



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.

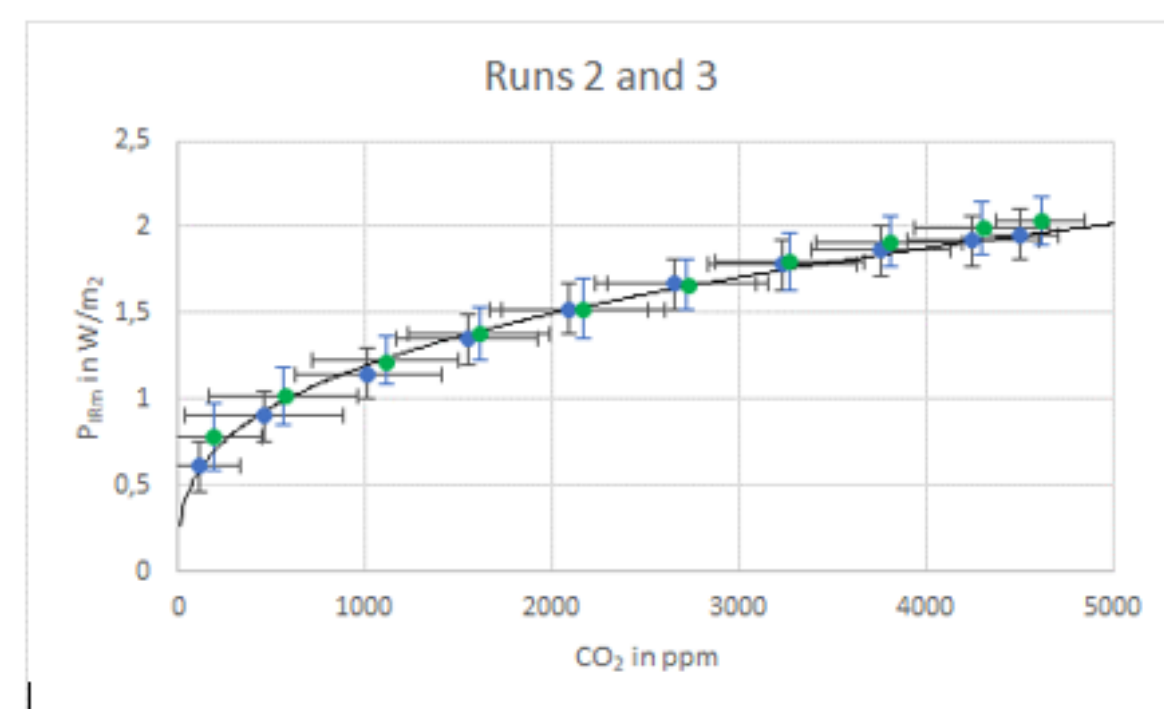
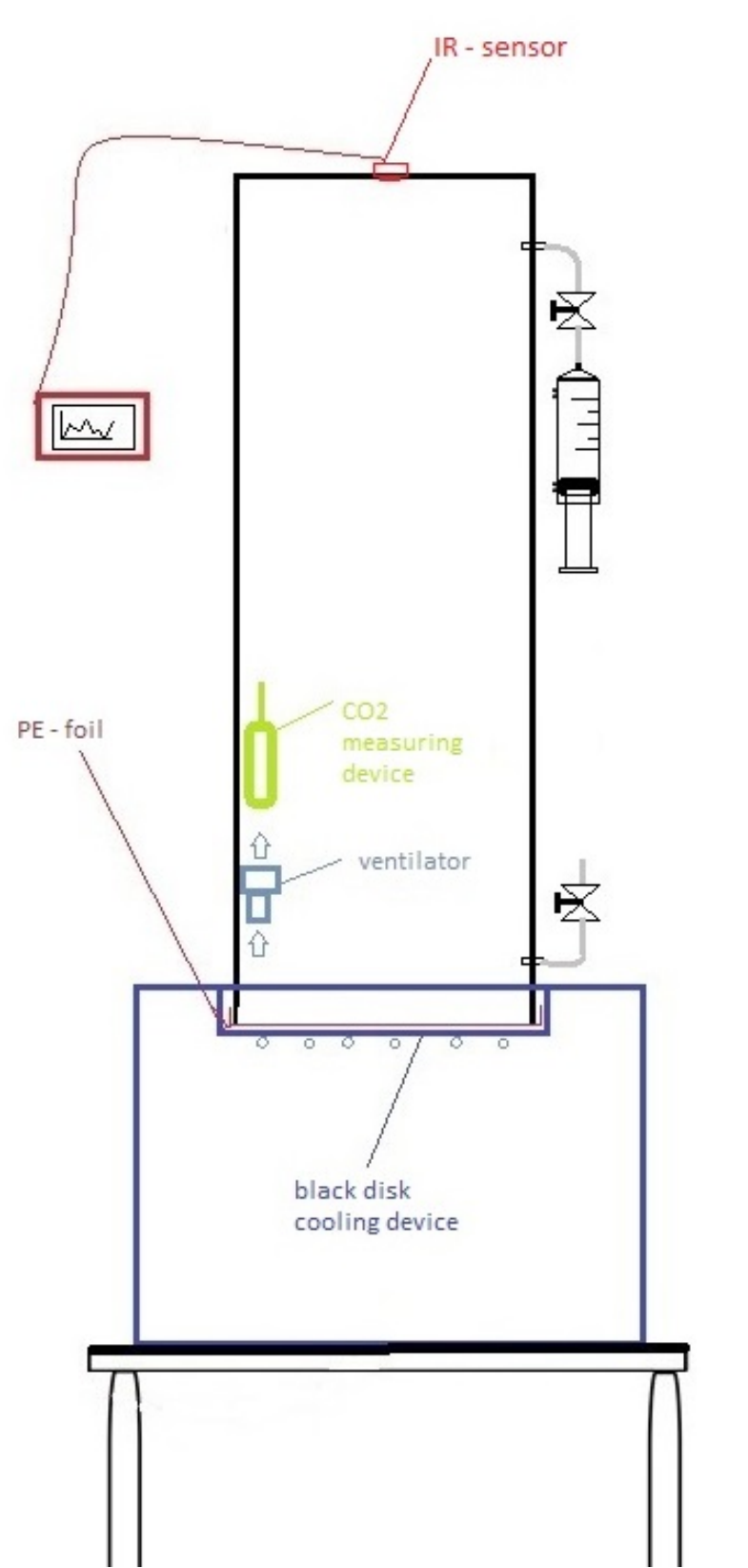


Figure 20: Run 2.2 and Run 2.3 in the Lab Mode mixing CO2 into a pure nitrogen atmosphere.

