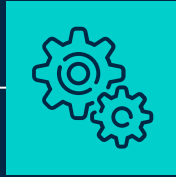


HeatML

Using machine learning to
improve the world

Warning: Things are heating up!

The Team



01

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Mechatronics Engineering



02

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Statistics

The Problem

Climate change produces significant problems

Droughts will affect the
water-energy-food
nexus

Crop Damage

Forest Fires

Hot, dry conditions
result in major
ecological impacts.



Heat stress has a
negative impact on
human health.

Heat Stress

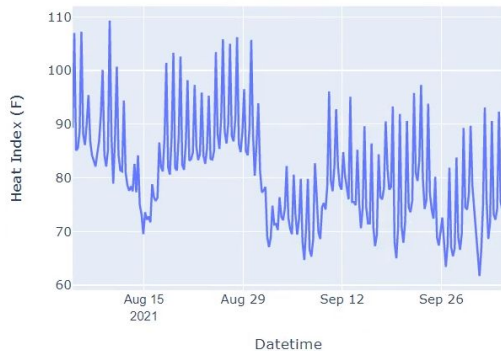
Air Pollution

CO, NO₂, and O₃
concentrations
are increasing.

Heat Index & Soil Moisture Deficit

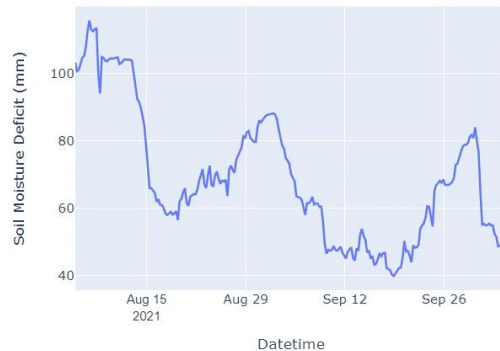
[Tokyo, Japan]: Low risk of heat stress. Practice basic safety and planning. Wear lightweight clothing. Use sunscreen. Low risk of drought. Low risk of wildfires. Low risk of carbon monoxide-related problems. Low risk of ozone-related problems. Low risk of nitrogen dioxide-related problems. ✕

Heat Index Time Series



Heat index (The temperature a human feels) is positively correlated to heat stress. The heat index time series shows a trend that's decreasing, but remember to remain cautious.

Soil Moisture Deficit Time Series

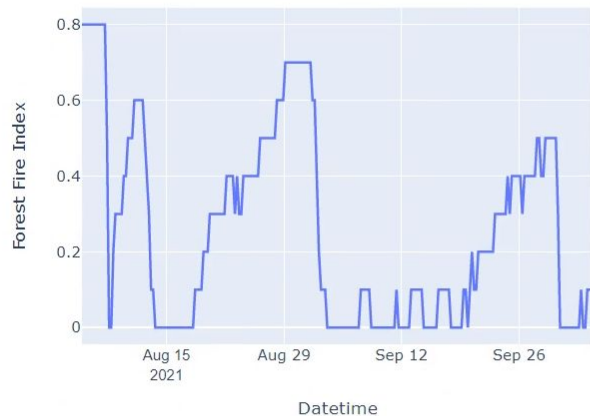


Soil moisture deficit is the difference between soil's water content and the possible amount of water it can hold. It's used to predict droughts. The SMD time series shows a trend that's decreasing, but remember to remain cautious.

Track heat index and soil moisture deficit values over time. Receive warnings and mitigation instructions for heat stress and other heat-related events.

