outreach efforts to include scientists from these island nations in R2K work in the Lau basin. One has support by SCOR (Scientific Committee on Ocean Research) at the invitation ov InterRidge. Tongan and Fijian scientists may be included on R2K cruises and some are supported for follow-up training in the cruise chief scientists' home institutions.

SOPAC: C. Fisher. Lectures by Chuck Fisher and Fernando Martinez were well received at the SOPAC meeting and at the University of the South Pacific in Fiji. The audiences were receptive and supportive of marine science. Because of international pressures to find and develop mineral resources, Fiji and Tonga (and others) are being approached to consider mining at hydrothermal vents in their territorial waters. Officials in both

countries are sensitive to the needs of science and interested in learning as much as they can from R2K research and discoveries. The Lau integrated studies site lies in Tongan territorial waters, and the Tongans are especially interested in detailed bathymetric maps and in securing museum-quality samples of rocks and biota for display.

MAR/NERC/ChESS meeting: C. Fisher. Officials from the US National Science Foundation and the UK Natural Environment Research Council (NERC) have agreed to foster US and UK collaboration for wider MAR research. A MoMAR meeting will occur in early April to discuss and plan for international collaboration. Following this meeting, R2K will work with NSF on protocol and funding for work to proceed in the study site selected at the 2004 R2K MAR meeting in Providence, RI. This site extends from the Oceanographer fracture zone at 35°N to the Lucky Strike hydrothermal vent field at 37.5°N, and includes both Lucky Strike and Rainbow vent fields.

However a NERC town meeting chose the Chilean triple junction, where within close geographic proximity the ocean contains a diverse variety of chemosynthetic ecosystems found in a spreading center, subduction zone, minimum oxygen zone, and whale and wood falls as a focus for the UK Deep Ocean efforts.

InterRidge Update: C. Fisher

At the last Steering Committee meeting in Seoul, Korea, the Steering Committee voted to increase IR dues from $20,000 to $25,000 for the five nations with full memberships: France, Germany, Japan, the United Kingdom, and the United State (Ridge 2000). Associate members—China, India, Korea, Norway, and Portugal—will see a dues increase "as soon as compatible with funding sources." Russia is talking about rejoining, and Brazil also may join as associates.

InterRidge has 5 working groups that have recently rotated members. Current information can be found on the website: http://interridge.org.

Plans are well underway for the India Ridge meeting in Goa, January 19-21, 2005. The workshop will focus on ridge processes on the SE India Ridge and is expected to attract 60 to 80 participants, many of whom will represent the Indian scientific community.

The international code of conduct has not been reported out of the IR Biology Committee, where it was referred last May. However, the German Ridge group has developed a national code that may become the model for the international arena.

A new IR Biogeochemical working group was approved.

In other news, InterRidge is invited, as the international organization of ridge science, to participate in IODP meetings. Finally, the Steering Committee endorsed the Cyprus field school and field trip, as well as a polar ridge workshop to dovetail into the International Polar Year.

NEPTUNE Canada, VENUS, Endeavour: D. Butterfield (reporting for D. Kelley & E. Davis)

NEPTUNE Canad: The second of 3 NEPTUNE Canada workshops was held Sept. 27-29, 2004, in Victoria, BC, to communicate the status of the implementation plan since May and the process for allocating $13 million available for observing sensors, systems, and vehicles; to design thematic science experiments that will benefit the broad science community; to plan locations for the 6 to 10 observatory nodes along the NEPTUNE North cable loop (stage I); and to discuss requirements and estimate costs. Four main themes were identified and proposal ideas developed for each:

- Plate tectonic processes and earthquake dynamics
- Seabed fluid dynamics and gas hydrates
- Ocean climate change and marine biota
- Deep-sea biodiversity and ecosystems

The Endeavour Integrated Studies Site and Middle Valley are both being considered to host cable nodes. At Endeavour, cabled seismic and fluid dynamics instrumentation is being discussed at the Mothra and Main Endeavour (MEF) vent fields, but not High Rise, Sasquatch, or Salty Dawg, the latter being in a highly restricted part of the Canadian Marine Protected Area (MPA). At MEF and Mothra, suggested plans for high- and low-temperature vent monitoring would build on instruments developed with Keck and NSF funding. High-T sites could include a temperature-resistivity-hydrogen probe, microbial incubator, flow meter, mass spec, gas chromatograph, digital still and video cameras, and at MEF, a high-definition camera, while at low-T, diffuse sites, instruments could include an in situ water sampler, particulate DNA sampler, microbial incubator, flow meter, and digital still and video cameras. Vertical water-column profilers, Acoustic Doppler Current Profilers, sediment-particulate samplers, and additional seismic instrumentation.

