



Variations of solar irradiance on time scales of days to millennia

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Determining the exact level of warming due to greenhouse gases requires a good understanding of the natural causes of climate change and the magnitude of their influence. The most obvious one is related to the Sun, which is the source of almost all external energy input into the climate system. Both solar total energy reaching the Earth and its spectral distribution vary with time. Measurements and models suggest that these variations occur at all time scales ranging from seconds to millennia (and even longer). Here a review of recent models of solar irradiance on time scales longer than a day will be given.