Key contributions of the Netherlands to WMO's water programmes

TWO IMO PRESIDENTS

The Netherlands has played an important role in the formation of the International Meteorological Organization (IMO), currently the World Meteorological Organization (WMO), and had the honor to act as President of the International Meteorological Committee twice.

Christoph Buys Ballot (left image), Professor of Mathematics and later Physics at Utrecht University, was one of IMO's founding fathers. During the 1873 Vienna International Meteorological Congress, Buys Ballot was elected President of a Committee to draft the rules and statutes of an international meteorological organization, intended to facilitate the exchange of weather information across national borders. The draft statutes of the IMO were adopted during the Second International Meteorological Congress held in Rome in 1879.

Professor Buys Ballot hugely contributed to the field of meteorology. He formulated the Buys Ballot Law on the relation between wind direction and atmospheric pressure. In 1854, he founded the Royal Netherlands Meteorological Institute (KNMI), and chaired IMO from 1873 until 1879.

Between 1923 and 1935, another Dutch Professor, Ewoud van Everdingen (right image), Professor of Meteorology, Climatology and Oceanography at Utrecht University, and director general of KNMI (1907-1938) became president of the Organization. He led the organization for over a decade. The secretariat of IMO was located in De Bilt, the Netherlands, between 1928 and 1939. Later on, it moved to Geneva, Switzerland.

WMO STRUCTURE AND MAIN INITIATIVES

WMO consists of the World Meteorological Congress, the Executive Council, regional associations, technical commissions and the Secretariat. The World Meteorological Congress is WMO's highest decision-making body. It convenes every four years. The Executive Council implements decisions adopted by the Congress. Six Regional Associations coordinate meteorological, hydrological and related activities within their respective geographical Regions. Technical Commissions make recommendations to Congress and the Executive Council. Finally, the Secretariat supports as required the work of WMO.

Congress adopted in 2021 the 'Vision and Strategy for Hydrology and Associated Plan of Action, and the WMO Hydrological Research Strategy' as the overall programmatic framework for initiatives in the domain of water-focused research and operational hydrology. As examples of WMO coordinates the Associated Programme on Flood Management (APFM) and the Integrated Drought Management Programme (IDMP).

- The APFM promotes an integrated approach towards flood management, considering flood risk reduction in combination with benefiting from efficient use of floodplains.
- The IDMP supports governments and other stakeholders at all levels on implementing Integrated Drought Management by providing technical and management guidance to inform policy, and by sharing scientific knowledge and best practices.

Both APFM and IDMP contribute to the Early Warnings for All (EW4All) initiative, the global ambition, based on the UN Secretary General's challenge, to provide early warnings for all by the end of 2027.

The State of Global Water Resources Report, published annually by WMO, provides a comprehensive quantitative overview of global water resources, with a focus on hydrological variability and trends. It supports countries, decision makers and stakeholders in understanding the current state of water resources. IGRAC, Utrecht University and Deltares have contributed to the 2024 edition.
More information: link

PRINCIPAL REPRESENTATIVES

Maarten van Aalst is Director General and Chief Scientist of the Royal Netherlands Meteorological Institute and Permanent Representative of the Netherlands at the WMO, ECMWF (European Centre for Medium-Range Weather Forecasts) and EUMETSAT (European Organisation for the Exploitation of Meteorological Satellites). He is professor of Climate and Disaster Resilience at the University of Twente's Faculty of Geo-information Science and Earth Observation (ITC).

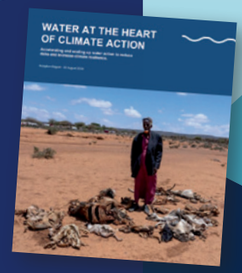
Maaike Ritzen has been appointed National Hydrological Advisor to WMO. She works at the Dutch Ministry of Infrastructure and Water Management as Head of the Water Quality and Water Availability Department. The purpose of this role is, together with the worldwide network of national hydrological advisors, to contribute to WMO's work in the area of operational hydrology.

KEY CONTRIBUTIONS TO WMO'S WATER-RELATED INITIATIVES

The Netherlands UNESCO WMO Water Committee selected flood and drought Early Warning Systems (EWS) as a thematic priority in the water-related collaboration with WMO. The committee will advocate for the importance of the topic in the global water community, continue to provide and learn from expertise in the context of WMO HelpDesks, and will highlight past and current best practices. Effective flood and drought EWS are a national priority, essential in the context of transboundary river basin management including the Rhine, and align to WMO priorities through the EW4All initiative.

