# Curators of Marine and Lacustrine Geological Samples

**30th Anniversary Meeting September 24-26, 2007**

## Minutes

## Monday September 24, 2007

## Welcome—Chris Fox, NGDC

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/NGDC_Welcome/**

Chris welcomed the curators and congratulated the group on 30 years of collaboration. He conveyed greetings from Floyd McCoy, convener of the first Curators' meeting and congratulated Woody Wise on attending both the first and the 30th. He noted that Curators should feel free to suggest additional functionality for the sample index database at NGDC.

NGDC holds many data types from a huge array of sources; geological samples are a small portion of NGDC's data holdings. NGDC does no data collection, only preservation. NGDC's mandate is to serve as the National permanent archive for marine geological and geophysical data collected with public funds, and to operate the parallel World Data Center for Marine Geology and Geophysics, Boulder.

Data in the NGDC archive are documented to FGDC metadata standards and NGDC is presently implementing ISO standards for metadata. All data are periodically migrated to new NARA-approved media. NGDC has an active data rescue program. All non-moratorium data in the NGDC archive are made freely and publicly accessible. Most are on the web for free download, and many data sets are available via geospatially-enabled databases and web services.

## US-NSF—Howie Spero

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/NSF/**

A 5.2% permanent funding increase for MGG this year is the first in many years.

Bill Lang, Environmental Officer, deals with any consequences of and litigation resulting from certain activities related to marine mammals.

50% of MGS program are rotators. Are there/will there be corporate memory issues, with such a high proportion of rotators? There will be a need for incoming rotators very soon.

ESH has ended. There is a new solicitation for paleo programs--interdivisional, interdirectorate: ATM, OCE, EAR; GEO, OPP (the program is to be called "P2C2" (Paleo Perspectives on Climate Change). The funding level is expected to be $11M/yr; but could go higher pending GEO office support. Initially P2C2 will run for 3 years; re-evaluated then and possibly extended for additional years. Essentially, ESH sources will be putting money back into the pot, plus additional OPP and possible GEO support. The first RFP is expected January/February 2008.

GAO Report to Congressional Requesters: the fallout from the "Hockey Stick" is still being felt. The report will recommend that agencies enforce data sharing, sample sharing through e.g. grant review process. If data and samples are not made available, no new funding will be given. There is a need to develop mechanisms for agencies to be systematically notified when data have been submitted to archives. Crystal ball: there will be closer coordination between NSF and repositories to determine whether or not researchers are publicly posting data and truly sharing samples.

## Antarctic Research Facility, FSU—Woody Wise

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/ARF_FSU/**

The ARF facility built in 1964 is now nearing capacity (6000 sq ft), but funds are not available for expansion. Mobile shelves may alleviate the problem, but long-term reliability is an issue. Hopefully, the mobile shelving will be in place by next year. The quote is $238k to install mobile racks and pay students to move all cores.

ANDRILL (sediment drilling from ice shelf or sea ice) has been quite successful thus far. Multiple kms of core have been recovered from the

SHALDRILL project (drilling from icebreaker for mobile drilling capacity). The project has been very successful.

Approximately 1000 visitors annually visit the ARF repository; many classes come for a 1.5 hour exercise with stock cores, looking at dropstone and microfossil variability.

## University of Rhode Island—Steve Carey

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/URI/**

The URI sample collection includes 1813 cores; most stored in D-tubes and refrigerated. The facility is at capacity now. URI is now using refrigerated shipping containers, which have a poor layout for storage efficiency. Roller cage racks (custom made) allow access and relative efficiency. $13k buys a reefer and racks.

Core and rock description is done in FileMaker, with pull-down menus for parameters and image import.

Courses are taught and elementary/secondary classes visit the URI facility for outreach.

Storage space is the primary concern at present.

## LacCore: National Lacustrine Core Repository, University of Minnesota—Anders Noren

http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/LacCore/

LacCore was established in 2000 as a repository and core analysis facility in support of Global Lake Drilling (GLAD) Program.

In 2003, its scope was expanded; it is now a facility for the support of all phases of paleolimnological research – planning, field, lab, analysis, archival phases – for all researchers working at all scales.

