



**CLIMATE RESEARCH** 

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## CO2 SENSITIVITY STUDIES UNDER LABORATORY AND OUTDOOR CONDITIONS AS CONTRIBUTION TO CLIMATE CHANGE DISCUSSIONS



A low-cost experimental setup we measured the IR back-radiation from varying CO2 levels within a given N2 atmosphere. The results confirm previous findings about an infrared CO2 saturation within the earth atmosphere. Measurements were also performed studying potential thermal forcing of additional CO2 against clear night skies. These results and their interpretation should be seen as another contribution to the general discussion about correct climate measures to be taken.

## AIR POLLUTION AND CLIMATE



A significant correlation between the increased hours of sunshine and the increase in the average temperature in Germany based on the data from the DWD (German Weather Service) has been found. 370 more hours of sunshine in Central Europe are equivalent to a temperature increase of 1°C. This result has also an impact on the negative feedback loops for cloud formation. We evaluated data of global radiation from Potsdam measured since 1947.





Figure 20: Run 2.2 and Run 2.3 in the Lab Mode mixing CO<sub>2</sub> into a pure nitrogen atmosphere.





Figure 21: P calculated from Howard<sup>10</sup>



![](_page_0_Figure_17.jpeg)

![](_page_0_Figure_18.jpeg)

8: Die Jahressummen der Globalstrahlung für Potsdam [5] ab 1983 passen gut zu den bisher betrachteten Deutschland, fehlende Tagessummen für Potsdam wurden durch mittlere Werte korrigiert

![](_page_0_Figure_20.jpeg)

![](_page_0_Figure_21.jpeg)

1°C / 370

Cloud cover anomaly for 2022

![](_page_0_Picture_23.jpeg)

![](_page_0_Figure_24.jpeg)

![](_page_0_Figure_25.jpeg)

Figure 25: Outdoor Mode comparative measurement CO<sub>2</sub> and Freon (C<sub>2</sub>H<sub>2</sub>F<sub>4</sub>)

![](_page_0_Figure_27.jpeg)

Annual cloud cover anomalies

for European land

![](_page_0_Figure_28.jpeg)

![](_page_0_Figure_29.jpeg)

Data: CLARA-A2.1 CDR/ICDR • Reference period: 1991-2020 • Credit: EUMETSAT CM SAF

![](_page_0_Picture_31.jpeg)

![](_page_0_Figure_32.jpeg)

Figure 13: Band absorption within 1 km standard atmosphere

![](_page_0_Figure_34.jpeg)

Figure 14: Band absorption within a 8.2 km atmosphere

![](_page_0_Figure_36.jpeg)

![](_page_0_Figure_37.jpeg)

![](_page_0_Picture_38.jpeg)

-1 -0.5 0 0.5 1 1.5

Figure 13: Absorption ratios for the two strong CO<sub>2</sub> absorption bands according to ref. 11 Figure 10: estimated back-radiation in Standard Atmosphere at three different surface temperatures

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![](_page_0_Figure_41.jpeg)

Calculated back-radiation for different long air columns at room temperature (RT)

8

8

Figure 24: Calculated effect of CO<sub>2</sub> doubling on backscattered power in two air columns

1200

![](_page_0_Figure_44.jpeg)

-1.5

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![](_page_0_Figure_47.jpeg)

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2.5

## Observational evidence of solar dimming: Offsetting surface warming over India

2

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![](_page_0_Figure_51.jpeg)