

HOW TO USE THE AGROCLIMATIC MONITOR PLATFORM TO MONITOR DROUGHT EPISODES

THE PLATFORM PROVIDES DROUGHT DATA FOR FARMERS AND MANAGERS TO BETTER PLAN CROPPING STRATEGIES

Brazilian agriculture has struggled with the impacts of extreme climate events. In the last decade, drought episodes have become more frequent and severe compared to previous decades. The recurring nature of these droughts makes it harder to plan cropping strategies, lowering crop yields. The data indicates these episodes tend to become even more frequent over the next few years.



That is why it has become even more crucial to monitor extreme events to better plan production strategies and ensure food safety in Brazil.



With that goal in mind, **Brazilian researchers from different institutions gathered to investigate and develop a new way to monitor the incidence of droughts in agriculture both currently and in the recent past, combining different indicators to help farmers better prepare for these events.**

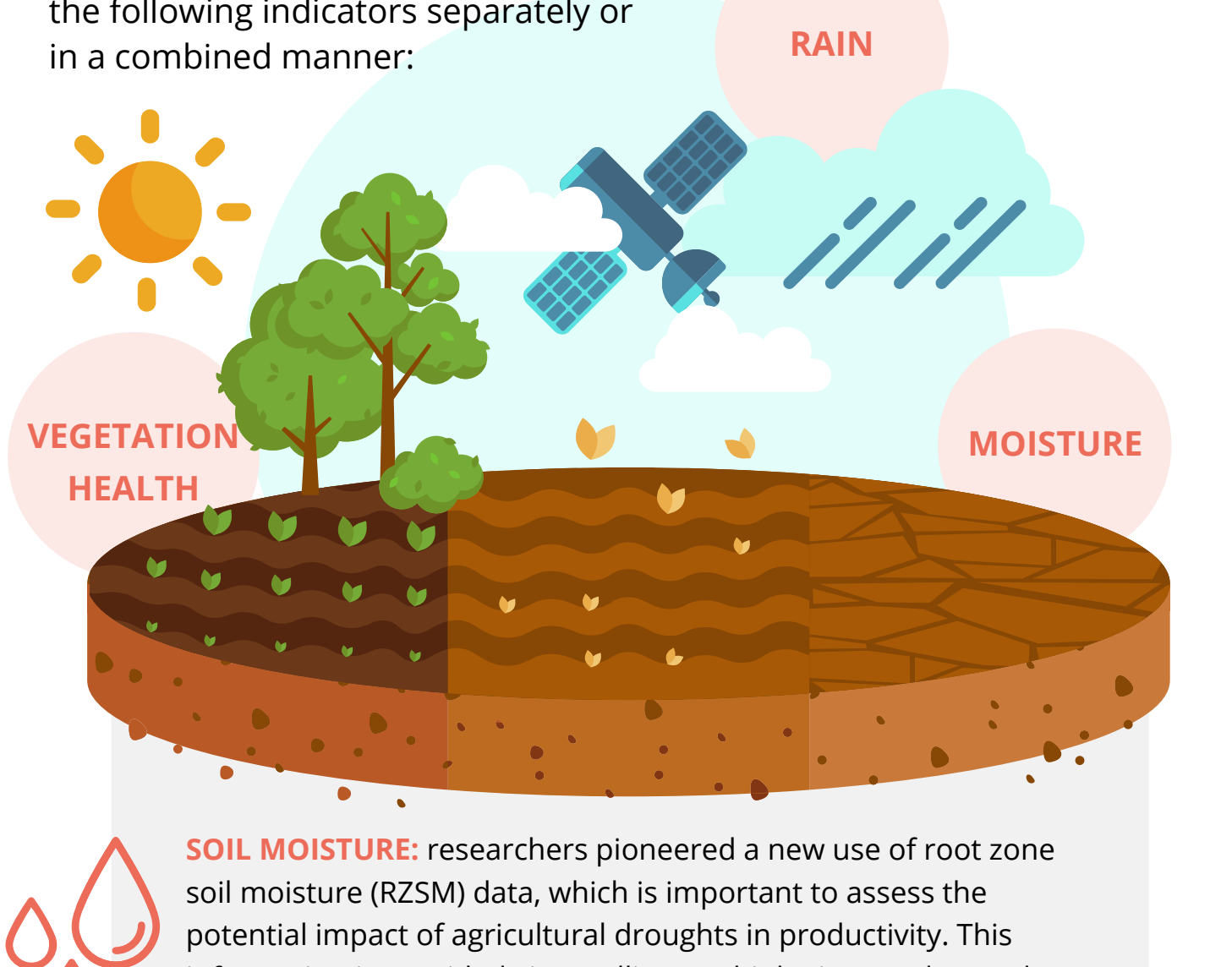
That is how the **AgroClimatic Monitor Platform** was born. The platform is the result of the research project titled "Monitoring and Projecting Climate Impacts on Agriculture", led by Brazilian researcher Marcelo Galdos (University of Leeds), with the participation of Marcelo Zeri and Ana Cunha (Cemaden), Fabio Marin (ESALQ-USP) and Murilo Vianna (University of Leeds), and several British researchers.