The September workshop drew 110 participants from Canada, the US, and Germany. The next meeting will occur in Halifax, Nova Scotia, on November 23-24, and will focus on sites and engineering. Continuing issues include deployment, power usage, communications, and conflicts among users with respect to such things as acoustic noise, light, and turbidity. Proposals are due January 5, 2005, and 2008 is targeted for nodes to be operational. Additional community input is encouraged, as significant leveraging opportunities exist along with room for lots of players.

Issues for R2K include how to stimulate US funding to allow US scientists greater participation (Canadian funds provide limited opportunities for US scientists), and how to coordinate R2K ISS, OOI/ORION, and NEPTUNE Canada efforts.

Discussion questions regarding NEPTUNE Canada included location and funds for testing instruments prior to installation; the status of a Memorandum of Agreement between NEPTUNE Canada and the US NSF; the role of ORION in putting US instruments on NEPTUNE Canada nodes; Canadian PIs overseeing US instruments; and

data policy, sample distribution, and archiving. The general expectation is for an open data policy and sample distribution.

Endeavour ISS. Research gaps identified at the Boulder workshop include quantitative heat flux measurements, crustal and upper mantle imaging, geodetic studies, hydrologic studies, detailed microbiological surveys, ecology, detailed petrology, and integrative modeling. Significant work and intense data collection are filling these gaps. In the past year, research has addressed

- heat flux— McDuff et al., Sea Breeze project to measure hydrothermal heat and volume flux; addresses long-standing question about precise heat flux for a vent field; may yield a time series of heat flux from multiple fields along Endeavour axis; includes high-precision bathymetric mapping
- petrology—Gill & Stakes, collection and ion probe of more than 175 rocks collected along Endeavour axis from MEF to Salty Dawg
- time-series chemical and microbial sampling—Kelley et al., prototype in situ microbial incubators successfully recovered from wall of active sulfide chimney and new instruments deployed to study microbial diversity and habitats
- clean-up of MEF, deployed new markers, removed dead transponders, and began development of master plan for transponders (including consideration of different navigation technology for ABE, Jason2, and ROPOS)
- proto-NEPTUNE experiments—Delaney et al., serviced seismic network, with good data recovery, and reinstalled; continued time-series fluid, particle, and microbiological sampling; produced high-resolution Imagenex map of MEF and Mothra; continued sensor development—resistivity, H_2, CO_2, and CH_4
- education and outreach—REVEL teachers participated in Sea Breeze cruise, with precruise workshop conducted by V. Robigou, L. Goehring, and K. Kelsey; undergraduate Friday Harbor class worked with Wilcock et al. on seismic net

The summer 2005 field season has two *Atlantis/Alvin* cruises and two *Thompson/Jason2* cruises scheduled:

- August 19–September 9: Booksh/Lilley, MEF, 10 *Alvin* dives for sensor instrument testing and deployment
- September 14–25: Becker, Juan de Fuca Flank, ODP CORK sites, *Alvin*
- September 12–27: Kelley, recover sulfide incubators, Jason2
- September 30–October 14: Delaney, Keck Proto-MEPTUNE Experiments, maintain seismic network, recover time-series instruments, deploy new instruments

Endeavour MPA: C. Fisher. A draft spreadsheet distilling Canada's plan for the Endeavour MPA was circulated and comments were solicited. The plan allows sampling at Mothra and MEF. With permission High Rise is slated for educational use and limited water sampling, and nothing will be allowed at Salty Dawg except observation. The plan appears to be slanted toward an observatory node at MEF/Mothra. Questions about seismics and how to handle this will be discussed in a phone conference in November. Questions should be channeled through the Ridge 2000 office, both at present and following the office rotation.

East Pacific Rise: S. Carbotte

Four cruises have occurred since the beginning of 2004, and two more are scheduled for November and December.

