

WORLD METEOROLOGICAL DAY, 2021

World Meteorological Organisation Executive Council has selected the following themes for the upcoming celebrations of World Meteorological Day: 2021: "The Ocean, our climate and weather" in conjunction with the launch of the United Nations Decade of Ocean Science for Sustainable involving SDG13 & SDG 17. It highlights how observations, research and services are more critical than ever before for more than 70 percent of the Earth's surface which is simultaneously increasingly vulnerable and perilous.

It also plays a central role in climate change. The ocean acts as the Earth's thermostat and conveyor belt. It absorbs and transforms a significant portion of the sun's radiation hitting the Earth's surface and it provides heat and water vapour to the atmosphere. Enormous horizontal and vertical ocean currents form and circulate this heat around the planet, often for thousands of kilometres, thus shaping the Earth's weather and climate on global and local scales. Phenomena such as the El Niño Southern Oscillation are a coupling between the atmosphere and the ocean, and affect temperatures and precipitation and storm patterns in many parts of the globe. El Niño tends to have a warming effect on global temperatures, whilst La Niña has the opposite.

Ocean is a major driver of the global economy, carrying more than 90% of world trade and sustaining the 40% of humanity that lives within 100 km of the coast. Recognizing this, National Meteorological and Hydrological Services and researchers regularly monitor the ocean and how it is changing, modeling how it affects the atmosphere and delivering a wide variety of marine services, including supporting coastal management and Safety of Life at Sea. Today, the growing impacts of climate change are making ocean observations, research and services more critical than ever before.

World Meteorological Day: 2021 marks the starting year of the United Nations Decade of Ocean Science for Sustainable Development (2021-2030). The Decade galvanizes efforts to gather ocean science – through innovative and transformative ideas - as the basis of information to support sustainable development. WMO, as the United Nations specialized agency for climate, weather and water, strives to support understanding the inextricable link between ocean, climate and weather. This helps us understand the world in which we live, including the impacts of climate change, and to help Members to strengthen their ability to keep lives and property safe – reducing the risk of disaster – and to maintain viable economies.



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

Around 90% of the excess energy that accumulates in the Earth system due to increasing concentrations of greenhouse gases, goes into the ocean. (WMO State of the Global Climate 2020 Report) As the ocean warms, its volume increases. Thermal expansion, as well as the melting of ice sheets in Greenland and the Antarctic and glaciers all over the world are causing sea levels to rise. Sea level has risen by around 15 cm during the 20th century. IPCC projections show that sea level rise can reach around 30 cm to 60 cm by 2100 even if greenhouse gas emissions are sharply reduced and global warming is limited to well below 2°C.

The ocean absorbs around 23% of the annual emissions of anthropogenic CO₂ to the atmosphere.

CO₂ reacts with seawater and increases its acidity. It endangers organisms and ecosystem services, including food security, by endangering fisheries and aquaculture. It also affects coastal protection by weakening coral reefs, which shield the coastline, and tourism. A 100-150% rise in ocean acidity is projected by 2100, affecting half of all marine life. (UN Stats, SDGs Report 2020, Goal 14).

In 2020, 82% of the ocean experienced at least one marine heatwave, causing significant impacts to marine life and the communities that depend on it.