

THE ICSU WORLD DATA SYSTEM: TRUSTED DATA SERVICES FOR GLOBAL SCIENCE

CONTACT DETAILS:

PROJECT NAME: ICSU World Data System

CONTACT: MUSTAPHA MOKRANE

ORGANISATION: ICSU World Data System

EMAIL: MUSTAPHA.MOKRANE[at]ICSU-WDS.ORG

Objectives

The International Council for Science's World Data System (ICSU-WDS) is striving to build a worldwide community of excellence for scientific data by certifying Member Organizations—holders and providers of data or data products—from wide-ranging fields using internationally recognized standards. These 'WDS Members' are the building blocks of searchable common directories and catalogues with which to form a data system that is both interoperable and distributed.

Operating under the auspices of the International Council for Science (ICSU), the World Data System (WDS) is an interdisciplinary global federated system of long-term data archives and data services [1]. Roles in the system encompass the entire data management chain, from data production to publication, and WDS members can hold a number of these roles. Emphasis is also placed on linking with data production facilities, in particular, science projects and programmes.

The International Geophysical Year in 1957–1958 saw the creation by ICSU of the World Data Centres (WDCs) and Federation of Astronomical and Geophysical data analysis Services (FAGS). Charged with managing the data gathered by this global project and making those available to the scientific community, both the WDCs and FAGS remained largely unchanged for 50 years.

ICSU-WDS was thus borne from the legacy of the WDCs and FAGS with the aim of transitioning from stand-alone components to a common globally coordinated and distributed data system. It ensures universal and equitable access to, and long-term stewardship of, quality-assured scientific data and data services, products, and information covering a broad range of natural sciences and expanding to social sciences. In doing so, WDS supports ICSU's mission of 'strengthening international science for the benefit of society'

On-going activities:

To contribute to international data-sharing efforts, ICSU-WDS has adopted the principles of the Global Earth Observation System of Systems . Data, metadata, and products shared within WDS will be

- Exchanged fully and openly, recognizing relevant international instruments and national policies and legislation.
- Made available with minimum time delay and at minimum cost.
- Free of charge or at reproduction cost for research and education.

ICSU-WDS is governed by a Scientific Committee (WDS-SC) composed of prominent scientists actively involved in Data/Computer Sciences, and dealing with large dataset issues and long-term data stewardship. The WDS-SC includes directors of WDS Member Organizations and covers a broad range of disciplines and geographic areas.

The WDS-SC is supported by an International Programme Office (WDS-IPO), which under its supervision and guidance is responsible for the daily implementation of WDS-SC decisions, WDS activities, and WDS communication functions.

WDS Members from wide-ranging fields are the fundamental components of a worldwide community of excellence for scientific data.

As of 14 August 2013, ICSU-WDS has 75 Member Organizations grouped into two types:

- 53 Regular and 7 Network Members, who hold, serve, or produce data; and include virtual data centres.
- 2 Partner and 13 Associate Members, who provide various backing to ICSU- WDS or are simply interested in the endeavour.

Results:

WDS Members primarily participate in ICSU-WDS by contributing their data holdings, services, and products; which are the cornerstone of the federated data system. They also provide essential contributions to WDS Working Groups in which they have an interest, and are fostered to actively participate in common projects and activities that advance WDS aims.

Organizations voluntarily submit an Expression of Interest to join ICSU-WDS under one of the four WDS membership categories: Regular, Network, Partner, or Associate. Such candidate organizations are then formally accepted as WDS Members by the WDS-SC, who safeguard the trustworthiness of ICSU-WDS by certifying Regular and Network Members according to criteria on scientific relevance, governance, data management, technical infrastructure, and security (Partners and Associates are co-opted).

Hence, when Regular and Network Members join ICSU-WDS, they become part of a community acknowledged to have met an accreditation based on internationally recognized standards.

In fact, Network Members—organizations representing groups of data centres/services—play an additional role in the WDS accreditation process, in that they are expected to promote long-term data stewardship amongst their network nodes. This can be achieved by either:

- Encouraging data centres/services under their umbrella to become accredited WDS Regular Members.
- Establishing a certification procedure aligned with that used for WDS Regular Members (e.g., the International Oceanographic Data and Information Exchange's Quality Management Framework).

Even though the comprehensive accreditation procedure prescribed by ICSU-WDS is unique in the data management landscape, it is not considered to be definitive. ICSU-WDS is currently working with the Data Seal of Approval [5] under the context of a Research Data Alliance Working Group [6] in an attempt to implement a common certification service, and thus forge a global network of trusted data providers.

URL: <http://icsu-wds.org/>