On the Implementation of CODMAC 1 & 2: Letter Report

Committee on CODMAC, Space Science Board, Commission on Physical Sciences, Mathematics, and Resources, National Research Council

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October 1, 1986

Dr. Burton Edelson
Code E
NASA Headquarters
Washington DC 20546

Dear Burt:

During our 1986 summer meeting, CODMAC studied several data management areas of current importance and concern to the space science community. In the course of our discussions, we quite naturally reviewed the status of OSSA's efforts to implement recommendations made by our Committee in the past, as documented in our prior two reports (Data Management and Computation, Volume I: Issues and Recommendations, NAS, 1982; Issues and Recommendations Associated with Distributed Computation and Data Management Systems for the Space Sciences, NAS, in press). In addition, we discussed some ideas that could help strengthen the role of information systems in OSSA, and we would like to share these with you.

Let me start by commending OSSA for its efforts to promote principles of scientific data management and the implementation of many of the recommendations as laid out in CODMAC Volumes 1 & 2. As a result of these efforts, we see more attention being devoted to data archiving, networking, distributed data systems, cross-disciplinary studies, and user involvement. Of particular note are the pilot data systems, the reorganization of the NSSDC, the implementation of SPAN, the start of an astronomy and astrophysics network, and the planning for the Earth Observing System (EOS) and the Space and Applications Information System (SAIS). Most important and visible was OSSA's creation of the Information Systems Office (ISO), which itself sponsored or focused attention on several of these projects. As we prepare to enter the era of the Great Observatories, the Earth Observing Systems, and of course, the Space Station, we think it is time to review the status of information systems planning and implementation activities in OSSA.

These programs, already under development, make it increasingly important to view data management planning in space science and applications within a systems context. It is imperative that OSSA's and, indeed, NASA's activities in this area reflect this necessity.

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CODMAC is concerned about the current level and visibility of information systems activities within OSSA and feels strongly that some changes are required now, if OSSA is to meet the data and information challenges of the next decade. In a letter to you in the spring of 1985, we expressed our hope that OSSA would recognize the need for strong leadership in these areas in any reorganization planning. We were assured in reply that "any restructuring would not affect the level of visibility and authority necessary for ISO to perform its functions and to provide a central focus and leadership."

In Codmac 2 we further recommended:

> The Information Systems Office of the OSSA should have responsibility for activities which bear on the effectiveness of use of space science data. These activities should include the development or acquisition of hardware and software systems; archival, repository, and active database activities; development of standards; and budgeting and resource control processes as they pertain to computation and data management. That Office should manage the data centers and the information networks that connect data centers, repositories, and active data bases. To do these tasks requires an increase in both staff and funding within the ISO.

While members of the ISO have been active in individual projects (e.g. the pilots), the coordination with other elements of OSSA and NASA has been limited. Such coordination is essential as we move into the long-term, large-scale projects discussed above. In particular, the support of OSSA discipline Division Directors for information systems activities is crucial to the success of these activities. A major focus of our concern is that, to date, there has been no OSSA plan for data and information systems management that involves the Division Directors. Coordination of information systems activities with other NASA offices is also extremely important. One can easily mention representative related activities in other codes: computer science research and supercomputer access (Code R); communications lines for networking (Code T); Space Station information systems planning (Code S). It is essential that formal coordination of information systems activities exist between OSSA and these offices.

These cross-links to OSSA discipline directorates and to other NASA offices are necessary to ensure communication among the interested and knowledgeable personnel, essential for the coordination of programs, and valuable for developing long range plans and budgets that can enjoy wide support.

One thought about the way this could be accomplished is the joint appointment of personnel between ISO and each discipline division and between ISO and appropriate NASA offices. We believe our concerns could be alleviated and NASA's information systems activities could be greatly increased in effectiveness if ISO staff members also spent part of their time and energy working with other organizations.

We would also like to suggest that a position at the assistant associate administrator level dealing with information systems might prove valuable in elevating management attention and planning of information systems activities to the same level as science, applications, and programs.

Finally, we would also like to express some thoughts about the relation of the SAIS to the ISO. In CODMAC 2 we noted that, "The present management structure at NASA Headquarters can be utilized to guide development and operation of distributed SSDMU [Space Science Data Management Units] systems. The Information Systems Office should manage those aspects of the systems that are of facility class in size or that transcend missions or disciplines."

Thus, we would expect that in your current planning for reorganizing some of the elements of OSSA, the ISO would be the lead office for guiding the development of the SAIS.

If you like, we would be happy to discuss these matters with you further either at our next meeting or at your convenience.

Sincerely,

Christopher T. Russell
Chairman, CODMAC