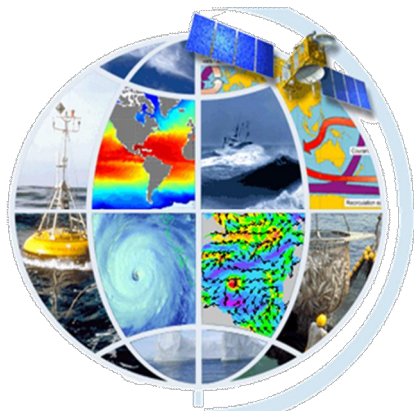


An Overview of the WMO Information System (WIS)

Abstract: This leaflet highlights the variety of data, products, and services found in the various systems that comprise WIS, and how WIS improves accessibility of Weather, Climate, and Water information worldwide.



WMO and Data Management

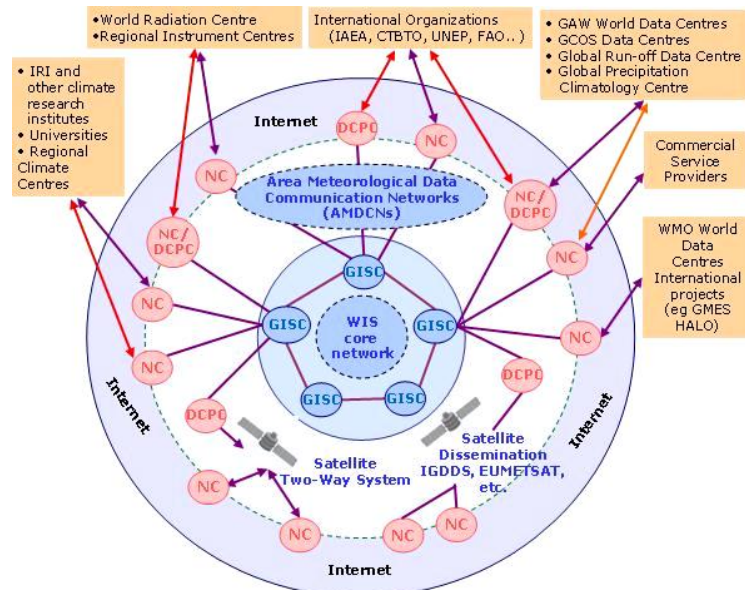
The mission of the World Meteorological Organization (WMO) includes facilitating scientific understanding, and the comprehensive exchange of information world wide. Data is collected and exchanged around the clock by the 189 WMO Members—data from sixteen satellites, one hundred moored buoys, six hundred drifting buoys, three thousand aircraft, seven thousand ships, and ten thousand land-based stations.

From the beginning of WMO, timely data exchange has been crucial. Operators have been routing data messages over international lines using systems dedicated to WMO. This is the WMO Global Telecommunication System (GTS). Now WMO is taking a step beyond managing messages. In committing to WIS, WMO moves to an overarching approach based on managing data and information.

WIS Implementation: In 2003, WMO Members decided that WIS will use international industry standards for protocols, hardware and software; build on the existing WMO GTS, with special attention to a smooth and coordinated transition; provide time-critical data exchange, as well as data access and retrieval services; and support all WMO and related international programmes.

WIS is evolving in two parallel parts. One is the continued evolution of technologies in the GTS, further improving the delivery of data, products, and services such as warnings. The other extends WMO services through flexible data discovery, access and retrieval, as well as flexible timely delivery. WIS is a complex system of systems, with very diverse components and a wide array of data handling mechanisms. The most visible, new facility provided by WIS is the comprehensive Discovery, Access and Retrieval (DAR) catalogue for all of the data, products, and services encompassed by WIS.

WIS Centres: WMO Member countries will implement and operate WIS using existing centres with some additional or modified capabilities. In operational terms, WIS encompasses three types of centres: Global Information System Centres (GISCs), Data Collection or Production Centres (DCPCs) and National Centre (NCs). Existing National Meteorological and Hydrological Centres become WIS NCs. Every WIS NC must supply metadata for their data and products. DCPCs collect, disseminate, add value to, and archive regional or programme-specific data and products. DCPCs maintain catalogues of their holdings and services, and appropriate parts of these catalogues update a comprehensive catalogue of WIS holdings, hosted by the GISCs. GISCs also hold and distribute copies of at least 24 hours of WMO data and products intended for global distribution.