From previous considerations we can estimate the back-radiation by the parametrization of Howard¹¹ (eqs. 14, 15)

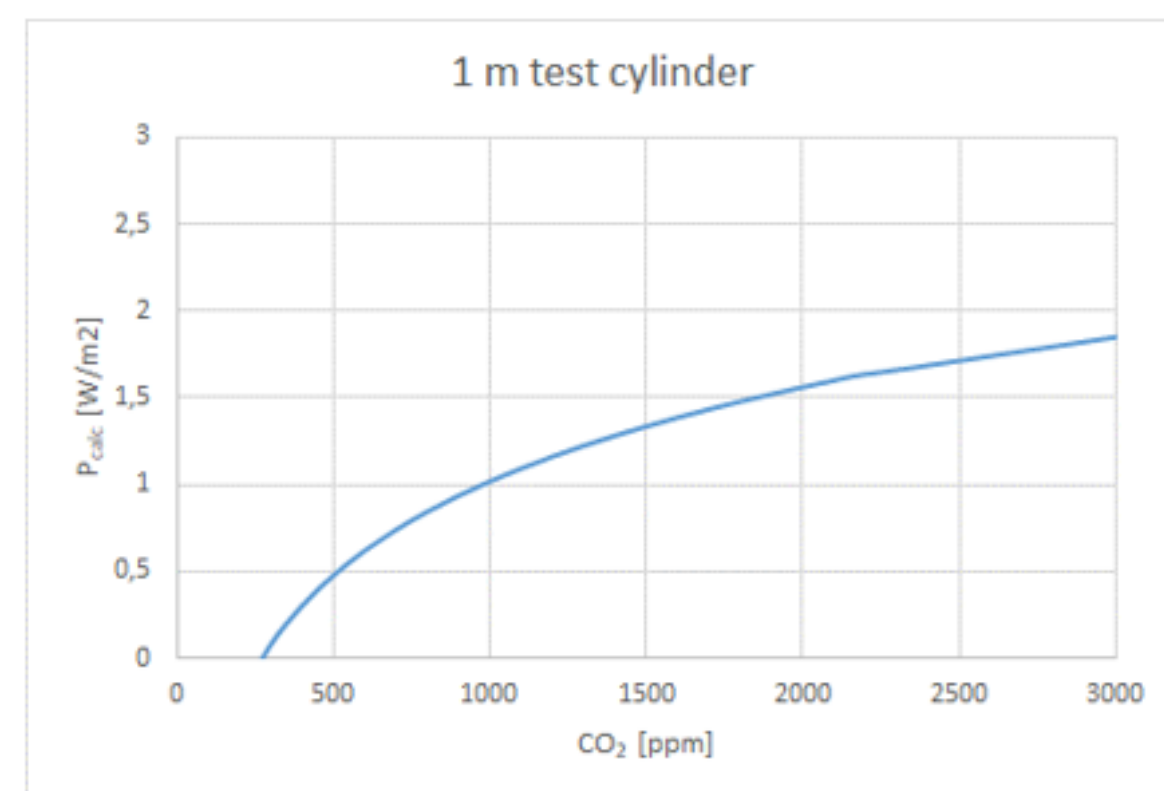