LacCore has approximately 120 unique visitors per year, comprising >700 visits annually and 329 unique visitors total since recordkeeping began in late 2004. Visitors come from local and distant institutions; >55% work on <50m of core.

LacCore field equipment may be rented; staff can accompany researchers into field to assist or direct operations. A variety of coring devices and vessels are available for most field situations. Geotek MSCL and XYZ-MSCL; logging are performed for free by facility staff; the machines run continuously. Digital linescan cameras with polarizing filters yield superior results.

Initial core description is done digitally into PDF files (Adobe Illustrator) with a transition to CoreWall/Corelyzer underway. Stations are set up for several common analyses; visitors can perform the work or hire facility technicians. There is continual procedure / SOP refinement, and distribution on the web. The core collection is over 10,000m, of which 80% is drill core.

Upcoming projects include Lake E drilling project (2500m of core) and continual accessioning of old projects stored at other institutions; the recent large addition to cold room space alleviates (for the next several years) a continual shortage of space.

Samples disbursed vary from 5,000 – 15,000 per year. Costs are limited to technician time (sampling, sample analysis), rental, and supplies consumed; machine time and staff training time is free.

The LacCore database generates uniform depth scales for each project, and holds metadata and numerical data for all work at facility (whether cores are stored locally or not).

## ITRAX micro-XRF core scanner—Guy Rothwell

http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/BOSCORF_ITRAX/

BOSCORF spent $500k for the ITRAX micro-XRF core scanner system, but it is indispensable. The machine is robust; and tech support is highly responsive and effective, and able to fix most problems remotely.

The ITRAX is capable of producing X-radiographs. The machine runs unattended. Heaps of data are generated; elemental profiles (or ratios thereof) reveal several meaningful process changes.

Reproducibility is good. Detection limits and sensitivity vary with atomic number. There is good comparison with conventional XRF analyses, but the ITRAX is several orders faster, and non-destructive.

Minimal user training required. The ITRAX has doubled the number of BOSCORF users and leveraged increased funding. A dedicated technician is NOT required (unlike the Aavatech machine, apparently).

## Long coring (Kullenberg/Piston-type coring system on the R/V Knorr at WHOI)—Ellen Roosen

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/WHOI_Long_Coring/**

The maximum core length is 45m. The core head weight is 30000 lbs.

Dry dock modifications can be made for additional equipment (175,000 lbs). The coring system is side-mounted on the ship, and deploys to the rear via davits along side, with a grapple system to swing from starboard corner to stern center.

The system uses a 2" diameter rope, with a 360klbs break strength, that is field-repairable and has minimal stretch (~2m @ 30000 lbs at bottom depth). The rope is 7km long, made of optimized braid for bending. There is a 5" internal diameter for core; the outer diameter varies, increasing up-barrel.

The first trials were just completed 9/21/07. Recovery and core quality are unknown at this point.

## Handling anoxic cores (and cores as biohazards?) discussion—Phil Rumford, IODP

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/IODP/**

Vacuum sealing is difficult, time consuming, and possibly disruptive to sediments. The vacuum equipment available is not well suited to work on cores. IODP has used shrink-wrapping BDF2001 (made by Cryovac), costing approximately $0.125/1.5m core section (slightly more expensive than Saran). This material can be difficult to find; a similar film is made by Syfan.

D-tubes are abandoned for this process, resulting in a 30% gain in storage capacity and lower cost. The shrink wrapping causes no appreciable increase in the temperature of core liner or core (verified with temperature loggers). It also produces no significant fume release, but the system is noisy.

Costs are approximately $50 for simple heat gun, etc. Seal wheels cost $28 each – simpler than crimper. The Heat Wand used for sealing ends is also cheap. It costs approximately $5000 for a used "off the shelf" bar sealer machine, and $38k for a customized, modular sealer. The cost is a few hundred dollars for heat chamber only. IODP recommends buying used from online dealers.

