WMO MESSAGE ON THE OCCASION OF THE 50th ANNIVERSARY OF THE GLOBAL CO_2 RECORD

by

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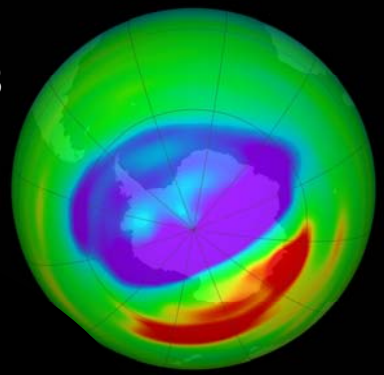
on behalf of

Michel Jarraud
Secretary-General of the
World Meteorological Organization

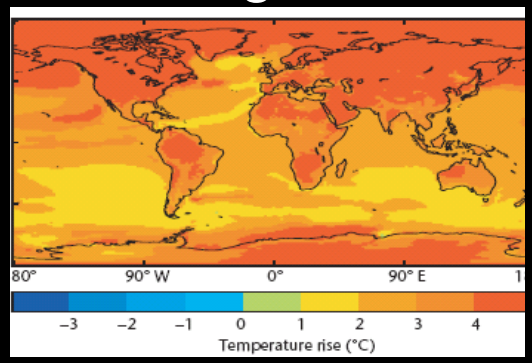
WMO
OMM

Combining Air Chemistry, Meteorology and Climate Research

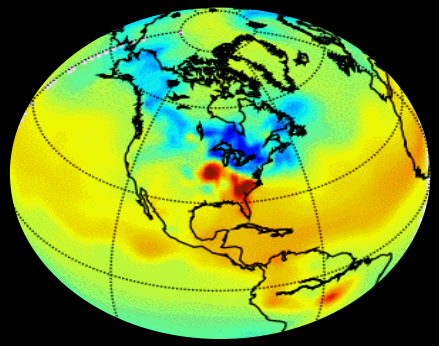
O_3



Climate Change & Prediction

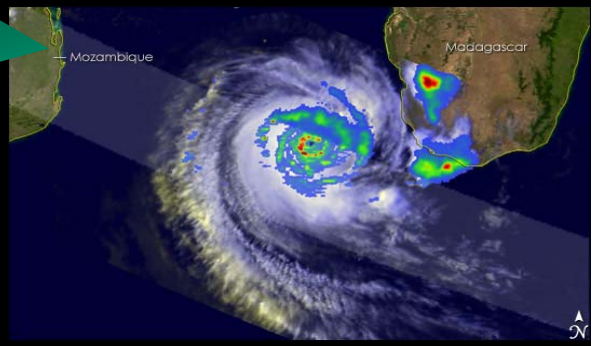


GHGs

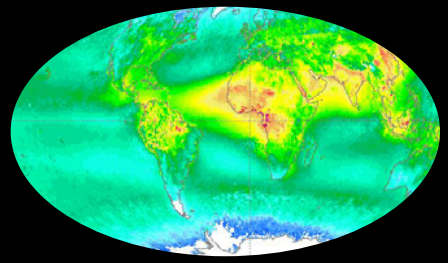


Weather Prediction

Process Studies
