



Does the Sun contribute to climate change?

Paal Brekke

Norwegian Space Centre, Norway

Numerous attempts have been made over the years to link various aspects of solar variability to changes in the Earth's climate. Since the Sun's output of electromagnetic radiation and energetic particles varies, and since the Sun is the ultimate driver for the climate system, it seems natural to link the two together and look for the source of climate variability in the Sun itself. In recent years there has been a growing concern about the possible anthropogenic forcing of climate change through the increasing atmospheric content of greenhouse gases. As a result the connection between solar variability and global climate change is sometimes considered a very controversial area of research. Over the past 150 years the Earth has experienced a warming of about 0.7 degrees. In the same period both the concentrations of greenhouse gases in the atmosphere and the level of solar activity have increased. Thus, it is not a trivial task to detangle the two effects. To further complica! The picture there are several ways the Sun may impact the climate; through the electromagnetic radiation (Total Solar Irradiance); or some component of it such as the ultra violet (UV), through the direct solar wind via magnetosphere/atmospheric coupling, and/or through the galactic cosmic radiation, which is modulated by solar shielding and possibly influences cloud formation. This presentation will summarize our current understanding of these mechanisms.