

# International Data Week 2016

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**Denver, Colorado, 10–17 September 2016**

**Report by John R. Helliwell (U. Manchester, IUCr Representative to CODATA) and Brian McMahon (IUCr)**

## ICSTI Workshops and General Assembly

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**Saturday 10 September 2016**

The International Data Week activities included the ICSTI 2016 one-day meeting which was also held in Denver on 10<sup>th</sup> September 2016 at the Sheraton Hotel.

It comprised:

- General Assembly Meeting (including Member Initiative Presentations)  
Chair: Jan Brase, ICSTI President
- Information Trends and Opportunities Committee (ITOC) Workshop  
'Enabling Innovations for Researcher Workflows and Scholarly Communication'  
Chair: Markus Ekman
- Technical Activities Coordinating Committee (TACC) Workshop  
'Trends in Scientific Software Development, Sharing and Use'  
Chair: Brian Hitson
- WorldWideScience Alliance Annual Meeting  
Chair: Lorrie Johnson
- ICSTI Executive Board Meeting  
Chair: Jan Brase

Individual presentations are described below.

A. In the ITOC Workshop '*Enabling Innovations for Researcher Workflows and Scholarly Communication*' the following talks were presented:

- (i) '*Innovations in scholarly communication: openness, efficiency and reproducibility drivers*' by Jeroen Bosman and Bianca Kramer of Utrecht Library in the Netherlands.
- (ii) '*Wikidata and Wikimedia Commons as a platform for collaborative annotation and reuse for scientific data*' by Lambert Heller – German National Library of Science and Technology (TIB).
- (iii) '*From Principles to Action - The FORCE11 approach to innovation in scholarly communications*' by Cameron Neylon, Professor of Research Communication at the Centre for Culture and Technology at Curtin University.
- (iv) '*An Open Science Framework for managing and sharing research workflows*' by Courtney Soderberg, Center for Open Science, Charlottesville, Virginia, USA.

The talk by Courtney Soderberg was highly topical in the context of the Open Science initiative OpenAire in Europe and similar initiatives elsewhere. The full abstract was:

*"The mission of the Center for Open Science (COS) is to increase openness, reproducibility, and integrity of scholarly research. The focus on openness is in service of the greater goal of increasing research quality and efficiency. To this end, COS develops and maintains the Open Science Framework (OSF) – a free, open source workflow management and sharing service built to make it easy for researchers to connect, document, archive,*

and share their research workflows and outputs. Along with its built-in feature set, the OSF also has a public API that allows other tools and services to be connected to the OSF so that researchers can continue to use the services they like for sections of their workflow (e.g. Github for version code and Dataverse for sharing final datasets), but connect those individual pieces to one central OSF project to facilitate collaboration, sharing, and discovery. This talk will discuss the value of tracking and sharing the research workflow, the functionalities of the Open Science Framework, and the ways in which the underlying feature set of the OSF can be customized to fit the workflows and needs of different scientific communities.”