In January–February on *Atlantis*, Fornari et al. used *Alvin* to ground truth a portion of the Central Axial Magnetic High (CAMH) project. They deployed final 2 of 4 transponders, collected some 200 basalt samples, conducted 18 TowCam operations. In two collaborative projects, Edwards and Bach deployed ~48 "bioboxes" with sample collection plates to study microbes and seafloor weathering, Meanwhile Seyfried and Ding deployed and tested their in situ electrochemical sensors (pH, dissolved H_2, H_2S, T).

Constable and Kerry overlapped on a February–March cruise on the *Revelle* for their magnetotelluric imaging of the mantle structure. Von Damm et al. followed in March–April on *Atlantis*/*Alvin* for hydrothermal monitoring via sampling of vent fluids, biology, sulfides, and temperatures. Collaborative projects included night coring of off-axis at hydrothermal sediments, Reysenbach's microbiology sampling, and a heat flux study for Germanovich and Lowell's modeling efforts.

In April–May, Lutz, Shank et al. took *Atlantis/Alvin* back out for their study of vent biological community structures, with emphasis on environmental constraints on species succession. Their cruise included sampling biology, fluids, sulfides, and temperatures, collecting photomosaic transects for time-series biological studies, and setting up experimental sites for macrofaunal succession studies. Tolstoy and Waldhauser piggybacked on the cruise to recover and redeploy 12 OBS instruments collecting data for their microseismicity monitoring experiment. In addition, R2K Education and Outreach Coordinator Liz Goehring inaugurated the Student Experiments At Sea (SEAS) project, with 5 middle and high school experiments conducted during the cruise and fed via Internet in near-real-time back to participating classrooms for data analysis and reporting.

The May 2004 NSF panel recommended three EPR research programs for funding:

- Mullineaux et al., Oceanographic and topographic influences on dispersal of hydrothermal vent species
- Cormier et al., Testing models of magma movement along the EPR using combined geodetic and numerical experiments
- Webb, A compliance study of partial melt in the crust beneath the EOR and the relationship of melt to tectonics and construction of the crust

A fourth study recommended for funding is Kent and Kilib's visualization project to construct virtual 3-D models of the EPR and Endeavour IS sites and make these accessible to the community.

Two EPR cruises aboard *Atlantis/Alvin* in November and December will conclude the year: Booksh's multiyear study of prototype in situ instruments for microbiological research, along with Edwards and Bach's recovery of seafloor weathering experiments,

will be followed by Cary's third cruise in a study of biogeochemistry and *Alvinella pompejana*.

Two EPR cruises are scheduled for 2005. In May, Lutz et al. will continue their experiments, and again, Tolstoy (OBS microseismicity) and Goehring (SEAS) will collaborate. In November, Webb and Cormier will sail on the *Knorr* to collect data for their respective studies.

Several immediate needs at EPR were identified at the Boulder community meeting. The Cormier et al. funded study will address the need for geodetic study of seafloor deformation related to magma movement, and Webb's funded proposal will focus on mantle structure and ridge segmentation. Other priorities include water column and heat budget studies, which the Wilcock et al. research will partly explore, and the subsurface biosphere.

Site issues/questions at EPR include navigation benchmarks, which are needed for comparing subsequent dives and times are needed for sampling; clean up (plans for T probes needed before Von Damm et al. cruise), temperature probe replacement, transponder maintenance, preliminary results workshop (possibly as part of larger community workshop with all three IS sites), and a cruise website.

Lau Back-arc Basin: C. Langmuir

A brief review of the location of the Lau Basin, the East Lau Spreading Center (ELSC), and the four R2K cruises, and highlights of cruise 1 set the stage for a detailed report on cruise 2. Cruise 1 used DSL-120 and MAPR, a Miniature Autonomous Plume Recorder, to record a 3-D picture of the water column along the ELSC. Six potential hydrothermal sites were identified for cruise 2 follow up.

Cruise 2 focused on both finding hydrothermal vent sites and sampling the rocks. The crew succeeded in collecting rock samples at 200 stations spaced about 3 miles apart along the entire ELSC. About 200 petrology analyses have been conducted.

Of note, as the ship moved between two potential hydrothermal vent sites, the science party noted a transition from a rift valley to an axial high. Also, along Valu Fa, none of the new vent sites corresponded to White Church, Vai Lili, or Hine Hina.

