**Draft Introduction**

The effect of soil salinization has become one of the main causes of soil degradation in the European continent, its effects being observed and resulting in the loss of resources, goods and services emerging from the soil, impacting agricultural production and environmental health [[1]](https://www.zotero.org/google-docs/?eHoGqd). While countries such as Argentina, the United States and India suffer from salinization around the world, in Europe the soil salinity affects about 3.8 Mha of land, with emphasis on this event being the southern coast of the Mediterranean [[2]](https://www.zotero.org/google-docs/?Vkg4Kf). Due to different factors, natural and artificial, several important processes can result in salinization. Potential soil salinity can be caused by climate change, in France and also several areas in the Italian and Balkan peninsulas being particularly exposed to potential salinity due to increasing aridity. It also should be considered a rise in sea level and salinity caused by irrigation, with salt accumulation in the soil originating from the salt in the irrigation water and salt accumulation in the originating salt soil in increased salt groundwater [[3]](https://www.zotero.org/google-docs/?rpWLu7)**.**

The high level of salts in the soil, in the vine, significantly reduces the absorption capacity of water and other nutrients. It has been proven that saline soils with up to 10 g / liter of water (according to I.H. Puzina), at a soil depth of no more than 1 m, can be planted and cultivated . In these cases the use of organic fertilizers is extremely important. In over 10 - 20 gr of salt per liter of water, the stability of the vines is difficult. In over 20 gr / liter of water, there is not possible of cultivating this plant. The water stress, induced by saline concentration (since with the addition of salts to the nutrient solution, water relations in the plant's growth environment are affected), reduces growth, due to less CO2 assimilation, and also by reducing the rate of cell division and stretching. The effect of water stress is most evident in the expansion of the cell wall, which depends on the turgor pressure. The decrease in this pressure results in an imbalance of the water content in the plant, resulting in reduced growth and low production of dry matter . The first response of plants to water stress is stomatal closure, this stress acts to reduce the osmotic potential of the nutrient solution and, consequently, the water potential, limiting the amount of water absorbed by the plants [[5]](https://www.zotero.org/google-docs/?dleQcJ).

**\*In the last paragraph it would be good to put our hypotheses**

**References**

[1. Daliakopoulos IN, Tsanis IK, Koutroulis A, Kourgialas NN, Varouchakis AE, Karatzas GP, et al. The threat of soil salinity: A European scale review. Sci Total Environ. 2016;573: 727–739. doi:10.1016/j.scitotenv.2016.08.177](https://www.zotero.org/google-docs/?hw5qAR)

[2. Montanarella L, Rusco E, Tóth G, European Commission, Joint Research Centre, Institute for Environment and Sustainability. Threats to soil quality in Europe. Luxembourg: Publications Office; 2008.](https://www.zotero.org/google-docs/?hw5qAR)

[3. Szabolcs I. Chapter 6 Impact of Climatic Change on Soil Attributes: Influence on salinization and alkalinization. In: Scharpenseel HW, Schomaker M, Ayoub A, editors. Developments in Soil Science. Elsevier; 1990. pp. 61–69. doi:10.1016/S0166-2481(08)70482-3](https://www.zotero.org/google-docs/?hw5qAR)

[4. Pessarakli M. Handbook of Plant and Crop Stress, Fourth Edition. CRC Press; 2019.](https://www.zotero.org/google-docs/?hw5qAR)

[5. Viana AP, Bruckner CH, Prieto Martinez HE, Martinez y Huaman CA, Mosquim PR. Physiological characteristics of grape-vine rootstock in saline solution. Sci Agric. 2001;58: 139–143. doi:10.1590/S0103-90162001000100021](https://www.zotero.org/google-docs/?hw5qAR)

# What is remote sensing and what is it used for?

**Remote sensing is the process of detecting and monitoring the physical characteristics of an area by measuring its reflected and emitted radiation at a distance (typically from satellite or aircraft). Special cameras collect remotely sensed images, which help researchers "sense" things about the Earth. Some examples are:**

* **Cameras on satellites and airplanes take images of large areas on the Earth's surface, allowing us to see much more than we can standing on the ground.**
* **Sonar systems on ships can be used to create images of the ocean floor without needing to travel to the bottom of the ocean.**
* **Cameras on satellites can be used to make images of temperature changes in the oceans.**

**Some specific uses of remotely sensed images of the Earth include:**

* **Large forest fires can be mapped from space, allowing rangers to see a much larger area than from the ground.**
* **Tracking clouds to help predict the weather or watching erupting volcanoes, and help watching for dust storms.**
* **Tracking the growth of a city and changes in farmland or forests over several years or decades.**
* **Discovery and mapping of the rugged topography of the ocean floor (e.g., huge mountain ranges, deep canyons, and the “magnetic striping” on the ocean floor).**

We choose to use the satellite Spot/Pleiades, GeoSud Equipex.

The **Pléiades** [constellation](https://en.wikipedia.org/wiki/Satellite_constellation) is composed of two very-high-resolution optical Earth-imaging satellites. **Pléiades-HR 1A** and **Pléiades-HR 1B** provide the coverage of Earth's surface with a repeat cycle of 26 days. Designed as a dual civil/military system, Pléiades will meet the space imagery requirements of [European](https://en.wikipedia.org/wiki/Europe) defence as well as civil and commercial needs.

When satellite operations begin, four ground receiving stations will be deployed for the direct downlink and archiving of imagery data:

* Two defence centres in France and Spain
* Two civil stations: one in Toulouse (France) and a polar station in Kiruna (Sweden), which will receive most of the data.

Regional receiving stations (fixed or mobile) will subsequently be installed at the request of users.

**GeoSud Equipex** aims to develop a national infrastructure of satellite data accessible free of charge by the scientific community and public actors. It allows to ensure during five years the acquisition and development provision covers satellite annual summer high resolution of France, and ensure the networking of the scientific community and of the community of players management around its valuation.

A spatial distribution is the arrangement of a phenomenon across the [Earth's surface](https://en.wikipedia.org/wiki/Earth%27s_surface) and a [graphical display](https://en.wikipedia.org/wiki/Graphical_display) of such an arrangement is an important tool in geographical and [environmental statistics](https://en.wikipedia.org/wiki/Environmental_statistics). A graphical display of a spatial distribution may summarize raw data directly or may reflect the outcome of a more sophisticated [data analysis](https://en.wikipedia.org/wiki/Data_analysis). Many different aspects of a phenomenon can be shown in a single graphical display by using a suitable choice of different colors to represent differences.

One example of such a display could be observations made to describe the geographic patterns of features, both physical and human across the earth.

The information included could be where units of something are, how many units of the thing there are per units of area, and how sparsely or densely packed they are from each other.