

Summary Report of the 12th Meeting of the WDS Scientific Committee (WDS-SC)

IGPP, Scripps Institution of Oceanography, University of California, San Diego
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Goals of the Meeting

Principal subjects for discussion during the 12th Meeting of the WDS-SC were:

1. Continued revision of the WDS Data Policy to account for the conditions that can be placed on data due to, for example, issues of protecting people or species.
2. Examination of WDS' connection with its partner organizations and with WDS Network Members.
3. Exploration of the potential to set up a WDS Working Group concerned with the concept of evidence-based policy making.

WDS 'Data Policy'

- ICSU-WDS is expanding into the Social and Health Sciences in which there are often exceptions to free, timely, and open access, leading the WDS-SC to consider revising the WDS Data Policy at its 11th Meeting. Moreover, ICSU-WDS took its Data Policy from the Global Earth Observation System of Systems (GEOSS) Data Principles following historical legacies. Whilst ICSU-WDS should draw inspiration from others, as an independent, multidisciplinary, international data body, its Policy must capture what it represents in terms of its mission, its vision, and what it is trying to achieve. Having a 'Policy' is also nontrivial because each WDS Member has to subscribe to its own policies, and Data Sharing Principles similar to those of GEOSS and the Committee on Data for Science and technology (CODATA) may be sufficient for ICSU-WDS.
- The WDS-SC discussed an initial attempt at drafting WDS Data Sharing Principles. These Principles try to be inclusive and appeal to a multidisciplinary audience, and look to capture not only what ICSU-WDS already has in place—to preserve its legacy—but also its value in terms of commitments to data stewardship and trust. In addition, the fourth Principle allows for conditions that might be placed on access, the idea being that one may have highly sensitive data that cannot be openly shared, but they should be shared in some way, even if on a limited/restricted basis and permission has to be requested.
- ICSU-WDS is committed to universal and equitable access, and there has also been a lot of discussion in the community emphasising building capacity in developing countries. The Principles encapsulate this by encouraging that any costs are waived for Low Income Countries. This is unique, and ICSU-WDS can show not only leadership and guidance to others developing their policies but also that it is really pushing for equity.
- The Principles highlight that ICSU-WDS is *the* trusted data organization, committed to long-term data stewardship, by stating that anyone accessing data has a responsibility as a steward of those data to use them respectfully and appropriately, and to maintain and preserve them such that their value is potentially enhanced. Although not included in many Data Policies, maintaining respect is of interest to all disciplines: data are collected at the source, which has to be respected, but also attribution should be given to those that collect data, make products, and provide services.

- The consensus of the WDS-SC is to take forward the current draft after some modification of the language, but to expand the Principles to four levels: a mission statement, the Principles themselves, an expanded explanation of the Principles' meaning with exemplars and definitions, and examples of implementation. Once completed, the WDS-SC will be in a position to ensure that there are no contradictions and nothing missing when the Principles are measured against the WDS certification criteria.

Links with Partners

GEO/GEOSS

- ICSU-WDS is participating in the Group on Earth Observations (GEO), especially in GEOSS, and is involved (with CODATA) mainly in two Task Forces (TFs) concerned with generating data management and data sharing principles. In the next phase of this work, the TF for the former will be looking at recommendations to implement the high-level data-management principles approved by the GEO Plenary, and ICSU-WDS will provide direct input. For example, in the context of data preservation and quality assessment, the WDS certification framework will be offered as a possible implementation.
- GEO's leadership is receptive to ICSU-WDS emphasizing of quality assessment and certification. As a proactive step, ICSU-WDS will produce a document for the GEO community clearly communicating what it wants to achieve. Specifically, GEO harvests metadata from multiple sources, and ICSU-WDS is keen for a method to be established for consistently including identification of each data service's certification—namely, encouraging GEO to follow the WDS model to an extent and, at a minimum, enable users to filter available data as regards certifications, standards, and so on. Furthermore, metadata granularity is a large issue in GEOSS, and discussions are needed on what is believed to be good practice in this respect.
- GEO's new Implementation Plan is a chance for ICSU-WDS to renew its commitment to GEO as a worldwide network of premium data services that is complementary to the infrastructure GEO has as its primary focus. GEO's post-2015 framework advises that it involve more in situ data, and thus is an opportunity for it to connect Earth observation data centres and other disciplinary data centres. ICSU-WDS can support GEO in this endeavour since it has many types of (inter)disciplinary data, and will also have the Knowledge Network (KN) as an interface to connect data services and other communities.

