

2019-1-25: Common system and platform, based on Copernicus data and services, for Agricultural Agencies in Poland; Institute of Geodesy and Cartography (IGiK), PL

1. SURVEY

As a part of the project work, an expert opinion on the Copernicus Program data was developed. The survey (Figure 1) was conducted among potential system users. While developing the survey, a free solution from Google (Google Forms) was used.

The survey took place between 4 and 18 of March 2022 and 70 employees of agencies supporting the development of agriculture in Poland (ARiMR and KOWR) responded. As a part of the survey, participants were given six questions, five of which concerned the proposed service, and one - the information on the participant's organization (KOWR or ARiMR).



Figure 1 Questionnaire form - the questionnaire was prepared in Polish.

One of the questions was open and the respondents were asked to indicate additional functionalities of the service which, in their opinion, would be useful for supporting agricultural analysis. Most of the participants indicated the need for products indicating flooded areas (floods) and areas affected by agricultural drought (Figure 2).

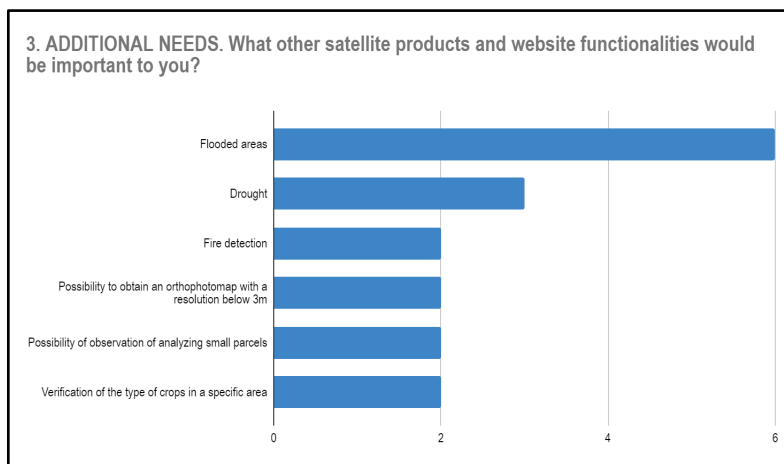


Figure 2 Additional system functionalities proposed by the respondents

2. COMPILATION OF THE SYSTEM AND SERVICE ARCHITECTURE

The result of the work on the expert opinion and the survey is the development of the system and service architecture. The work on the system has been continued since the beginning of 2022. The initially developed system architecture is presented in Figure 3. and the system will rely on processing free satellite data available in the Google Earth Engine. As a part of the project, products will be developed to indicate agricultural areas potentially prone to freezing.