## Geoscience Australia (AGO)—Eddie Resiak

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/GA/**

Geoscience Australia has existed since 1946, for the purpose of systematic inventory of natural resources (mineral, petroleum, etc). The Petroleum Marine Division supports offshore exploration to attract investment.

GA stores data and interpretations from any exploration activities within territorial water: data submission is mandatory. The repository includes huge stores of drill cores, marine cores, dredges, grabs, cuttings, etc., and hundreds of Tb of digital data storage with ongoing digitization efforts.

Good work space is set up for groups of visitors. The GA government-mandated data submission: a model for future of NSF/GAO requirements?

There are 12 full-time staff; 6 permanent and 6 contractors. GA charges for facility use and sampling.

## Oregon State University (OSU)—Bobbi Conard

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/OSU/**

The OSU core repository was established in 1972. In 1990, OSU acquired the University of Washington core collection. There have been three facility expansions; the 1994 expansion added 36,000 cu ft of refrigerated space.

Typically, 1-2 cruises' worth of cores are accessioned per year. New space needs are filled by refrigerated shipping containers.

Equipment and staff are available for contract coring. The Geotek logger is typically in transit or at sea 8-9 months per year; shipping can be difficult, especially the gamma source.

Challenges include a relevant database; digitization of legacy data, integration of new data, digital photography; and core curation at sea: consistency, submission; space.

OSU may need to move the facility to a consolidated space, to allow a new entrance to campus with funding from the state legislature (looking promising now) and possibly private donations.

## Lamont-Doherty Earth Observatory (LDEO)—Rusty Lotti

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/LDEO/**

The collection presently stands at 19,000 cores: 2,000 in wet storage and 13,000 in dry storage; the first core was collected in 1947, and the repository was established shortly thereafter.

Verbose core descriptions continue to this day.

More than 200,000 residual samples are stored and re-disbursed.

Core description sheets and images are printed out and put in binders for analog storage in the library.

85% of collection was formed by 1979; 1962-79 produced 70% of the core collection, when R/Vs Vema and Conrad were both active.

Half of samples distributed are from the old, dry cores.

Sample requests receive closer scrutiny when archive halves need to be sampled.

## Integrated Ocean Drilling Program (IODP)—Phil Rumford

http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/IODP/

The Deep Sea Drilling Program (DSDP) started in 1966 and ended in 1983, when it became ODP, which later became IODP. Fact sheets are available covering the history, major discoveries, and statistics of the program.

The Joides Resolution is presently in dry dock, with a goal to be ready by April 1, 2008. The website posts photo updates on the refitting.

IODP is currently redistributing its core collection among three repositories: Bremen (BCR), Japan (KCR), and the Gulf Coast Repository (GCR). ECR and WCR (East and West Coast Repositories) are being phased out. GCR is presently shipping ~1 container of cores/week to Japan.

The present forecast is that the ECR will be closing next year, with the WCR closing after that, but exact dates are to be determined.

It is likely that academic research will get only four legs/year in the future, down from the previous six. IODP is seeking industry contracts to fill the remaining schedule (funding is capped at $50M/yr).

## British Ocean Sediment Core Research Facility (BOSCORF)—Guy Rothwell

http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/BOSCORF/

BOSCORF was established in 1997 in Southampton. There is a staff of 5 part-time, with a full-time equivalent of 1.75. It is the national repository for ~1174 cores, and it holds data for 1700 cores.

Refrigerated storage space consists of 370 square meters, which is expected to be full sometime between 2009 and 2013.

Instrumentation at the facility consists of a standard Geotek MSCL, XYZ-MSCL, Geoscan-III linescan camera, and an ITRAX XRF core scanner.

The holdings are georeferenced to an online map, and they plan to make data, descriptions, etc accessible via this map.

Occasional publications are produced for core analysis, need for curation, and similar procedures.

BOSCORF users come from Europe for the most part, but some hail from the US and Saudi Arabia. The numbers of samples disbursed, facility users, and core logged are all on a generally upward trend over the past few years.

The facility has developed a substantial online presence, with reference pages for smear slide description/identification, and also a central listserv for core logging instruments and related procedures, analyses (Corelogging.org).