- (v) ‘Lessons Learned from the OpenVIVO Experiment’ by Alex Viggio, University of Colorado, Boulder. This was a very interesting presentation of an open public platform to which anyone with an ORCID (scholarly research identifier) could contribute, and which had the potential to integrate with the *World Directory of Crystallographers* as a way to show or share public profiles.
- B. In the TACC Workshop entitled ‘*Trends in Scientific Software Development, Sharing, and Use*’ the following talks were presented:
- (i) Jay Billings. Oak Ridge National Laboratory and DOE Office of Scientific and Technical Information, described ‘*The New Department of Energy Software Center*’.
  - (ii) Andrea Ross, of the Eclipse Foundation, spoke (rather generally) about the mechanics and advantages of open-source software development in a talk entitled ‘*Eclipse Foundation: A symphony of R&D collaboration*’.
  - (iii) James Willenbring, Sandia National Laboratories, described ‘*The IDEAS Scientific Software Productivity Project*’ and how to refactor code to work well on new computing platforms.
  - (iv) Eleonora Presani, Project Manager, Elsevier Research Intelligence, spoke on ‘*Elsevier’s SoftwareX journal*’. [This provided an interesting comparator to the publication of new programs and software packages in *J. Appl. Cryst.* and we noted that editorial procedures and requirements on authors were broadly similar. The software/code metadata items required by the Elsevier journal may also provide a useful model for enhancing the content of the software directory (formerly ‘SinCris’) on the IUCr website.]
  - (v) Fernando Perez, University of California Berkeley, described the ‘*The Jupyter project*’. [The Jupyter project was born out of the IPython Project in 2014 and has evolved to support an open source, interactive data science, scientific computing platform for over 40 programming languages.]
- C. At the ICSTI Executive Board Prof. John R. Helliwell attended in place of Prof. Mike Glazer who was unable to attend. Brian McMahon attended as an Observer. The main items discussed were in the overview report from the ICSTI Executive Secretary Tony Llewellyn. Main items of interest were that
- (i) The IUPAC and IUPAP delegates were not present but IUCr was heartily thanked for their continued presence. [Our impression was that to have at least one science Union in attendance was important so as to form a touchstone with science, and scientist, viewpoints for the other ICSTI members.]
  - (ii) The ICSTI financial assets were as last year (approx. 100,000 Euros). The ICSTI cash flow was in a slight deficit (3000 Euros approx.).
  - (iii) The plan in recent years of attaching the ICSTI General Assembly and Workshops to a major event was proposed to be continued and was supported as very sensible. Possible events for 2017 included the European Publishers conference in Berlin or the next Research Data Alliance Plenary to be held in Barcelona.

Overall, from the IUCr point of view, we had a positive impression of the value of the two workshop topics and talks as well as our inputs through the day on behalf of science.

In addition, during the day, there was a short meeting over Skype of the World Wide Science Alliance as shown in the agenda.

# CODATA General Assembly

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**Sunday 11 September 2016**

Geoffrey Boulton, CODATA President, led a wide-ranging seminar discussion on the future role of CODATA. Among contributions were a discussion on the need to define more explicitly the various uses and connotations of the word “data” and associated phrases such as “big data”, “open data” etc. It was mentioned that approaches to data stewardship and curation had broad cultural variations – in the natural sciences, curation needed to handle revision or correction of scientific models (*e.g.* the paradigm of continuous improvement of macromolecular crystal structures being promoted by Tom Terwilliger for PDB depositions), while in the human sciences, curation was more often focused on the idea that collected data should not change. This could be of some importance if the anticipated merger between ICSU and the International Social Science Council were to take place. The question was posed of whether we needed a new metric of reproducibility, and there was general concern that the more “open” data becomes, the greater the potential risks associated with understanding the quality and reliability of found data.

There was also discussion of the synergies and distinctions between “open data” (useful primarily for scientists) and “open science” (intended to be for all), and the ever-present need to interpret the implications of scientific data accurately for governments and for the general public. Concern was also raised about the practical difficulties of implementing unfunded mandates, and attention was drawn to libraries as bodies that had a long-standing ethos of protecting the scholarly record, although they did not always have the detailed technical expertise now required. This links to the ongoing need for capacity building, and CODATA’s energetic efforts to promote data science training and growth.

Heide Hackmann, recently appointed Executive Director of the International Council for Science (ICSU), outlined the four main areas on which ICSU was now focusing, after its External Review of 2014 and its perception of shifting trends in science and society. These were:

- (i) Global Science and the need for capacity building. This was seen not just as a way to increase the membership base, but as an opportunity to rethink the geopolitical balance of science.
- (ii) Integrated Science and the ever-increasing need for interoperability. This was especially needed between the natural and the social sciences, and was seen in the context of a possible merger between ICSU and the International Social Science Council (ISSC). Plans for such a merger anticipated an “International Science Council” which would want to address a new global scientific initiative. At present, the only proposal for such a venture involved the concept of “Open Data”.
- (iii) Open Science and trans-disciplinarity, with greater involvement of the public and the need to inspire funders and donors and to train scientists in pursuing Open Science.
- (iv) Promotion of greater interdisciplinary collaboration, feeding into the science policy role.