Modelling
Observations

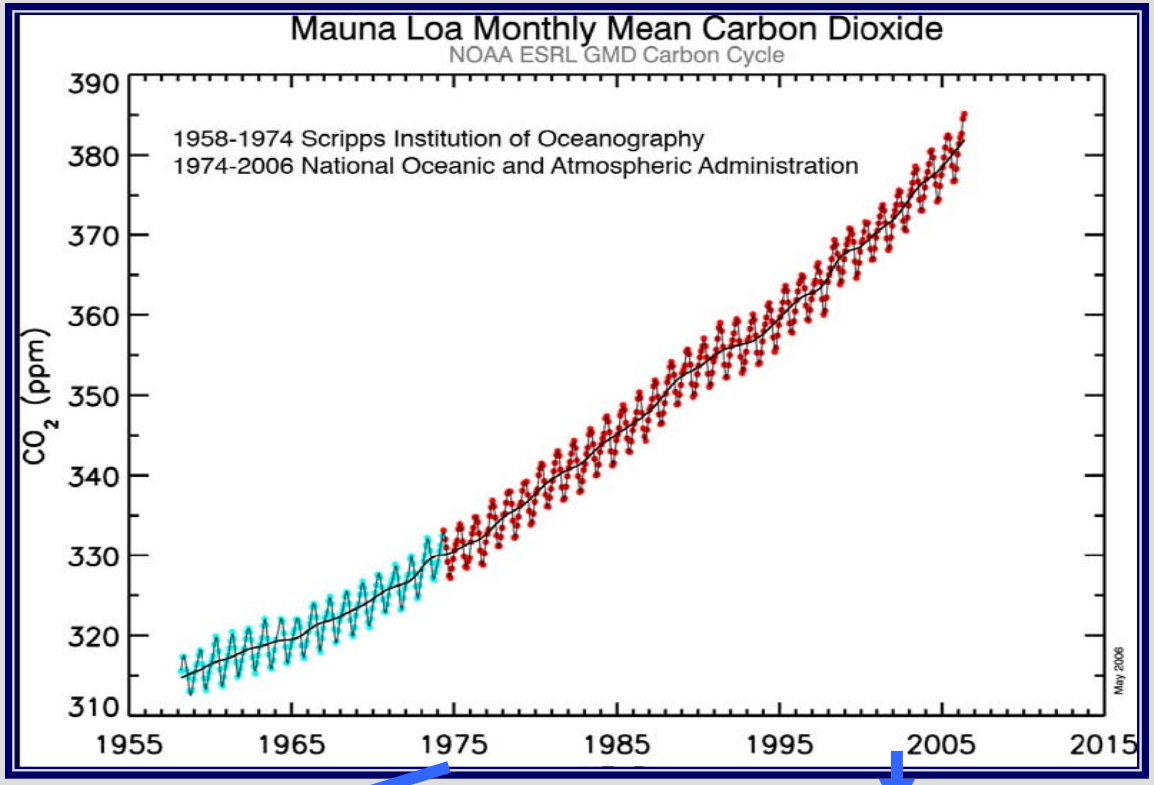


Aerosols & Dust



Severe Storms

Air Pollution

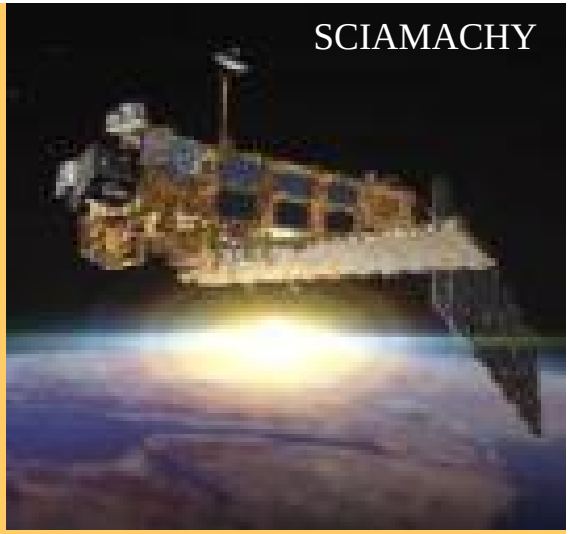

Mauna Loa Monthly Mean Carbon Dioxide
NOAA ESRL GMD Carbon Cycle
1958-1974 Scripps Institution of Oceanography
1974-2006 National Oceanic and Atmospheric Administration
CO_2 (ppm)
390
380
370
360
350
340
330
320
310
1955
1965
1975
1985
1995
2005
2015
May 2006


The 13th WMO/IAEA Meeting of Experts on
CO_2 Concentration and Related Tracer Measurement Techniques
Boulder, Colorado USA - September 19-22, 2005

