

The dependence of the [FUV-MUV] colour on solar cycle

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Ground and Space-based Instruments for Future Research in Solar-Terrestrial Physics
L'Aquila, 6-10 June 2016



Mg II index

Solar UV proxy

Ratio between h and k emission doublet at 280 nm (chromosphere), and a reference continuum intensity at specific wavelengths in the wings of the Mg II absorption band (photosphere)

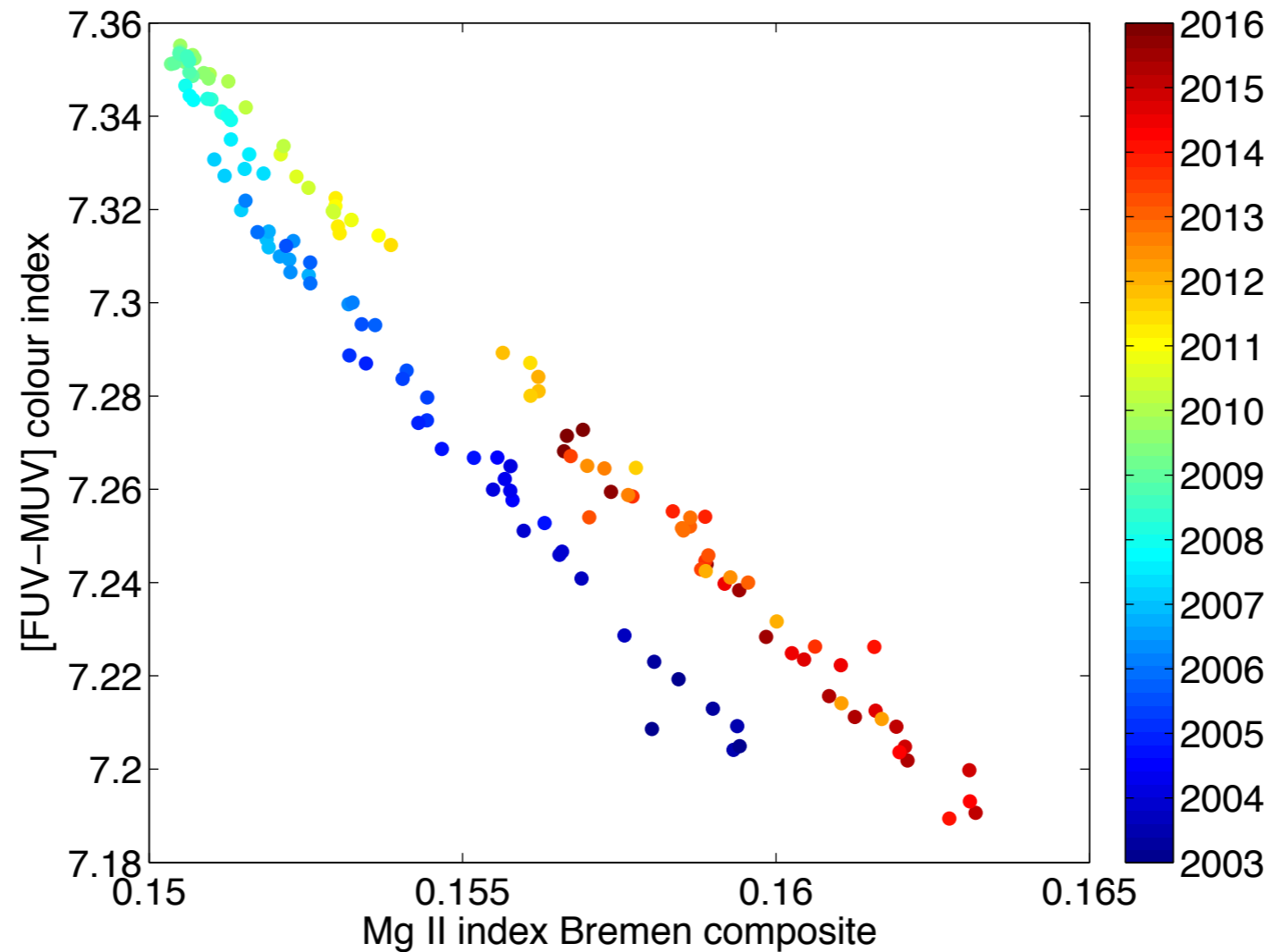
The Bremen composite

[FUV - MUV] colour index

Measure of the ratio of the fluxes in two spectral regions:

$$[FUV-MUV] = -2.5 \log \frac{F_{fuv}}{F_{muv}}$$

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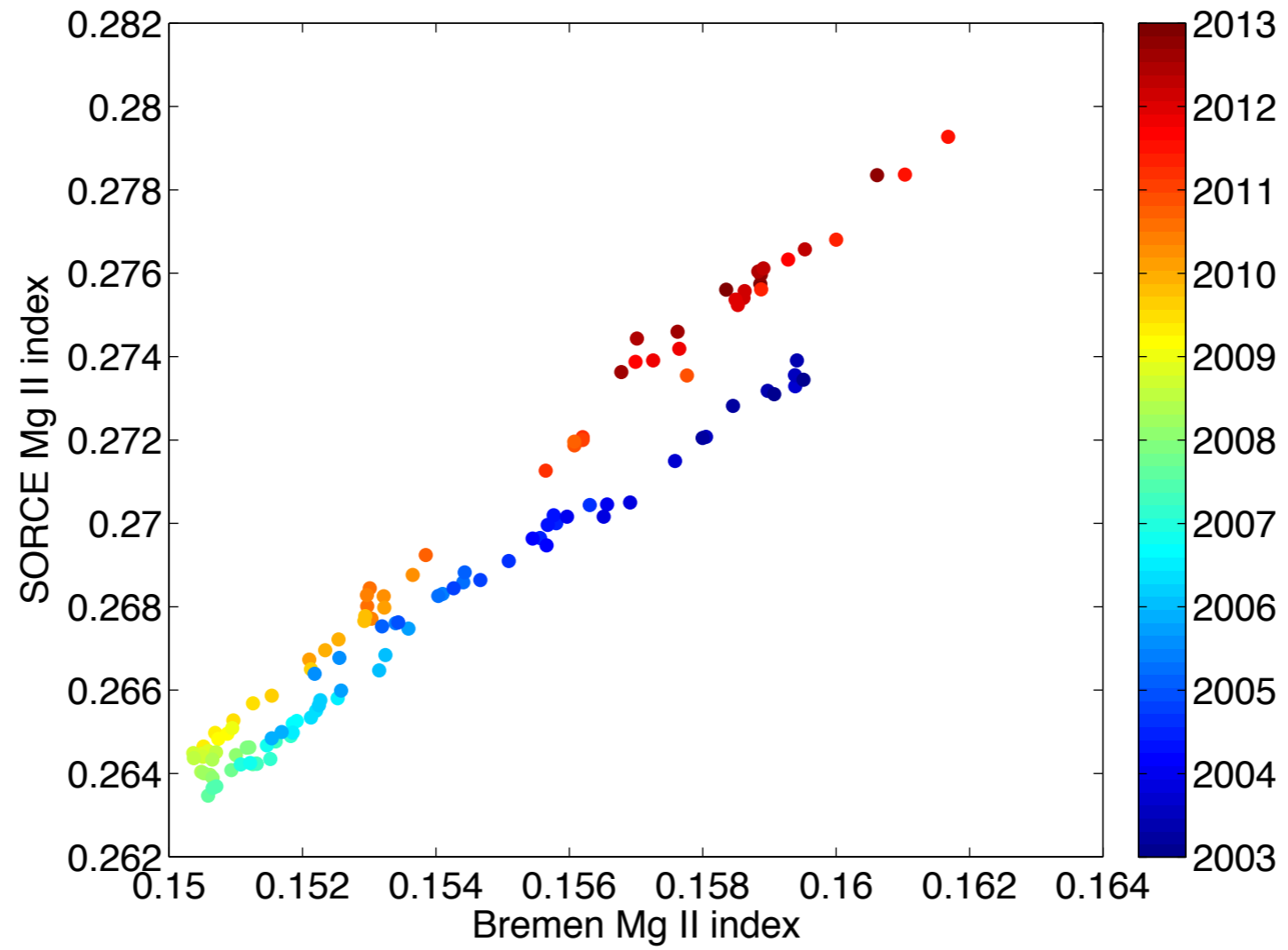


The slope of the solar UV spectrum, i.e., the relative variation of the UV fluxes, is proportional to solar activity on the time scale of 11 years

The two slopes can be explained by:

- 1) dependence of spectral properties of magnetic structures on the cycle of solar activity
- 2) residual SOLSTICE instrument degradation

SORCE SOLSTICE ageing



Ageing model

Hypothesis:

- 1) Linear time dependence of FUV and MUV fluxes during the solar cycle
- 2) Exponential ageing of optics or detection process
- 3) Efficiency reduction of a factor 0.0002 per month in FUV

The value corresponds to a total reduction of 2.8% during the observed period