Because scientific data was seen as crucial to most of these areas, ICSU valued the experience of CODATA and the WDS, but did not wish to leave it solely to these bodies. Hence ICSU wanted to work more closely with CODATA and to create more synergies between the various components of the ICSU family. The Science International Accord “Open Data in a Big Data World” set a very good example of how this might be achieved.

In response to a comment by JRH that “World Peace” was a striking omission from the UN Millennium Goals, but an aspiration that could gain much from the input of the scientific community, Heide Hackmann acknowledged that peace and stability were very much on the radar of the ISSC, and that the next World Science Forum would be on the theme of “Science for Peace” in Jordan in 2017.

She went on to suggest a UN International Year for Scientific Data, an idea that was well received and subsequently repeated at the International Data Forum session.

## Organisational aspects

The General Assembly also considered aspects of CODATA business. Progress in the last two years had been rapid and extensive, and was well summarised in the document “CODATA Prospectus: Strategy and Achievement, 2015-2016” (<http://www.codata.org/news/128/62/CODATA-Prospectus-Strategy-and-Achievement-2015-2016>). Among the most successful of recent activities had been the contribution by CODATA President Geoffrey Boulton and Executive Director Simon Hodson to a major international accord, “Open Data in a Big Data World”, sponsored by Science International, a forum involving ICSU (International Council for Science), IAP (the Inter-Academy Partnership), ISSC (the International Social Science Council) and TWAS (The World Academy of Science). In response to a request to endorse this Accord, the IUCr had produced a booklet describing the position taken by the crystallography community on this issue. Preparation of this considered response was applauded, and the booklet held up before the General Assembly as a model of how to engage in such an exercise.

The organisation continued to run at a small deficit, as sanctioned by the previous General Assembly as part of a strategy to encourage additional members to join. The Executive Director was involved in an ongoing project to survey and develop sustainable business models that was now sponsored by the OECD. Early indications were that the International Data Week was successful in attracting a lot of interest and participation (there were over 620 registrants for SciDataCon and over 800 for the Week as a whole).

The CODATA Prize for 2016 was awarded to David R. Lide, Director of the NIST Standard Reference Data Program 1969-1988, and Founding Editor of *Journal of Physical and Chemical Reference Data*.

## Task Groups

The Task Groups approved by the 30th General Assembly for the period 2016-2018 are as follows (those marked with an asterisk are continuations of existing Task Groups):

- Agriculture Data, Knowledge for Learning and Innovation
- Building Foundational Training in Research Data Science
- Citizen Science and the Validation, Curation, and Management of Crowdsourced Data (with WDS)
- Coordinating Data Standards amongst Scientific Unions
- Earth and Space Science Data Interoperability (ESSDI)\*
- Linked Open Data for Global Disaster Risk Research (LODGD)\*
- Practice and Impact of Digital Data\*
- Preservation of and Access to Scientific and Technical Data in Developing Countries (PASTD)\*

The Task Group for Fundamental Constants continues under its status as a standing activity of CODATA.

## List of Officers

The Officers of CODATA through the next General Assembly are

*President:* Geoffrey Boulton (UK; 2014-2018)

*Vice-President:* Takashi Gojobori

*Vice-President:* Niv Ahituv

*Secretary General:* Bonnie Carroll

*Treasurer:* John Broome

*Ordinary Members:*

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|-------------------------------|--------------------------------|
| • Jane Hunter, Australia      | • Alena Rybkina, Russia        |
| • Paul Laughton, South Africa | • Paul Uhlir, USA              |
| • Der-Tsai Lee, Taiwan        | • Joseph Muliaro Wafula, Kenya |
| • Jianhui Li, China           | • Mary Zborowski, Canada       |

## SciDataCon 2016

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### Monday 12 – Tuesday 13 September 2016

IUCr participants were John R Helliwell and Brian McMahon.

This was the first part of a back to back conference organised by CODATA jointly with the WDS (SciDataCon, 2 days) followed by the Research Data Alliance (RDA) Plenary Conference (2½ days) sharing a common extra day (International Data Forum) on 14 September 2016.