A three-phased approach was used to locate vent sites. Phase I called for chemical sensors on tow-yos to find plumes. Phase II used ABE, the Autonomous Benthic Explorer equipped with SM2000, a near-bottom multibeam sonar system, to produce fine-scale bathymetric maps of vent sites predicted from the cruise 1 data. ABE was outfitted with chemical sensors as well. Phase III used TowCam to produce the finest resolution images and photomosaics of the seafloor. Together, ABE and TowCam were indispensable tools for locating vents. The ABE crew was praised for their professionalism.

Three new vent fields were located in the northern segment of ELSC, and were named Kilo Moana, TowCam, and ABE. Two transponders were left at these sites, which offer good potential for the focus of an ISS bull's eye. Cruise II demonstrated beyond doubt the proof of concept for the three-phased approach to locating active vent fields. The Lau ISS is working as planned and is on track.

While cruise 2 was out, another new vent field, the Mariner field, was discovered by the Japanese using the manned submersible *Shinkai.* Data from cruise 2's voyage along the southern ELSC was shared with the Japanese researchers prior to their discovery. R2K expects to receive full disclosure of the Mariner site from the Japanese.

Collaborating on cruise 1, Thurnherr released several deep-ocean floats to track current circulation patterns in the basin. These data are expected to help inform both hydrothermal plume and biological studies.
R2K cruises to the Lau ISS scheduled for April–June 2005 are as follows:

- Tivey, initial characterization of hydrothermal fluids, deposits, microfauna, and megafauna at vent fields—Tonga to Suva
- Vrjenhoek, vent fauna genetics and species diversity, and Van Dover, biogeography and community structure in mussel beds—Suva to Suva
- Childress, background studies of vent fluid chemistry, faunal physiology, and community ecology—Suva to Suva to Honolulu

A Lau PIs meeting will be called in February or early March to integrate data and plan the remaining cruises. In the immediate aftermath of the fifth cruise and before the August 15 proposal target, the broader Lau community will be brought into the decision-making process for selecting the ISS bull's eye. Information and data will be shared to encourage others in the community to submit proposals.

Time Critical Studies: D. Butterfield

No fast-response activities were conducted in the past year. A previous response at Middle Valley showed no sign of a water column signal, but an ODP CORK showed a pressure response. The SOSUS array in the NE Pacific is in good condition following recent US Navy maintenance.

TCS needs include establishing guidelines for the level of activity that will trigger community notice and response. The R2K office will be enlisted to notify the community via email, to help create an email response list dedicated to Time Critical Studies, and to post near-real-time information about events. More feedback is needed from the community. Event detection should feed into ISS work, and historical information about quake events should be accessible, whether large or small.

Upcoming Meetings

AGU. 62 posters were accepted for the R2K poster session scheduled for Monday, December 13, 2004. The annual Smoker will be held immediately after the poster

session. Steering Committee members were reminded of the need for contributions. The R2K booth will be part of a block of NSF booths, and will cost extra for the designated space.

ASLO. A-L. Reysenback volunteered to organize an R2K poster session at the ASLO meeting.

Tectonic & Oceanic Processes along the India Ocean Ridge. Eight R2K participants have registered for the Goa, India meeting in January. The Steering Committee increased the level of support to $13000 from $10000 to help defray travel costs.

IODP Workshop. David Christie has submitted a proposal to USSSP/IODP for a joint workshop with IODP–InterRidge–Ridge 2000 on "Evolution of Oceanic Lithosphere." Possible date: Fall 2005. After looking at the calendar, the Steering Committee agreed to postpone the workshop until 2006 after the R2K office rotation. R2K has committed $20,000 to cost sharing.

MoMAR, Lisbon, Portugal. Emilie Hooft reported the MoMAR meeting in early April has four goals: bring the parties up to date on the status of MoMAR research and partnerships, coordinate/plan scientific work and technological developments, establish a data policy that works for all parties, and establish management strategies to facilitate oversight communication among partners and funding agencies. MoMAR is a designated area of the Mid-Atlantic Ridge south of the Azores that was selected by the European community (European Union, France, Portugal, Germany, United Kingdom) for integrated studies on a slow-spreading ridge. Two international workshops have been held and fieldwork will continue in summer 2005. The R2K community joined the international team following a community decision in March 2004 to focus on the area from Oceanographer Fracture Zone at 35°–37.5°N and encompassing the Rainbow and Lucky Strike hydrothermal vents. Hooft is the R2K leader on the organizing committee for upcoming MOMAR meeting, which is jointly sponsored with InterRidge and other European groups. The Steering Committee previously committed $40,000 to $50,000 to help support the meeting.

