DRAFT: March 7, 2008

A white paper on the need for a University consortium for ice core research.

Prepared by Eric S. Saltzman and Ed Brook
on behalf of the Ice Core Working Group

COINCIDE: **Co**nsortium for **In**ter-University **C**ooperation on **I**ce Core **D**rilling and **E**xperimentation

EXECUTIVE SUMMARY

It is proposed that a University Consortium for Ice Core Research be established to provide scientific leadership and oversight for critical aspects of the US ice core research program. These include long range scientific planning, scientific project management, ice core retrieval, archival and storage, and interaction with international partners in ice core research. This white paper briefly discusses the need for such an entity, a proposed organizational model, and some of the potential benefits and risks associated with this approach. This document is an outgrowth of discussions between the Ice Core Working Group, members of the US ice core research community, and the NSF Office of Polar Programs.

BACKGROUND AND RATIONALE

The US Ice Coring effort has been extraordinarily successful in terms of generating transformative, internationally recognized science. Unlike most other nations engaged in ice core research, the US does not have a national institute of ice core research or a single academic institution providing centralized leadership. The US community operates in a distributed fashion, with investigators residing at numerous different universities, research institutes, and government agencies. Support for the enterprise is provided primarily by NSF, with assistance from a patchwork of committees and various contracts. These support functions include scientific input from the Ice Core Working Group (ICWG; a group of PI's representing various aspects of ice core research, a Science Management Office (which provides administrative support for the ICWG, scientific and project planning workshops, ice core sample allocation, and specific ice core drilling projects), and separate contracts for ice core drilling services (ICDS), the National Ice Core Laboratory (NICL) ice core storage facility (NSF/USGS), and data archival and access (NSIDC).

The "distributed science" model has benefits in terms of the diversity of PI skills and interests, and the openness of the field to entry by new investigators. However, it does not provide strong scientific oversight of critical ice core facilities and capabilities (drill development, ice core storage, field archival operations), long-term planning of scientific priorities and activities, and effective interaction with international partners. The current model is not well-suited to maintain the information flow, community input,

and oversight needed to insure successful operation and interaction of the various components. Contractors for specific specific functions, such as data archival or ice core storage often lack the ability to integrate their functions tightly with scientific needs and to respond quickly to unanticipated events and opportunities. There is no direct "line authority" linking the scientific community to the management of the support facilities.

The Ice Core Working Group was established in 1987, and has been in operation continuously for more than 20 years. During that time, the US ice coring enterprise has grown considerably, in size, scope, and complexity. This growth is anticipated to continue, given the urgency of the climate change scientific agenda driving this research. At the same time, the international landscape for ice core science has evolved considerably and many nations have expanded their scientific ice coring operations and logistical capabilities. Future major ice coring operations are likely to have a stronger international coordination. A more comprehensive, integrated management structure for US ice core science is needed in order to manage our growth, maximize the scientific yield of drilling projects, and to take advantage of the opportunities for collaboration with international partners.

It is proposed that a University Consortium for Ice Core Research (hereafter referred to as a UCICR) would strengthen the management of the US ice core research enterprise, and help assure its continued success into the future. The explicit goals of this effort is to develop an organization by which the scientific community can provide direct oversight of critical planning, coordination, and support services The proposed Consortium will also facilitate interaction of the US ice coring effort with federal agencies and international partners.

PROPOSED ORGANIZATIONAL STRUCTURE

The proposed model for the UCICR is based loosely on several existing entities within the US scientific research communities which involve close coordination between the University community and the NSF. No exact analog for the proposed consortium currently exists, but many existing entities have most of the major elements. Such entities include UCAR (University Corporation for Atmospheric Research), ARCUS (Arctic Consortium of the United State), AURA Association of Universities for Research in Astronomy) and CUAHSI (Consortium of Universities for the Advancement of Hydrologic Sciences).

The proposed UCICR would be incorporated as a non-profit corporation. Any University or Non-profit Research Institution would be eligible for membership in the Consortium and the Board of Directors would be elected by the members from a pool of candidates solicited from the member institutions. The senior management of the Consortium would consist of an Executive Director, with scientific and administrative capability, and an Operations Director with logistics and management experience. Additional personnel would be added as needed to fulfill specific contractual obligations. Depending on the size and scope of those obligations, financial control and human resources functions would either be developed in-house, or contracted to an external entity such as a University or consulting service. Base operating funds for the Consortium would be provided by NSF via a grant or Cooperative Agreement.