Future Earth

- ICSU-WDS is advocating to the Future Earth Secretariat and Science and Engagement Committees that data issues be kept at the top of the agenda. The new Executive Director of Future Earth is supportive of the data initiatives that ICSU-WDS and CODATA have been promoting, and he will revive its Data and Observations TF to provide recommendations to Future Earth on who should take the leading role when it comes to data. Representatives of ICSU-WDS and CODATA will be part of the TF to offer advice: the work the two organizations have already been doing in this context needs to be embedded in the TF.
- A large number of Future Earth projects will potentially involve highly sensitive data, and with many of the scientists in Future Earth possibly unaware of ICSU-WDS' history, it will affirm that it has addressed issues of dealing with sensitive data on people and biodiversity, and offer its assistance in this regard.

Belmont Forum

- ICSU-WDS is a member of the Belmont Forum's eInfrastructure and Data Management coordinated research activity that is attempting to produce a community strategy and implementation plan for funders to support eInfrastructure for environmental research. With a stage now reached where funders often ask researchers to provide a Data Management Plan (DMP) to obtain a grant, but rarely check or evaluated them, a key recommendation in the report from the e-Infrastructure exercise is that funding agencies work collectively to definite streamlined requirements for DMPs and to establish mechanisms

for monitoring them. ICSU-WDS may be able to help in this by describing the reality at the receiving end of DMPs: after they have been finalized, possibly validated, and then need to be dealt with in some way.

- For funders/research councils not requiring a DMP, ICSU-WDS would like to influence them to do so by sending out a document on this topic. It is considered that people would welcome this, and that the most productive way forward is to prepare a document for circulation by bringing representatives from a wider group of funding bodies together for a small workshop looking at different business models. Initial preparations for such a workshop have been put in place and will be taken forward.

Working Groups (WGs) & Projects

Knowledge Network

- ICSU-WDS is hoping to enhance re3data's existing Registry of Research Data Repositories by adding an extension to identify trusted digital repositories and services. More precisely, ICSU-WDS would like a method to easily feed information into the registry, and wants to ensure that not only WDS Members are listed as certified but also this is given visibility and can be filtered.
- A function of re3data's registry is for researchers to be able to search for appropriate data facilities when they are asked to provide DMPs for archiving their data. Thus, ICSU-WDS would also like to extend the qualifiers in the registry to include information useful for people to select a place to lodge their data; the registry must make obvious the types of data/services provided by each entry.
- The WDS-SC is now working with re3data to go through the details of the requirements for both the WDS Membership Management Tool and the quality schema. Although ICSU-WDS would prefer to establish its schema as the leading one, it is not the only stakeholder, and it can at least impact on something that can be used by many stakeholders.
- A new development is that Online Computer Library Center, Inc. (OCLC) has offering ICSU-WDS some assistance with the KN. OCLC has implemented the equivalent of a knowledge network that is based on text mining of the contents of digital libraries, and is willing to share its software and experience, as well as a platform for initial implementation. Hence, OCLC might be able to reduce the development burden because it already has working user interfaces and triple stores, and so ICSU-WDS will not be required to build the entire implementation. This will be discussed further with OCLC in the coming months.

