CARBOOCEAN: How much man-made CO_2 can the ocean absorb?

Press Conference: Wednesday 14 April: 12:00 - 13:00
Session: BG3.1 Wednesday 14 April: 15:30-17:00, Lecture room 21, Programme >>

Recent data from the CARBOOCEAN project show that the oceanic sink for man-made carbon dioxide undergoes large variations and may become less effective, having a significant effect on global warming.

Since the beginning of industrialisation, mankind has increasingly released carbon dioxide into the atmosphere, which significantly contributed to climate change. At present the CO_2 level is 30% higher than in pre-industrial times, and would be higher if not for the oceans. Currently ca. 25 % of annual CO_2 emissions are absorbed by the oceans, but their uptake rate is highly variable and may weaken in key regions.

To get a more complete view on the extent of the oceans' role in the CO_2 cycle, quantification of marine carbon sink is essential. For this purpose the CARBOOCEAN programme was started in 2005. Funded by the EU it runs over a five year period and consists of 50 research groups from around the globe (Europe, Morocco, USA, and Canada).

The CARBOOCEAN consortium carries out field measurements, process studies, and advanced ocean modelling in order to quantify the amount and timing of anthropogenic carbon dioxide uptake by the oceans. This knowledge will be vital to policy makers who are charged with making informed decisions on climate mitigation and adaptation.

During the press conference new evidence from observations and modelling will be presented. The “bottleneck” for ocean carbon uptake at high latitudes is highly variable and may have weakened over the past years. While the ocean as a whole will always remain a sink for additional CO_2 emissions, due to its slow overturning time we expect a large temporary CO_2 uptake in the atmosphere. On the other hand, emission reductions will give the ocean more time to buffer the additional CO_2. The anthropogenic CO_2 can be traced down to deepest oceanic levels and is starting to dissolve calcareous deep sea sediment.

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