Selected GAW global observatories

Dr. Neil Trivett Global Atmosphere Watch Observatory, Alert, Canada

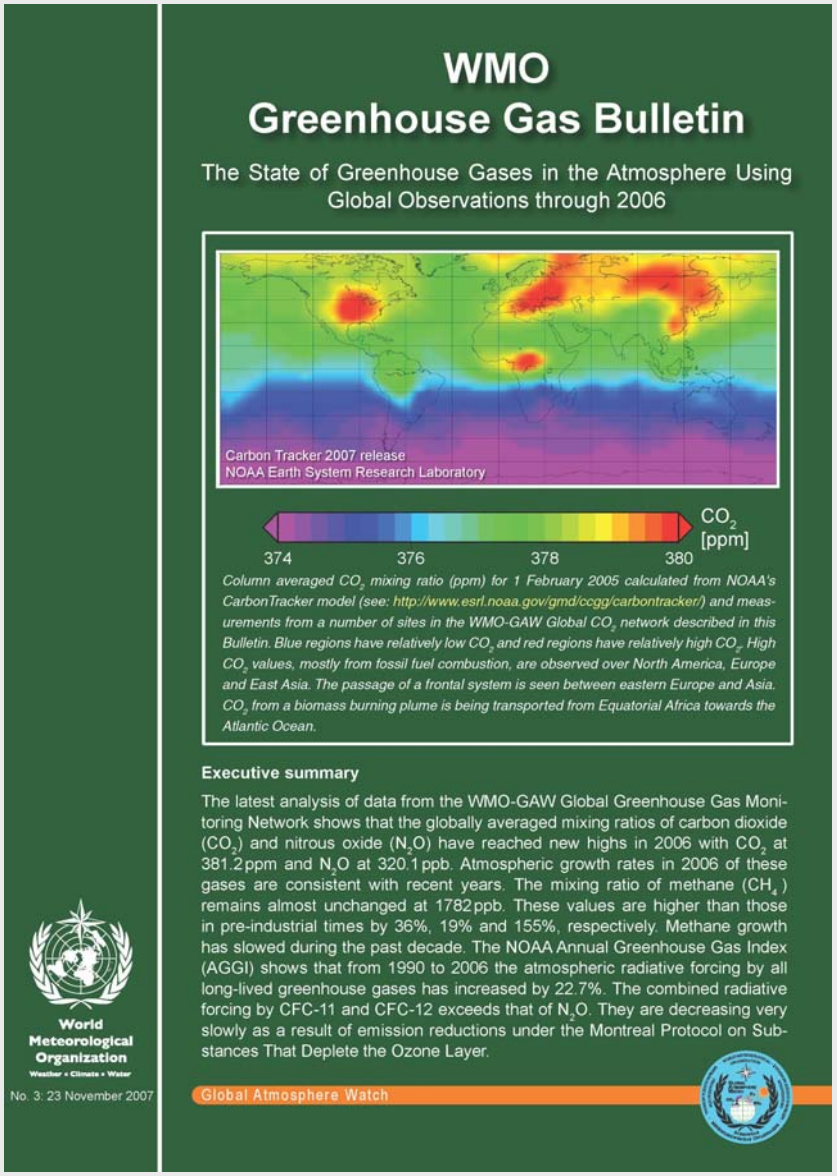
South Pole Atmospheric Research Observatory



Airborne measurements are done from this airliner of Japan Airlines

Measurements of greenhouse gases are taken from Cap Victor as it traverses the Pacific Ocean.

WMO-GAW Annual Greenhouse Gas Bulletin



WMO
Greenhouse Gas Bulletin

The State of Greenhouse Gases in the Atmosphere Using Global Observations through 2006

Carbon Tracker 2007 release
NOAA Earth System Research Laboratory

CO_2 [ppm]
374 376 378 380

Column averaged CO_2 mixing ratio (ppm) for 1 February 2005 calculated from NOAA's CarbonTracker model (see: http://www.esrl.noaa.gov/gmd/ccgg/carbontracker/) and measurements from a number of sites in the WMO-GAW Global CO_2 network described in this Bulletin. Blue regions have relatively low CO_2 and red regions have relatively high CO_2. High CO_2 values, mostly from fossil fuel combustion, are observed over North America, Europe and East Asia. The passage of a frontal system is seen between eastern Europe and Asia. CO_2 from a biomass burning plume is being transported from Equatorial Africa towards the Atlantic Ocean.

Executive summary

The latest analysis of data from the WMO-GAW Global Greenhouse Gas Monitoring Network shows that the globally averaged mixing ratios of carbon dioxide (CO_2) and nitrous oxide (N_2O) have reached new highs in 2006 with CO_2 at 381.2 ppm and N_2O at 320.1 ppb. Atmospheric growth rates in 2006 of these gases are consistent with recent years. The mixing ratio of methane (CH_4) remains almost unchanged at 1782 ppb. These values are higher than those in pre-industrial times by 36%, 19% and 155%, respectively. Methane growth has slowed during the past decade. The NOAA Annual Greenhouse Gas Index (AGGI) shows that from 1990 to 2006 the atmospheric radiative forcing by all long-lived greenhouse gases has increased by 22.7%. The combined radiative forcing by CFC-11 and CFC-12 exceeds that of N_2O. They are decreasing very slowly as a result of emission reductions under the Montreal Protocol on Substances That Deplete the Ozone Layer.