Figure 21: P calculated from Howard¹¹

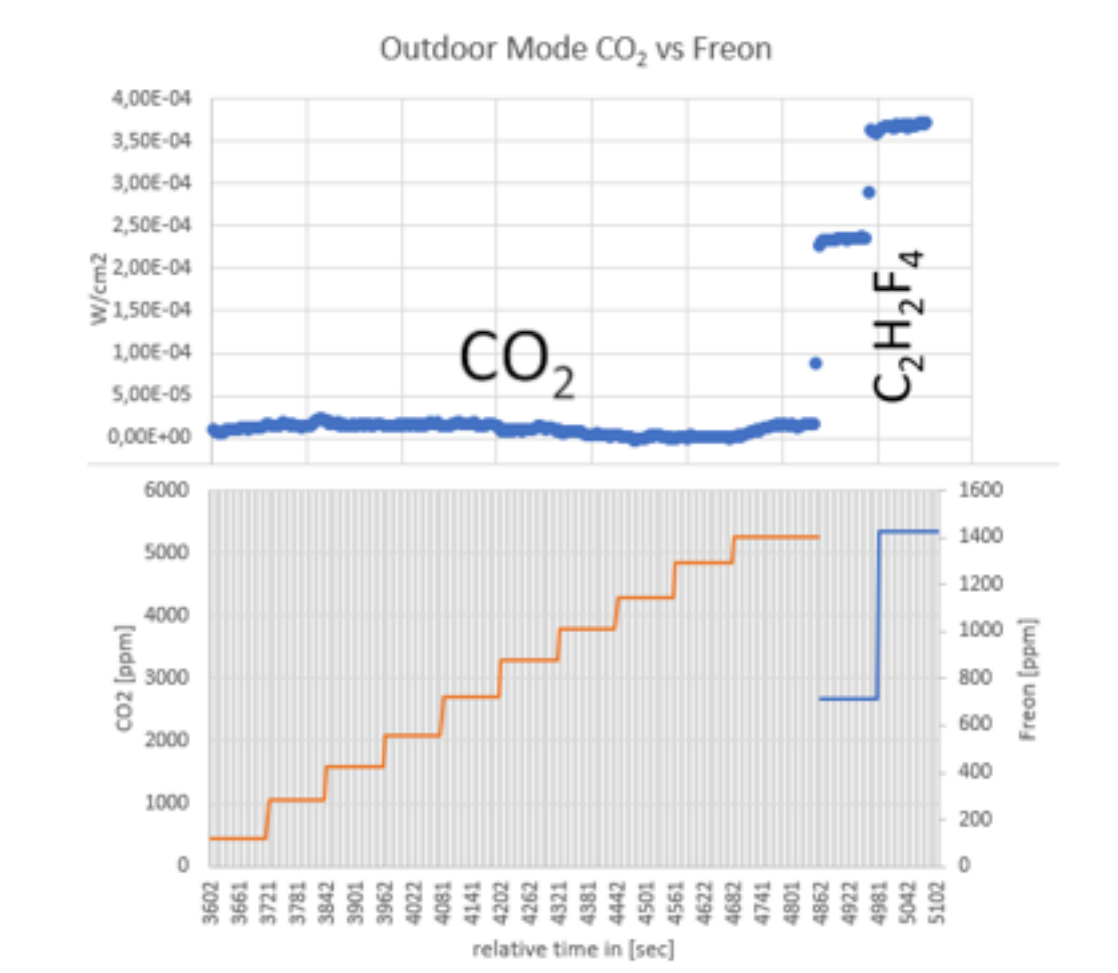
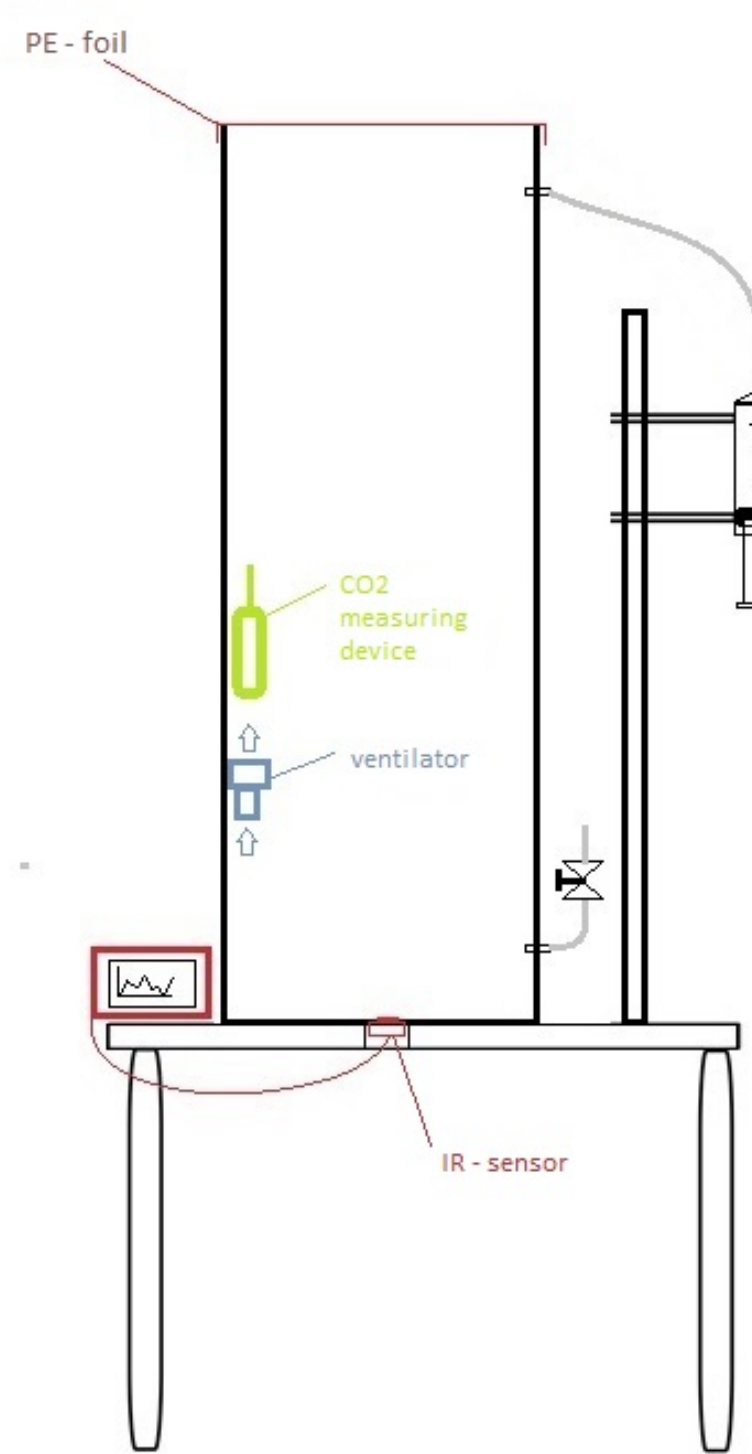


Figure 25: Outdoor Mode comparative measurement CO2 and Freon (C2H2F4)

