



# Sample, Data and Obligations Policy

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## 1. Policy Overview

This document outlines the policy for distributing samples and data of the International Continental Scientific Drilling Program (ICDP) “El’gygytgyn Deep Drilling Project” to research scientists (Science Party members and post-moratorium researchers) and the obligations that recipients of these samples or data incur.

The specific objectives of the ICDP policy are to

- Ensure availability of samples and data to Science Party members so they can fulfill the objectives of the drilling project and their responsibilities to ICDP;
- Encourage scientific analyses over a wide range of research disciplines by providing samples to the scientific community;
- Ensure that dissemination of the scientific findings of this ICDP drilling project are planned so as to gain maximum scientific and public exposure;
- Preserve core material as an archive for future description and observations, non-destructive analyses and sampling.

There are two categories of policy users: (1) Science Party members and (2) postmoratorium researchers. Section 2 (Policy Guidelines) provides details for these users on how to submit sample requests and the specific reporting obligations that sample and data recipients incur.

## 2. Policy Guidelines

### 2.1. Guidelines for Science Party Members

#### 2.1.2. Submitting Sample Requests

Science Party members (see definition in section 3.1) may submit sample requests to ICDP prior to the expedition. However, sample requests will also be considered during the expedition and within the moratorium period. **The Sample Request Form is available at the ICDP web site ([icdp-online.org](http://icdp-online.org)).** The sample requests will be reviewed by the Coordinating PIs and the Core Curator and approval will be based on compatibility with the Sampling Strategy (see section 4.1.). The sample requester may choose to appeal any decision by the Coordinating PIs and the Core Curator to the Curatorial Advisory Board (see section 3.11). If a conflict should arise over the allocation of samples during the moratorium period, expedition participants will have priority over those who did not participate in the expedition.

#### 2.1.3. Accessing Data

The Science Party may access expedition data online at a password-protected Web site provided by the ICDP during the moratorium period.

#### 2.1.4. Obligation

All Science Party members are obligated to conduct research and publish the results of their work. To fulfill the obligation, papers must be published in a peer-reviewed scientific journal or book that publishes in English. To fulfill the obligation, manuscripts must be

submitted within 24 months after the moratorium ended.

Following completion of sample investigations, or in the event that research is discontinued, non-destroyed sample material must be returned within a maximum of 36 months after sample receipt at the investigator's expense to the core repository (LacCore, University of Minnesota; see section 4.4 for sample distribution information).

If Science Party members are unable to fulfill their obligation because appropriate samples or data were not retrieved during the expedition, or because data could not be obtained during post-expedition analyses, a letter of explanation must be submitted to the Core Curator. The letter must provide specific reasons for not fulfilling obligations such as lack of conclusive analytical results (quality or quantity), personal reasons or external factors. Pending the situation an extension of the obligation period up to one year can be requested. The request will need to justify the reasons for the extension and document the plan for releasing data obtained from ICDP samples within the extension period. The request will be considered by the repository curator.

#### *2.1.4.1. Submitting Manuscripts during the Moratorium Period*

Science Party members who wish to submit manuscripts or abstracts for publication before the moratorium period has expired must comply with the following guidelines:

- Receive prior written approval by the Editorial Review Board (ERB, see section 3.12). This approval will be confirmed by the Coordinating PI who will circulate the manuscript among the expedition participants, tabulate the responses, and notify the author of the decision.
- Use the authorship "El'gygytgyn Scientific Party"
- Comply with all written collaborative agreements identified in the sampling strategy (see section 4.1).
- Include the words "International Continental Scientific Drilling Program" or "ICDP" and "El'gygytgyn" in the abstract.
- Acknowledge ICDP using the following wording: "This research used samples and/or data provided by the International Continental Scientific Drilling Program (ICDP) in the framework of the "El'gygytgyn Deep Drilling Project". Funding for this research was provided by the ICDP, the US National Science Foundation (NSF), the German Federal Ministry of Education and Research (BMBF), and the Russian Academy of Sciences (RAS)."
- Provide the following key words to the manuscript publisher: "International Continental Scientific Drilling Program" or "ICDP" and "El'gygytgyn".
- Notify the ERB of manuscript acceptance and submit complete citation information (see section 5 for contact information).