The project is part of the "Climate Science for Service Partnership" (CSSP-Brazil) – a partnership between the UK Met Office of the UK and the Brazilian institutions National Institute for Space Research (INPE), National Institute of Amazonian Research (INPA) and National Center for Monitoring and Alerting of Natural Disasters (Cemaden).

COMBINED DROUGHT INDICATORS TO ENHANCE MONITORING

The new platform allows any user – from farmers to managers – to access the following indicators separately or in a combined manner:



SOIL MOISTURE: researchers pioneered a new use of root zone soil moisture (RZSM) data, which is important to assess the potential impact of agricultural droughts in productivity. This information is provided via satellites multiple times a day, and combined with the other indicators detailed below.

RAINFALL VARIABILITY: this indicator also integrates satellite measurements and field evaluations. Cemaden uses the rainfall data provided by the Center for Weather Forecasting and Climate Studies (CPTEC/INPE) to calculate the Standardized Precipitation Index (SPI), which is based on the monthly rainfall variation. On-site evaluations provided information regarding the duration and severity of droughts.

VEGETATION HEALTH: the Vegetation Health Index (VHI) is the result of a combination between satellite measurements of the temperature of Earth's surface and the greenness of vegetation, in order to help identify changes in vegetation caused by climate. This includes whether plants are greener or browner, indicating a potential water shortage and even drought, for example.

The combination between these three indexes creates a fourth indicator named **Integrated Drought Index (IDI)**.

How to access this information on the platform

1

Select the map and the Brazilian municipality to check.

Choose the indicators to evaluate: data from each of the three indicators can be viewed separately or combined. Select "Integrated Drought Index (IDI)" to view the fourth index.

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Set a time period: users can view a current snapshot of the location or the indexes of the 24 previous months.

Interpret the data: the researchers created the following drought scale to help users understand the colors of the map. Keep in mind that the indexes may vary according to the crop in each region.

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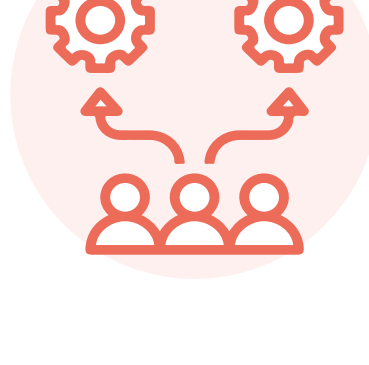
	Variability of rain (SPI)	Vegetation Health (VHI)	Soil Moisture (RZSMI)	Integrated index (IDI)	Drought Classification
0	> -0,5	> 40	> 30	6	Regular
1	-0,5 a -0,8	30 a 40	20 a 30	5	Abnormal drought
2	-0,8 a -1,3	20 a 30	11 a 20	4	Moderate drought
3	-1,3 a -1,6	12 a 20	6 a 11	3	Severe drought
4	-1,6 a -2,0	6 a 12	3 a 6	2	Extreme drought
5	> -2,0	< 6	< 3	1	Exceptional drought

This enabled the creation of a complete platform that allows:



• **Evaluating potential drought impacts in a more accurate and interactive manner:** identifying these episodes in specific phases of the crop calendar allows farmers to better prepare ahead of time for critical events, ultimately avoiding losses in their crops.

• **Selecting specific data based on each user's needs:** users can choose the city, region, period and indicator to be monitored. Results are shown on the map and can be downloaded as well.



• **Identifying drought regions and durations more accurately compared to conventional monitoring methods:** that was only possible because the platform combines more than one drought indicator. For example: the plant may be green (indicating vegetation health), but the soil might be dry (moisture indicator). The tool lists municipalities where droughts have been more severe, already evidencing the impacts of extreme climate events.

WANT TO KNOW MORE?
ACCESS THE PLATFORM [HERE](#)