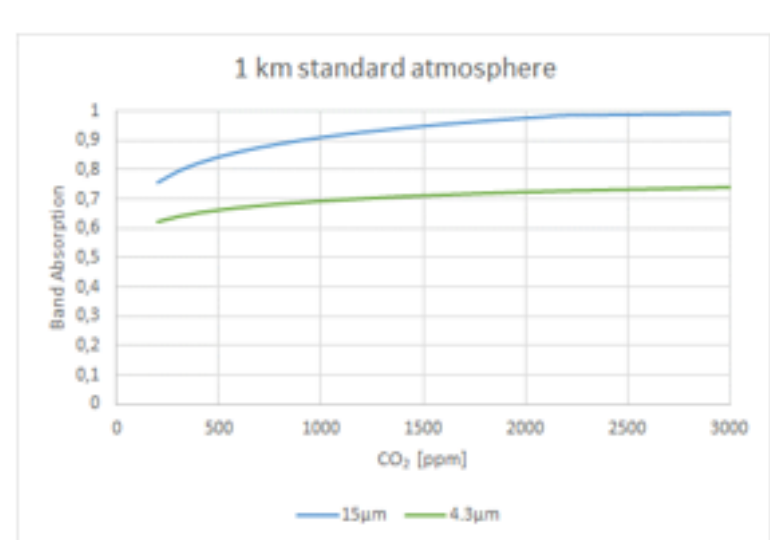


Figure 13: Band absorption within 1 km standard atmosphere¹¹

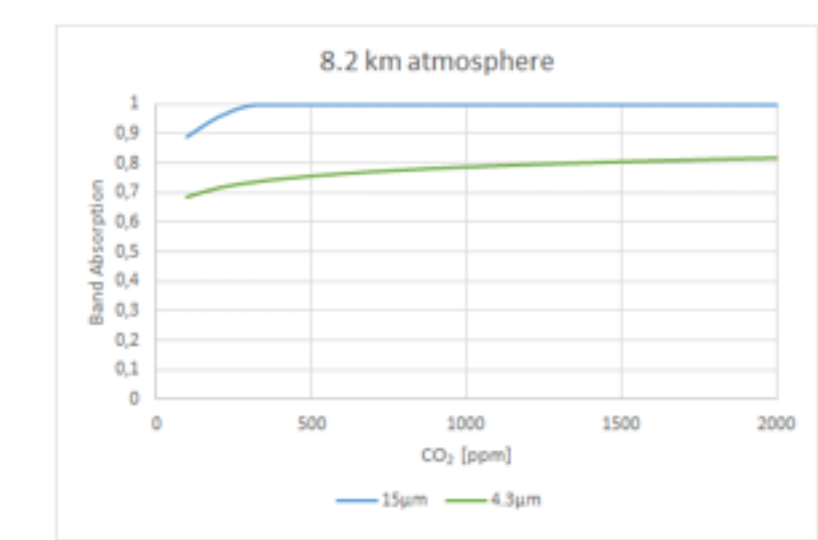


Figure 14: Band absorption within 8.2 km atmosphere¹¹

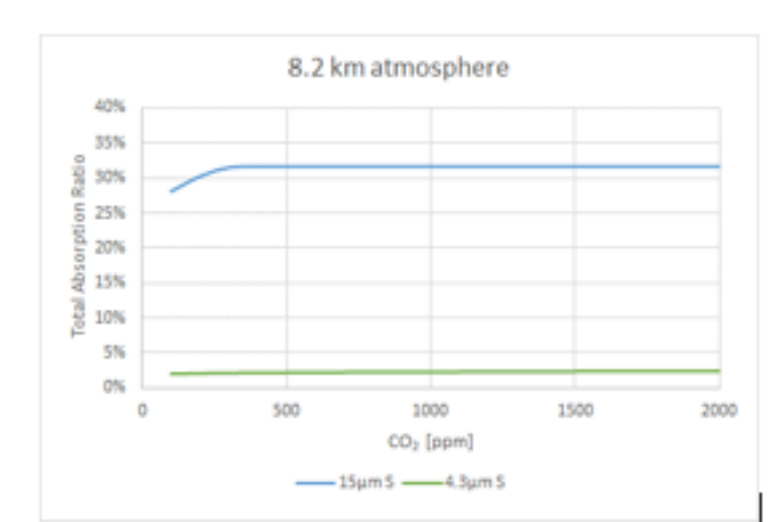


Figure 13: Absorption ratios for the two strong CO2 absorption bands according to ref. 11

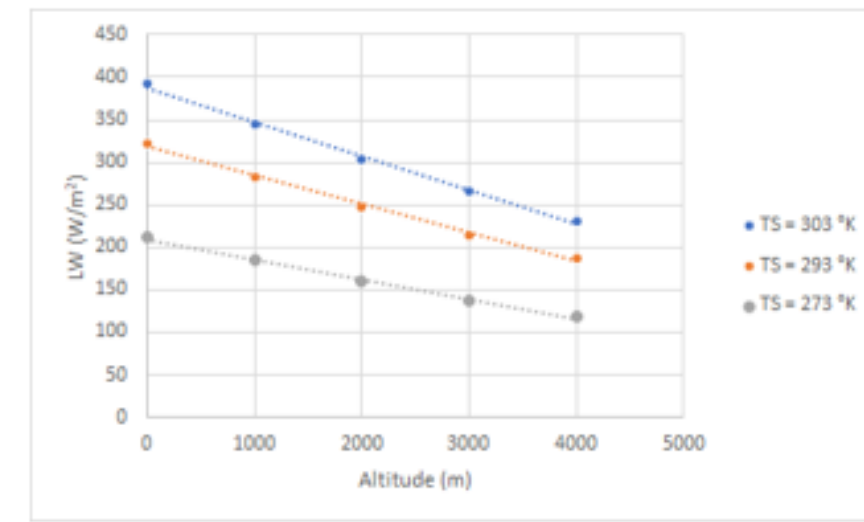


Figure 10: estimated back-radiation in Standard Atmosphere at three different surface temperatures

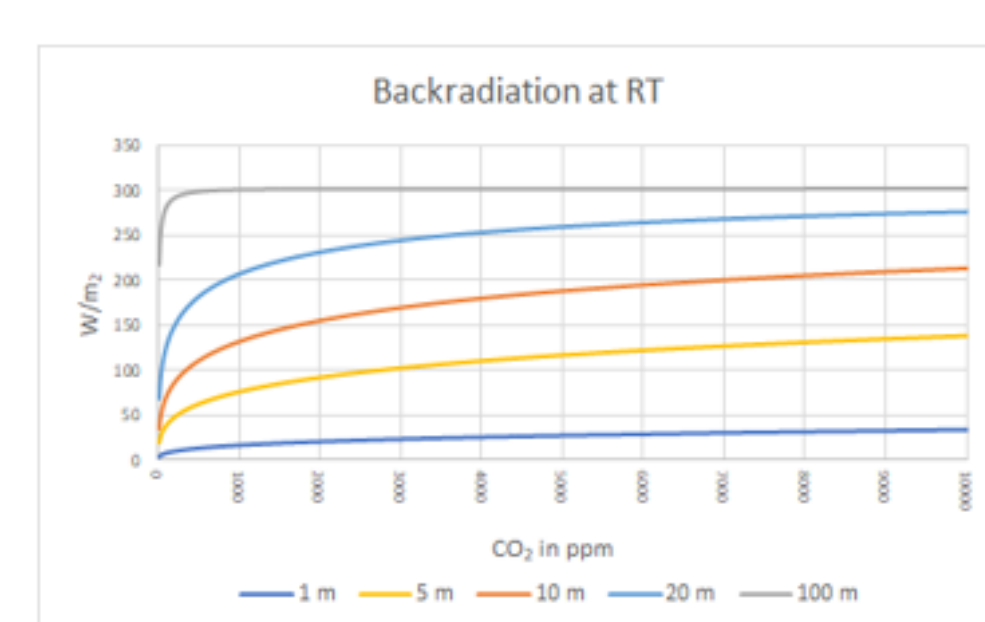


Figure 13: Calculated back-radiation for different long air columns at room temperature (RT)

