

WORLD METEOROLOGICAL DAY – 2022

Early Warning and Early Action



World Meteorological Day, celebrated yearly on 23rd of March, commemorates the coming into force on March, 23rd, 1950 of the Convention of **World Meteorological Organization (WMO)**. As a result of climate change, weather, climate and water extremes tend to become more frequent and intense, exposing humanity to multiple related hazards. For this, forecasts of what the weather will BE are less useful than the impact-based forecasts, regarding what the weather will DO. In this respect, the chosen theme of the 2022's event is called ***Early Warning and Early Action*** and it highlights the importance of Hydrometeorological and Climate information for **Disaster Risk Reduction** (<https://public.wmo.int/en/resources/world-meteorological-day>).

- ***Rising risks.*** In the past 50 years, more than 11 000 weather, climate and water-related disasters were reported, resulting in over 2 million deaths and US\$ 3.64 trillion economic losses. For the period mentioned above, the number of disasters increased five times, and the economic losses, seven times. Fortunately, as a development of improved early warnings and disaster risk reduction strategies, the number of deaths decreased almost three times. The highest number of deaths were determined by droughts, especially in Africa, followed by storms, mostly in Asia while economic losses were recorded especially because of tropical cyclones and floods. It was estimated that in 2020, 30 million people were displaced by weather related disasters and 2.3 billion people lacked adequate access to food. A new initiative of WMO, called “Cataloguing of Hazardous Weather, Climate, Water, and Space Weather Events,” is meant to improve the statistical basis for national development, planning and prevention, as well as for understanding hazard exposure and impacts.
- ***Climate change and extreme weather.*** The Sixth Assessment report of IPCC states that „the occurrence of extreme events is unprecedented in the observed record and will increase with increasing global warming”. Heat extremes became more frequent and intense since 1950's, and temperatures over 40°C and 50°C are recorded more often all over the world. A rise in global temperature of 1°C will intensify extreme daily precipitation events by 7% (IPCC); increasing global warming will increase the land area affected by severe droughts, the number of intense tropical cyclones and the vulnerability of coastal populations.

- ***Early warnings save lives and livelihoods.*** The supercomputer and satellite technology development in the last decades, artificial intelligence and mobile phone alerts are just a few examples that helped increase saving lives from over 50 000 deaths on average per year, in the 1970's, to less than 20 000 in the 2010's. Unfortunately, we are still far away of being safe: only 40% of WMO members have Multi-Hazard Early Warning Systems. The use of WMO Global Multi-hazard Alert System (GMAS) is meant to transmit automated and standardized emergency warnings suitable for all hazards while warning symbols and color codes are highly effective for the same reason. The progress recorded in climate science allow us to predict, several months in advance, phenomena like El Niño and La Niña; Seasonal and sub-seasonal climate outlooks at local, regional and national scale are important for sectors like agriculture (what and when to plant), health (water-borne diseases, heat-related illnesses) and water management (too much or too little).
- ***Adaptation and resilience.*** People-centred, gender-sensitive multi-hazard early warning systems are a highly effective way of strengthening adaptation and resilience. It is estimated that investments in these services can save lives and assets that worth at least ten times their cost. This is why the majority of climate change adaptation plans identify early warning systems as a top priority. Unfortunately, one of three people is still not covered by early warning systems or dissemination and communication of these warnings are weak in many developing countries and do not reach to people that are most at risk.
- ***The power of partnerships.*** WMO Coordination Mechanism provides United Nations agencies and humanitarian actors new services for optimizing emergency response to high-impact events, especially in developing countries. On the other hand, the research community is strengthening collaboration between meteorological services, the private sector, academia and users to ensure that forecasts are accurate, timely, accessible and useful, as we reached to conclusion that the challenge of climate change and extreme weather needs partnerships between communities and countries.
- ***2030 agenda.*** 2030 is the target year to achieve the 17 Sustainable Development Goals, the Sendai Framework for Disaster Risk Reduction and the Paris Agreement on Climate Change, but there is still a lot of work to be done for these achievements. WMO's vision is that "by 2030, we see a world where all nations, especially the most vulnerable, are more resilient to the socioeconomic consequences of extreme weather, climate, water and other environmental events."

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