At next contract renewal, they plan to propose to become an official lake core repository (at present, they are officially only a marine core repository). In the future, BOSCORF may also store archaeological cores from UK sites.

## Woods Hole Oceanographic Institution (WHOI)—Ellen Roosen

http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/WHOI/

Holdings include sediments, rocks, and corals.

A new storage and lab area added in 2006 comprise 10,000 sq ft. This expansion was paid for by ~$2M of internal funds.

The racking system is easy to assemble and strong.

The facility offers services for field, lab, and curation.

The online database is searchable and also automatically creates PDF files from core descriptive comments.

Rolling shelves have been installed at the new Woods Hole Science Center sample storage facilities.

## USGS West Coast Repository (USGSMP)—Mike Torresan

http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/USGSMP_WH/

The repository has 4100 sq ft of refrigerated storage space. A recent addition added 3200 sq ft. Recently, the facility was forced to vacate the Redwood City storage space and move their collection.

Analytical facilities include an X-radiography lab, a Geotek MSCL core logger, sediment labs, and digital photography.

The facility has dedicated space for storage for cores in litigation or lockdown for other reasons.

The analog X-radiography generates up to 50 gallons/month of hazardous waste. The facility has two Geotek systems, and desire to add an x-radiographic capability to one of these systems or get an ITRAX XRF core scanner. Their entire sample collection is now bar coded.

Any racking/shelving to be used at the facility must be heavy-duty and earthquake resistant.

The new storage facility is 70% full, with a possible upcoming move in 2-3 years to Santa Cruz, and perhaps a reorganization/expansion then.

The online database (InfoBank) has been recently updated.

## Scripps Institution of Oceanography (SIO)—Dick Norris

http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/SIO/

The SIO collection includes 2 million specimens of marine fish and other biota; the earliest cores date from 1905. The vast majority of cores are stored in refrigerated space.

Collections staff consists of Warren Smith, who is retiring 11/2007; with database support from Stephen Miller and Dru Clark.

Recent funding cuts from state of California required development of private funding, which now comprises 60% of total funding. To date, private fundraising has netted $220,000 for an XRF core scanner, which SIO will order in spring 2008.

Dredge collection storage consists of 3545 dredges and 707 grabs, in ~8000 sq ft space, which is now ~2/3 full.

SIO houses several special collections: radiolarians, fish teeth, microfossil, volcanic islands, teaching, and education.

SIO Explorer is the new database for the holdings, but much legacy data remains to be imported.

The facility will move into the former IODP-WCR space (many SIO cores are now stored there) in summer 2008.

One primary present goal is to expand operations, making it a more active facility.

## Geological Survey of Canada (GSC)—Ann Therriault

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/BIO_GSC/**

Natural Resources of Canada (NRCan) collections span a diverse variety of materials: flora, fauna, rock, sediment, etc.

A new sample management system will fully integrate all aspects of sample handling, and facilitate information transfer across GSC—total information management.

One present goal is the creation of a "community of practice" for collections staff, so that institutional knowledge does not disappear with staff turnover. All details of daily operations will be entered into the information system.

# Tuesday September 25, 2007

## Curators' database, digitizing and archive—Carla Moore

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/NGDC/**

Nearly 110,000 samples have been added to the Index to Marine and Lacustrine Geological Samples database since October 2004 from nine institutions. There are now 463,433 records in the database from 4,666 cruises with more data in processing. ( http://www.ngdc.noaa.gov/mgg/curator/ )

Following NSF advice (Dave Epp) from the 2004 meeting, uniform web pages were created for each active participant in the database. The newest database participant is the Byrd Polar Research Center. Parameters in the database were reviewed and the flexibility of data entry methods was stressed (spreadsheet, or any digital means). Even basic station information is welcome; more information can be added later.

The database now links to SESAR, where IGSNs are available – currently only to SIO dredges. New links to cruise level information at the USGS have been added, along with expanded links to data at NGDC and elsewhere.