Cyprus field school and trip. Joe Cann, University of Leeds expert on the Troodos ophiolite and leader of the 1999 RIDGE field school, has designated May 3-11 for the school and May 12-19 for the trip. He has requested feedback on level of detail for the field school and target audiences for the two activities. R2K has committed $40,000 to $50,000 for support. Preliminary publicity has gone out.

Third International Hydrothermal Vent & Seep Biology meeting. Planned for September at Scripps Institution of Oceanography, the meeting will focus on ecology, physiology, biogeography, biogeochemistry, and microbiology of vents and seeps. R2K has committed to contribute $20,000, plus office staff to host the meeting website and handle electronic registration. Horst Felbeck chairs the planning committee.

R2K Community Meeting. The Steering Committee agreed that another R2K community meeting needs to be held before the February 2006 proposal target date to allow for coordination of proposals and provide opportunities for better integration of disciplines before R2K's major external program review in May 2008. The first week of November was selected for the meeting to accommodate office rotation, steering committee, and NSF panels.

Gakkel Ridge workshop. This workshop is being planned in conjunction with Polar Programs and the InterRidge polar working group. Henry Dick is coordinating US plans. The Steering Committee has committed $20,000 to the workshop.

R2K Theoretical Institute on Modeling Mid-Ocean Ridge Hydrothermal Processes—Magma to Microbe. Coordinator Bob Lowell reported that Mike Perfit, Meg Tivey, and Chuck Fisher have agreed to serve on the organizing committee. Anna-Louise Reysenback, and Andreas Teske also volunteered. One tentative venue is southern Oregon in the Medford/Ashland vicinity in summer 2006. The short course, field trip, and interdisciplinary workshop will focus modeling with respect to linkages and feedback mechanisms among the various components of MOR hydrothermal systems. Four themes, each in relation to hydrothermal circulation, are under discussion: magmatic processes, chemical reactive-transport processes, tectonic processes, and biological processes. A request was made for suggested speakers and workshop leaders. A tentative agenda was circulated. The Steering Committee has suggested approximately $175,000 for this activity.

Iceland Field School. Debbie Kelley and Anna-Louise Reysenbach offered to host a 2007 field school in Iceland to focus on geobiology.

Data Management: S. Carbotte

The Steering Committee was given a walk-through of the data management website being developed at Lamont-Doherty, including new developments in the GeoMapApp program that now can plot and display data tables. The team is revising metadata collection and display, implementing web-GIS (broadband accessible; from Minnesota Map Server), expanding capacity for queries (feedback was solicited from the Steering Committee on kinds of queries needed), and ways to import shape files. The RODES team will have a booth at AGU and has an article accepted for publication in *Eos*. A-L. Reysenback volunteered to send the team an Excel spreadsheet of microbiology data. D. Weins agreed to send the Lau Basin tomographic model. The RODES team needs data and images that are tied to cruises.

Navigation: C. Fisher

The tools of navigation are now essential for R2K ISS interdisciplinary work. Oversight committee chairs were asked to insist that PIs use the auto time stamp when collecting samples, which can correlate with navigation. The protocols are not intrusive, but good navigation, with preference to benchmarks. Establishing benchmarks at the three IS sites

may require dedicated dives. Concurrent with the requirement for navigation data (in lat-long, not x-y coordinates) was the recommendation for Imagenex and camera imaging. Community feedback and data are needed for designing a workable navigation system.

Steering Committee Rotation. Four Steering Committee members—Earl Davis, Doug Nelson, Debbie Smith, Rick Thompson—rotated off and names were suggested for replacements. The chair will contact the scientists in the next week.
Office Rotation. The Steering Committee went into executive session to consider two proposals for the next R2K office. The committee reconvened for a vote by paper ballot that elected the Scripps Institution of Oceanography to host the next R2K office. Donna Blackman was congratulated and asked to submit the proposal. Debbie Smith was thanked for submitting the Woods Hole proposal, and for her dedication to the program as a long-time Steering Committee and Executive Committee member.