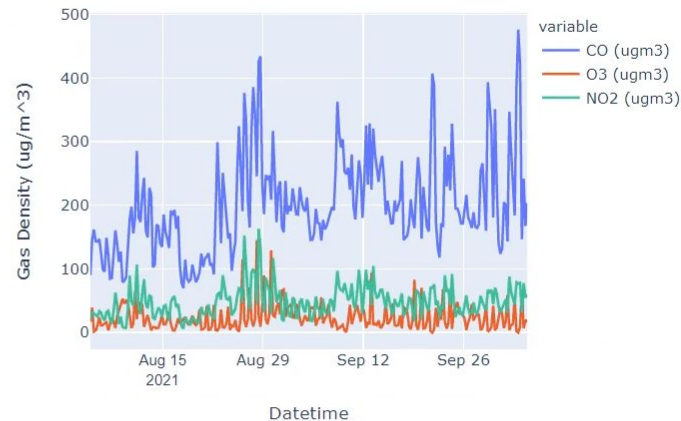
Forest Fire Index & Air Quality

Forest Fire Index Time Series



The forest fire index estimates the risk of forest fires based on moisture information of three different soil layers. A value closer to 1 means there's a greater risk a forest fire may occur. The forest fire index time series shows a trend that's decreasing, but remember to remain cautious.

Air Quality Time Series



This air quality time series shows the change in atmospheric gas density over time. It shows the relationships between CO, NO₂, and O₃. See the given warning message for an interpretation of the time series and next steps.

View changes in forest fire index and air pollutants (CO, NO₂, O₃) over time. View predictions and instructions for mitigation at the individual & national levels.

API Helper & Data Submissions

API

City

Country

☐ Heat Index
☐ Soil Moisture Deficit

☐ Forest Fire Index
☐ CO Density

☐ O3 Density
☐ NO2 Density

Submit

Make a request to: <http://localhost:5000/data/>

Provide an easy-to-use API for youth to explore and learn about climate change.

Data Submission

City

Country

Date


SMD (mm)

Forest Fire Index

Submit


The current location is Toronto, Canada

Heat Index Time Series



A bar chart showing the Heat Index Time Series. The y-axis ranges from 90 to 100. The x-axis represents time. The chart shows a series of blue bars of varying heights, indicating fluctuations in the heat index over time.

Soil Moisture Deficit Time Series



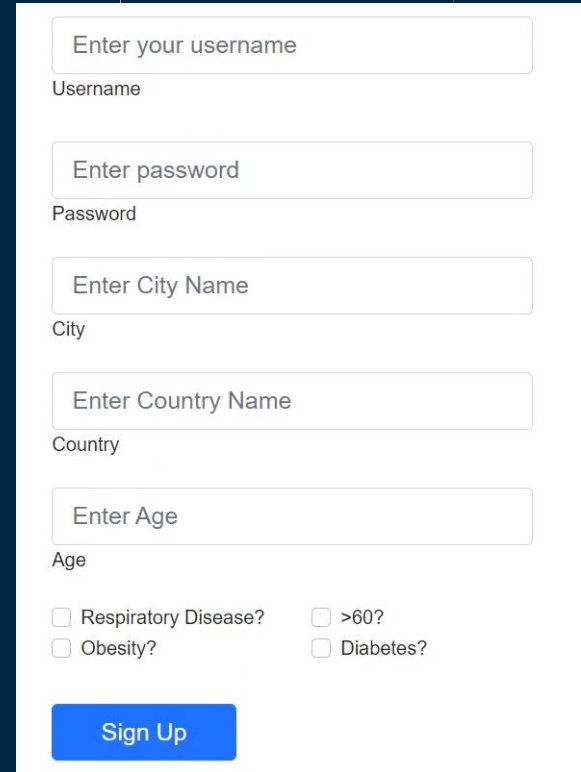
A line chart showing the Soil Moisture Deficit Time Series. The y-axis ranges from 130 to 135. The x-axis represents time. The chart shows a blue line that starts at approximately 130, rises to a peak of about 135, and then gradually declines back towards 130.

Improve data by crowdsourcing data collection. Allow users to view submissions in real-time.

Customized Warnings

Collect user data (health, location, etc.) to improve warning customization.

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Enter your username

Username

Enter password

Password

Enter City Name

City

Enter Country Name

Country

Enter Age

Age

☐ Respiratory Disease? ☐ >60?

☐ Obesity? ☐ Diabetes?

Sign Up