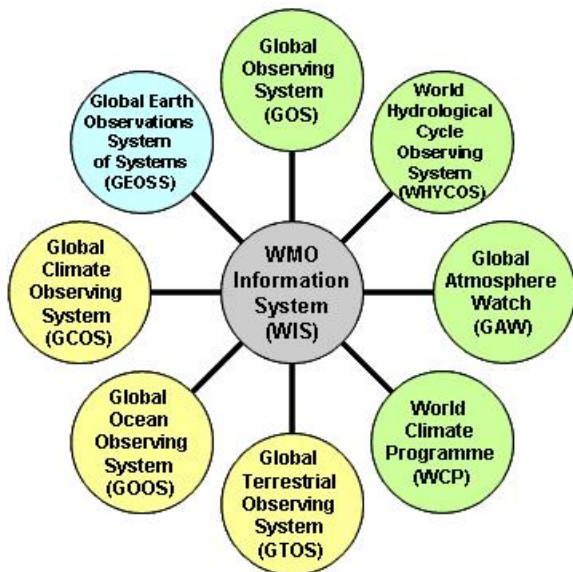


Existing centres in WMO Member States become WIS Centers

GTS: WMO's GTS is a key part of WIS. The WIS Core Network among GISCs uses the GTS Improved Main Telecommunications Network. Each GISC connects to other centres using its Area Meteorological Data Communications Network (AMDCN). These AMDCNs use GTS and the Internet extensively, and each WIS centre can support interoperability with external systems as well as data access via the Internet.

WIS Component Systems

GOS: The WMO Global Observing System (GOS) provides observations of the state of the atmosphere and ocean surface. These observations are used for the preparation of weather analyses, forecasts, advisories and warnings, and for climate monitoring and environmental activities carried out under programmes of



WMO and other relevant international organizations. GOS is operated by National Meteorological Services, national or international satellite agencies, and several consortia.

WHYCOS: The WMO World Hydrological Cycle Observing System (WHYCOS) strengthens cooperation among National Hydrological Services, coordinating measurement and collection of surface and ground water data. External interfaces include National Hydrological Services (WIS NC's), and Global Data Centres (WIS DCPC's) such as the Global Runoff Data Center.

GAW: The WMO Global Atmosphere Watch (GAW) strengthens the ability to predict climate, weather and air quality, by maintaining and applying global, long-term observations of the chemical and physical characteristics of the atmosphere. External interfaces are at the GAW Web site, the GAW World Data Centres (WIS DCPC's).

WCP: The WMO World Climate Program (WCP) coordinates activities in climate data collection, monitoring, research, prediction, applications and training. External interfaces are at National Meteorological Services, Regional Climate centers, World Climate Data Centers and Global Climate Forecast Producing Centers.

GCOS: The Global Climate Observing System (GCOS) is co-sponsored by WMO, the UNESCO Intergovernmental Oceanographic Commission (IOC), the United Nations Environment Programme (UNEP), and the International Council for Science (ICSU), GCOS focuses on comprehensive observations required for monitoring climate, detecting change, assessing impacts, and improving models of the climate system.

GOOS: The Global Ocean Observing System (GOOS) focuses on sustained observations of the oceans, generation of oceanographic products and services, and interaction between research, operational, and user communities. GCOS has many external interfaces: the Global Observing System Information Centre, GCOS Monitoring and Analysis Centres, and the many specific Atmosphere, Ocean, and Terrestrial Networks for observations, related data centres and archives that are designated as relevant to climate.

GTOS: The Global Terrestrial Observing System (GTOS) is a programme for observations, modelling, and analysis of terrestrial ecosystems to support sustainable development. GTOS facilitates access for researchers and policy makers to detect and manage global and regional environmental change. External interfaces include the GTOS Data Centres Directory, the GTOS Resources Directory, and the Terrestrial Ecosystems Monitoring Sites (TEMS) database.

GEOSS: The WIS Architecture is very similar to the Global Earth Observations System of Systems (GEOSS) Architecture as agreed in the GEOSS 10 Year Plan and Reference Document. WIS interfaces with GEOSS at the GEOSS Clearinghouse. Because GEOSS and WIS adopted the same ISO search standard, WIS GISCs can search GEOSS Clearinghouse and WIS catalogs are searchable by GEOSS Clearinghouse. It is important to note that data and product users can access WIS GISC's and DCPC's either directly or by a referral from GEOSS. The same is true of all WIS Centres: broader catalogs and access portals supplement but do not replace existing catalogs or portals.

WIS Benefits

- WIS enhances the collection of critical data needed to monitor and predict aspects of the environment, including hazards;
- WIS catalogs the full range of data and products, simplifying search and assuring equitable access per WMO policies;
- WIS enhances the availability of time-critical data and products at centres in all nations, ensuring the effective provision of services to their populations and economies;
- WIS opens up WMO's private network (the GTS) to other types of environmental data so that all programmes have stronger infrastructure support; and
- WIS exploits opportunities as they become available with technology innovation.

WIS Reference Documents: http://www.wmo.int/pages/prog/www/WIS/ref_docs_en.html