

**OCEANS AND THE LAW OF THE SEA:
REPORT OF THE SECRETARY-GENERAL (2022)**

CONTRIBUTION BY THE WORLD METEOROLOGICAL ORGANIZATION (WMO)

**TO THE IMPLEMENTATION OF GA RESOLUTION 76/72 ENTITLED
'OCEANS AND LAW OF THE SEA'**

Pursuant to United Nations General Assembly Resolution 76/72 of 9 December 2021, entitled "Oceans and the law of the sea", the information below represents the contribution of the World Meteorological Organization (WMO) to the report of the UN Secretary-General, between September 2021 and June 2022. Where relevant, reference is made to paragraphs of the Resolution at <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N21/386/39/pdf/N2138639.pdf?OpenElement>

INTRODUCTION

The World Meteorological Organization (WMO) is the authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the land and ocean, the weather and climate it produces and the resulting distribution of water resources. The ocean provides essential natural resources to humankind and regulate the global climate. WMO contributes to ocean-related issues through the observation and monitoring of the ocean and climate; research on the role of the oceans to climate and connected Earth systems; development and delivery of services for disaster risk reduction (DRR), including marine hazards; capacity development and training; and the provision of science-based information and tools for policymakers and the public at regional and global levels.

PART A: ACTIVITIES, INCLUDING ADOPTION OF MEASURES, DEVELOPMENT OF PROGRAMMES ETC WHICH HAVE BEEN UNDERTAKEN OR ARE ONGOING IN THE IMPLEMENTATION OF SPECIFIC PROVISION OF GENERAL ASSEMBLY RESOLUTION 76/72

II Capacity Building

WMO is bolstering the capability of meteorological services and others, including the academic community, to (i) provide better marine early warnings and forecasts, and to understand their customer needs for impact-based forecasting and (ii) to provide training opportunities for climate scientists and others. With significant gaps in every region for marine service delivery, WMO has designed a unique course to help meteorological services self-assess their marine capabilities. The course will be expanded globally over the next 4 years and in the past year, has already been rolled out in the Pacific Islands, and Caribbean SIDS. The WMO/IOC-UNESCO/ISC World Climate Research Programme (WCRP) Academy (<https://www.wcrp-climate.org/academy>) aims to equip current and future climate scientists with the knowledge, skills and attributes required to tackle the world's most pressing and challenging climate research questions.

With the support of CREWS funding, existing WMO public awareness videos to explain coastal inundation, and the value of ocean buoys in providing the data to support coastal early warning forecasting were regionalized to include local languages for both the Pacific and Caribbean Small Island Developing States (SIDS).

VIII Maritime safety and security and flag State implementation

WMO continues its collaboration with the International Maritime Organization (IMO) and the International Hydrographic Organization (IHO) for coordinated and standardized Metocean (Meteorology and (physics) Oceanography) information, forecasts, and warning services for safety of life and property at sea, improved marine environment and sustainable management of natural resources, with due focus on Polar Regions.

WMO continues to work with its partners relating to international shipping by the WMO-IMO WorldWide Metocean Information and Warning Service (WWMIWS) (<http://weather.gmdss.org/index.html>) as contribution to the IMO's Global Maritime Distress and Safety System (GMDSS). The WWMIWS ensures daily forecasts covering the 21 METAREAs across the globe. This fulfils the obligation of WMO Members who are contracting parties to the SOLAS Convention. The next joint meeting of METAREA and NAVAREA Coordinators will be in September 2022, hosted at the WMO Headquarters in Geneva.

WMO has been working on recommendations from the *First WMO-IMO International Symposium on Extreme Maritime Weather - Towards Safety of Life at Sea and a Sustainable Blue Economy*. The full report of the Symposium is available on the WMO library (https://library.wmo.int/index.php?lvl=notice_display&id=21738#.YrByr_PMKWB). The next Symposium will be hosted by the Republic of Indonesia.

IX Marine environment and marine resources

The Argo program is a masterpiece of the global ocean observing infrastructure with 4000 profiling floats delivering key data for climate analysis and short to long range weather forecasts. It appears to be very difficult to upgrade the array with biogeochemical sensors, floats with deeper capacity and enhance the coverage in some regions. These expansions are not firmly funded by Members and are done very slowly through flat budgets impacting the core mission.

WMO continues to contribute to the global development agenda through its programmes and initiatives. Aside from those mentioned above, it also includes the programmes for Marine Meteorology and Oceanography, Public Weather Services, Tropical Cyclone, Small Island Developing States (SIDS), Least Developed Countries (LDC), Disaster Risk Reduction, Education and Training, Capacity Development and Voluntary Cooperation. The Climate Risk and Early Warning Systems (CREWS) Secretariat is hosted by the WMO. WMO carries out its work within the context of the Sendai Framework for DRR (2015). WMO with multiple stakeholders in the UN system and beyond advocated to substantially increase the availability of and access to Multi-Hazard Early Warning Systems (MHEWS) and disaster risk information and assessments, including for marine hazards, by 2030. WMO works extensively on engaging interested stakeholders, partners and organizations to develop and facilitate the International Network for MHEWS (IN-MHEWS).

