

## **Hydrological balance in a GIS environment for an agricultural field in Diamante, Entre Ríos**

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### **Summary**

Diamante department in Entre Ríos province is characterized by its undulating topography that influences the variability of soil moisture on a batch scale. The tools provided by the geographic information systems facilitate the treatment and analysis of said variable through a matrix representation of the water inputs and outputs for each cell in the batch. This exploratory paper proposes adapting the operational hydrological balance of the Office of Agricultural Risks for use at a field scale incorporating surface runoff based on a flow accumulation map. The hill, half-hill and low-lying areas of the field were determined by means of a topographic index. Water storage maps of the field were obtained every 10 days in the surface soil layer (0-20 cm), between September 1, 2017 and August 31, 2018 for a 10 m resolution grid. The proposed methodology gives an account of the changes in soil moisture, especially in the lower sectors of the field, which is necessary to validate with field data.

**Key words:** Soil moisture; topographic index; digital elevation model; flow accumulation