SOIL MOISTURE CLOUD
Soil moisture at anytime, anywhere, and by anybody

Soil moisture from the Mesonet weather stations network in Oklahoma is only available for grasslands. Even though extrapolations are made, soil moisture under cropland is highly variable because of different management practices. An interactive tool using available soil and weather information, coupled with real-time-in-situ crop canopy cover is proposed to estimate soil water content anywhere, anytime, and by anybody in the state of Oklahoma.
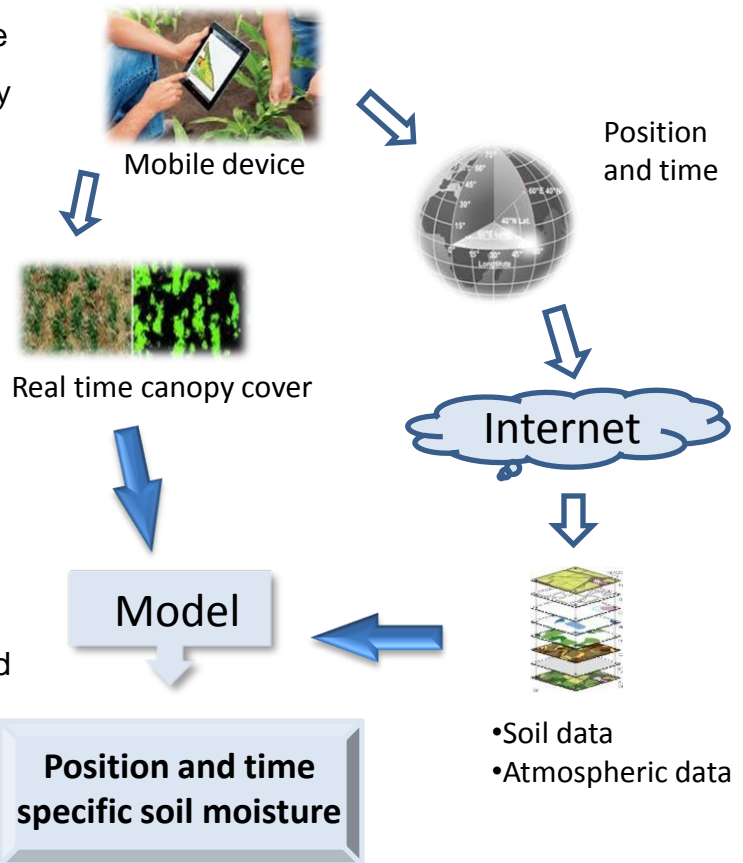
Steps

1. Take an image from the top of the crop canopy
2. Input planting date and fertilizer inputs.
3. Obtain an estimated soil moisture value in the field
4. Obtain a short term forecast

How it works

An app calculates the percentage of canopy cover of the crop. This value, together with planting date and thermal units estimate crop stage. Position and time from the built-in GPS in the phone are used to r etrieve soil and weather data using internet.
By using a model to process the data, soil moisture is calculated for a given field, at a given time.

The *long term goal* is to create a framework able to provide soil moisture to anybody, at anytime, and anywhere in the world.

Mobile device

Real time canopy cover

Position and time

Internet

•Soil data
•Atmospheric data

Model

Position and time specific soil moisture

Farmers using smartphones in Uganda.

Benefits

• Optimize timing and amount of input application.

• Increase irrigation efficiency.

• Forecast maximum yield in highly changing scenarios.

• Select most appropriate crops to gain system stability.

• Potential to combine this tool with NDVI readings.

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