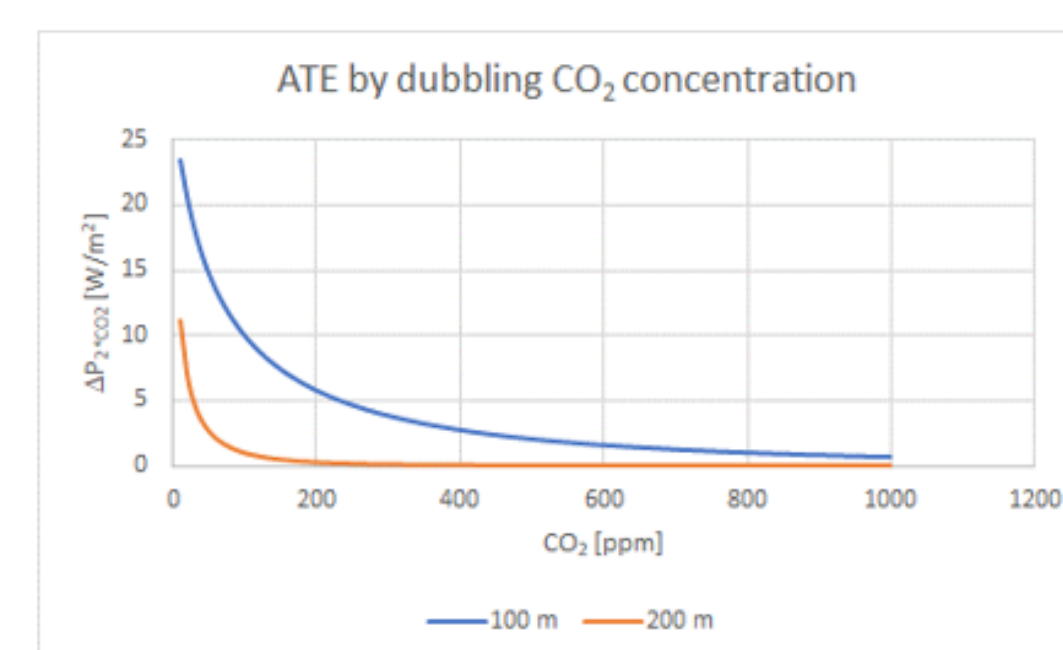
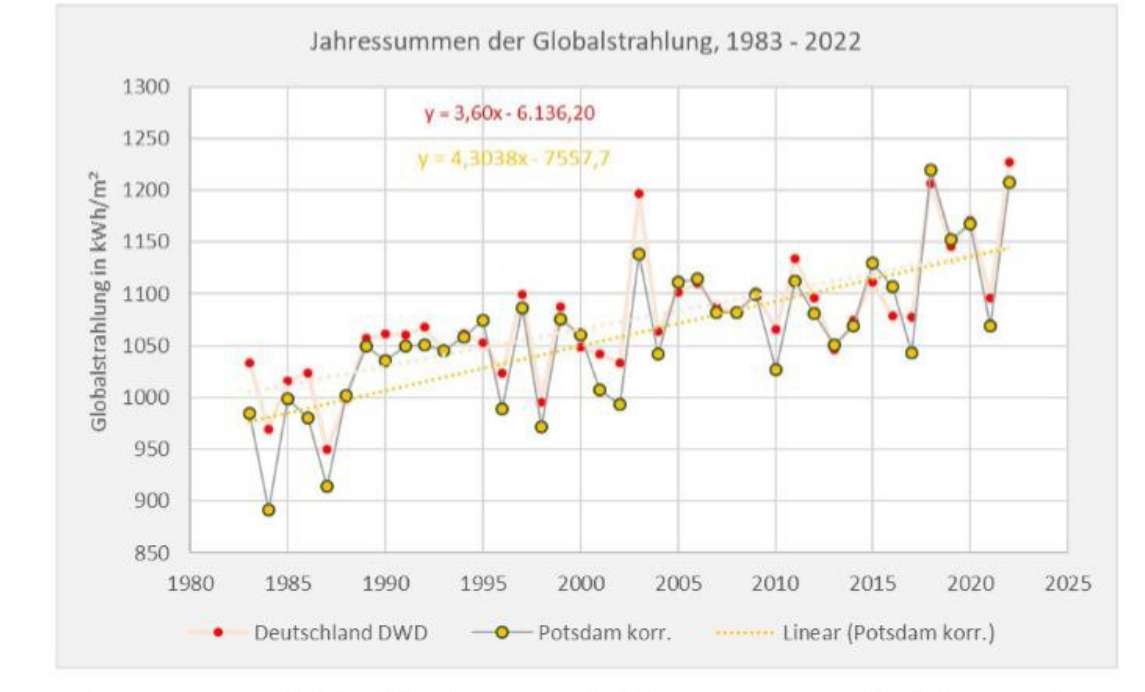
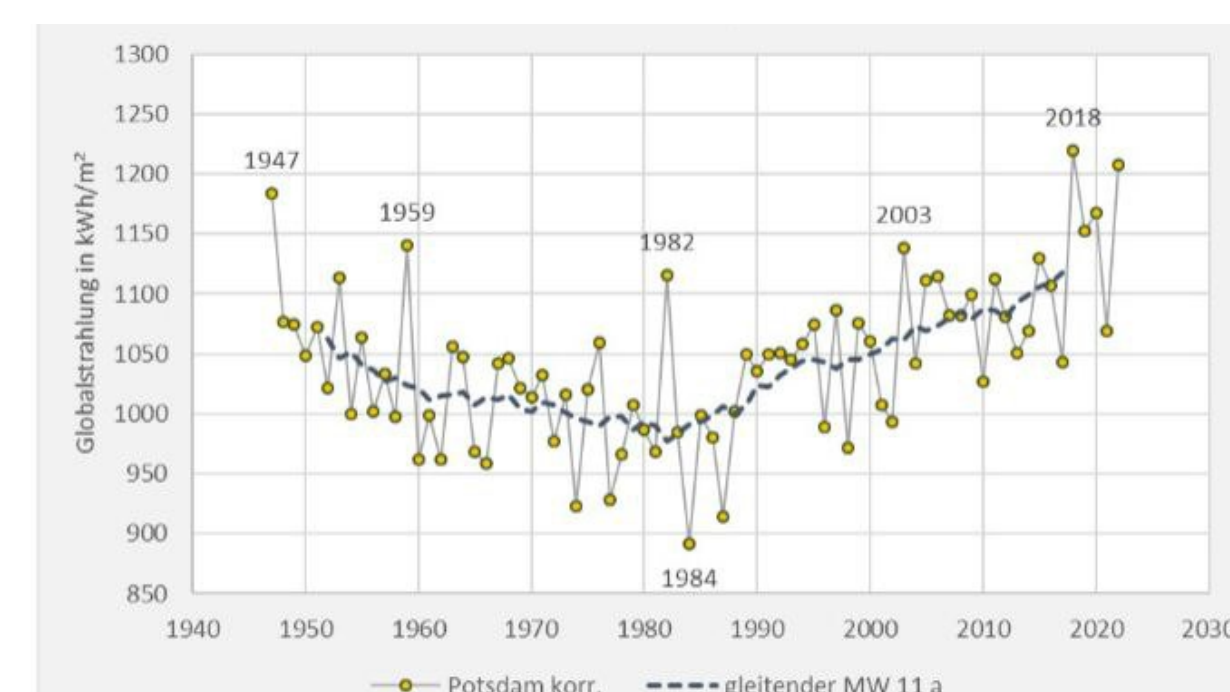


