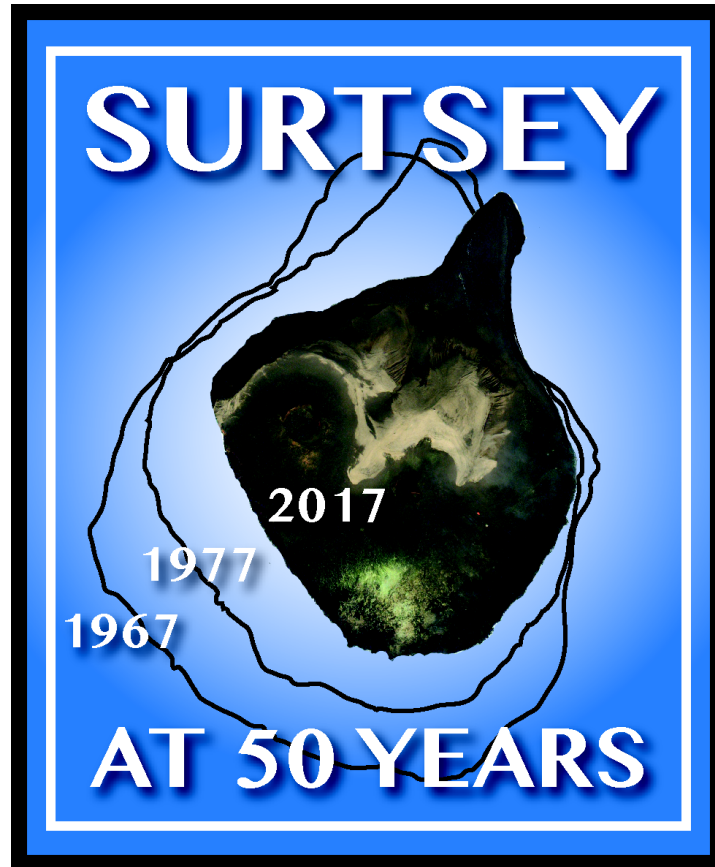


# International Continental Drilling Program



## SUSTAIN Drilling Project at Surtsey Volcano, Iceland

(Surtsey Underwater volcanic System for Thermophiles,  
Alteration processes and Innovative Concretes)

### Samples, Data and Organizational Policy

February 2017

Adapted from ICDP policy and the corresponding IODP publication  
(<http://www-odp.tamu.edu/publications/policy.html>)

SUSTAIN Drilling Project at Surtsey Volcano, Iceland  
Samples, Data and Organizational Policy

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ICDP SUSTAIN Drilling Project  
Sample, Data and Obligations Policy  
February 2017

## **I. Policy Overview**

This document outlines the policy for distributing samples and data of the International Continental Scientific Drilling Program (ICDP) “SUSTAIN Drilling Project” to research scientists, as Science Team 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 the Scientific Team members so that they can fulfill the objectives of the drilling project and their responsibilities to ICDP;
- Ensure that the 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 analysis and sampling;
- Encourage scientific analyses over a wide range of research disciplines by providing samples to the scientific community.

There are two categories of policy users: (1) Science Team members and (2) Post-Moratorium researchers. Section 2 (Policy Guidelines) provides details for these users regarding submission of sample requests and the specific reporting obligations that sample and data recipients incur.

## **II. Policy Guidelines**

### **II.1 Guidelines for the Science Team Members**

#### ***II.1.1 Submitting Sample Requests***

Science Team members (see definition in [section III.1](#)) may submit sample requests to ICDP prior to the field expedition, composed of the drilling, core logging and sampling operations ([section III.2](#)). Sample requests will also be considered during the field expedition, and within the moratorium period. The sample request form is available at the ICDP website ([icdp-online.org](http://icdp-online.org)). The sample requests will be reviewed by the coordinating PIs and the Core Curators. Approval will be based on compatibility with the sampling strategy ([see section IV.1](#)). The sample requestor may choose to appeal any decision by the Coordinating PIs and the Curatorial Advisory Board ([section III.10](#)). If a conflict should arise over the allocation of samples during the moratorium period, then these will be resolved by the Curatorial Advisory Board.

#### ***II.1.2 Accessing Data***

The Science Team may access expedition data online at a password-protected Website provided by the ICDP during the moratorium period. All data collected by the Science Team during the moratorium period is to be freely shared with the entire team, following ICDP protocols, in order to enhance interdisciplinary collaboration and achievement of scientific goals.