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Global Atmosphere Watch

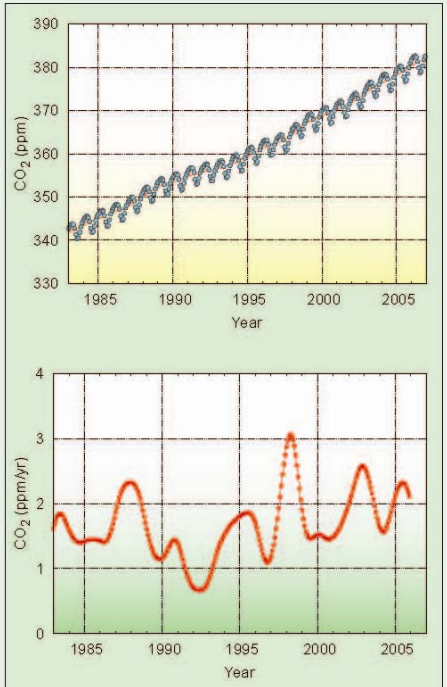


Figure 3. Globally averaged CO_2 (a) and its growth rate (b) from 1983 to 2006.

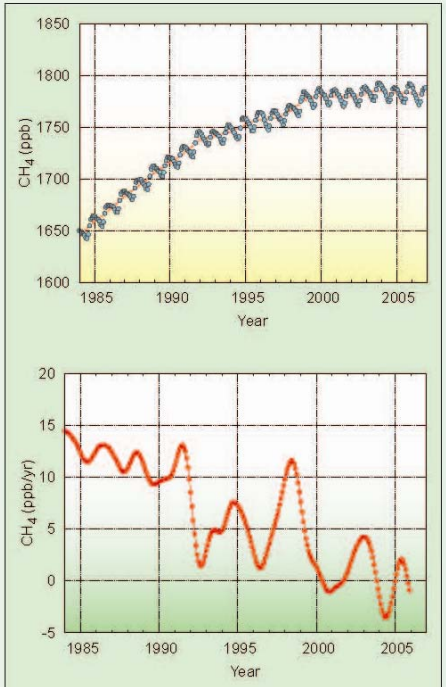
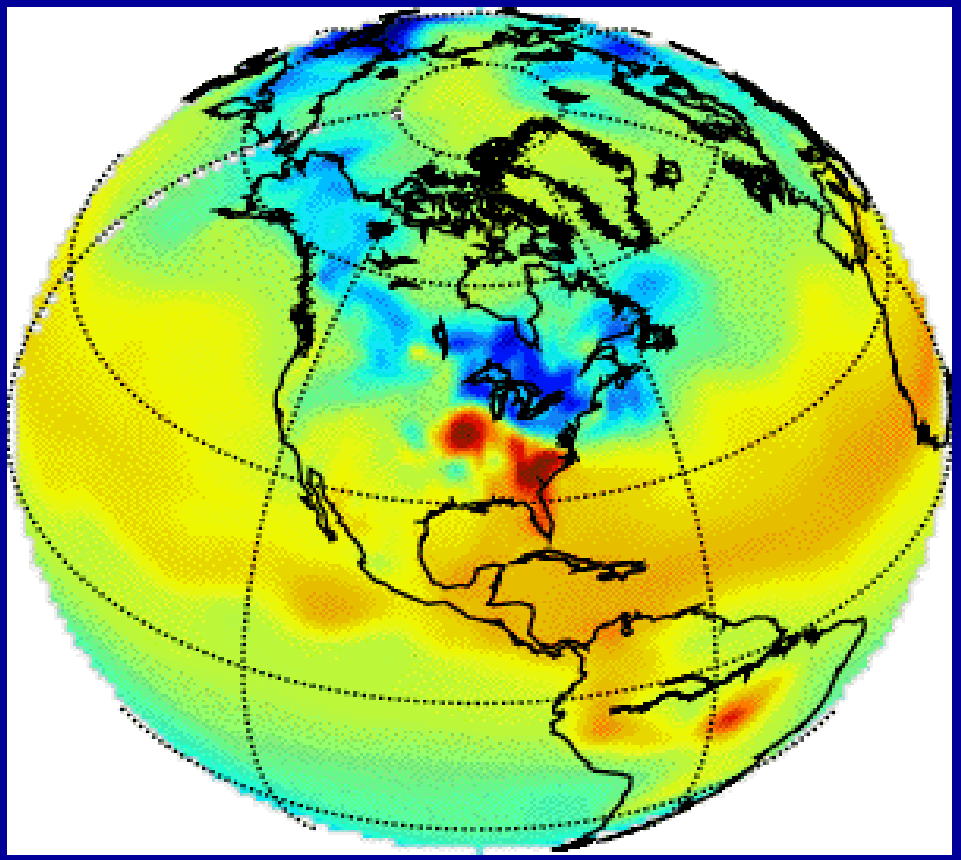


Figure 4. Globally averaged CH_4 (a) and its growth rate (b) from 1984 to 2006.

Carbon Tracker by NOAA ESRL:

A system to track carbon dioxide uptake and release at the Earth's surface over time.



www.esrl.noaa.gov/gmd/ccgg/carbontracker/

Thank You

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