Evidence-based Policy Making

- The WDS-SC proposed to establish a WG with the remit to develop an ontological framework to link policies, actions, and indicators, and which might focus primarily on smart/sustainable cities and urban areas. Social scientists are increasingly defining indicators that provide high-level metrics for monitoring trends (e.g., climate change) in a given region over a time period. However, a standardized method for dynamically mapping all of the indicators is needed, and if this can be provided, then it can help cities to design monitoring programmes with whichever indicators they wish to use.
- Underlying this, what datasets exist and what new ones have to be collected has to be specified, as well as how data for the indicators will be collected and monitored. Identifying the datasets/data services currently available within ICSU-WDS—and where else one needs to go—to support the research would thus be an objective. There is almost certainly a gap, and the WDS-SC can use the results towards informing its recruitment policy.
- This is an application area that ICSU-WDS has not addressed, and is particularly pertinent to the UN, which is looking to the scientific community to find ways to monitor the implementation of the Sustainable Development Goals (SDGs). ICSU-WDS is already collaborating with the UN Statistical Agency on the process of monitoring the SDGs by providing relevant datasets. But, if the WG builds something more sophisticated, it will be extremely useful.

Data Rescue

- The US National Biological Information Infrastructure (NBII)—and the World Data Centre for Biodiversity (WDC - Biodiversity) that it hosted—was shut down in 2012 due to budget cuts. When that happened, the US Geological Survey determined the usefulness of NBII's data holdings (including those listed under the WDC) before transferring many of them to other custodians. The WDS-SC has wondered for some time whether it is worth 'rescuing' the remaining data holdings that may not have a home. However, it is very difficult to systematically check what remains, and since the understanding is that all useful data were attended to, such a rescue might not be a worthwhile undertaking.
- An article in the agreement letter signed between ICSU and former WDCs/current WDS Members is that a mechanism be in place to transition the latter's data holdings within the WDC system/ICSU-WDS or outside if their host institution changes its interests and the service ceases operation. Especially, in the case of WDCs, the mandate was that their data holdings be kept openly accessible. It is not clear what was being advertised as the holdings of WDC - Biodiversity, however, and no formal interactions about transitioning the holdings are believed to have taken place with the WDC system at the time.
- An interesting/beneficial outcome of this story would be an article on WDC - Biodiversity's decommissioning—what happens when a fairly major data facility has to shut down for some reason—and to derive from it a recommended procedure for the future. A key difference now is that ICSU-WDS monitors what is happening to its Members, and the International Programme Office (IPO) is available to contribute to efforts when a WDS Member is decommissioned or is taking on the holdings of another, and it can ensure that datasets remain openly accessible.

Membership

- The IPO had received the majority of Biennial Reports from WDS Regular and Network Members by the time of the Meeting. These Reports must now be reviewed by the WDS-SC; especially, they will be used as support documents for the Periodic Review process. To this end, the Reports will be divided up randomly among SC members (with only one reviewer for each Report), and sent with the consolidated feedback from each WDS Member's initial accreditation. If any issues arise, the reviewers of the original WDS application will be contacted and a second review conducted, if needed. The Reports of WDS Members closest to Periodic Review will be given highest priority.
- The International Oceanographic Data and Information Exchange (IODE) has created a Quality Management Framework (QMF) based on the WDS Catalogue of Criteria to review its National Oceanographic Data Centres (NODCs), and has set up a Steering Group (SG) to oversee the process. IODE will thus be in a position to state its number of accredited members in its WDS Biennial Report. The two organizations are working together to move forward with their aligned accreditation processes, but an outstanding issue is the harmonization of NODC's within ICSU-WDS that are accredited by IODE, and vice versa. NODC's that are already certified under ICSU-WDS will continue to be treated separately as Regular Members; but, they will be encouraged to go through the IODE QMF. For other NODCs, ICSU-WDS will certify only those accredited under the IODE QMF (the results sent to the WDS-SC to make a decision) that are committed to open sharing of data and services, and that want to be WDS Regular Members.
- ICSU-WDS would like to discover how Network Member nodes are performing and whether each Member has its own regulations for reviewing nodes. Since each Network Member is very different, close communication is needed with all of them to find a reasonable, pragmatic approach to get a sense of the procedures they have in place for nodes and whether WDS principles are being filtered throughout the organizations. Part of the solution will be to create a Biennial Report template for Network Members that asks for an update on the network-specific criterion in the application form and on the article agreed to by Members about promulgating the WDS message. This will not be too formal since Network