Database access upgrades include a new Java Server Pages (JSP) interface, replacing the old PL/SQL text interface, and the addition of shapefile extraction to the ArcIMS web map. A Web Map Services (WMS) capability was added to generate images on the fly from the database, and a Web Feature Service (WFS) give external sites like GeoMapApp remote machine-to-machine access to data in the database. The group was encouraged to use these new capabilities to incorporate live data and images from the Curators' database into their own web sites.

The NOAA-funded Climate Data Modernization Program (CDMP) project to digitize data and images related to marine and lacustrine samples is now in its third year. Tens of thousands of pages and images have been key-entered, scanned, etc., via roughly $550K in NOAA funding. The project will be extended into 2008 and anyone with additional materials should contact Carla - there is plenty of room in 2008 for additional digitization of all kinds.

Carla reminded the group that they are encouraged to submit data of all types to the permanent archive at NGDC.

## Corewall: Collaborative Electronic Core Bench—Chris Jenkins

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/INSTAAR_CoreWall_dbSEABED/**

CoreWall is an NSF-funded project to U. Minnesota and U. Illinois-Chicago, Electronic Visualization Lab (EVL) to create a software platform for display of core images, associated numerical data and e.g. smear slide images, and which will allow entry of descriptive comments for the sediments, correlation between multiple cores, export of core description sheets, and remote sharing/collaboration at the ICD phase.

Functionality is enhanced by plug-in modules (e.g., Splicer/Sagan replacement, PSICAT, CoreNavigator, etc).

CoreNavigator/Google Earth allows geographic browsing, links for viewing images and data in Corelyzer.

The software can be downloaded for free from www.corewall.org.

dbSEABED is a central data storage for sediment character, physical properties, grain types, benthos, and structures. It outputs point and grid maps for any application. It is essentially a data "hypercube": all data are in one place, which can be "sliced" any way you like depending on the desired analysis. There are ~2 million sites in dbSEABED presently.

## Application of IGSNs to sample collections—Sri Vinay(agamoorthy)

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/SESAR/**

There exist a multitude of important reasons for unique sample identifiers for all geologic samples: e.g., avoid naming different samples with the same name, or using different names (or variations on the same name) for the same sample. There would be better, more efficient access to sample information with a policy of unique identifiers.

The no-registration option (metadata-based IDs) involves drawbacks: possible duplication, large names, but, on the other hand, relatively easy implementation. The registration-based option is preferred for a variety of reasons.

A 3-year grant (OCE; the first funding for the project) was received in April 2006.

IDs are presently envisioned as a 3-character name space e.g., SIO for Scripps, + 6 alphanumeric characters. This arrangement yields >2 billion IDs for each name space (then name space can switch to SI2, SI3, etc.).

IGSNs are not a replacement for other naming schemes – it's meant to be in addition to other names (as a Social Security Number, for example).

3.6M objects are registered presently. All DSDP/ODP holes, cores, sections, samples; collections from Lamont, Scripps, WHOI, ARF, Harvard Museum mineral specimens, US polar Rock Repository are included in this sum.

The website for the project and registration is www.geosamples.org.

The "MyGeoSamples" pages allow management of individual institutional collections, storage of other information, e.g., images.

SESAR tracks only metadata, but can link to the associated data.

Enforcement would be primarily through funding agencies and journal editors. Discussions to this effect are underway with the appropriate parties.

The primary concern at the moment is: How to make registration streamlined, with minimal additional work to scientists and curators? The concept of "trusted agents" (e.g., repositories) has some merit as compared with a single, central authority for registration of newly-collected materials.

## Using web services to deliver maps and data—Bob Arko

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/MGDS/**

The Marine Geoscience Data System is an umbrella data management project (begun in 2003) funded by multiple NSF awards (OCE, EAR, and ANT) and based at LDEO. Its mission is to maintain a comprehensive data inventory for Ridge2000, MARGINS, and US Antarctic Program field expeditions, plus value-added products and services ("Curation AND innovation").

MGDS makes use of web services: rather than having users learn and navigate different database interfaces at each repository site, MGDS allows the use of a local client to pull data into a familiar format. MGDS also allows "pull"-type data harvesting, rather than "push"-type submission to multiple sources with different requirements. Web services also facilitates integrative work, online citation, and compliance in reporting.