#### *2.1.4.2. Submitting Manuscripts after the Moratorium Period*

Science Party members who submit manuscripts for publication after the moratorium period has expired must comply with the guidelines as given in section 2.1.4.1. except for the first two guidelines.

## 2.2. Guidelines for Postmoratorium Researchers

Postmoratorium researchers who wish to conduct research on El'gygytgyn core materials may submit sample requests after the moratorium period has expired. The El'gygytgyn Sample Request Form is available ICDP web site (icdp-online.org). Obligations as explained in section 2.1.4. apply accordingly.

## 2.3. Guidelines for a Publication Succession

Publications of the scientific results should follow the following succession:

- PIs and leading field scientists publish "initial drill reports" in journals like Scientific Drilling, EOS and the like very soon after operations ended.
- PIs and key scientists summarize major scientific findings in a joint article in a high-ranked journal such as *Nature* or *Science* soon after sampling ended and first results are obtained.
- All science groups publish a coordinated collection of articles on the various subjects involved as a special volume of an international scientific journal or book at the end of the moratorium.
- Finally, all are free to publish their individual results according to section 2.1.4.

## 3. Terms and Definitions

### 3.1. Science Party

The Science Party includes all scientists that participate in the field expedition and/or during sampling and that participate as co-PIs in a proposal that contributes to the funding of the drilling operation. Additionally, other scientists who have been approved by the Coordinating PIs for working on expedition material during the moratorium period and for publishing their research results are part of the Science Party.

### 3.2. Moratorium Period

The moratorium period is two years long and begins after the conclusion of the sampling (date TBA). During the moratorium period, the only researchers permitted to receive expedition core materials and data are members of the Science Party. After the moratorium period ends (postmoratorium period), samples can be given to persons whose requests have been approved by the Core Curator and Coordinating PIs.

### 3.3. Archive and Working Halves

Sediment cores are split into two halves for measurements and sampling. The halves are referred to as the "working half" and the "archive half." The entire working half is available for sampling. The concept and definition of an archive half is designed to enhance scientific flexibility and to enable greater access to important material. In certain circumstances the archive half is available for sampling.

**Comment:** I specified it according to CK comments

For the impactite core section it may not be possible to split the core in two halves; thus sampling will be approved on a case by case basis.

**Comment:** same

### 3.4. Composite Splice *(Note: this section does not apply to the impactite core.)*

**Comment:** added this note to the next sections

Lake drilling expeditions typically recover sediment cores from multiple holes cored side by side at a given site. A composite stratigraphic depth section is constructed by establishing correlations between adjacent drill holes, using the variations in physical properties measured on cores by non-destructive sensors. A composite depth table describes the resulting depth offsets between holes. These offsets represent the difference between the meters below lake floor (mblf; i.e., cored depth) and the meters composite depth (mcd) values that are derived from these correlations. Another data table describes the unique intervals in specific holes at a given site that have been used to construct the “ideal” section, also known as the “composite splice.” The purpose of a composite splice is to describe the most complete sedimentary section at a given site, without gaps in core recovery (i.e., missing sediment), which then can be used for developing high-resolution sampling strategies and analyzing time series.

### 3.5. Permanent Archive *(Note: this section does not apply to the impactite core.)*

A “minimum permanent archive” is established for each ICDP drill site. Archive core earmarked “permanent” is material that is initially preserved unsampled and is conserved in the core repository for subsequent non-destructive examination and analysis. In “unique intervals” this minimum permanent archive consists of at least one half of each core. If so desired, the Coordinating PIs may choose to designate more, but not less, than this amount as the permanent archive. In “non-unique intervals”, the permanent archive will consist of at least one half of one set of cores that span the entire drilled sequence. The permanent archive is intended for science needs that may arise five years or more after drilling is completed.

In practice, if holes are cored continuously, the minimum permanent archive may consist of one half of each core taken from the deepest hole drilled at a site. As such, the archive halves of cores from additional holes drilled to equal or shallower depths that contain replicate copies of stratigraphic intervals constituting the minimum permanent archive need not be designated as permanent archive, but can be, if so desired by the Coordinating PIs. If not deemed permanent archive, these cores are a “temporary archive”. If a composite splice section is constructed and the sampling demand exceeds the working half, an alternative curatorial strategy may be required to ensure that all samples can be taken from the spliced section. In this case, the permanent archive can be defined from cores that are not part of the splice (e.g., from cores from different holes). Sampling of the permanent archive is feasible five years after the initial sampling party if the working and/or temporary archive halves of the core have been depleted.