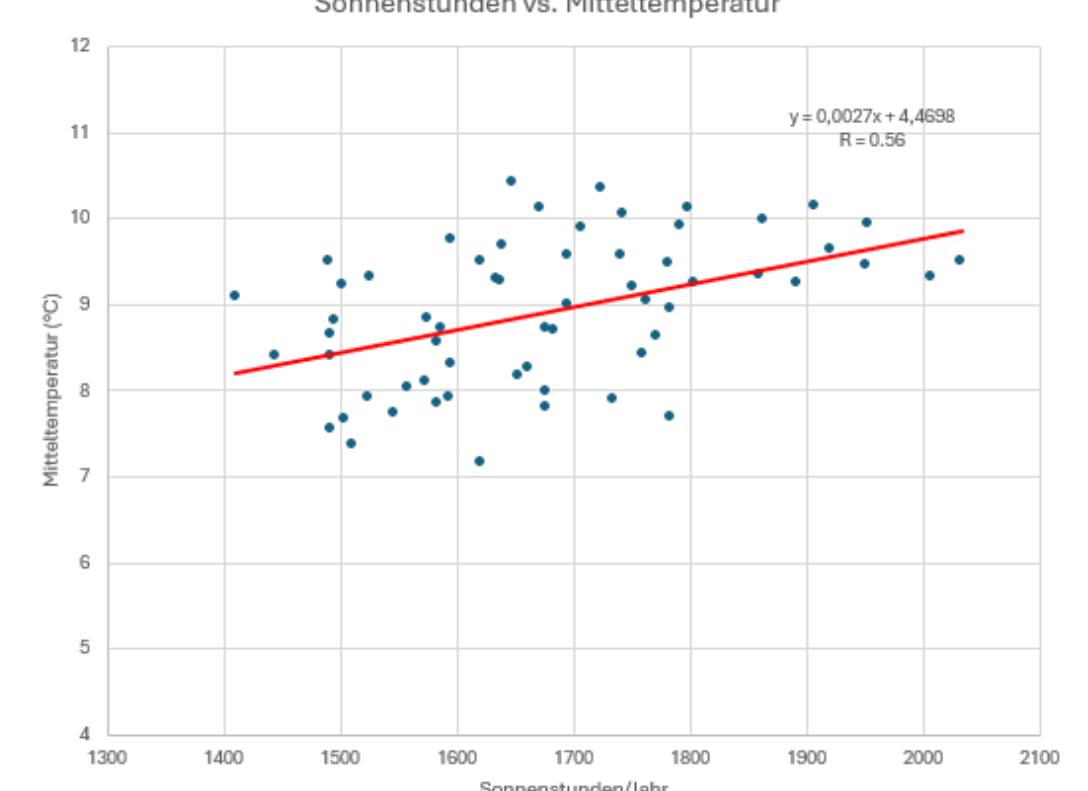
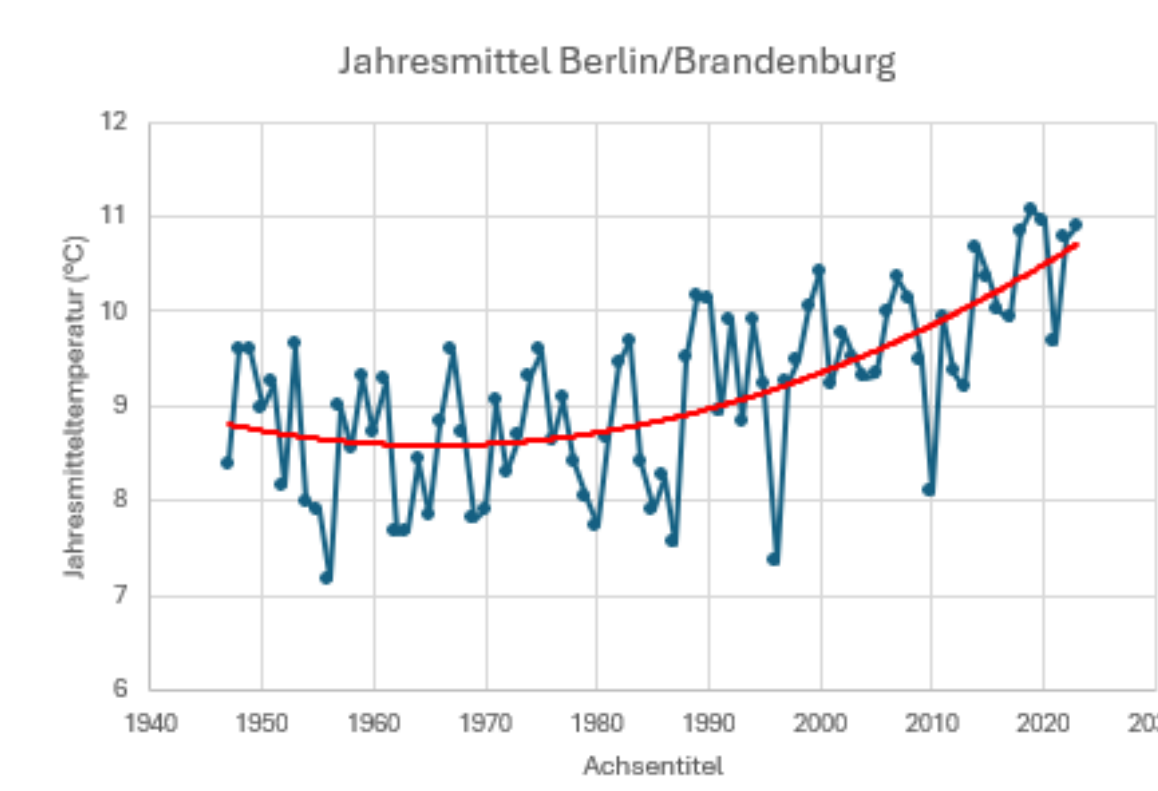
Figure 24: Calculated effect of CO2 doubling on backscattered power in two air columns

