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**Dataset name:** iCUPE Datasets (DS) from Deliverable 3.2.2:

**Datasets of novel optical remote sensing products on snow, vegetation and gas flaring mapping in selected sites: Visible Near Infrared (VNIR) airborne and simulated EnMAP satellite hyperspectral imagery of Toolik Lake, Alaska**

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The dataset (in .dat raster format) contains an airborne ortho-mosaic from an Airborne Imaging Spectrometer for Applications (AisaEAGLE, Specim, Spectral Imaging Ltd, Oulu, Finland) Visible Near Infrared (VNIR) hyperspectral scanner as well as an Environmental Mapping and Analysis (EnMAP) simulated hyperspectral ortho-mosaic (30 m) of Arctic tundra vegetation at the Toolik Lake Research Natural Area. The AisaEAGLE imager has 130 bands (404.9 – 1002.5 nm) with a bandwidth of 4 nm with data acquired at a spatial resolution of 1.3 m at nadir. The data were atmospherically and radiometrically corrected. The radiometric correction was performed using sensor specific software of the instrument manufacturer (Richter and Schläpfer, 2012). The direct geometric correction was performed using manufacturer's software and/or with the simultaneously measured IMU/GPS data stream. Subsequently, the geocorrected radiance data were atmospherically corrected using ATCOR4. The resulting surface reflectance flight lines were subset to the first 97 bands (451.7 – 897 nm). The AISA mosaic was used as an input to the EnMAP satellite End-to-End Simulation tool (EeteS) to simulate an EnMAP-like mosaic with 78 bands (423 – 903 nm), a spectral sampling between 6.5 and 10 nm, and a ground sampling distance of approximately 30 m (Segl et al., 2012, 2010).

Previously published datasets of simultaneously collected ground-based spectral reflectance data and photosynthetic pigment data from dominant plant species are linked below:

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Beamish, AL (2018): Spectroscopy and pigment data from Toolik Vegetation Grid, Toolik Lake, Alaska.  
<https://doi.org/10.1594/PANGAEA>.

This dataset, metadata, and Technical Report are available at:  
<http://dataservices.gfz-potsdam.de/enmap/doi:10.2312/enmap.2020.001>

The link to dataset:  
<https://doi.org/10.5880/enmap.2020.001>

Beamish, Alison; Chabrilat, Sabine; Brell, Maximilian; Heim, Birgit; Sachs, Torsten (2020): Toolik Lake Research Natural Area AISA-Eagle hyperspectral Mosaic - An EnMAP Preparatory Flight Campaign. EnMAP Flight Campaigns Technical Report, GFZ Data Services.  
<https://doi.org/10.2312/enmap.2020.001>