### ***II.1.3 Obligation***

All Science Team members are obligated to conduct research and publish the results of their work. To fulfill the obligation, papers should be published in peer-reviewed scientific journals in English, in order to increase exposure and recognition for SUSTAIN research. Manuscripts must be submitted within 24 months after the moratorium period has 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 the sample receipt at the investigator's expense to the core repository at Náttúrufræðistofnun Íslands, Icelandic Institute for Natural History. See [section IV.4](#) for sample distribution information.

If Science Team members are unable to fulfill their obligation because appropriate samples or data were not retrieved during the field expedition, or because data could not be obtained during post-expedition analyses, then a letter of explanation must be submitted to the Coordinating PIs and the Curatorial Advisory Board. The letter must provide specific reasons for not fulfilling obligations, such as lack of conclusive analytical results, personal reasons, or external factors. Depending on the situation, an extension of the obligation period of 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 the ICDP samples within the extension period. The request will be considered by the Coordinating PIs, the Curatorial Advisory Board, and the Core Curator at the repository.

#### ***II.1.4.1 Submitting Manuscripts during the Moratorium Period***

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

- Receive prior written approval by the Editorial Review Board ([section III.12](#)). This approval will be confirmed by the Coordinating PI who will circulate the manuscript among the Science Team, tabulate the responses, and notify the author(s) of the decision.
- Use the authorship “SUSTAIN Scientific Team”, following the contributing author's name(s) or, alternatively, with the names of the contributing Scientific Team members listed as co-authors or in the acknowledgements, depending on the relative contributions of these individuals.
- Comply with all written collaborative agreements identified in the sampling strategy ([section IV.1](#)).
- Include the words “International Continental Scientific Drilling Program” or “ICDP” and “SUSTAIN” in the abstract and body of the text.
- Acknowledge ICDP using following wording: “This research used samples and/or data provided by the International Continental Scientific Drilling Program (ICDP) through the “SUSTAIN Drilling Project”. Funding for this project was provided by the ICDP, the Icelandic Centre of Research (Rannís), the German Research Foundation (DFG), the Centre for GeoBiology at University of Bergen, Norway, and DiSTAR, Federico II,

University of Naples, Federico II, Italy, as well as other funding sources for the drilling operation.

- Provide the following key words to the manuscript publisher: “International Continental Scientific Drilling Program” or “ICDP” and “SUSTAIN”.
- Notify the Editorial Review Board of manuscript acceptance and submit complete citation information ([section V](#), for contact information).

#### *II.1.4.2 Submitting Manuscripts after the Moratorium Period*

Science Team members who submit manuscripts for publication after the moratorium period has expired must comply with the guidelines as given in section II.1.4.1, except for the first two guidelines.

### **II.2 Guidelines for Post-Moratorium Researchers**

Post-moratorium researchers who wish to conduct research on SUSTAIN core materials may submit sample requests after the moratorium period has expired. The SUSTAIN Sample Request Form is available on the ICDP Website ([icdp-online.org](http://icdp-online.org)). Obligations as explained in section [II.1.4](#) apply accordingly.

### **II.3 Guidelines for a Publication Succession**

The following chronological guideline is expected to be implemented by the SUSTAIN project Science Team:

- PIs and field scientists who have contributed to the drilling operation, core processing and core archiving publish an initial drill report in journals such as *Scientific Drilling* and *EOS*, soon after the expedition ends. This is based on the Operational Report delivered to the ICDP at about four to six weeks post-drilling.
- A session dedicated to reporting the initial results of the Surtsey materials analyses is held at an international conference such as *American Geophysical Union*.
- PIs, and contributing field and research scientists summarize their major scientific findings in a joint article in a high ranked journal such as *Nature*, *Science*, or the *Proceedings of the National Academy of Sciences* soon after sampling ends and the first results are obtained.
- All Science Team members or groups publish a coordinated collection of review articles on the various topics covered by the drilling program potentially as a special volume of Surtsey Reports at the end of the moratorium.
- Finally, all are free to publish their individual results according to [section II.1.4](#).

## **III. Terms and Definitions**

### **III.1 Science Team**

The Science Team includes all scientists that participate directly in the drilling and core processing operations and contribute as co-PIs in proposals that contribute to the funding of the field expedition. Additionally, other scientists who have been approved by the Coordinating PIs for working on the field expedition materials during the moratorium period and for publishing their research results may be part of the Scientific Team and/or included as co-authors on SUSTAIN project publications.