We organised the session entitled “Crystallography and Structural Data Bases” with an introductory talk by JRH on raw diffraction data archiving and reuse, followed by talks on specific databases, namely: COD (Saulus Gražulis), CSD (Ian Bruno), ICDD (Soorya Kabekkodu) and the PDB (John Westbrook). There was a good attendance of approximately 40 to 50 people across a wide range of disciplines. Attendees included John Rumble, former President of CODATA and Chair of the ICSU CODATA Working Group on preparation of a Uniform Description System (UDS) for Nanomaterials in which IUCr took part (see below). Also in attendance were John Broome (CODATA Secretary General), David Lide (Winner of the CODATA Prize for 2016), and Vicky Karen from NIST who is involved in the formal links between ICSD and NIST. As well as specific questions to the speakers there were remarks made *e.g.* from John Rumble on crystallography as a community being an exemplar over many decades of data sharing and openness. The IUCr’s position paper booklet for crystallography “Open Data in a Big Data World” presented at the CODATA General Assembly was again applauded and very well received.

In the CODATA portion of the conference quite possibly the most significant outcome was the possibility of encouraging a uniform description system for soils, *i.e.* akin to the CODATA-led UDS for Nanomaterials run by John Rumble, in which IUCr was an active participant (JRH, Reinhard Neder and Daniel Chateigner).

JRH attended the following very memorable sessions:-

- Coordination of Data Management Policy and Practice across ICSU Unions/Disciplines in an Open Data World.
- Defining data professions (*i.e.* their education amongst the different categories of data professional such as data scientist, data clerk, data architect *etc.*).

BM participated in two sessions to develop best practice in scientific data handling through the development of disciplinary standards: a set of presentations and panel discussion on “Building a Disciplinary, Worldwide Data Infrastructure” (Figure 1) and the session on “Coordination of Data Management Policy and Practice across ICSU Unions/Disciplines in an Open Data World”. The former session led to an invitation to co-author a paper for *Data Science Journal* comparing crystallographic practices with those in astronomy, materials science, humanities, linguistics and earth sciences. The latter was associated with CODATA’s desire to promote more input from Scientific Unions (see comments below on the new Task Group “Coordinating Data Standards amongst Scientific Unions” and the idea of a concept paper to direct such activities).



*Figure 1. Speaker panel for the Disciplinary Worldwide Data Infrastructure session; at left, Christophe Arviset presenting the International Virtual Observatory Alliance (IVOA). Courtesy CODATA International*

Other noteworthy sessions attended by BM are summarised below.

“Semantic Enrichment, Metadata and Data Packaging” had a number of relevant talks on metadata and ontology development. Simon Cox enlarged upon his enlightening Keynote Lecture on controlled vocabularies and vocabulary services by describing SKOS (Simple Knowledge Organization System), a W3C recommendation for representation of thesauri, taxonomies and other forms of controlled vocabulary. John Kunze’s presentation on “a vocabulary for persistence” described a voting system to allow community consensus to emerge on conflicting definitions of terms. Natasha Simons discussed the issues around open licensing of metadata (for which the CC0 licence was generally preferred). Daniel Foster’s “Towards a Frictionless Data Future” emphasised that many researchers need a lightweight standard for characterizing data (for these communities the CIF/STAR approach could prove popular).

“Sustainable Business Models for Data Repositories” included a stimulating economics-based analysis by Cameron Neylon of possible behavioural models for making best use of open data as a common good. Bob Downs described how scientific data centres operated by NASA and Columbia University needed to embrace a “portfolio” approach taking account of existing business models for important stakeholders. Martie VanDeventer emphasised that low and middle-income countries (LMICs) might not have the capacity to build all aspects of a data infrastructure, and so needed to buy-in repository services – and the external suppliers of such services must be sufficiently trustworthy. As payback, LMICs had to accept their responsibility to contribute data that is of real value, and accelerate their learning path.



# International Data Forum

**Wednesday 14 September 2016**

This was a common day jointly organised by CODATA, WDS and the RDA. It was advertised as a day-long International Data Forum, with the theme “Data for the Public Good: Responsibilities, Opportunities and Dangers in a Data Aware Society”, debating potential data-contingent transformations in civil society, government, health, education, and science.

