A Fast Track to Lower Global Temperature

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The energy balance of Earth is determined by incoming Solar radiation and outgoing infrared radiation. Increasing CO_2 closes the door for outgoing radiation somewhat and increases Global Temperature. Now, thefocus is onreducing CO_2 input to the point where we can see a decline of the CO_2 content in the atmosphere. But reducing CO_2 content is slow andmaytake 100 years or so. A tiny reduction of Solar energy flux will also reduce temperature.Theeffect is immediate. We do not want to block all sun light, only a tiny reduction is wanted. That can be achieved by the penumbra of a small number of screens in orbit around the Earth. From simple geometry the radius of the penumbra is given by

$$R_P = R_{Scr} + D_{ESc}*R_{Sun}/D_{SunE}$$

R_P= radius of penumbra, R_{Scr} = radius of the screen i orbit, D_{ESc}= distance Earth to Screen (200000 km), R_{Sun}= radius of Sun (700000 km), D_{SunE} = distance Sun to Earth (150E6 km)

For screens of radius smaller than 1 km the radius of the screen is negligible. Small screens given early the same radius of the penumbra. For an orbit at 200 000 km it is

$$R_P = 930 \text{ km}$$

which is not small compared to the Earths radius. The effectof screens in orbit canthus be expected to be considerable. With about 8 sreens in orbit in the ecliptic plane around the Earth, we could expect a directreduction of Global Temperature of the order 0.1 K. The feedback effect form more iceresulting from the direct temperature reduction would give additional reductions in later years, possibly giving a 0.3 K total reduction.