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Where does CO_2 in Antarctica cool the atmosphere ?

Holger Schmithüsen (1), Justus Notholt (2), Gert König-Langlo (1), Peter Lemke (1), and Thomas Jung (1)

(1) Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, Germany, (2) University of Bremen, Institute of Environmental Physics, Bremen, Germany (notholt@uni-bremen.de)

In a recent study we have shown that for the high altitude plateau in Antarctica CO_2 causes a surplus in infrared emission to space compared to what is emitted from the surface. This corresponds to a negative greenhouse effect, and is due to the fact that for this region the surface is typically colder than the atmosphere above, opposite to the rest of the world. As a consequence, for this region an increase in CO_2 leads to an increase in the energy loss to space, leading to an increase in the negative greenhouse effect. We now studied in more detail the radiative effect of CO_2 and compared the results with available measurements from Antarctica.

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