

The Geostationary Fourier Imaging Spectrometer - Regional (GeoFIS-R): scientific requirements and specifications

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The GeoFIS-R instrument, a component of the GeoTROPE-R ("Geostationary Tropospheric Pollution Explorer - Regional") mission which also includes a UV-VIS spectrometer (GeoSCIA), aims at measuring tropospheric trace gas distributions over Europe at the appropriate spatial and temporal resolutions to monitor air quality and tropospheric photochemistry at the regional and continental scales. The GeoFIS-R instrument will operate in the mid-infrared region and can therefore observe the troposphere during day and night. In this talk, the scientific approach to derive the instrument and platform specifications is presented. In order to assess the impact of the satellite data on the forecasting capabilities of numerical models for air quality at the regional scale, a modified version of the CHIMERE model was used. To derive the instrument specifications, the KOPRA line-by-line radiative transfer model was used. The results are discussed and the feasibility of the GeoFIS-R instrument based on available components and technologies is addressed. Comparisons with mid-infrared data from the IMG instrument that was operating in 1996-1997 onboard ADEOS will be presented.