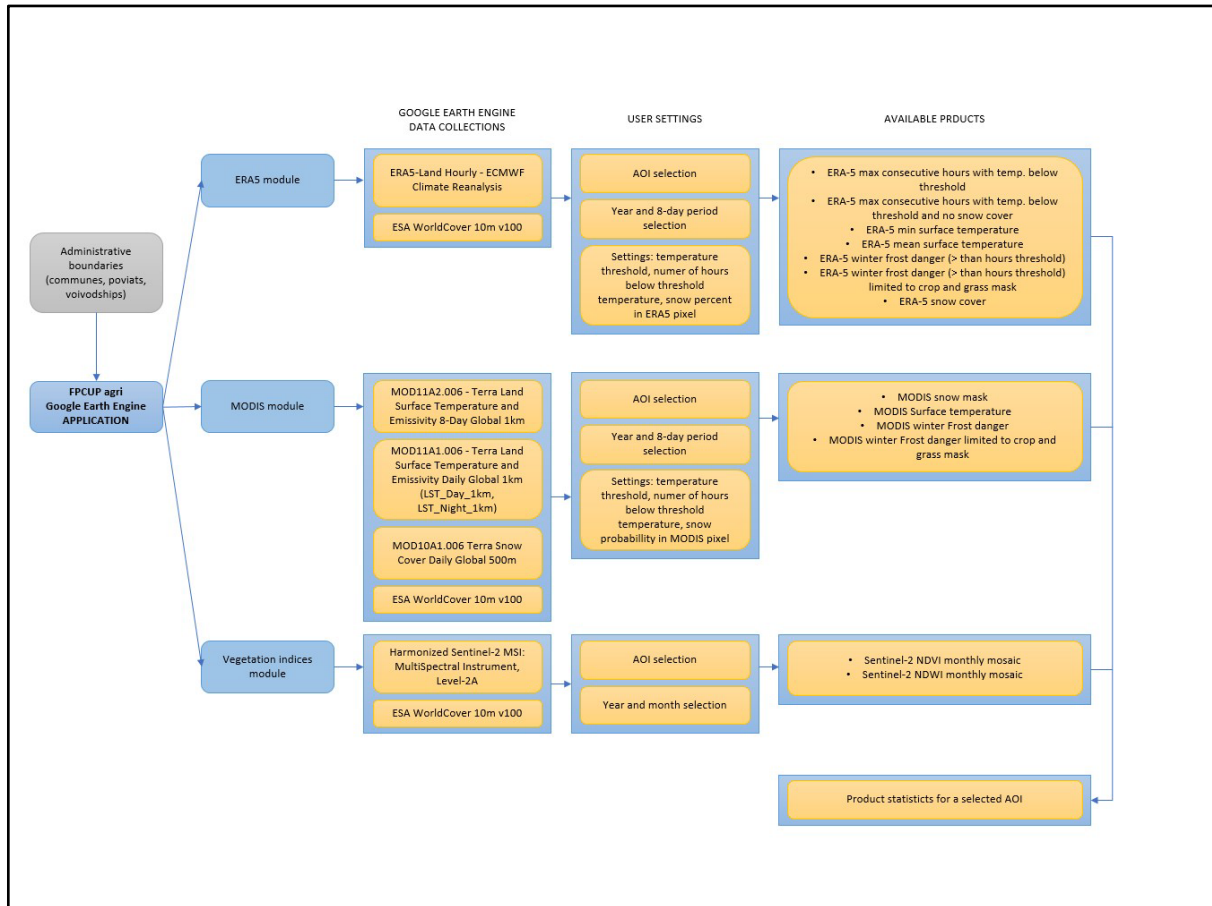


Figure 3 The diagram of system and service architecture

3. SYSTEM AND SERVICE PROTOTYPE DEVELOPMENT

Google Earth Engine (GEE) is a computing platform that allows users to run geospatial analysis on Google's infrastructure. There are several ways to interact with the platform. The Code Editor is a web-based integrated development environment (IDE) for writing and running scripts. The Explorer is a lightweight web app for exploring a huge data catalog and running simple analyses. The client libraries provide Python and JavaScript wrappers around web API.

Figure 4. presents the initial concept of the website user panel. It includes access to the necessary functionalities (including map, zoom, data selection, period selection). Currently, work is underway on adding new datasets, preparing the ability to generate reports and charts, and legends for offered map products.