Simplicity is a primary emphasis, thereby minimizing the need for additional training or software. Open-source applications are used exclusively: Relational database (PostgreSQL), geospatial extensions (PostGIS), web server (Apache), and application servers (OGC-MapServer [for a well-established, stable, mature package], GeoServer, Deegree [for a cutting edge option])

An example was shown, using online Google Maps to display core locations superimposed on bathymetry/topography, each linked to relevant descriptions, data, images, etc.

Another example was shown, using GeoMapApp to look at PetDB locations and data: again, it's far simpler to use web services with a standard local client than figuring out PetDB web site, search forms, etc.

Web services IS web performance-dependent, limited by bandwidth. But we expect future increases in bandwidth to alleviate any current problems.

PI acknowledgment/credit is a critical issue.

## USGS Core Research Facility—Jeannine Honey/John Rhoades

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/USGSDenver/**

The facility was established in 1974, and now has ~1500 visitor-days annually. Holdings include cores, cuttings, thin sections, photos, and analyses in a 80,000 sq ft warehouse. These include 1.7 million feet of core from 8500 wells in 35 states, the majority of which are in the Rocky Mountain region. The majority of these holes were drilled for oil and gas exploration and later donated by private companies, and also some cores from mineral/mining exploration.

A recent analysis concluded that costs associated with continued storage are ~0.05% of the cost of recovering new (replacement) materials. A side-loading forklift and electric order picker facilitate storage in narrow rows and tall racks.

The cuttings collection represents 238 million feet of drilling in 50,000 wells from 28 states. A huge addition to the cuttings collection was made in 1993 by American Stratigraphic Company.

The collections are cataloged in a database – Foxpro, but staff desire to migrate to Oracle.

## USGS Ice Core Facility—Todd Hinckley

**http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/USGSNICL/**

The facility curates ice samples from Greenland and Antarctica, and distributes samples. Woodworking tools are used for sampling cores.

Three-quarters of funding now comes from NSF and a quarter from the USGS (previously was split evenly).

The facility is the only national ice-core repository in the US. Some universities have smaller onsite storage facilities.

Anticipated future drilling involves 3 km of core over the next three Antarctic summers near the Byrd site.

## Wednesday, September 26, 2007

### Sediment classification—Steve Carey
http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/URI_SedimentClassification/

Goals for a new classification scheme should: a) be easy to understand and use; b) maintain a large degree of consistency between the existing ODP and NGDC systems; c) be useful to users; d) avoid cumbersome and uninformative terms e.g. “mixed sediment”.

The NGDC system is component-based with the addition of grain-size information; the resulting sediment name can be unsatisfactory.

There is a lack of consensus about: a) the extent to which the sediment classification should be devoid of genetic interpretations; b) the retention of the “neritic” sediment class; and c) the exact scope of potential data entry.

Two models Steve presented for discussion include 1) “descriptive” (ternary) and 2) “simple”.

The descriptive/ternary scheme (Paula’s scheme) consists of a ternary diagram that determines the principle name, with major and minor modifiers, e.g. foraminifer ooze with quartz, feldspar tuff with rock fragments. In this system. data input is extensive: component data must be entered as numeric values (it allows the use of scores of possible components).

The simple sediment classification scheme involves a box diagram to determine the principle name, with major and minor modifiers. In the end, names are similar to those derived through the descriptive/ternary system.

The ternary system’s advantages include: a) no genetic interpretation; and b) moderate describer training. Disadvantages of this system include: a) potential for unusual sediment classes; and b) more extensive data input.

The simple system’s advantages include: a) less training of the describer; b) more similar to ODP convention; and c) easy data entry. Disadvantages include: a) sacrifice of detail of component analysis; b) it retains sediment classes with genetic implications; and c) it is concerned mainly with fundamental sediment components.

The critical question seems to be: do we want descriptive or genetic classifications?

