

Extended Abstract

Environmental Management and Precision Agriculture Through Satellite Technologies and Classic Methods of Investigation [†]

Alina Ortan ^{1,*}, Simona Spinu ¹, Anca Nemuc ², Irina Fierascu ³ and Radu Fierascu ³

¹ University of Agronomic Sciences and Veterinary Medicine of Bucharest, 59 Marasti Blvd., 011464 Bucharest, Romania; simonaspinu91@gmail.com

² National Institute of Research and Development for Optoelectronics INOE 2000, Str. Atomistilor 409, Magurele, RO077125 Ilfov, Romania; anca@inoe.ro

³ National Institute for Research & Development in Chemistry and Petrochemistry—ICECHIM, 202 Spl. Independentei, 060021 Bucharest, Romania; irina.fierascu@icechim.ro (I.F.); fierascu.radu@icechim.ro (R.F.)

* Correspondence: alina_ortan@hotmail.com

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Accelerated advances in Earth Observation technologies determine their successful use in various fields, but especially for natural resources management, ecosystem management and agriculture, providing important information input for monitoring agrosystems and assessing risks to human health. Precision agriculture (PA) is an entire system management approach using information technology, satellite radio navigation (GNSS) data, remote sensing and other associated data sources.

Due to its geographical location, the agriculture in Romania is subject to potential risks caused mainly by natural phenomena but also by anthropic activities. Current climate projections show that all regions will be affected by the global heating phenomenon, by the amplification of regional differences of the main environmental variables as well as by the complex effects of increasing extreme weather occurrences at the local level. Due to the limitation of the basic natural resources, an important element in the elaboration of the strategies of agricultural management is the improvement of the knowledge and the capacities for a better management of the variability of the climate, extreme weather and pollution events. The effects of the climatic emergency are significantly reflected in the changes regarding the main environmental variables (air temperature and precipitation), the impact on the growth and development of agricultural crops being more and more obvious [1,2].

In this context, it becomes necessary the development and implementation of an alert system for precision agriculture and environmental management related to the identification of air pollution and extreme weather events. The research should be focused on the evaluation of the evolution in time of the physical-chemical characteristics of plants in correlation with the air and the climatic variables in the area of a pilot site, the estimation of the occurrence of extreme weather phenomena, but also estimation of pollution events during annual vegetative vegetation cycles of the crops with the identification of the influences of long-range transport air masses.

A near real-time alerting system for precision agriculture can be used to assist the management decisions in smart farming since response time is essential to prevent negative effects on crops.

Identifying, quantifying, and responding to variability are essential in precision agriculture and environmental management.

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