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Good Read: Informatics and the Electronic Geophysical Year

- Karen Baker (PAL/CCE) and Matthew Bietz (UWashington)

The International Geophysical Year (IGY) occurred in 1957-58, a time following postwar experience with large-scale science such as the U.S. Manhattan project and amidst initiation of international activities such as scientific committees with members from around the globe. It would take a large-scale history of science to help us discern how the events of such scope, involving the law-like understanding of physics in particular and the development of scientific collaboration in general, set the stage for a conceptualization of the earth as a whole. Suffice it to say, there emerged in the 1950's within the geosciences the idea of capturing a scientific snapshot of the earth. Data taking covering the globe over the period of a single year was recognized as both possible and as worthwhile.

In celebrating the IGY, this article recalls and reviews a remarkable past milestone in terms of a geosciences understanding of its object of study, the earth as a whole. Fifty years later, in declaring the Electronic Geophysical Year (IGY, 2007-2008), organizers are both recognizing an important past event and declaring a new focus, a re-envisioning of the earth in a digital era. In particular, the authors call for the development of virtual observatories as a kind of "informatics common." Interestingly, the authors define virtual observatories as "a system of interoperable, distributed data repositories made accessible through grid and Web services." This characterization shifts scientific focus from the act of making an observation (manually or through distributed sensor networks) to the organization, aggregation, and curation of data.

This shift highlights informatics as integral to scientific work today, and the authors visualize informatics as a fourth pillar supporting science, along with experiment and observation, theory, and computation and analysis. Three emerging subdisciplines of informatics are identified: cyberinformatics, core

informatics, and informatics as applied to a particular domain of science. This description of informatics practices, technologies, and disciplinary concerns may seem overly simplistic to practitioners. For example, the status of approaches to data handling is not delineated explicitly. An introductory statement that “there remains great reluctance among research scientists and others to invest time in good data management practices” because “research scientists are rewarded only for doing research” does not make it clear whether the authors are saying that scientists are not willing to conduct research into how to do good data management or whether scientists are resisting following through with an already established set of data management practices.

At the same time, this article is written for an audience of scientists and policy makers, and it should be read in that spirit. To change the name of that which you aim to celebrate is no minor act – it plants a stake for the important role informatics (and informatics professionals) serve in scientific practice. The article on the Electronic Geophysical Year leads us into a timely consideration of data taking and the concept of an information commons pertinent to global science, data taking, and data sharing.