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The Sentinel-4 Mission: Instrument Description and Atmospheric Composition Products

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Sentinel-4 (S4) is an operational satellite mission providing atmospheric composition data on a European basis with a fast (hourly) revisit time. The S4 mission is defined as an Ultra-violet Visible Near-infrared (UVN) spectrometer on the geostationary Meteosat Third Generation-Sounder (MTG-S) platforms together with utilisation of subsets of data from the MTG-Infra-Red Sounder onboard the same platforms and from the MTG-Flexible Combined Imager onboard the MTG-Imager (MTG-I) platforms. Key features of the S4/UVN instrument are the spectral range from 305 nm to 500 nm with a spectral resolution of 0.5 nm for the UV visible, and 750 nm to 770 nm with a spectral resolution of 0.12 nm in the Near-Infared, in combination with a low polarization sensitivity and a high radiometric accuracy (3% absolute, 0.05% relative spectral). The instrument shall observe Europe with a spatial sampling distance of 8 km at 45°N with a revisit time of 1 hour. The expected launch date of the first MTG-S platform is 2019, and the expected lifetime is 15 years (two S4/UVN instruments in sequence on two MTG-S platforms).

The Sentinel-4 mission, together with Sentinel-5 and the Sentinel-5 Precursor missions, is part of the Global Monitoring for Environment and Security (GMES) space component. The primary objective of the Sentinel-4 mission is the observation of the diurnal cycle of tropospheric species in support of the air quality applications of GMES Atmosphere Services. The main target species of the Sentinel-4/UVN instrument are NO_2, O_3, HCHO, SO_2, and aerosols. The presentation focuses on the Sentinel-4/UVN instrument and the atmospheric composition products.