

Glossary

Glossary of aWhere variables and terminology

Overview of aWhere data

Aside from the web-based platform and API (Application Programming Interface), aWhere provides daily .csv files through our online adaptER Platform ready to be imported into QGIS or the software/platform of your choosing. These are produced in time-period aggregates of the past 30 days, past 7 days, next 7 days (forecast), next 8-15 days (forecast), and next 1-15 days (forecast), which is indicated in the file name - “YearMonthDay_past7” or “YearMonthDay_next7” etc..

For example, if file is named: “181006_past30”, the file contains data for your country from the previous day and back 30 days. Here from the previous day - October 5th back to September 6th.

Similarly, “181006_past7” will refer to the time from September 29 - October 5. The file 181006_next7 contains the 7 day aggregate forecast from October 6 through October 12.

Data Structure

The aWhere data files contain:

- unique identification of each “virtual weather station” (5 arc-min grid cell);
- latitude and longitude of each “virtual weather station” centroid;
- 15 ag-meteorological variables;
- Well-known text (WKT) markup language for representing data geospatially and includes the polygon for each location ID.

Variables and Terminology

Short name	Description	Use / Interpretation / Example
Agronomic terminology		

<p>PET</p>	<p>Potential Evapotranspiration</p>	<p>PET is the Potential Evapotranspiration or the evaporative demand of the environment. Where leverages the Penman-Monteith equation to calculate PET. Required inputs are daily minimum and maximum temperature, minimum and maximum relative humidity, solar radiation, and average wind speed. Essentially this is a measure of how much water the plants need to drink each day for optimal growth.</p>
<p>P/PET</p>	<p>Ratio of Precipitation (P) to Potential Evapotranspiration (PET)</p>	<p>P/PET is the ratio of Precipitation (P) to PET. This ratio translates directly into a moisture stress index. Ratios of lower than 0.80, for example, indicate a threshold where maize may struggle to produce grain (depends on genetic and agronomics i.e., number of plant / hectare). P/PET below 1.0 indicates less precipitation than evaporative demand - dry conditions. Conversely, consistent values over 1.1-1.2 may indicate growing issues related to waterlogging and fungal diseases.</p>

<p style="text-align: center;">GDD</p>	<p style="text-align: center;">Growing Degree Days (in Celsius)</p>	<p>In agronomy the standard metric for heat measurement is the growing degree-day. GDD is a simple starting point that is used by many farmers for tracking their crop growth. It's a standard metric that provides a common language for discussing when to perform certain actions on the farm. For example, certain pests will only attack a plant at a certain stage. If the plant hasn't received enough heat to reach that stage, then there isn't a need to worry about the bug.</p> <p>Note: "growing degree-day" is a somewhat misleading name, because it has nothing to do with calendar days. GDD equations are based on daily temperatures, and a single calendar day can accumulate several of GDDs.</p>
<p>Commonly used variables: Each "virtual weather station" or grid cell reports values for a variety of weather variables described below.</p>		

CSUMPRE	Current Accumulated Precipitation (mm)	Total rainfall, measured in millimeters. Useful metric for understanding the pattern of rainfall from the perspective of the amount of moisture being held in the soil
CSUMPET	Current Accumulated Potential Evapotranspiration (PET, mm)	Measured in millimeters. Useful metric for understanding the pattern of water being drawn from the soil over time
CPOVRPR	Current Precipitation to Potential Evapotranspiration Ratio (P/PET)	Index. Useful metric for understanding the pattern of plant available water in the soil over time
CSUMGDD1	Current Growing Degree Days (GDD, in Celsius)	Base 10 capped at 35
CAvgMinT	Current Average Minimum Temperature (in Celsius)	For many plants their growth effectively slows and even stops below certain temperatures. A colder than typical year is likely to impact yields
CAvgMaxT	Current Average Minimum Temperature (in Celsius)	For many plants their growth effectively increases as temperatures increase until a point where further increases do damage to the plant. An excessively hot year, especially one that is also a dry year, will negatively impact yields.
LTN	Long-Term Normal 2001-present year	Arithmetic mean of the data across 2001-present year by the day of the year

LTNSUMP	Long-Term Normal; (LTN) of Accumulated Precipitation (mm)	LTN or 'Long Term Normal' is the long-term average for the variable. For aWhere, our daily global weather surfaces go back to 2001. LTN is thus the average conditions from 2001 to the year prior the year under examination
LTNSPET	Long-Term Normal Sum of PET (mm)	The typical amount of accumulated PET to be expected at a location
LTNASPO	Long-Term Normal Average of P/PET	The typical amount of P/PET to be expected at a location.
LTAvGMnT	Long-Term Normal of Average Minimum Temperature (in Celsius)	The typical minimum temperature to be expected at a location
LTAvGMxT	Long-Term Normal of Average Maximum Temperature (in Celsius)	The typical maximum temperature to be expected at a location
DFLTSUM	Difference between Current Precipitation and the Long-Term Normal (in Celsius)	Difference between the current year and the LTN precipitation. Positive differences indicate wetter conditions than normal, negative differences indicate drier conditions than normal
DFLTMinT	Difference between Current Average Minimum Temperature and the Long-Term Normal (in Celsius)	Difference between the current year and the LTN minimum temperature. Positive differences indicate warmer conditions than normal, negative differences indicate colder conditions than normal

<p>DFLTMaxT</p>	<p>Difference between Current Precipitation and the Long-Term Normal (in Celsius)</p>	<p>Difference between the current year and the LTN maximum temperature. Positive differences indicate warmer than normal, negative differences indicate colder conditions than normal</p>
<p>DFLTPVP</p>	<p>Difference between Current P/PET and the Long-Term Normal</p>	<p>Difference between the current year and the LTN P/PET. Positive differences indicate wetter conditions than normal, negative differences indicated drier conditions than normal.</p>