AIR POLLUTION AND CLIMATE

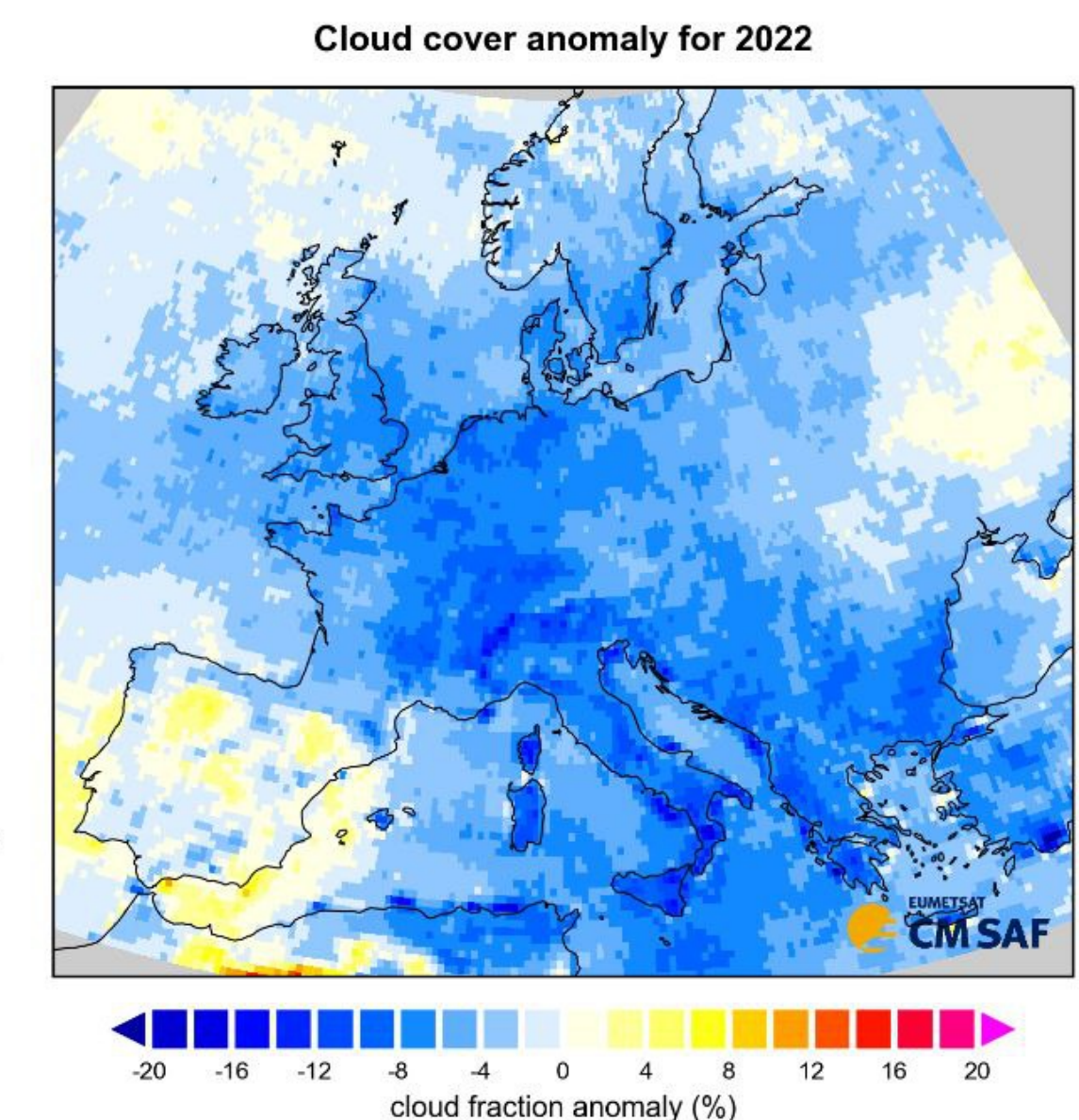
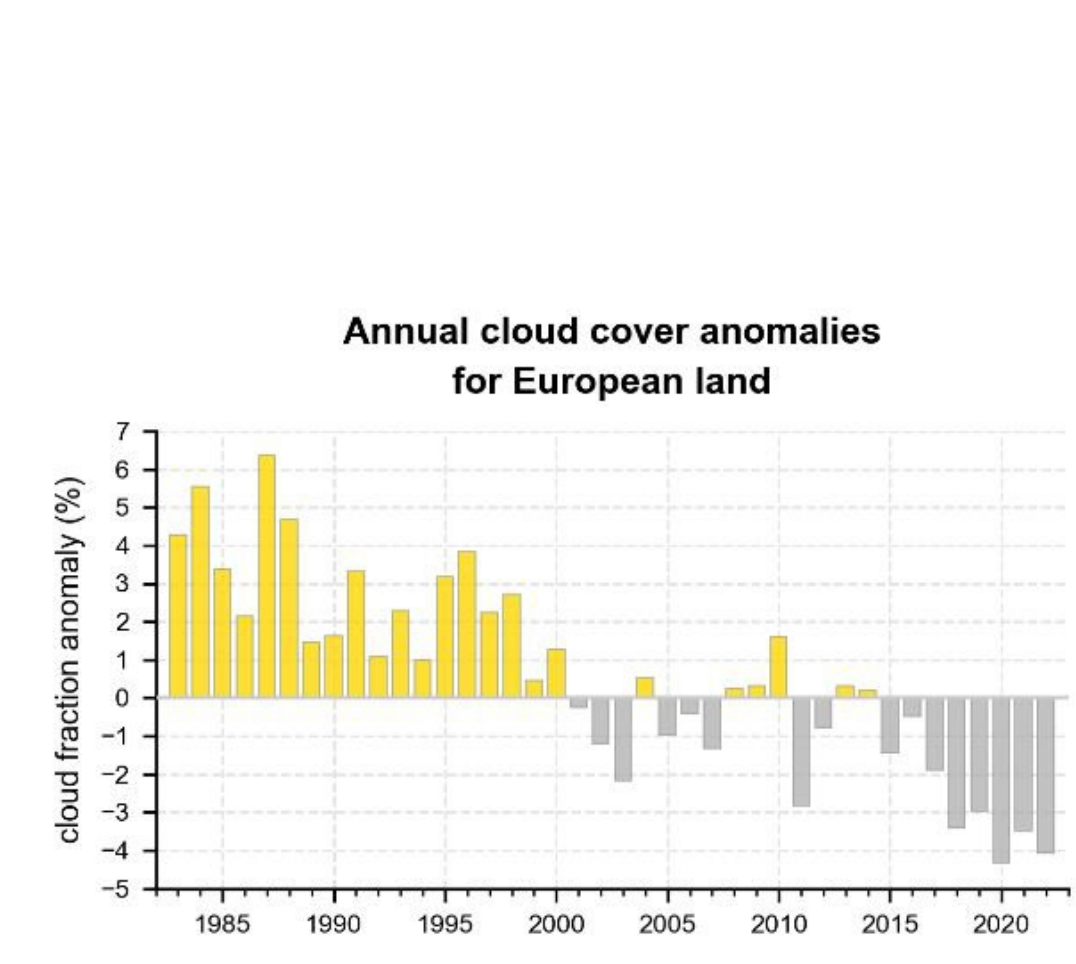
A significant correlation between the increased hours of sunshine and the increase in the average temperature in Germany based on the data from the DWD (German Weather Service) has been found. 370 more hours of sunshine in Central Europe are equivalent to a temperature increase of 1°C. This result has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