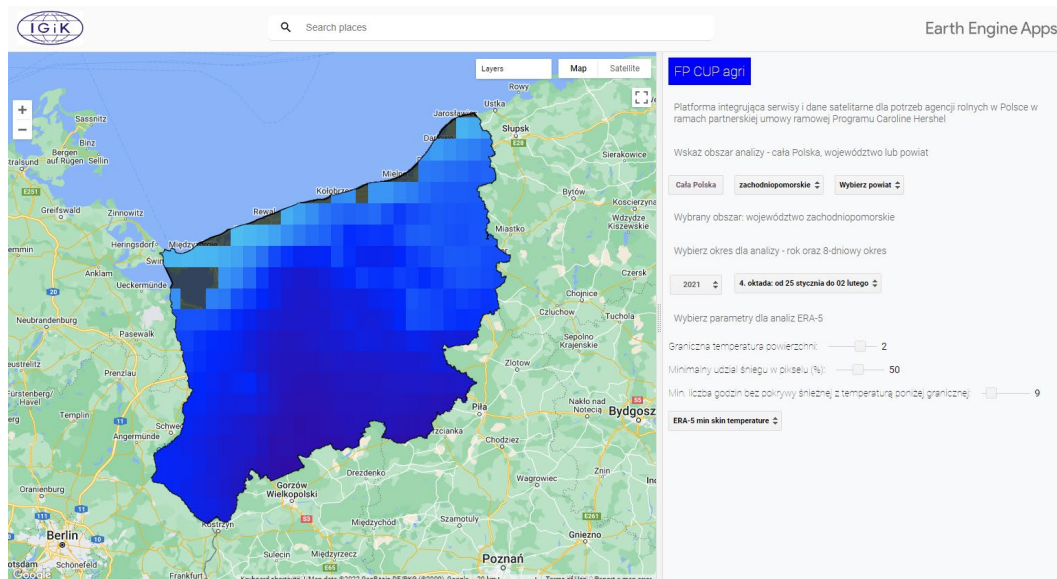


Figure 4 The initial version of the system, which will be tested together with employees of institutions supporting the development of agriculture in Poland.

4. WORKSHOPS

As part of the project work, a workshop was held on the use of cloud solutions in EO for employees from agencies supporting agricultural development in Poland (Figure 5). The next workshop is scheduled for early January 2024.

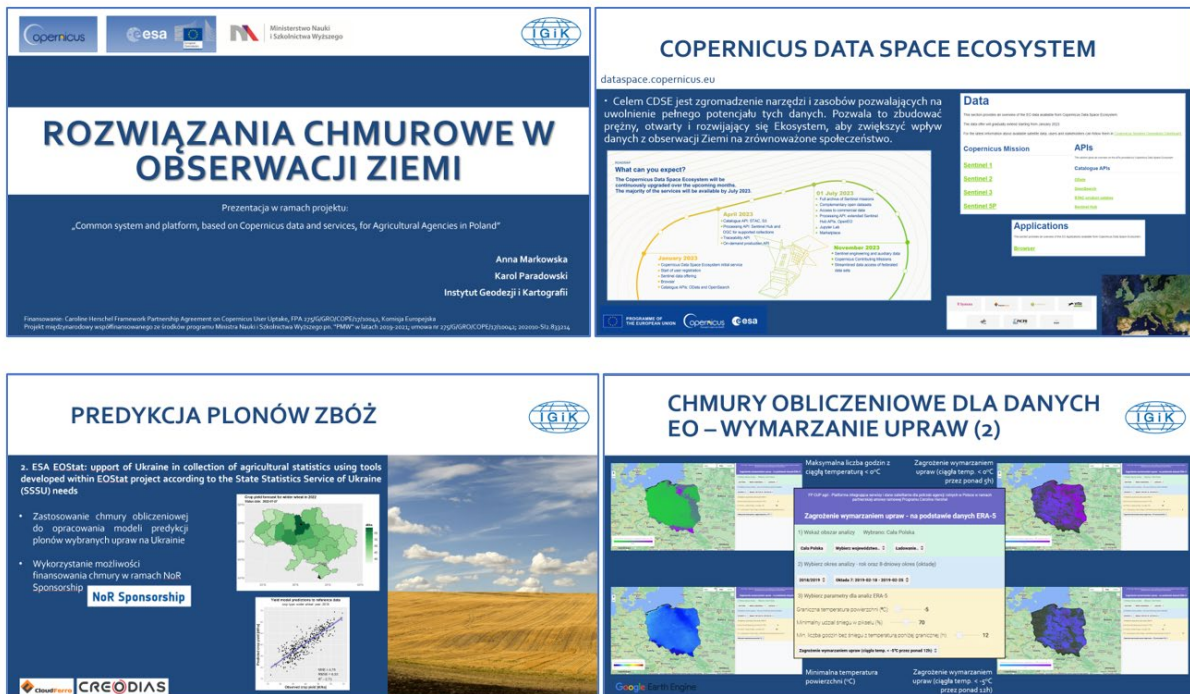


Figure 5 Workshop for the employees of the Agencies presenting the achievements and explaining the functionality of the delivered solutions – “Cloud Computing in Earth Observation” (19.06.2023)