### 3.6. Temporary Archive *(Note: this section does not apply to the impactite core.)*

Cores taken from non-unique intervals that are not part of the “minimum permanent archive” will be considered “temporary archives” unless stipulated otherwise in the Sample Strategy. If split, the temporary archive may be sampled just as the working halves are when (a) either the working halves have been depleted by sampling or (b) when pristine, undisturbed material is needed for special sampling needs, such as taking U-channels or slab samples.

### **3.7. Critical Intervals**

Critical intervals are lithologic spans of such scientific interest that there is an extremely high sampling demand for them. These intervals may vary from thin, discrete horizons to thick units extending over an entire core or more. Examples include, but are not limited to sediment-basement contacts, igneous contacts, marker ash horizons, magnetic reversals, particular climatic transitions, and the transition from the impact breccia to the lake sediment. The Coordinating PIs are responsible for anticipating the recovery of critical intervals and for developing a strategy for sampling and/or conserving them. For postmoratorium sampling, the Core Curator will work with investigators to ensure that previously defined critical intervals are sampled only when necessary.

### **3.8. Unique and Non-unique Intervals**

A cored interval is designated “unique” if it has been recovered only once at a drill site. The most common occurrence of a unique interval is one that results when only one hole is drilled at a site. If the cored interval is recovered from two or more holes, then the interval is considered “non-unique”. A critical exception to this definition occurs when drilling into e.g. igneous basement rocks. Every hole drilled into this lithology is considered unique because of its inherent lateral heterogeneity. Lithostratigraphic analysis of piston cores from multiple holes drilled at one site may reveal that short sedimentary intervals (generally less than 2 m) are missing between successive cores from any one drill hole, even where nominal recovery approaches 100%. These missing intervals can be ignored when considering whether or not an interval is unique.

### **3.9. Non-destructive Analyses**

Requests to perform non-destructive analyses on cores (e.g., descriptions, imaging, X-rays) should be submitted to the Core Curator and the Coordinating PIs by completing the El'gygytgyn Sample Request Form. Investigators who conduct non-destructive analyses incur the same obligations as scientists who request samples.

### **3.10. Core Curator**

There are three different Core Curators for the El'gygytgyn Drilling project: one for lake sediments, one for permafrost deposits, and one for impact rocks. The Core Curator has responsibility for the preservation of the core once it arrives at the repository and to oversee the use of core material after the moratorium period ends. He/She maintains records of all distributed samples, both from the platform and from the repositories. Sample records include the names of the recipients, the nature of the proposed research, the volume of samples taken and the status of the request. This information is available to investigators upon request through the Core Curator.

### **3.11. Curatorial Advisory Board**

The Curatorial Advisory Board (CAB) consists of members of the scientific community that actively supported the funding of El'gygytgyn drilling operations (see section 5). The El'gygytgyn-CAB has two main roles:

- Act as an appeals board vested with the authority to make final decisions regarding sample distribution if and when conflicts or differences of opinion arise among any combination of the sample requester, the Core Curator and the Coordinating PIs.

- Review and approve requests to sample the permanent archive.

A person appealing to the CAB may contact any member of the board directly.

### **3.12. Editorial Review Board**

The Editorial Review Board (ERB) is comprised of the Coordinating PIs, the Core Curator and all Co-PIs who actively funded the El'gygytgyn drilling operations. The ERB has four main roles:

- Coordinate the writing of the drilling project results;
- Monitor all post-drilling project research and associated publication of results;
- Make decisions on issues relating to the publication of research related to the drilling project;
- Monitor obligation fulfillment by the Science Party.

## **4. Curatorial Procedures**

### **4.1. Sampling Strategy**

To ensure the best possible use of the core and distribution of samples, a sampling strategy is developed for each drilling project during pre-expedition planning. The strategy will integrate and coordinate the programs for drilling, sampling, and downhole measurement to best meet the drilling project's objectives and the scientific needs of the Science Party. The strategy may evolve during the expedition and the moratorium period.

### **4.2. Expedition-Specific Sampling Strategy Guidelines**

Once a proposal has been scheduled for drilling, a formal expedition-specific sampling strategy is agreed that meets the specific objectives of the expedition and defines the minimum permanent archive. The Sampling Strategy becomes the basis of the sampling plan used during the moratorium period.