Talks and panel discussions took place within the following session themes:-

- Maintaining scientific rigour and enhancing discovery
- Open data as a public good and the responsibilities of scientists
- Data stories in citizen science; earth sciences; Médecins Sans Frontières
- Responsible openness
- Data for the public good: a next generation vision

The presentation by Phil Bourne, “Making biomedical research more like Airbnb”, was of particular interest, describing a proposed biomedical commons platform to be funded by the NIH as an evolution of its “Big Data to Knowledge” (BD2K) project. Digital objects accessible through this platform needed to comply with the FAIR principles (findable, accessible, interoperable and reusable) championed by the Force11 organisation (and rooted in the “Beyond the PDF” activities that Phil was heavily involved with).

The closing panel discussion with young career scientists was also particularly memorable.



*Figure 2. Panel discussion “Data for the Public Good – A Next-generation Vision”. Francine Berman (Moderator), D. Sarah Stamps, Virginia Tech, Henri Tonnang, Global Young Academy, Xiaogang (Marshall) Ma, University of Idaho, Candice Lanius, Rensselaer Polytechnic Institute, Alliance of Digital Humanities Organizations. Courtesy Simon Hodson, @simonhodson99*

## RDA Plenary 8

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**Thursday 15 – Saturday 17 September 2016**

A very useful event was the *Newcomers to RDA* information event comprising a 1½ hour basic description of the RDA's history, activities and governance. There are over 4000 individual members (IMs), mainly from the USA and Europe; approximately 7% are from Asia/Oceania. On joining the RDA an IM pledges to hold to the RDA's seven guiding principles, which includes a 'non-profit' pledge to 'not promote, endorse, or sell commercial products, technologies or services'. There is a quite sizeable corporate set of members comprising funding agencies, data archives, charities and commercial companies (such as Elsevier and Wiley).

JRH joined the RDA as an IM during the meeting and within that frame joined the following Interest Groups (IGs), whose sessions he also attended during the RDA: Photon and Neutron Science Data; Chemistry Data; Materials Data; Research Data Archives; and finally Reproducibility of Science.

The Reproducibility IG had the initial focus of discussing the media issue of recent times, of work not being reproducible (perceived uniformly as a bad thing), splitting the discussion into three sections: empirical reproducibility; statistical reproducibility; and computational reproducibility. JRH led a discussion into the beneficial aspects, and indeed underpinning philosophical basis of science, of the Popperian falsification of science as a methodology for progress. Indeed the falsification of an important body of previous results can thereby represent the Kuhnian paradigm shift indicative of major progress in science. JRH commended that a WG be proposed to the RDA Assembly to lay out a 'white paper' for the proper philosophical understanding of science progress, as briefly described above, as well as to describe practical situations where any unreliability of research data would both undermine the philosophical basis of science progress and undermine public trust.

The RDA IGs and Working Groups (WGs) that JRH attended had an *ad hoc* membership rather than a systematic attempt to populate a topic or challenge with a full range of experts. This contrasted with the CODATA Task Groups which are more systematic in their membership. The strong presence of the International Scientific Unions at CODATA provides the bedrock for that systematicity. Nevertheless it was interesting to see a very clearly organised template from the RDA Council for IGs to spawn WGs, approved by the RDA assembly, to tackle and hopefully dissolve any 'road blocks' to effective dissemination and sharing of data in any domain of research data. In turn there was an impressive 'grass roots' energy visible from the attendees within the IG and WG sessions JRH attended.

BM attended RDA sessions on Photon and Neutron Science Data and Chemistry Data with JRH, but also sessions on Data Publishing (Data Usability Certification Services), Metadata (including the development of a Metadata Standards Catalogue) and Legal Interoperability. The last-named has produced a document on "Principles and Implementation Guidelines for the Legal Interoperability of Research Data" which has relevance to the IUCr, and which is being examined with interest by JRH and BM. The group discussed how best to review this Draft, and were considering a call for endorsement by stakeholders (noting that they were encouraged to do so following the IUCr's considered response to a request for endorsement of the Open Data Accord). The metadata groups are relevant to the desire of the IUCr's DDDWG to construct a catalogue of metadata standards in crystallography and related fields, and may also have a role to play in the new CODATA Inter-Union Task Group on disciplinary data standards.



