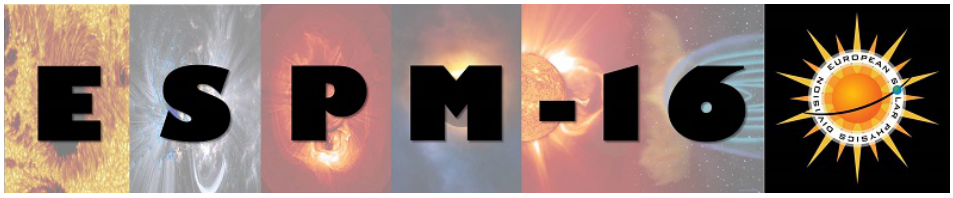

Contribution ID: **237** Type: **Poster**

Reconstructing past solar irradiance variations with Ca II K observations

Thursday, 9 September 2021 11:00 (13 minutes)

Direct regular measurements of solar irradiance from space exist since 1978.
They suggest that irradiance varies on all accessible timescales.
Models attributing the variability on time scales longer than about a day to the evolution of the solar surface magnetic field are very successful in reproducing the measured changes.
To reconstruct past irradiance changes, such models require appropriate input data to account for the different contributions of surface magnetic features, such as sunspots and faculae.
Unfortunately, suitable facular data extending before the period of direct irradiance measurements are not available.
Ca II K observations are the longest data that can provide direct information on faculae.
Such data from multiple sources, partly going back to the late 19th century, are an invaluable source of information on past solar activity.
Limiting factors on the use of these data have been the unavailability of the observations in digital form, difficulties in accounting for the non-linear response of the photographic plates to the incident radiation, as well as various artefacts plaguing the images.
We have extensively studied historical Ca II K data, including their photometric calibration and accounting for various large-scale artefacts plaguing them.
We will present our latest work on employment of Ca II K data for reconstructions of past irradiance variations.

Student poster?

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