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



• 1°C / 37C



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

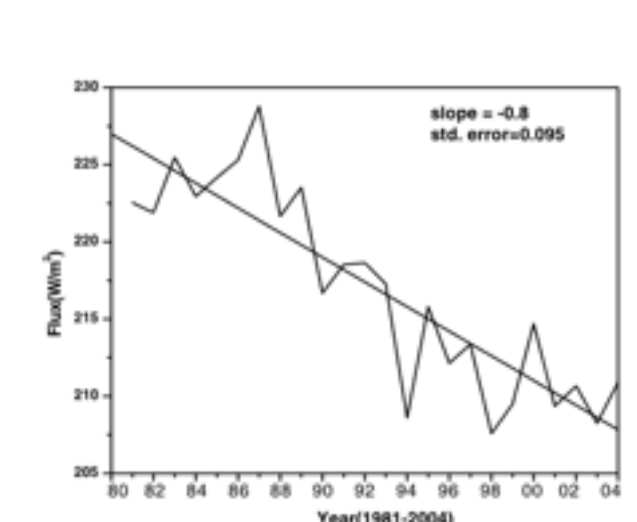
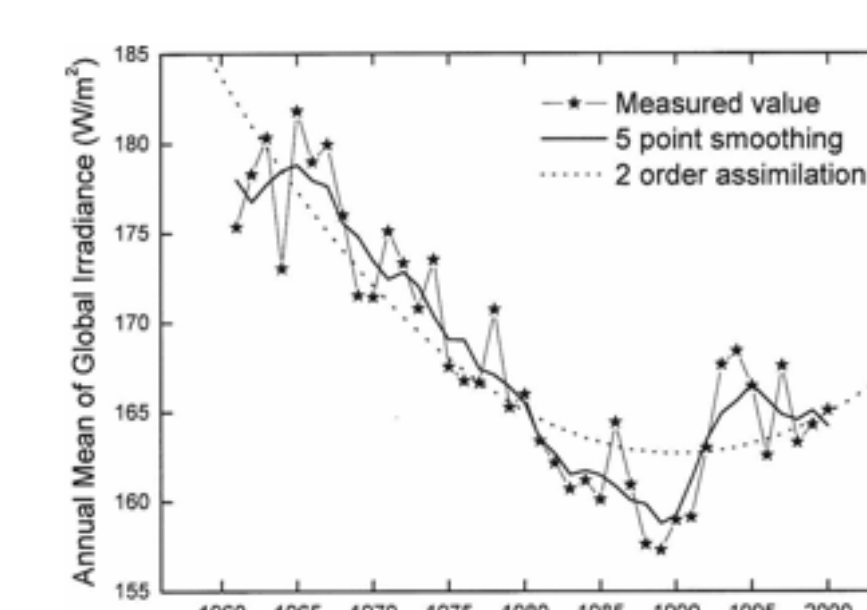
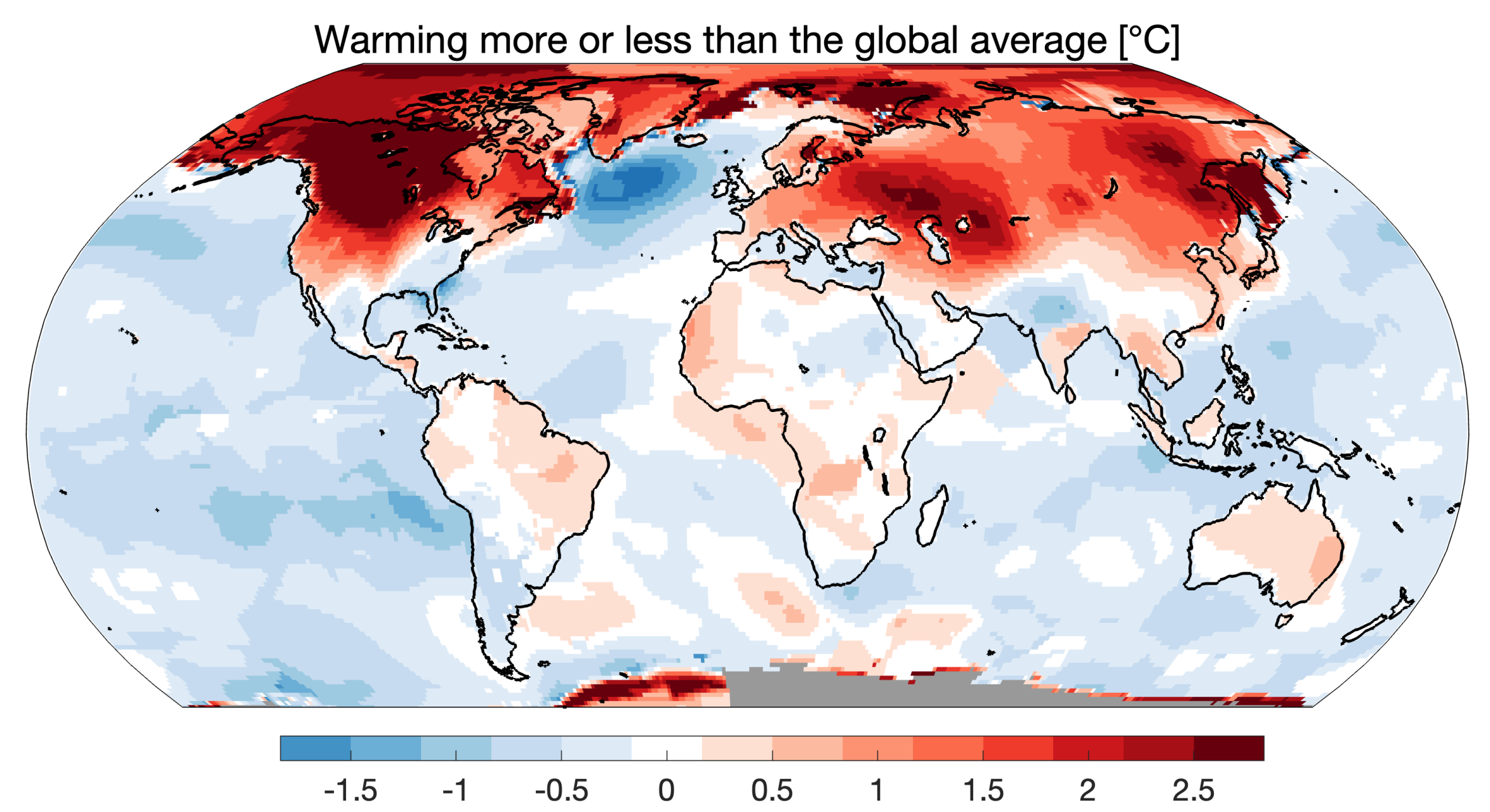


Figure 1. All India averaged annual mean surface reaching solar radiation.