A successful sampling strategy will

- Define the amount of core material available to the Science Party for sampling by deciding if and when more than a minimum permanent archive is needed;
- Anticipate and possibly define limits on the volume and frequency of sampling for routine analyses, pilot studies, and low-resolution studies;
- Estimate the sampling volume and frequency that is needed to meet the objectives of the expedition, as per scientific sub discipline and request type;
- Anticipate the recovery of critical intervals and develop a protocol for sampling and/or preserving them;
- Propose where and when sampling will occur;
- Determine special sampling methods and needs e.g., microbiology;
- Consider any special core storage or shipping needs (e.g., plastic wrap, freezing sections);
- Identify disciplines/personnel needed for sampling.



## **4.3. Sample Request**

### **4.3.1. Procedures for Requesting Samples**

Requests for samples should be submitted using the **El'gygytgyn Sample Request Form**. To assist the sample requester the Core Curator may provide advice and guidance to the requester when considering sample volumes and frequencies as well as relevant information about previous sample requests and resultant studies on specific core intervals.

#### *4.3.1.1. Moratorium Period Sampling*

During the moratorium period, only members of the Science Party receive samples.

#### *4.3.1.2. Postmoratorium Period Sampling*

After the moratorium period has expired, samples may be provided to any researcher with the resources to complete a scientific investigation.

### **4.3.2. Sample Request Approval**

#### *4.3.2.1. Moratorium Period Sampling*

After reviewing the sample requests, approval will be based on compatibility with the sampling strategy. In cases where a sample request is considered incompatible, several options are possible: (1) recommend modifications to the request, (2) modify the sampling strategy, or (3) reject the request if the other options are inappropriate. If a conflict arises over the allocation of samples during the moratorium period, expedition participants have priority over other scientists in the Science Party.

#### *4.3.2.2. Postmoratorium Period Sampling*

The Core Curator will evaluate postmoratorium sample requests for completeness and adherence to the provisions in this policy. When considering a sample request, the Core Curator will ascertain whether the requested material is available in the working half or the temporary archive half of the core. If the material is unavailable, the Core Curator will consult with the requester to determine if the range of the requested interval(s) or the sample spacing within the interval(s) can be modified. If the request cannot be modified because of scientific requirements, a request to sample the permanent archive will be considered.

Approval of sample requests will be based on the availability of material and the length of time it will take the investigator to complete the proposed project. Typical studies will take two to three years, but a study of longer duration will be considered under certain circumstances.

## **4.4. Sample Distribution**

Sample requests are processed differently depending upon whether they are field-based, moratorium or postmoratorium. Field-based and moratorium sampling steps are outlined in section 4.3. Postmoratorium Sample Requests are processed in order of approval. This approximates the order of submission and receipt of requests, however the review and approval process may cause certain requests to be delayed for various reasons,

e.g., lack of available material causing a discussion and revision of which cores to be sampled. In addition, after approval, other factors may cause requests to be processed out of order, e.g., a request for thousands of samples may take several weeks of labour to complete, whereas requests for small numbers of samples may take only hours. When different sized requests are pending at the same time at the core repository, small requests may be completed before or during the work on a large request, so that they are not all held up by the large request. Requests that are tied to visits to the repository by the requester are dependant upon the schedule of that visit. Most requests of small to moderate size and complexity may be expected to be processed within a month.

## 5. Contact Information

Here only names and email addresses are provided as contact information. For more details, e.g., phone numbers or postal addresses, please consider the ICDP website

### Coordinating PIs:

Julie Brigham-Grette	Univ. Massachusetts, U.S.A (juliebg@geo.umass.edu)
Martin Melles	Univ. Cologne, Germany (mmelles@uni-koeln.de)
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Christian Koeberl	Univ. Vienna, Austria (christan.koeberl@univie.ac.at)

### Core Curator:

Lake sediments	Anders Norren, LacCore, Univ. Minnesota, U.S.A (norren021@umn.edu)
Permafrost deposits	Hans-Wolfgang Hubberten, AWI Potsdam, Germany (hans-wolfgang.hubberten@awi.de)
Impact rocks	Christian Koeberl, Univ. Vienna, Austria (christan.koeberl@univie.ac.at)

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