Reflections of a Web Wonk

Once a novelty (in the early 1970s) shared by a relatively small number of academic and government scientists and engineers associated with "Cold War" defense enterprises in Great Britain and the USA, the internet has grown explosively to encompass world-wide over 200 million users from most walks of life. Consider the following demographic data (from Nua Internet Surveys at www.nua.com) estimating the number and location of internet users as of September 1999:

Africa:	1.72 million
Asia/Pacific:	33.6 million
Europe:	47.2 million
Middle East:	0.9 million
USA and Canada:	112.4 million
Latin America:	5.3 million

In some nations, the number of adult users of the internet ranges between 40 and 50 percent of the total population of the country; in some cities, the number of internet users exceeds 60 percent of the total city population. By the year 2003, the number of internet users, netizens as we are called, is expected to reach 500 million world wide.

Clearly, the internet (of which the World Wide Web is an application) long ago outgrew its novelty, and now drives a full-scale digital revolution that is radically changing the way that people live, work, play, and communicate. The profound cultural, social, and economic impacts now underway today are comparable in scope and effect to those wrought more than 500 years ago following Gutenberg's melding of the printing press, moveable type, ink, and paper. In addition to its original applications (electronic mail and file transfer) which remain paramount, today's evolving internet technologies have engendered a host of other on-line applications that were almost unthinkable even a decade ago, including all manner of commerce, entertainment, news and information, publishing, politics, education, banking, investing, advertizing, even the practice of medicine, to name but a few. Moreover, the information resources now accessible to netizens are simply staggering; a few strokes on the keyboard of a computer connected to the net will call up, from anywhere in the world in a matter of seconds, data and information on virtually any topic, including, of course, information about the IUGS.

Implemented in December 1996 (at www.iugs.org), the IUGS web site has now been visited by scientists in over 100 countries. The site endeavors to provide online "everything that anyone would ever want to know about the IUGS." It is the single, most comprehensive source of information about the Union's history, scientific programs, and personnel. It also contains news of recent IUGS activities; abstracts of articles from past and immediately upcoming issues of *Episodes*; a comprehensive calendar of international scientific meetings of interest to geoscientists; and complete minutes of meetings of IUGS management bodies (Council and Executive Committee), beginning with the 1996 Council meeting in Beijing, China.

In principle, the web site is not intended to duplicate information published in *Episodes*, nor will *Episodes* routinely replicate material posted on the web site. These media, along with IUGS monographs, are meant to be complementary expressions of a communications strategy designed to serve, in a balanced fashion, the broad interests of the IUGS and its constituency around the world. The content of *Episodes* will focus on bringing to light a wide variety of timely, high-quality, earth-science papers and conference reports that address the varied scientific needs and concerns of the IUGS family and *Episodes'* readers. Such emphasis on scientific content in an archival medium (i.e., ink-on-paper) permits a single subscription to support a large multiple readership. This is especially important to geoscientists in developing countries, many of which are members of the IUGS, where access

to the internet often is difficult at best. The web site, on the other hand, will concentrate on presenting a wide range of information about the Union's organization, history, goals, scientific programs, personnel, and other useful reference material that is not appropriate content for a scientific journal such as *Episodes*. In practice, however, the distinctions outlined here are not rigid; some duplication of material in *Episodes* and the web site is inevitable and, in fact, desirable, most notably the meetings calendar and abstracts of past and forthcoming articles.

Regular visitors to the web site will notice some recent changes and improvements. In November 1999, the site was moved to a new, more capable, more reliable server that dramatically increases the speed of access to the site and downloading of its component pages. Another new feature is a very fast, very powerful full-text search engine that gives site users the capability to specify search criteria (a word, string of words, or a Boolean argument) and quickly search the entire site to identify and rank pages that satisfy the search requirements. Two other significant enhancements will be implemented soon. An FTP ("File Transfer Protocol") directory that will allow us to place on the site files of documents, images, and other material that visitors may download to open and use on to their own computers. Also to be added is a public electronic bulletin board that will provide visitors with the capability to interact with the site, with IUGS leaders, and with each other concerning IUGS matters of interest or concern. The board display will be customizable to the user's preference and will track posted messages by subject or sender. We plan to open the board concurrently with the release of the report of the IUGS Strategic Planning Committee, which we hope will stimulate public comment and discussion of the Union's plans for the future and other programmatic or organizational issues.

As internet technology advances, we expect continually to improve the web site and advance its capacity to serve more effectively and interactively the needs of the IUGS and its growing constituency of earth scientists around the world. Moreover, the capabilities of the site should also permit the Union to serve earth-science information to significantly new constituencies of netizens, such as, for example, teachers and students, especially those below the university level, and the general public. The costs are prohibitive to reach these huge groups by trying to disseminate printed materials. Clearly, the internet is the medium to carry the message to the masses! It is quick, effective, and inexpensive, and its reach is global. Electronic products distributed in this fashion could include general-interest publications on earth-science topics, especially those with particular relevance to societal problems and public policy; lecture notes and supporting reference materials; and charts, diagrams, photographs and video clips illustrating geologic phenomena. Such material would be welcome in many parts of the world, would enhance the IUGS's public visibility, and could contribute enormously to improving public awareness of the earth sciences and their applications to societal problems. One of the best reasons to believe that such an outreach strategy is workable is that in some countries the majority (90 percent in Canada, for example) of primary, intermediate and secondary schools have access to the internet and use it regularly as an educational tool. As more nations, especially developing countries, extend the geographic range and density of their computer and telephone networks, many more people will be able to join in the revolution.

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