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PERFORMANCE ASSESSMENT OF CORATHYP ATMOSPHERIC CORRECTION CODE FROM ENMAP HYPERSPECTRAL OBSERVATIONS

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Since 2020, CS Group has been developing **CORATHYP** with the French space agency (CNES), an atmospheric correction processor dedicated to the land processing of hyperspectral imagery in the reflective spectral domain (0.4-2.5 µm).

The objective of CORATHYP is to retrieve surface reflectance from measured Top-Of-Atmosphere (TOA) reflectance by removing all signal perturbations caused by interactions between solar radiation and the Earth-atmosphere system. To this end, atmospheric gas concentrations and aerosol properties are initialised using ECMWF data (pressure and ozone) and CAMS products (aerosol model and initial Aerosol Optical Thickness, AOT), respectively. In addition, dedicated retrieval algorithms have been implemented to estimate water vapour content and aerosol optical thickness directly from the imagery. Radiative transfer calculations are performed using the SOS-ABS radiative transfer model. The surface reflectance retrieval algorithm accounts for both topographic effects (slopes, altitude variations and surrounding terrain) and adjacency effects (radiative trapping, reflected irradiance and upward diffuse radiance).

CORATHYP has been validated using Sentinel-2 and EnMAP datasets. This presentation focuses on the validation results obtained with EnMAP imagery. Retrieved atmospheric parameters, namely Aerosol Optical Thickness (AOT) and Water Vapour Content (WVC), are compared with in situ measurements from the AERONET network. The accuracy of the surface reflectance products is assessed through comparisons with EnMAP Level-2A products and in situ reflectance measurements acquired at ROSAS calibration sites (Gobabeb and La Crau).