Members of the Netherlands UNESCO WMO Water Committee actively contribute to WMO:

- Besides acting as Permanent Representative to WMO, **KNMI** contributes to WMO's SOFF (Systematic Observations Financing Facility), GBON (Global Basic Observing Network) and the Water at the Heart of Climate Action initiative.
- The **Ministry of Infrastructure and Water Management**, through the National Hydrological Advisor, oversees and aims to promote new initiatives regarding operational hydrology.
- **Deltares, IHE Delft, Wageningen UR** and the **Vrije Universiteit Amsterdam – IVM** are APFM Support Base Partners and provide publications and training materials.
- **Deltares, IHE Delft** and **Wageningen UR** are IDMP Partners and contribute with expertise on drought management to the IDMP HelpDesk.
- The secretariat of the International Commission for the Hydrology of the Rhine basin (CHR) is hosted in the Netherlands at **Rijkswaterstaat**, the executive organization of the Ministry of Infrastructure and Water Management. WMO is a CHR observer.
- **IHE Delft** and WMO renewed their Memorandum of Understanding (which started in 2004). It supports joint scholarships, the organization of capacity development activities, and technical support to WMO.
- The Ministry of Foreign Affairs supports the Water at the Heart of Climate Action initiative, in collaboration with WMO, contributing to the EW4All initiative.



A key contribution on the topic of flood and drought EWS, is the Water at the heart of Climate Action initiative. This 5-year programme aims to accelerate and scale up action to reduce water-related risks, and to increase climate resilience of communities. It contributes to the EW4All initiative. This project focuses on Ethiopia, South Sudan, Sudan, Rwanda, and Uganda – all part of the White Nile basin where people face high levels of food insecurity due to a combination of climate extremes, conflict, unstable livelihood systems, urbanization, and a greater reliance on imports.

The initiative will deliver climate and hydrological products and services along the whole hydro-meteorological value chain ('from satellites to sandbags') to support national and local disaster management actors. It is financially supported by the Ministry of Foreign Affairs and implemented by the Netherlands Red Cross/IFRC in collaboration with WMO and UN-DRR.
More information: link

IGRAC: WMO'S DATA CENTRE ON GROUNDWATER

IGRAC (the International Groundwater Resources Assessment Centre) is the WMO Global Hydrological Data Centre on groundwater. IGRAC's key contribution to the global water community is on groundwater research and knowledge sharing. UNESCO and the WMO took the initiative to establish the centre in 1999. Since its establishment in 2003 during the 3rd World Water Forum, IGRAC is hosted in Delft, supported by the Government of the Netherlands.

The organization publishes regular updates of the Map of Transboundary Aquifers of the World (last update September 2025) and maintains several global groundwater datasets as well as data and information sharing platforms. It contributes to the annual State of Global Water Resources Report. More information: link

MILESTONES HISTORY WMO

1873	First International Meteorological Congress in Vienna: committee instated to draft the rules and statutes of an international meteorological organization.
1879	Second International Meteorological Congress in Rome: adoption of statutes and establishment of the International Meteorological Organization.
1947	Netherlands is among the initial signatories of the WMO Convention, at the Conference of Directors of the International Meteorological Organization.
1950	WMO (the World Meteorological Organization) assumed IMO's role through adoption of UN General Assembly Resolution 531(VI).
1959	Establishment of technical commissions dedicated to the fields of hydrological meteorology and hydrology
2003	Congress launches a Hydrology and Water Resources Programme (HWRP).
2019	The HWRP is replaced with the WMO Vision and Strategy for Hydrology and its associated Plan of Action. Technical commissions disbanded and re-organized into the Services and Infrastructure commissions.
2021	Congress approves the WMO Vision and Strategy for Hydrology and its Associated Plan of Action containing more than 130 activities.

The Netherlands has been President of the International Meteorological Organization for **18 years**

The WMO Expert Database lists **74 experts** working at Netherlands-based institutes

NETHERLANDS
UNESCO WMO
WATER COMMITTEE

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WORLD METEOROLOGICAL ORGANIZATION

1950-2025 SCIENCE for ACTION