

The solar magnetic field and variability

Monday 31 March 2025 11:30 (45 minutes)

The solar magnetic field influences many aspects of the Sun, including its activity and its brightness variability. Solar activity manifests itself in numerous ways, such as the presence of sunspots and faculae on the solar surface, of a hot corona, bright flares and mighty coronal mass ejections. The variations in solar brightness are important for the atmosphere of the Earth, which receives almost all of its energy from the Sun and which is consequently influenced by changes in this irradiation. In recent years there has been considerable progress in both the theoretical and observational study of solar magnetism and variability, not least thanks to work that has been done at the Max Planck Institute for Solar System Research. The talk will present some of the highlights of this research, including realistic radiation-MHD simulations of solar magnetic features in the solar atmosphere, observations of the solar magnetic field with novel instrumentation and from unusual vantage points, as well as studies of archives of historic and prehistoric solar variability.

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Session Classification: Plenary