## Posters, networking and literature

There were separate poster sessions for the CODATA portion (12-13 September) and the RDA portion (15-16 September) of the International Data Week. There were very memorable posters describing:

- Archiving and reuse of neutron research data at the Oak Ridge National Laboratory neutron facilities
- The plans for Open Science and research in Finland (Figure 3)
- The linking of research data to PhD theses in the Netherlands

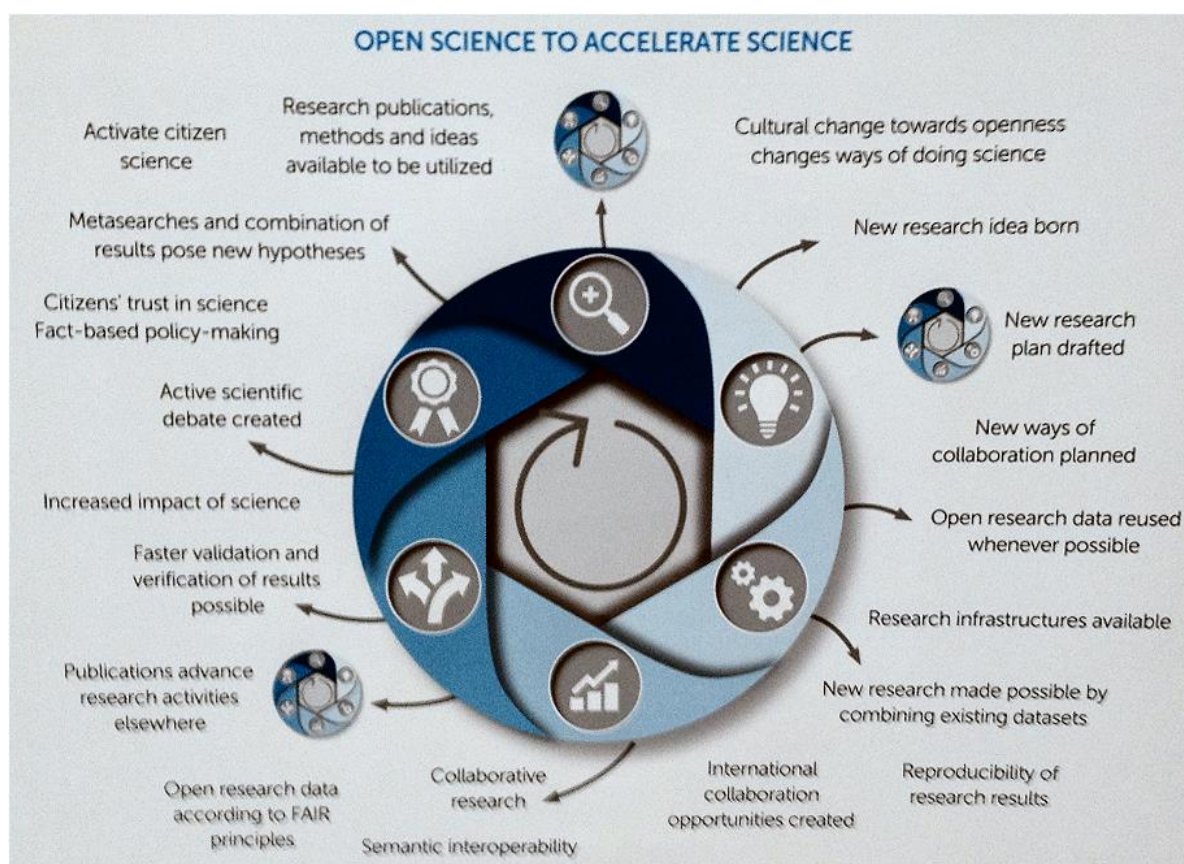


Figure 3. Plans for Open Science and research in Finland. Courtesy Finland Ministry of Education and Culture juha.haataja@minedu.fi Tel +358 295330089. The potential of this is for IUCrData to introduce a new category of data articles: "Raw diffraction data sets" i.e. to assist in the facilitation of Open Science. Similar plans exist within the EU's OpenAire project.

