



SenSPa Newsletter - Issue 2, January 2020



Photo: A.P Kyriazopoulos

Welcome to the second newsletter of the SenSPa Project!

This issue covers the period from end of September 2019 to January 2020 and provides an overview of the progress made in the project. The SenSPa Newsletter shares information about results and events of the SenSpa (Sentinels for Sustainable Pasture Management) project, a 1-year Activity carried out under a programme of, and funded by, the European Space Agency. It aims at keeping all relevant stakeholders informed in sustainable pasture management by using Earth Observations (EO) application concepts and an EO based tool (SenSPa tool).

The engagement of all interested parties is very important to us. Therefore, we would like to encourage you to participate and to constructively collaborate in our endeavor for sustainable pasture management. We hope that you find this information useful and we were looking forward to hearing your effective and constructive feedback.

If you are interested to see the project's news and outcomes, you can visit the SenSPa website and social media.

Visit SenSPA website at: <http://www.senspa.karteco.gr/>

Follow us at: <https://www.facebook.com/Senspa-ESA-682444158859206> (Facebook),

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Activity carried out under a programme of, and funded by, the European Space Agency.

Content

- SenSPa Models Development and Validation
- SenSPa Products
- SenSPa Tool Development Completed
- SenSPa Promotion Video
- SenSPa Leaflet Final Version
- SenSPa Closing Event
- SenSPa Training Event

SenSPa Models Development and Validation

The SenSPa field measurements, were gathered, homogenized and the appropriate formulas have been used for converting them to productivity and condition. The modeling procedure has been completed using the original and synthetic earth observation variables. Different models were investigated and evaluated (namely Random Forests, Artificial Neural Networks and Boosting Trees) for predicting pasture productivity. Different stratification approaches were also explored during the model development phases. For the model validation for condition assessment and pasture productivity, the accuracy of the different models was assessed with metrics such as RMSE and R square.

SenSPa Products

The products provided by the SenSPa tool are in line with the user need's that were collected through online questionnaires. The main products that are provided to the users are:

- Forage productivity
- Pasture condition
- Grazing capacity for cows
- Grazing capacity for sheep
- Plant cover

These products provide to the stakeholders useful and up to date information for sustainable pasture management.



SenSPa Tool products: From left to right Grazing Capacity, NDVI, Pasture Productivity

SenSPa Tool Development Completed

Following the completion of SenSPa configuration in EO Merlin platform of GMV and the user interface design, the front-end was developed in a modular way using modern, free and open source languages, frameworks and libraries. The front-end consists of the following modules:

- Data catalogue / Data search
- Spatial data visualization
- Data processing interface
- Data analysis
- Administration console



Following the SenSPa tool front end development, activities on the back end – front end integration took place to complete the development of the tool.

The SenSPa on-line tool is providing useful, up to date information for sustainable pasture management. Local and national public administrations, public and private stakeholders and end-users can now use the SenSPa tool in planning of pasture management activities and decision making to support sustainable pasture management and in the long-term pastures' restoration.

SenSPa Promotion Video

A video has been produced in order to promote the visibility of the SenSPa tool to a wide range of audience. The video was presented in the closing event. The video is available for viewing on the SenSPa web portal social media platforms and youtube.

SenSPa Leaflet Final Version

The final promotional leaflet of the SenSPa tool is ready in English and Russian and can be downloaded from the SenSPa Web Portal. The leaflet provides a brief description of the tool, the products that it provides, its advantages and benefits, as well as information on where it can be applied and by whom.

SenSPa Closing Event

The closing event was successfully held in Baku on January 15, 2020, organized jointly by kartECO (Prime Contractor) and the Agro Research Center (host of the event). The event was efficient and fruitful, having 33 attendees (team members and local collaborators are not included in this number) from 10 different stake holders/entities, namely:

- Ministry of Agriculture, Republic of Azerbaijan
- Azerbaijan National Standardization Body
- EU Delegation to Azerbaijan
- WWF Azerbaijan
- Ismayilli AGROCENT
- Geography Institute of Azerbaijan, National Academy of Sciences.
- GIZ, Azerbaijan Office
- DRAXIS
- AzerCosmos
- IDI International Development Ireland

The event opened with speeches by Dr. Apostolos Karteris, Director of kartECO, Dr. Firdovsi Fikratzade, Director of Agro Research Center, Ministry of Agriculture and Mr. Rainer Freund, Programme Manager in EU Delegation to Azerbaijan. The 1st Session continued with an over-view of the SenSPa Project and a presentation of the Back-end infrastructure and Pastures Models Implementation.

During the second Session, rangeland condition assessment and determination of forage production and grazing capacity in the summer and winter pastures of Ismayilli and Shemakhi districts, the modeling of forage production and rangeland condition assessment and the SenSPa tool were presented. In the third Session, the next steps for the use of the SenSPa tool on operational basis was discussed in a Stakeholders' round table. More news and photos from the event can be found in the SenSPa Web Portal under the respective section.



Presentations by Dr. Apostolos Karteris and Dr. Emmanouel Tsiros

SenSPa Training Event

Following the closing event of the SenSPa project, a Training event was successfully held in Baku on January 16, 2020, organized jointly by kartECO (Prime Contractor) and the Agro Research Center (host of the event). Stakeholders and experts got acquainted with the use of the SenSPa tool through a two hours' hands on training session. The event was efficient and fruitful, having 7 attendees from 5 different stakeholders/entities, including:

- Geography Institute of Azerbaijan, National Academy of Sciences.
 - WWF Azerbaijan
 - Agro Research Center
 - GIZ Azerbaijan
 - Integris
- Training material on the use of SenSPa tool was prepared and distributed at the training event.



Training event in Baku



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