

Scientific requirements for future spatially resolved W-L observations of the Sun

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Several important issues are open in the field of solar variability and they wait their solution which up to now was attempted using critical ground-based instrumentations. However, precise photometric data are attainable only from space. The new observational material should be collected with high enough spatial resolution, starting with the visible range of the electromagnetic spectrum: 1) the absolute contributions of different small-scale structural entities of the solar atmosphere from the white light flares and from micro-flares are still poorly known; 2) we do not know the absolute contributions of different structural elements of the solar atmosphere to the long-term and to the cyclic variations of the solar irradiance, including features of the polar regions of the Sun; 3) the variations of the chromospheric magnetic network are still poorly evaluated; 4) only scarce information is available about the spectral variations of different small-scale features in the high photosphere. The variability of the Sun in white light can be studied with higher spectral, spatial and time resolution using space-born telescopes, which is much more appropriate for this purpose than ground based observatories because of better seeing conditions, no interference of the terrestrial atmosphere and a more precise calibration procedure. We discuss the scientific requirements for such observations and the possible experimental tools proposed for their solution. The broader astrophysical context of the suggested solar studies is also considered.