The Coastal Inundation Forecasting Initiative (CIFI), among other programs at WMO, are tailored to assist Members, to protect livelihoods and support the sustainable development of coastal communities' vulnerable hazards. The '*Guidelines for Implementation of a Coastal Inundation Forecasting (CIF) Early Warning System (EWS)*', were approved for WMO in May 2022, and are now in preparation for publication imminently. These Guidelines were the result of Resolutions 15 and 29 from World Meteorological Congress-18 (2019) to assist vulnerable countries to implement their own CIF-EWS. They show how an effective end-to-end coastal inundation warning system: CIF-EWS, can be established in a country or region, through a straightforward 10 step process with a number of templates featuring policy, management and technical processes that countries or regions can use to build their own EWS, from vision to

“go-live” implementation. The Guidelines also include a comprehensive explanation of the hazards and the range of models used for their forecasting and warning, along with appropriate reference material.

WMO also revised its ‘Sea Ice Information and Services’, (WMO No. 574) in 2021, which is now available (https://library.wmo.int/index.php?lvl=notice_display&id=7542#.Yp-GcKhBwuU) on the WMO Library. This document contains a summarized history of sea-ice information services, as well as a description of the various types of sea ice, the ice observing methods currently being used, and the types of ice information services currently being provided.

XI Marine Science

WCRP Sea Level Conference 2022 - Advancing Science, Connecting Society

The World Climate Research Programme (WCRP) is holding its sea level conference in Singapore between 12 and 16 July this year (2022). The conference will provide a platform for robust conversations between policymakers, sea-level researchers, and adaptation practitioners to inform efforts to bridge science and society, Present and future climate-related sea-level research will be discussed with a strong focus on the application of sea-level science for adaptation and stakeholder needs.

XIII Regional Cooperation

WMO Regional Association (RA) II and RA V Ocean Side Event during RA Sessions

Two special Ocean Side Events were held during the 18th Sessions of the WMO Regional Associations II (Asia) and V (Southwest Pacific) in the second half of 2021. Members and eminent meteorological and oceanographic professionals joined to discuss ocean priorities – focussing on exploring the needs, finding the gaps, identifying priorities in ocean matters, and developing a cooperation roadmap. Details can be found in the following sites (<https://community.wmo.int/meetings/RA-II-17-Ocean-Side-Event>) (<https://community.wmo.int/meetings/RA-V-18-Ocean-Side-Event>)

XIV Open-ended Informal Consultative Process on Oceans and the Law of the Sea

Noting the theme of the 22nd UN Open-ended Informal Consultative Process on Oceans and Law of the Sea (ICP-22) was ‘Ocean Observing’ and WMO’s strong role in international cooperation on sustained oceanographic and marine meteorological observations, WMO provided written inputs to ICP-22. The submission details WMO’s activities to increase the availability and sustainability of ocean observations and their free and unrestricted exchange, to help mitigate the impacts of meteorological hazards, strengthen resilience in the face of climate change and variability, and build the scientific knowledge base for sustainable development. This includes through co-sponsoring the Global Ocean Observing System (GOOS) and co-sponsoring and hosting several relevant programmes which include components related to ocean observations and research, namely the Global Climate Observing System (GCOS), the World Climate Research Programme (WCRP) and the Global Cryosphere Water (GCW).

(https://www.un.org/depts/los/consultative_process/contribution22/WMO.pdf)

WMO also supported the programme of the ICP-22 by participating and contributing to several sessions, including presenting at the Global Ocean Observing System (GOOS) side event entitled ‘*Ocean Observing for the Next Decade: The base to grow sustainable societies*’.

XV Coordination and Cooperation

UN Oceans Conference

WMO is engaged in the preparations for the 2nd UN Ocean Conference – including coordinating a side event focussed on the changing climate in the Polar regions and using ocean solutions across the spectrum from science to services. Speakers included from Argentina, Canada, Finland and USA. It is also involved in a Side Event “From the Southern Ocean to the Arctic – a Call to Action via the UN Ocean Decade” via the WCRP, in association with a range of partners.

Earthshot Prize

WMO has been appointed a Nominating Agency for the Earthshot Prize (<https://earthshotprize.org/>) and has a particular interest in identifying nominees for the ocean and climate Earthshot Prizes.

COP26

WMO submissions to COP 26 included a provisional report on the state of the global climate in 2021 as well as regional climate reports for Africa, Asia, Latin America and the Caribbean, and Southwest Pacific. In the final version of the global state of the climate report, released on 18 May 2022, three of the four global climate indicators that broke records in 2021 are oceanic: sea level, ocean heat content and ocean acidity. In the Glasgow Climate Pact, Parties welcome the global and regional reports on the state of the climate from the World Meteorological Organization, and express alarm and utmost concern that human activities have caused around 1.1 °C of warming to date and those impacts are already being felt in every region.

WMO supported the coordination of UN Oceans Side Event at the COP in Glasgow (hosted by the UK). The Director of the Fiji Meteorological Service, and Fiji’s Permanent Representative to the WMO; was a panellist, speaking about the impact of climate and weather in SIDS, and the need for robust early warning systems, especially in coastal areas.

COP27 Preparations - United Nations Secretary-General’s call for global early warning systems

On 23 March 2022, the United Nations Secretary-General announced that ‘*the UN will spearhead new action to ensure every person on Earth is protected by early warning systems within five years*’. The UN Secretary-General ‘*asked the WMO to lead this effort and to present an action plan to achieve this goal at the next UN Climate Conference, later this year in Egypt*’. (<https://www.un.org/sg/en/content/sg/statement/2022-03-23/secretary-generals-message-world-meteorological-day>). WMO is working towards this with a range of partners and agencies already active in the early warning and disaster risk reduction space, including the marine elements of Multi-Hazard Early Warning Systems, which are important services required to protect vulnerable communities along the coast and at sea.