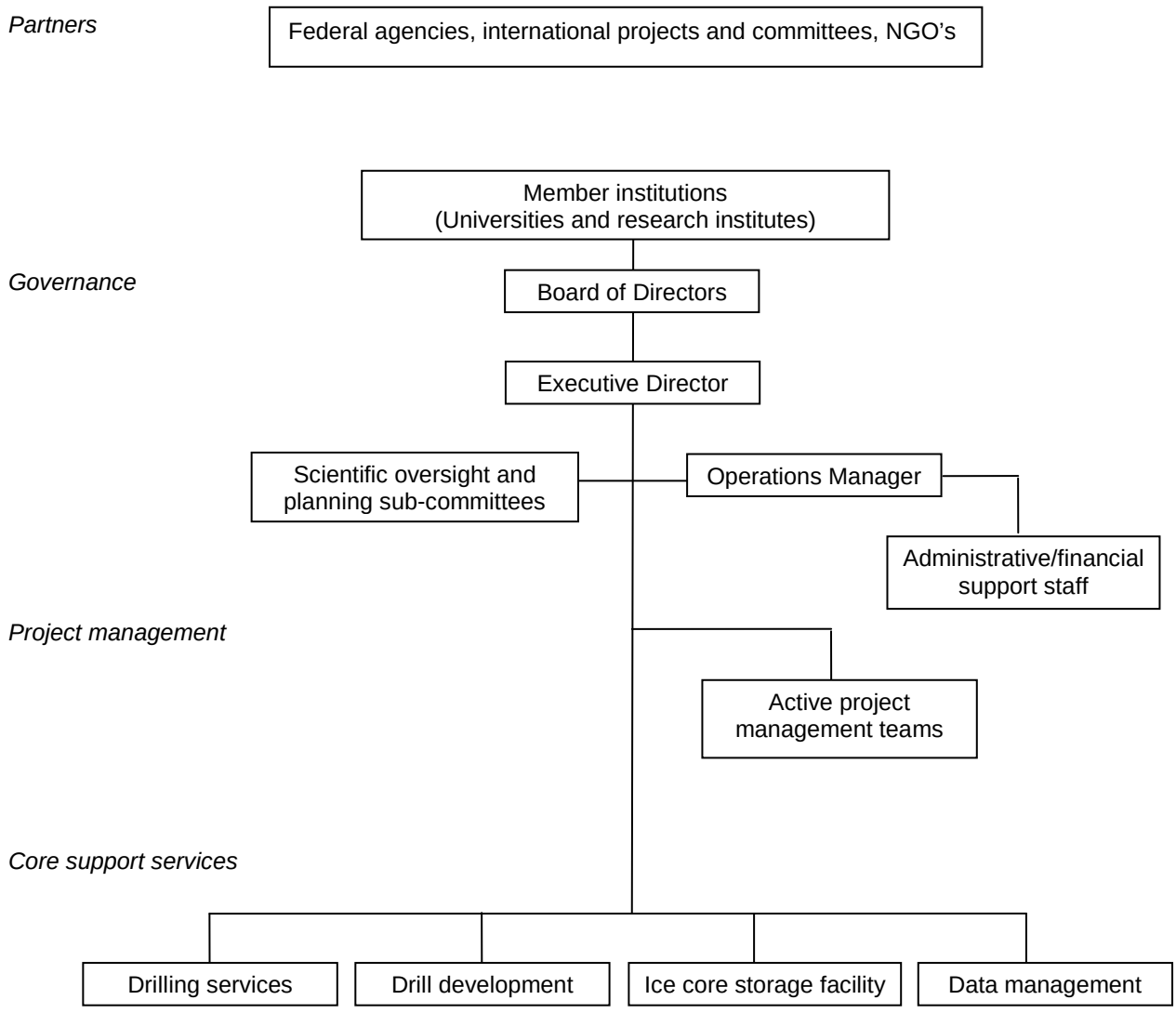

Figure 1. Organizational structure of the proposed Consortium for Ice Core Research.

BENEFITS AND RISKS

The UCICR would provide scientific community input to NSF and contractors involved in ice core archival, storage, drilling, drill development, and data management These functions are currently performed by the NICL-SMO (Science Management Office) and ICWG. The UCICR would assume the role of the SMO in managing ice sample allocation, conducting workshops relating to ongoing scientific projects, planning of future programs, and interaction with the international community. The UCICR would also actively manage contracts and/or operate facilities for critical support functions in cases where direct scientific oversight is needed. This is a major benefit of the proposed organization and a key difference from the current model. Direct management of the support services will insure that tasking and performance evaluation are closely aligned with the needs of the scientific community. This will achieve a higher level of integration than is possible under the current system.

The principle recurring additional costs associated with the establishment of the proposed consortium involve the hiring of the Executive Director and the rental of office space. The consortium will in some cases represent an additional level of overhead associated with support contracts. There are also one-time costs associated with the incorporation process. Many of the costs associated with the consortium are already allocated via various contracts, cooperative agreements and grants, such as the SMO.

Conversations with various agency and University personnel provide anecdotal examples of community concerns associated with Consortia. One such concern is "mission creep", meaning rapid expansion of the organization in response to agency needs, leading to growth beyond the original scope, and a loss of focus. This reflects the strong demand for non-governmental scientific management. Another concern is "overreaching", or attempting to dictate, rather than inform, agency priorities. Among the academic community, the issue of "openness" is sometimes raised. This reflects concern that the consortium priorities may overly reflect self-interest or that of a small group of investigators. In the case of the proposed UCICR, these concerns are somewhat alleviated by the history of productive and open agency/academic interactions associated with the ICWG and SMO.

RECOMMENDATION

It is recommended that a University Consortium for Ice Core Research be established as a means of strengthening and centralizing the management of the highly distributed US ice coring program. The new organization would incorporate the existing ICWG and SMO, provide scientific oversight of ice coring projects, and directly manage and operate critical support facilities. A UCICR would represent an incremental, but significant step in the evolution of the US ice core enterprise, and help ensure that the US ice core community continues to play a leadership role in global climate research.