### **III.2 Field Expedition**

The field work and drilling operation on Surtsey and core processing operation on Heimaey, the archiving of processed core at the core repository at Náttúrufræðistofnun Íslands, the Icelandic Institute for Natural History, and the post-drilling workshop with sample selection refinements in Reykjavik and the subsequent distribution of samples comprise the expedition.

### **III.3 Moratorium Period**

The moratorium period is two years long and begins after the conclusion of the sampling (expected for October/November 2017). During the moratorium period, the only researchers permitted to receive expedition materials and data are members of the Science Team. After the moratorium ends (post-moratorium period), samples are available to persons whose requests have been approved by the Coordinating PIs and Curatorial Advisory Board.

### **III.4 Archival and Working Halves**

The cores will be preserved and stored largely as whole round segments. In intervals for which “unique intervals” and reference samples have been identified, and research samples requested, the core can be split into an archival and working half, with the archival half preserved at Náttúrufræðistofnun Íslands, the Icelandic Institute for Natural History. Certain whole core segments will be subjected to analysis. For example, in vertical core #1, a 30 cm segment will be taken every 9 m (about 23 samples for a 210 m long hole) for microbiological studies, and in angled hole #2 there will be 30 cm segments of tuff will be taken for engineering testing experiments at instructive intervals, perhaps about 10 to 15 samples. Reference samples can be designated nearby for further investigation by the science team. The remaining material will be returned to the Náttúrufræðistofnun Íslands, the Icelandic Institute for Natural History, or a designated refrigerated site nearby.

### **III.5 Reference Samples**

These are core and/or fluid samples from regular segment depths (3 to 4 m intervals for some analyses) and lithological variations specified during the drilling operation and core processing, for which all members of the scientific team are encouraged to contribute analyses in order to give a comprehensive description of the overall material characteristics of the pyroclastic and intrusive deposits.

### **III.6 Permanent Archive**

A “minimum permanent archive” is established for each ICDP drill site. Archive core designated as “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”, which record processes of particular interest to the Science Team, the permanent archive will consist of

at least one-half of the core that spans the entire drilled sequence. The permanent archive is intended for science needs that may arise five years or more after drilling is completed.

### **III.7 Temporary Archive**

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 Sampling Strategy (section IV.1). The temporary archive may be sampled as the “working half” when (a) either the working half has been depleted by sampling or (b) when pristine, undisturbed material is needed for special sampling needs, such as microbiological studies and rock testing experiments.

### **III.8 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 segment or more. Examples include igneous contacts with dike intrusions, marker ash horizons, and horizons of specific hydrothermal and microbiological significance. The Coordinating PIs are responsible for anticipating the recovery of the critical intervals and for developing a strategy with the Curatorial Advisory Board for sampling and/or conserving them. For post-moratorium sampling the Coordinating PIs and Curatorial Advisory Board will work with investigators to ensure that previously defined critical intervals are sampled only when necessary.

### **III.9 Non-destructive Analyses**

Requests to perform non-destructive analyses on cores, such as macroscopic-scale descriptions, imaging, and X-ray scans, should be submitted to the Lead Core Curator and the Coordinating PIs by completing the SUSTAIN sample request form. Investigators who conduct non-destructive analyses incur the same obligations as scientists who request other samples.

### **III.10 Lead Core Curator**

The Lead Core Curator at Náttúrufræðistofnun Íslands, the Icelandic Institute for Natural History, has responsibility for the preservation of the core once it arrives at the repository and for overseeing the archive of core material during the moratorium and after the moratorium ends. The Lead Core Curator collaborates with members of the Curatorial Advisory Board to effectively manage the approval of sample requests and sample distribution, and maintains a record of all distributed samples. Sample records include the names of the recipients, their institutions, the nature of the proposed research, the volume and/or weight of the samples taken and the status of the request. This information is available to investigators upon request through the Lead Core Curator and/or Core Curators.

### **III.11 Curatorial Advisory Board**

The Curatorial Advisory Board consists of the Core Curators for the SUSTAIN drilling project: for reference samples, petrology and geochemistry samples, microbiology and fluid geochemistry samples, samples used in determining hydrothermal processes, samples used to determine primary volcanological processes, and samples used in studies of sustainable concrete analogs. The Curatorial Advisory Board has two main roles:

- ⊖ To act as an appeals board 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 requestor, the Coordinating PIs and the Core Curators.
- Review and approve requests to sample the permanent archive.

A scientist appealing to the Curatorial Advisory Board may contact any member of the board directly.