There was an overall notable presence of Elsevier with staff giving three talks (two within IDW and one at ICSTI) and a nice poster on the research data life cycle as well as their impressive booklet entitled "Research Elements: Publish Data, Software and Methods in Brief, Citable Articles".

The table of handouts for participants revealed the following interesting developments:

- A leaflet describing biosharing.org. "Biosharing enables researchers to make an informed decision as to which standard or database is appropriate". During the meeting, Saulius Gražulis, who had set up a Biosharing record for CIF, transferred maintenance of this to COMCIFS.
- An NIH request for information on metrics to assess the value and impact of biomedical digital repositories.
- The *China Scientific Data* journal, "a bilingual open access journal publishing papers in multidisciplinary fields in English and Chinese" and published by the Chinese Academy of Sciences: <http://www.csdata.org>

## General comments

A major driver in registering for International Data Week was to visit an RDA Plenary meeting for the first time, and in particular to assess that organization's relevance to the IUCr and to related activities in CODATA. During the CODATA General Assembly, a Venn diagram was presented showing RDA, CODATA and the World Data System WDS as three overlapping circles.

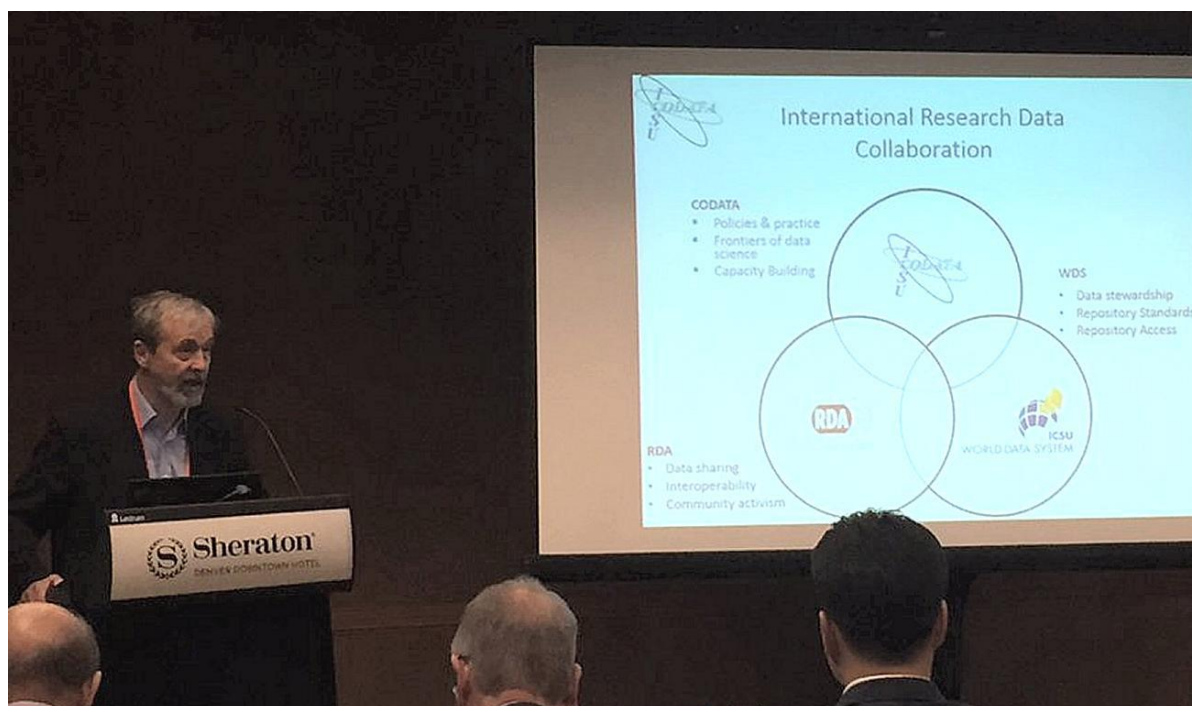


Figure 4. Geoffrey Boulton, CODATA President, explaining the complementarity of the main international interdisciplinary data organisations. Courtesy Simon Hodson, @simonhodson99

