Geophysical Research Abstracts
Vol. 15, EGU2013-8414, 2013
EGU General Assembly 2013

Solar and stellar spectral variability

Yvonne Unruh and William Ball

Imperial College, Astrophysics Group, Blackett Laboratory, London SW7 2BZ, United Kingdom (y.unruh@imperial.ac.uk, 0044 20 75947541)

Measurements of the changes in the solar spectral irradiance are available for three solar cycles and there is a good understanding of the irradiance changes on time scales ranging from a day to a few years. Observing longer-term changes (tens of years and longer) is more difficult, and there is much uncertainty regarding the Sun's long-term behaviour. Stellar comparisons are often used to explore a wider range of activity regimes and to estimate past and future solar variability levels. At the same time, we want to find out how different the solar example is and whether we can use it as a paradigm when finding and characterising exoplanets
around cool stars.

We will discuss some of the challenges that we encounter when comparing solar and stellar variability, such as, e.g., the spread of stellar inclinations and effective temperatures, and uncertainties in the relative area coverages and contrasts of dark and bright features. Considering different levels of spot and facular coverage for a range of effective temperatures, we investigate the expected spectral variability and compare it to observed solar and stellar variability.