

Why do we need a Terrestrial Sample Repository

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Why am I here?

Important samples and sample suites are being lost, sometimes through retirement or because a project is finished

or through lack of appreciation for their value --
(sometimes ironically so).

Samples collected with public funds are a public legacy. The marine community understands this. Time to get the terrestrial community on board.

Why must we preserve terrestrial samples?

Cyber-Infrastructure (CI) initiatives for data preservation and accessibility offer new possibilities for data integration --

data (e.g. structural, chronological, mineral, chemical) are associated with *physical samples*.

New science builds on previous work. Access to original samples is essential to create a truly reproducible science.

Community legacy -- large and increasing public investment in sampling and analyses.

Pragmatic Reasons to save the samples:

- Investigations are often global in scope and target samples from the far reaches of the Earth.
- Many important localities are difficult to access due to logistics or international politics.
- Well-known cases where entire classic outcrops are destroyed or covered by natural or human forces.
- Often unique and important samples are lost at the end of a career or a large project.
- New techniques – classic or well-studied samples are the first to be analyzed.

Sample Preservation is a Recognized Problem

NRC Report: *Geoscience Data and Collections: National Resource in Peril, 2002:*

“The nation has assembled a wealth of geoscience data and collections. Some of these have already been lost, and many more are in imminent danger of being lost-- through mismanagement, neglect, or outright disposal--if immediate action is not taken.”

NSF-EAR Data Sharing Policy (April 2002)

“The Division of Earth Sciences is committed to the establishment, maintenance, validation, description, and distribution of high-quality, long-term data sets.

Therefore:

Preservation of all data, samples, physical collections and other supporting materials needed for long-term earth science research and education is required of all EAR-supported researchers.“

Sample Repositories

NSF recognizes the need to conserve some types of samples:

NSF funds archival and distribution of marine cores and dredges, lake cores, ice cores, meteorites, Antarctic samples.

Museums, State Geological Surveys and USGS are only able to satisfy a portion of the terrestrial geoscience needs (NRC Report).

Universities are unwilling to invest in the infrastructure needs for sample preservation.

My Impression:

The Terrestrial Geoscience community recognizes the problem and *strongly* supports sample preservation.

This same community believes that sample collection is personal, requires major individual effort, has a sense of “ownership” of their samples, and does not want to give this up.

Challenges

Buy-in by funding agencies.

Buy-in by community--

(culture change?)

(How to fund? Are we willing to use core research funds for sample preservation?)

Operational procedures

Identify sample suites for preservation

PI rights and privileges.

NRC Report Conclusion

NRC Report: Geoscience Data and Collections: National Resource in Peril, 2002:

“Geoscience data and collections are national resources, and are a part of our nation’s heritage. Preservation ... is a comparatively small investment in our past, our present, and our future, with both immediate and long-term benefits.”

ISES-SAMPLES Working Group

Sample *A*rchive and *M*anagement *P*Lanning for the *E*arth *S*ciences

- Mandate -- address the needs of the solid earth science community for
 - sample preservation
 - sample access
- discuss alternative models, and
- explore possible strategies.

SAMPLES Working Group

Interests of current members -- broad coverage of solid earth geosciences:

1. Sam Bowring MIT
2. Rick Carlson CIW-DTM
3. Don DePaolo UC-Berkeley
4. Alan Glazner UNC-Chapel Hill
5. Steve Goldstein LDEO
6. Charles Langmuir Harvard
7. Jeff Lee Central Wash. U.
8. Chris Maples Indiana U
9. Scott McLennan SUNY-Stony Brook
10. Dennis Nielsen DOSECC
11. Terry Plank Boston U
12. Paul Renne BGC-UC-Berkeley
13. Roberta Rudnick U of Maryland
14. Sorena Sorensen Smithsonian
15. Frank Spear RPI