

Project title:

APPLICATION THAT ALERTS FARMERS TO SOLAR PHENOMENA

-An application will be developed that can alert planters and farmers about solar phenomena that can affect both them and their crops such as: solar wind, solar ejections, eclipses, disturbance of the Earth's magnetic field, etc.

-The application is a way in which through the data obtained from the Parker solar probe we will help the peasant people of Boyacá to the care and improvement of their crops, which will lead them to have a greater importance and interest in the sun and how its phenomena influence so drastically on agriculture.

-Farmers are affected by the continuous solar phenomena that they can not avoid or prepare for these due to the lack of knowledge, so in this application they will be warned and advised of what to do when one of these changes occurs and thus improve the quality of their crops and their personal health, through their processes such as:

Cover the soil with plant residues to protect the seedlings. This keeps the soil temperature low during the day by isolating it from solar radiation and conserving moisture. The debris cover also reduces cooling overnight.

-Sow as soon as possible after preparing the planting bed to minimize water losses from the soil. Sowing in moist soil can place the seeds at a shallower depth ensuring a faster emergence of seedlings. The planting bed will also be cooler.

-Select the optimal planting time in such a way that high temperatures are avoided during the synthesis and filling of the grain. It is also necessary to avoid the coincidence of the filling of the grain with frequent, desiccant, hot and strong winds. In these conditions the crop cannot transpire fast enough to keep the temperature low.

What exactly does it do?

-This application will take the data from the Parker solar probe so that when this probe shows data of some solar wind or solar flare, or high levels of solar radiation in the area, alert by means of a notification about this state and the peasants can see what is happening, once they look at this open a section where it is explained what is happening and will give possible solutions to the phenomenon in particular, being both an alert and information application.

What exactly it does:

-The application through notifications will alert and give possible solutions on the solar events that happen in the boyaca zone instantly in addition to giving predictions about the phenomena that could occur in the future through the use of the data obtained by the Parker solar probe

How it works

-Through the data provided from the Parker solar probe and other spacecraft that investigate the sun, we will collect this information and make predictions about the solar phenomena that affect the crops in Boyacá, so that through the application we can warn and give solutions to these.

What benefits does it have?

-Information for farmers to know more about the solar climate and how it affects their crops

-Give solutions and predictions about these phenomena for the improvement of the quality and quantity of agricultural products

-Improve the health of farmers against diseases caused by continuous exposure to the sun's rays such as eye injuries, sunburn, photoaging, skin cancer, etc.

The evasion of these through: Adequate sun protection for each type of skin. Good hydration. Glasses with suitable lenses, Avoid exposure in more intense hours of sunshine, Increase protection if we take photosensitive medications, protect the lips, wear hats.

What do you hope to achieve?

-We expect an increase in quality and quantity in the production of agricultural food in Boyaca, an improvement in the health of planters and peasants, awareness of the influence of the sun on agriculture and support in this project to be able to extend it to more municipalities

What tools, coding languages, hardware or software did you use to develop your project?

Through appyjet, which is a tool that will allow us to create this application, we will use it to see what a prototype of our application would look like, but it is planned in the future to use a different method to create this app, which is more personalized and there is no intervention from external networks

HOW WILL YOU USE THIS DATA TO SUPPORT OUR PROJECT?

-We took the data from the NASA space agency in the Scientific Gateway part of the parker solar probe, which we will use data such as:

Solar Wind Electrons Alphas and Protons (SWEAP) Top-hat electrostatic analyzer (ESA) measures 3D ion distributions every 0.216 seconds. Mass discrimination: Can separate protons from alpha and other heavy ions.

Which measures partial moments of the solar wind, since the field of view (FOV) is partially obstructed by the heat shield

-to measure solar winds:

Electrons Alphas and Protons and FIELDS we use the parker probe through a process in which measurements of the Solar Wind are used

and collects the flow of energy electrons and their results and reveals a number of trends in heat flow signatures

electromagnetic

Through the research of the NASA page on the Parker solar probe we will obtain data from the environment of the Sun and the solar wind in real time, this will give us an extensive amount of information for the realization of our project where we will have more ease to alarm our farmers and greater precision so that they feel sure of the information that will be provided to them.

Periods of extreme heat known as 'heat waves' can cause various adverse effects on crops and, if proper precautions are not taken, even damage the plant and fruit, or decrease their quality. In addition to the possible physiopathies in the vegetable, high temperatures produce an increase in pests in certain crops. How to successfully deal with all these complications?

The most basic prevention is to increase the frequency of irrigation or resort to techniques such as nebulization or shading in greenhouses. The RAIF recommends increasing the frequency of irrigation with small supplies of water in the hours of maximum heat, or a more copious irrigation in the streets of the crop to cushion the thermal effect.

References

-Parker Solar Probe: https://sppgway.jhuapl.edu/science_highlights

-Nasa Space Agency: <https://www.nasa.gov/>

-Tool for creating the app: : <http://www.appyet.com>

-Affection on the earth by solar phenomena:

<https://segurossura.com/blog/revista-geociencias-sura/fenomenos-solares-y-sus-repercusiones-en-la-tierra/>

-Medium logo design: www.canva.com