

# SoMMet

**Soil moisture:** The amount of water present in the soil.

**Metrology:** The science of measurement techniques and data reliability.

## WHY IS IT IMPORTANT?

- **Plant Growth:** Plants need soil moisture to grow. It affects how well they can take up water and nutrients.
- **Water Cycle:** It plays a role in how water evaporates into the air and how plants release water, which can impact the weather.
- **Weather Prediction:** The amount of moisture in the soil influences rainfall and temperatures, helping to predict weather changes.
- **Drought and Flood Management:** Knowing the soil moisture helps to identify drought conditions or predict floods by understanding if the soil can absorb more water.
- **Farming and Environment:** Farmers use soil moisture information to decide when to irrigate crops. It's also important for managing water resources and protecting the environment.

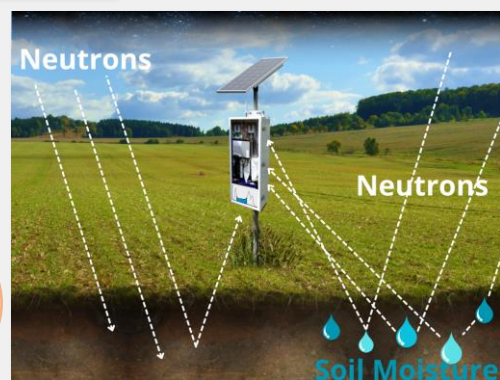
**Cosmic rays** are high-energy particles (protons or atomic nuclei) that move through space at nearly the speed of light. They originate from the Sun, from outside of the Solar System in our own galaxy, and from distant galaxies. Upon impact with Earth's atmosphere, cosmic rays produce other particles, including neutrons.



Image by ASPERA/Novapix/L. Bret



Image from I. E. Zuniga, (2022). Open Access Theses & Dissertations. 3754. [https://scholarworks.utep.edu/open\\_etd/3754](https://scholarworks.utep.edu/open_etd/3754)



**Neutrons** reaching the soil interact with the hydrogen present in the water: by measuring the neutrons reflected from the soil, we can monitor the amount of water present.



**SoMMet: Soil Moisture Metrology.**

A European project to improve measurements of soil moisture

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