WDS was characterised as the organisation directly involved in stewardship: hosting, curating and distributing databases and services. At present the IUCr has no direct interest in this, but it is helpful to monitor any general developments in the field through the SciDataCon conference which WDS hosts jointly with CODATA. At the moment CCDC are negotiating membership of WDS to enhance their general perception as a trusted repository. (Such status is important with respect to journals that require data deposition in 'trusted repositories'.) It will be interesting to see if their membership encourages other crystallographic databases to join WDS.

CODATA was characterised as representing the international and interdisciplinary aspects of scientific data policies and practice. We are very familiar with CODATA and perceive during the course of this week a tighter focus on undertaking activities fitting into a better defined strategic framework than previously. CODATA is keen to work closely with ICSU and to preserve a constructive working relationship with RDA. The former was apparent during this week by the involvement of ICSU Executive Director Heide Hackmann in CODATA events relating to endorsement and promotion of the Science International "Open Data" Accord, and to efforts by CODATA to persuade Union members to work together on joint projects. The IUCr response to the Accord was highlighted as exemplary by the CODATA Executive Director during the CODATA General Assembly and as "incredibly constructive" during an RDA session on legal interoperability. Heide Hackmann said ICSU was delighted by the IUCr response, and asked permission to include it on the ICSU website. All copies of the

printed copy of the IUCr response were taken, and several people commented directly on its contents, all in favourable terms. The efforts towards more Union activity were spurred by a proposed Task Group to build an inter-Union catalogue of disciplinary standards and practices. BM attended a coordinating meeting to discuss how this could develop, but the outcome was inconclusive. ICSU wishes in the first instance to gather a list of contacts within the Scientific Unions who are the top-level data liaisons within those communities. The CODATA President suggested that a concept paper was needed to define the benefits that Unions should see in working co-operatively on some large-scale interdisciplinary project.

In the overlapping roles Venn diagram, RDA was characterised as providing tools and practical solutions in the broad areas of data sharing and interoperability. It was also suggested to us that CODATA was driven by National Members and by Unions representing the needs of their disciplines, while RDA was driven by individuals. There is some truth in this, though RDA has an Organisation category of membership, and an Organisational Assembly which may have some influence in setting the agenda to fit the needs of a variety of Organisations (including commercial publishers).

There is certainly some complementarity between the approaches of the two bodies: RDA works mostly through Working Groups, which have 18-month lifetimes and are required to produce a Recommendation closing off their issue of concern. There are also Interest Groups of indefinite duration, which act as discussion forums for common interests. These can be discipline-specific (we visited sessions of the Chemistry and the Photon and Neutron Sources Interest Groups). IGs can spark new projects tackled by specific Working Groups, or they can produce more substantive results, such as the recommendations of the Legal Interoperability Interest Group.

Our recommendation is that, in the short term, IGs and WGs should be periodically surveyed for relevance to the IUCr, and engagement in relevant groups could involve publishing staff on a 'best-fit' basis. Attendance at an RDA Plenary could be a useful introduction for a new staff member, but need not be pursued on a regular basis (Plenaries currently happen every 6 months on a Europe-Asia-America cycle). Formal representation in the RDA would be through the Organisation Membership (currently \$1000 per year for IUCr). We recommend that the potential benefits of such engagement be assessed by a subsequent visit to an RDA Plenary that observes the Organisational Assembly. Any endorsement of the IUCr becoming an RDA Organisational member by future IUCr delegates to an RDA Plenary or two would be on top of our own support to do so based on this International Data Week.

## Links

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International Data Week website: <http://www.internationaldataweek.org/>

SciDataCon website: <http://www.scidatacon.org/>

RDA8 website: <https://rd-alliance.org/plenaries/rda-eighth-plenary-meeting-denver-co>

CODATA website: <http://www.codata.org/>

Research Data Alliance website: <https://rd-alliance.org/>

ICSTI website: <http://www.icsti.org/>