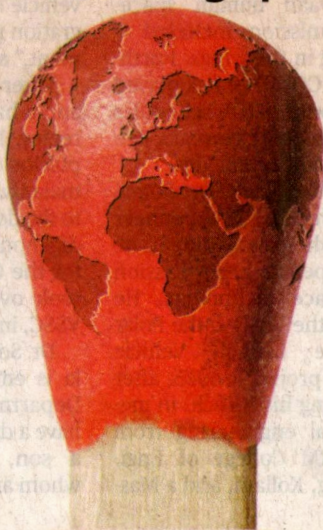


World is heating up



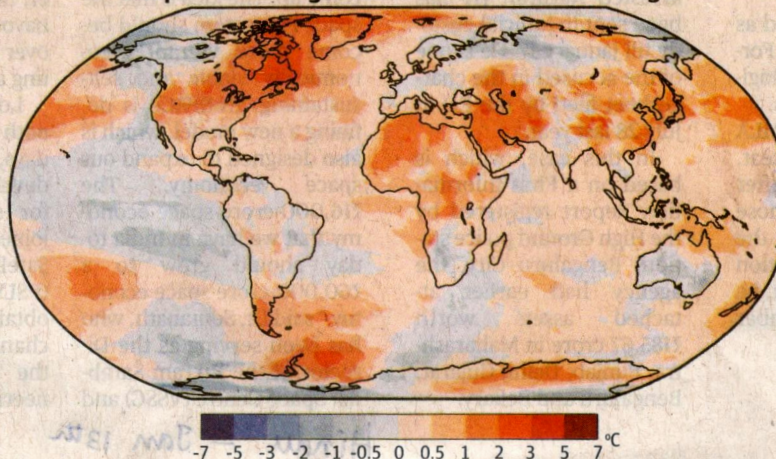
The annual findings of the European Union's Copernicus Climate Change Service showed that globally 2021 was among the seven warmest on record. The first five months of the year saw relatively low temperatures compared to the recent very warm years. However, from June until October, monthly temperatures were consistently at least amongst the fourth warmest on record. Moreover, the last seven years globally were the seven warmest on record by a clear margin. Within these seven years, 2021 ranks among the cooler years, alongside 2015 and 2018. Meanwhile, global concentrations of carbon dioxide and, very substantially, methane continued to increase

SOURCE FOR DATA AND TEXT: ERA5, COPERNICUS CLIMATE CHANGE SERVICE/ECMWF

1. Global surface air temperatures

The map shows the air temperature at a height of two metres for 2021, shown relative to its 1991-2020 average. Temperatures of the last 30 years (1991-2020) were close to 0.9°C above the pre-industrial level. Compared to this latest 30-year reference period, regions with most above-average temperatures include a band stretching from the west coast of the U.S. and Canada to north-eastern Canada and Greenland, as well as large parts of central and northern Africa and West Asia

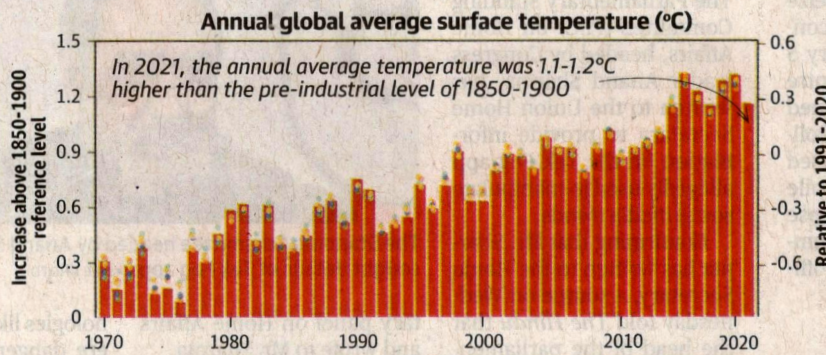
Temperature change in 2021 from 1991-2020 average



The most below-average temperatures were found in western and easternmost Siberia, Alaska, over the Pacific – concurrent with La Niña conditions at the beginning and the end of the year – as well as in Australia and in parts of Antarctica

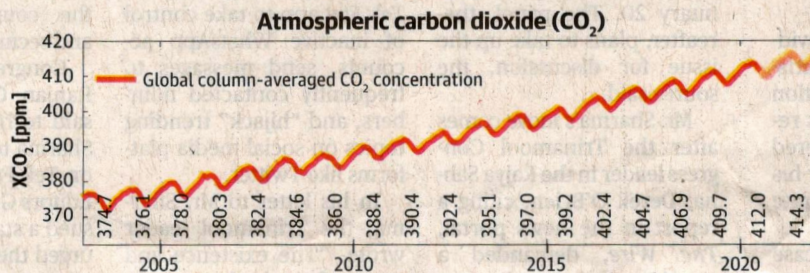
2. Getting hotter and hotter

The graph shows the annual averages of global air temperature estimated change since the pre-industrial period (left-hand axis) and relative to 1991-2020 (right-hand axis) according to different datasets: ERA5 (ECMWF Copernicus Climate Change Service, C3S); GISTEMPv4 (NASA); HadCRUT5 (Met Office Hadley Centre); NOAA GlobalTempv5 (NOAA); JRA-55 (JMA); and Berkeley Earth



3. CO₂ rises

The trend of steadily rising carbon dioxide concentrations continued in 2021 leading to an annual global column-averaged record (XCO₂) of approximately 414.3 ppm. The month with the highest concentration was April 2021, when global monthly mean XCO₂ reached 416.1 ppm. The estimated global annual mean XCO₂ growth rate for 2021 was 2.4 ± 0.4 ppm/year



THE HINDU dt: 13.01.2022.

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