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ICSU WORLD DATA SYSTEM: TRUSTED DATA SERVICES FOR OPEN SCIENCE

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More than 50 years ago the International Council for Science (ICSU) initiated what can be retrospectively labelled as the first international initiative promoting open data for science, effectively setting the standard for what will become the Open Data movement. The International Geophysical Year (1957–1958) was an international multidisciplinary research programme inspired by the previous two International Polar Years. Its organizers agreed to implement the visionary principle that ‘all observational data shall be available to scientists and scientific institutions in all countries.’ because they felt that to realize the maximum benefit of the research, it was indispensable to have free exchange of data across international borders. Therefore, The World Data Centres and the Federation of Astronomical and Geophysical data analysis Services were established by the Council to manage data generated by IGY research and provide data services to the scientific community. These bodies fulfilled their mission over half a century, however, it became clear after the last International Polar Year (2007–2008) that they were not able to respond fully to modern data needs. They were thus disbanded by the General Assembly of the Council in 2008 and replaced by the World Data System (ICSU-WDS) in 2009.

Building on the legacy of its predecessor bodies, WDS continues to promote universal and equitable access to, and long-term stewardship of, quality-assured scientific data and data services, products, and information. In addition, WDS in its new incarnation covers a broader range of disciplines—extending from the natural to the social sciences, and humanities—and operates as a coordinated network. An essential mandate of WDS is to facilitate the scientific research endeavour by coordinating and engaging collaborations between trusted open scientific data services for the provision, use, and preservation of datasets, in particular those relevant to the research conducted under the ICSU umbrella. To fulfil its remit, WDS supports the establishment of ‘communities of excellence’ for scientific data management by certifying member organizations—holders and providers of data or data products—from wide-ranging fields using internationally recognized standards. WDS Members are then the building blocks of a searchable common infrastructure with which to form an open data system that is both interoperable and distributed.

WDS is faced with key challenges and its Scientific Committee decided to address these by advancing a number of strategic targets. For example to ensure that trusted data services are an integral part of research. It is essential that research projects consider their data needs and engage relevant data services from the early stages of the scientific planning. To achieve this target, appropriate bridges need to be actively established between the research programmes and the data communities. Another target is to strengthen disciplinary and multidisciplinary data services communities. It is necessary for these communities to reach a critical mass allowing them to sustain the services needed by the research communities they serve. On another front, WDS is working with research funders to make sure that research funding includes data planning and management activities. It is also crucial to improve trust in and quality of open scientific data services to ensure scientific integrity. The WDS certification procedure and the promotion of good practices such as publishing data are examples of activities in this area. To reach these targets will require WDS to effectively engage stakeholders beyond the data communities: the research community itself, science publishers, research funders, the private sector, and policy makers.

Data services need to respond to new mandates and requirements dictated by the Open Science paradigm. They need also to adapt to a rapidly changing research landscape. WDS is positioning itself as the premium global multidisciplinary network for quality-assessed scientific research data, and together with its partners, it is working at the forefront of these issues to facilitate this adaptation.