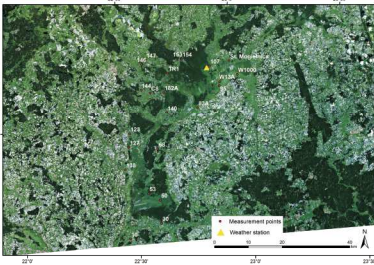


Ground measurements of soil vegetation parameters in Poland cropland and wetlands areas in support to Proba-V, S-2 and S-3 cal/val activities

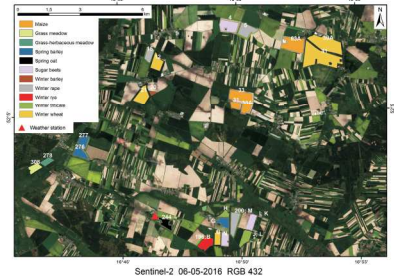
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Biebrza wetlands (Sentinel 2 Image after Sen2Cor Correction)



Wielkopolska cropland (Sentinel 2 image after Sen2Cor Correction)



PROJECT SUMMARY

The main aim of the ESA Express Procurement Plus (EXPRO+) Project carried out by the Institute of Geodesy and Cartography in Warsaw within ESA contract No. 4000116440/46/ISBo is to support calibration and validation activities related to biophysical products derived from new ESA optical sensors, installed on board of Proba-V, Sentinel 2 and Sentinel 3 satellites. In order to fulfil this aim ground campaigns were undertaken within 2016 growing season for two study areas: Wielkopolska cropland region in western Poland and Biebrza wetland region in northeastern Poland. Various in-situ measurements of soil and vegetation parameters were performed, including Leaf Area Index, APAR, soil moisture, carbon balance and spectral reflectance. The collected in-situ data are applied for validating biophysical products (LAI, fAPAR) derived from satellite data, using models under development at IGiK and utilized within ESA SNAP toolkit

IN-SITU MEASUREMENTS AND LABORATORY ANALYSIS

Spectral measurements



High-resolution spectral measurements using ASD FieldSpec 4 spectroradiometer

LAI



Leaf Area Index (LAI) using LAI 2000 Plant Canopy Analyzer

Soil moisture (SM)



Soil moisture using TRIME Field Measurement probes

APAR



Absorption of Photosynthetically Active Radiation (APAR) using AccuPar instrument

CO₂



Carbon balance using chamber method and Eddy-Covariance method

TS

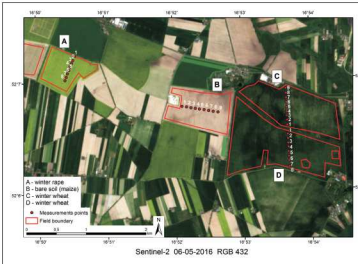


Temperature measurements using Everest Agri-Therm II radiation thermometer

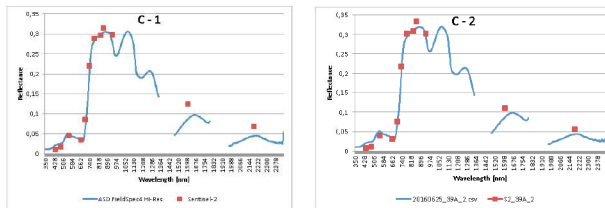
Laboratory Analysis

- Amount of wet biomass
- Amount of dry biomass
- Water content in plants
- Amount of crop ears

COLLECTED RESULTS



Reflectance by field measurements and Sentinel 2 (wheat 2016-06-25)



Dates of field campaign, S-2 and Proba-V acquisitions

Date of in-situ measurements	S-2 acquisition date/cropland cover	Proba-V acquisition date/cropland cover
23.04-28.04.2016	-	-
05.05-08.05.2016	06.05.2016/0%	07.05.2016/0-25%
15.05-17.05.2016	-	-
24.05-26.05.2016	-	-
04.06-07.06.2016	05.06.2016/0%	08.06.2016/0-25%
11.06-15.06.2016	-	-
23.06-25.06.2016	25.06.2016/0-25%	26.06.2016/0-25%
04.07-07.07.2016	-	-
14.07-19.07.2016	-	-
24.07-27.07.2016	-	-
31.07-04.08.2016	-	-
11.08-14.08.2016	-	-
22.08-24.08.2016	-	-
02.09-05.09.2016	-	-
12.09-15.09.2016	13.09.2016/0%	15.09.2016/0-25%
21.09-23.09.2016	-	-