### **III.12 Editorial Review Board**

The Editorial Review Board consists of individuals representing research objectives in volcanic processes, petrology and geochemistry, hydrothermal processes, microbiology and fluid geochemistry, and sustainable concrete analogs, listed in section V. The Editorial Review Board has four main roles:

- Coordinate the writing and publication of the drilling project results;
- Monitor all post-drilling 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 Team.

## **IV. Curatorial Procedures**

### **IV.1 Sampling Strategy**

The sampling strategy developed during pre-expedition planning aims to ensure the best possible use of the core and distribution of samples. The strategy integrates and coordinates the programs for drilling, core processing and archiving, sampling, and downhole measurement to best meet the drilling project objectives and scientific needs of the Science Team. The strategy will undoubtedly evolve during the expedition and moratorium period.

### **IV.2 Expedition Specific Sampling Strategy Guidelines**

The following sampling strategy is designed to become the basis for the SUSTAIN sampling plan during the moratorium period:

- Define the amount of core material available to the Science Team for sampling by deciding on the minimum permanent archive needed;
- Estimate the sampling volume and frequency of reference samples that is needed to meet the objectives of the expedition, following the scientific sub-discipline and the type of material requested;
- Anticipate and possibly define limits on the volume and frequency of sampling for non-reference samples;
- Anticipate the recovery of critical intervals and develop a protocol for sampling and/or preserving these;
- Propose when and where sampling will occur, and the archival format of the core;



- Determine and implement special sampling needs, as for samples for microbiology, fluid geochemistry, and hydrothermal process studies.
- Develop protocols for special storage and transport needs, as for freezing, refrigerating samples, and protecting the cores and core samples from drying and interaction with surface humidity and atmosphere;
- Identify the equipment and personnel needed for sample preparation and distribution.

### **IV.3 Sample Request**

#### ***IV.3.1 Procedures for Requesting Samples***

Requests for samples should be submitted using the SUSTAIN Sample Request Form. To assist the request for samples, the Lead Core Curator or Curatorial Advisory Board may provide advice and guidance regarding sample volumes or weights, the vertical frequency of sampling, as well as relevant information about previous sample requests and analytical studies on specific core intervals. A unique sample number, based on core depth, will be assigned to each sample, and linked to an entry in the ICDP Drilling Information System (DIS) database.

##### *IV.3.1.1 Moratorium Period Sampling*

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

##### *IV.3.1.2 Post-Moratorium Period Sampling*

After the moratorium period has expired, samples may be distributed to any researcher that can demonstrate a meaningful scientific work plan and the analytical resources to complete a publishable scientific investigation, provided that there is sufficient material of the requested sample available.

#### ***IV.3.2 Sample Request Approval***

##### *IV.3.2.1 Moratorium Period Sampling*

After reviewing a sample request, approval will be based on compatibility with the sampling strategy. In cases where a sample request is considered incompatible, several options are possible. These include: 1) recommend modifications to the request, 2) modify the project 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, then expedition participants have priority over other scientists in the Science Team.

##### *IV.3.2.2 Post-Moratorium Period Sampling*

The Lead Core Curator and Curatorial Advisory Board will evaluate post-moratorium sample requests for completeness and adherence to the provisions of the sampling policy. When considering a sample request, the Core Curators will consider whether sufficient material remains in the working portion of the core, the destructive or non-destructive nature of the analytical investigations, and the agreement to return of the unused portion of the sample after a timely investigation period, usually three years.

### **IV.4 Sample Distribution**

A sample request form must be submitted for every sample distributed from the core materials. These requests are entered into the SUSTAIN Drilling Information System (DIS), and tracked through the acquisition of analytical data and published results. The following rules apply to sample distribution and data obtained from SUSTAIN project samples during the moratorium period:

- There is no sample distribution without recorded permission;
- No samples are to be taken during the drilling and core processing operations, unless prior approval has been given;
- No samples may be distributed until the Operational Report is complete.
- No data derived from the samples maybe removed from the group database, with the attitude “what I am doing belongs to me”;
- No separate groups may retain data for their own use.

## V. Contact Information

Names and email addresses are provided as contact information. Further details are posted on the ICDP website.

### Coordinating PIs:

Marie Jackson	University of Utah, USA ( <a href="mailto:m.d.jackson@utah.edu">m.d.jackson@utah.edu</a> , <a href="mailto:mdjjackson@gmail.com">mdjjackson@gmail.com</a> )
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### Curatorial Advisory Board: Core Curators

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