# Compact FUV camera concept for space weather applications

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**Abstract**

## abstract

Far ultraviolet (FUV) images of Earth from space have proven invaluable in revealing contextual phenomena associated with space weather in the high latitude auroral regions and in the mid and equatorial regions. Images of this nature can be used to investigate compelling questions associated with the interaction of the ionosphere/mesosphere-magnetosphere-solar wind. Observations using images that lead to quantitative analyses are required to significantly advance the state of knowledge with regard to the affects of space weather and the interaction between and within these regions of Geospace. Current available image data sets are sufficient for qualitative analysis and morphological investigations, and while quantitative analyses are possible, they are difficult and limited to few events at best[1,2]. In order to qualitatively access the time, spatial, and causal phenomena on global scales, simultaneous images of various FUV emissions with a combination of better spatial, temporal and spectral resolution and sensitivity than currently available are required. We present an instrument concept that is being developed to improve the spatial, temporal and spectral resolution and sensitivity needed to perform the quantitative analysis that enable significant advancement in our understanding of the impact of space weather on Geospace. The approach is to use the "self-filtering" concept[3] that combines the imaging and filtering functions and thus reduces the size of the 4-mirror off-axis optical system. The optical and filter design will de described.



## Topics

Cameras ; Equipment and services ; Far ultraviolet ; Magnetosphere ; Mesosphere ; Mirrors ; Optical systems ; Quantitative analysis ; Spectral resolution

Citation

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