A new role for CODATA in harmonizing the data standards activities of the International Science Bodies

Lesley Wyborn[1, 2], Ray Norris[1,3], Rhys Francis[1,4], Kim Finney[1,5], and Jane Hunter[1,6]

[1]Australian Academy of Science, National Committee for Data in Science, Canberra, Australia
[2]Geoscience Australia, Canberra, Australia, lesley.wyborn@ga.gov.au
[3]CSIRO Australian National Telescope Facility, Sydney, Australia, ray.norris@csiro.au
[4]Australian eResearch Infrastructure Council, Melbourne, Australia, rhys@pfc.org.au
[5]Department of Environment and Heritage, Hobart, Australia, Kim.Finney@aad.gov.au
6University of Queensland, Brisbane, Australia, jane@itee.uq.edu.au

Volumes of scientific data now grow exponentially and existing volumes can no longer be effectively processed by humans. Efficient and timely processing by computers requires the harmonised development of standards for machine readability of data, formats, vocabularies and interfaces, particularly if these data are to be shared across multiple scientific disciplines.

International standards bodies such as ISO, W3C and OGC are well advanced in developing technical standards for interchange of some scientific data components eg, Spatial Coordinate Systems, Metadata, Observation and Measurement Standard, Sensor Web Enablement Suite, etc. There is a parallel need for a unified approach to scientific standards development and promulgation of these standards in easily accessible digital formats.

As a new role, CODATA could coordinate scientific standards development as follows:

1. Assist each of the International Unions to establish a specific Commission on data and information
2. Take a leadership role in coordinating digital standards development by these groups and minimising duplication of effort
3. Provide a web-accessible international standards repository for data models, standards, ontologies, and vocabularies
4. Provide best practice examples for the development of the required standards
5. Provide a governance framework for the revision and updating of these standards
6. Promote the benefits of adherence to metadata standards to increase discovery and accessibility to data.
7. Provide guidelines to the scientific community on the need to adhere to these standards