



## **Solar Effects on Climate: What is the evidence**

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It is physically obvious that variations in solar irradiance must tend to affect the climate of our planet, but hard evidence of an effect is elusive. The main reasons for this are ignorance about the solar forcing itself, the substantial internal variability of climate, uncertainties in climate monitoring until recent times when other forcings dominate, and an unfortunate amount of "degeneracy": similarity in the time variation of different potential climate forcings.

The literature claiming solar effects on climate was historically characterized by incompetence and wishful thinking, leading to a state when mainstream climate scientists would often dismiss any claim of solar influence without consideration. In the last generation improved modelling and the development of rigorous techniques for the detection & attribution of climate change have changed this, and there is now good evidence for an effect - though not conclusive, given the problems listed above. Sadly, incorrect analysis and wishful thinking have not gone away, and are now sometimes joined by active campaigning against the science.