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CO2 levels measured from space for the first time by German SCIAMACHY instrument

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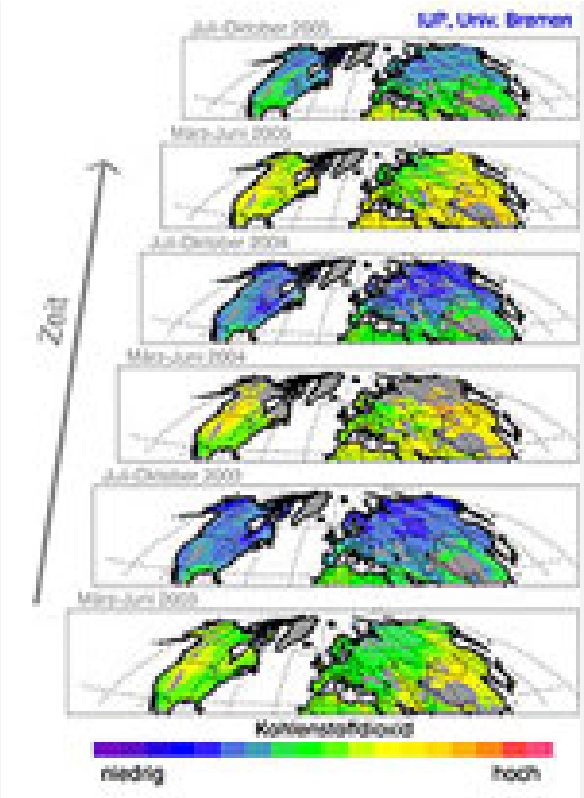


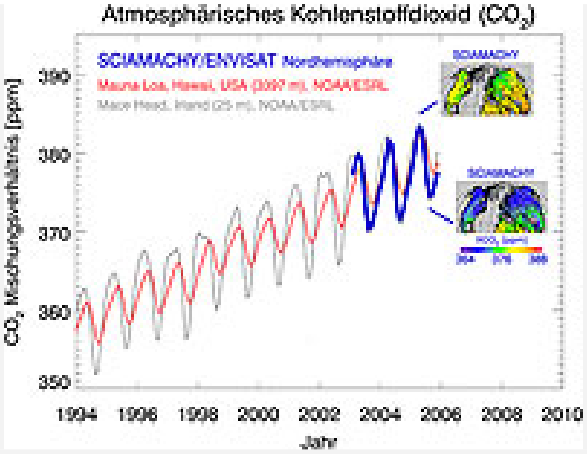
CO2 levels between 2003 and 2005

Environmental researchers at the University of Bremen have succeeded in observing the rise of the greenhouse gas carbon dioxide (CO2) in the atmosphere for the first time by using satellite measurements alone. They observed it in data from the SCIAMACHY instrument designed under the leadership of DLR together with Dutch and Belgian partners. SCIAMACHY is on the European environmental satellite ENVISAT orbiting 800 kilometres above Earth. The findings of the Bremen researchers have been published in the technical periodical "Atmospheric Chemistry and Physics Discussion".

"Our analysis shows that it is possible to detect from space very small changes of the quantity of atmospheric carbon dioxide", said Dr Michael Buchwitz of the Institute for Environmental Physics at the University of Bremen. The rise measured is approximately 0.5 per cent per year.

"Studies have shown that satellite measurements of CO2 can close crucial knowledge gaps. This presupposes however that the raw data is very accurately evaluated", added Buchwitz. For this purpose, the Bremen environmental researchers have developed, with the help of DLR, sophisticated computer programs to help analyse the SCIAMACHY data.

Carbon dioxide is the most important greenhouse gas produced by humans, and it contributes the most of all the greenhouse gases to worldwide climate change. The main source of CO2 is the burning of fossil fuels by traffic, industry or in the household. At present each year about 26 billion tonnes of CO2 are delivered into the atmosphere, and that figure is rising. While about half of this extra carbon dioxide is processed by nature: the oceans or forests, the other 50% remains in the atmosphere on a long-term basis.



Atmospheric CO2 measured by ENVISAT and NOAA

Atmospheric carbon dioxide has been measured by ENVISAT and NOAA together since 2002.

The Earth observation satellite ENVISAT supplies valuable information about the condition of our planet. The instrument SCIAMACHY (Scanning Imaging absorption Spectrometer for Atmospheric Chartography) onboard ENVISAT measures the solar radiation in the close-infrared part of the spectrum of the atmosphere.

From these measurements, atmospheric gas concentrations can be determined. SCIAMACHY is the first and at present only satellite instrument accomplishing these measurements.

The SCIAMACHY project is managed by DLR in partnership with the Netherlands space agency (NIVR).

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