### Database harvesting and interoperability—Dick Norris
http://www.ngdc.noaa.gov/mgg/curator/meeting/presentations/SIO_Interoperability/

The central problems with which Dick began his presentation are: a) collections at different institutions use different data formats and search functions; b) the (often unfulfilled) need to report sample acquisition and characteristics early; and c) the need for IGSN assignment.

Dick then presented a multi-step proposal towards solving these problems.

Step 1: Establish a system of sea-going curators (or their trained ship staff/technician equivalents) to accompany coring, thereby improving the uniformity of sample description. Require the use of a standard template with set fields to write preliminary metadata during sampling.

Step 2: Automate sample IGSN registration via the "trusted agent" model, and register when the internet link is available.

Step 3: At the repository, staff produce description, metadata, data (e.g., photos).

Step 4: Submit or post data for harvesting by NGDC.

There is a clear need for automated sample tracking and IGSN generation during sampling. The ODP-style sampling station was cited as an example of such an automated system; its cost is roughly $7,000. We should explore the possibility of using/sharing ODP resources, research, etc.

Preprinting labels may be difficult at sea, because it's not known ahead of time how many samples will be generated.

The use of shipboard internet/LAN was discussed, but the internet connection is not always reliable.

Most present felt it best to use the "trusted agent" IGSN registration concept, whereby a single mobile system generates numbers and labels on demand.

Curators need to approach NSF section and division heads for resources to accomplish the GAO sample and data availability goals.

It was mentioned that the ice core lab at USGS addressed some of these issues, by requiring that proposals are vetted through the lab/repository to verify that samples to be acquired will have adequate curatorial resources (space, etc.).

It was suggested that we need to bring in all affected divisions of NSF when we make our case for additional resources for a shared database tool: OCE, EAR, and OPP all need to be involved. There is a clear benefit to foundation as a whole. New funding would be necessary for the development of database resources – not just existing base funding – but the details of this rationale must be clear.

We need to organize a spring meeting to prepare a presentation of an hour or less to the relevant parties at NSF with substantial detail regarding the scope and necessary resources to develop this tool.

We should meet at AGU to draft a letter in the aftermath of the GAO report.

UNOLS is presently drafting a best practices document – we need to get our material to them within 6 months in order to include these goals. Bob Arko is on the committee.

At the spring meeting, we should invite NSF section heads and Sandy's replacement.

Rusty may be able to generate statistics showing how data and sample usage increased (more work done, more financial savings) with additional exposure of holdings and data.

## Common Forms—Bob Arko

Forms are constantly evolving with PI desires.

The best current option may be the use of wireless tablets that access web forms on a ship's Apache server via the LAN. A laptop can be used on land, in the field, where no shipboard LAN is available.

Spreadsheets are far less efficient than forms.

IODP has already beaten through many of these issues and their resources (forms, databases, etc.) may be a good foundation/starting point for our efforts.

These tools are now in development and thus it is a good time to get our needs incorporated. It may be possible to repackage the tools to fit each facility.

We need to keep NGDC involved in conversations about development of new tools so they know what to expect.

## Action Items:

1. Assemble responses to GAO
2. Write a letter in response to GAO report: Dick Norris willing to take lead; others?
3. Individually draft specifications and cost estimates for desired development: what will we want to do, and what do we need to do it? (demonstrate why the development is beyond base funding level)
4. Meet Tuesday at AGU (need to reserve a meeting place—Rusty) to finalize letter, and to develop common web forms and controlled vocabularies. Note that some paleo sessions will be late in the week.
5. Meet at Lamont or Scripps or IODP (TBD) in early 2008 to discuss database initiative prior to NSF presentation in spring: invite Rodey Batiza, Sandy's replacement, UNOLS, IODP folks, NSF section heads
6. Circulate revised sediment classification scheme for review (Steve Carey)
7. Need to meet more regularly, at least for next few years? To keep pushing IT development. Possible meeting next fall at IODP? FSU? TBD, depending on database direction.
8. Circulate meeting minutes for review (Anders) and put minutes and presentations on NGDC web site (Carla).
9. Abstract / submission to e.g. Eos or Geotimes.

http://www.ngdc.noaa.gov/mgg/curator/30th.html