Members are under no obligation for their nodes to be certified by ICSU-WDS or otherwise, and an opportunity for feedback will be given such that the experience is beneficial for all.

- The WDS-SC was impressed by the overwhelming response received from WDS Members to contribute to the WDS session and side event at *Our Common Future Under Climate Change*. Member Organizations showed their willingness to engage in WDS activities where they can both highlight what they are doing and have a sense of membership. With this in mind, the WDS-SC will decide on specific actions that ICSU-WDS needs its Members to be involved in such that the IPO can ask for volunteers.

WDS Administrative Matters

- An internal version of the current WDS Implementation Plan was re-examined during the Meeting, and progress made against the Actions under each Strategic Target was reviewed. Ideas for new Deliverables and Tasks arose during this review, and all revisions will be consolidated and the Implementation Plan relabelled to cover the period 2015–2016. The WDS-SC will continue to work to add and refine the Actions for the Strategic Targets, ensuring that any parts not addressed in the Meeting are dealt with.
- The IPO was over-budget by around 20% in Financial Year 2014. This was covered by a special contribution from the National Institute of Information and Communications Technology (NICT)/ Integrated Science Data System Research Laboratory. The WDS-SC expressed its gratitude to NICT for hosting the IPO, and for covering its excess finances.
- ICSU's agreement with NICT to host and fund the IPO ends on 31 March 2016. Negotiations were successfully concluded between ICSU and NICT immediately prior to the Meeting for renewing the hosting of the IPO for a further 5-year period. NICT not only indicated its willingness to continue hosting the IPO but has also agreed in principle to raise its operation budget. The WDS-SC stated that this is extremely generous of NICT and very much appreciated, especially when it is facing budget cuts.
- The WDS-SC questioned whether the IPO should have a bigger role in ICSU-WDS. If so, then funding sources must be found to recruit additional IPO staff, since it does not have the capacity for extra project management or to write grant proposals. If resources can be found for someone to take on these responsibilities, then it may be able to gain a return on any investment. A solution is sought using contributions equivalent to secondments. For example, ICSU-WDS might consider applying for funding from nonprofit organizations for an intern.
- Global research infrastructure such as the KN cannot be maintained using voluntary contributions, and additional funding must be found for this also. The WDS-SC discussed compartmentalizing WDS activities into administrative parts and operational parts such that the latter can be separated from the IPO and partners found to take them over. This would possibly be prestige driven, with attractive strategic ideas/tasks framed towards others who might be interested in—and fund—them.
- The ICSU Committee on Scientific Planning and Review (CSPR) upheld the WDS-SC's recommendation that the current Chair's term be extended such that he can hand over to the new Chair at the 13th Meeting. The CSPR will solve the longer-term problem of leadership continuity by appointing the next Chair for two or four years so that all future Chairs change the year before/after the WDS-SC is renewed.
- The WDS-SC gave approval for the IPO to proceed with its plan for WDS Webinars in 2015, but asked that a speaker be approached about the possibility of targeting younger scientists by focussing their talk on the practicalities of archiving. The WDS-SC urged the IPO to advertise WDS Webinars as widely as possible, and to establish a mailing list whereby Webinar attendees are sent notifications on future ones.
- In all WDS documentation, lowercase 'd' and 's' will be used when referring to general data services and will be capitalized when referring to Data Services under ICSU Scientific Unions. A footnote will be added the first time the former is used.