



# SOIL CONDITIONS

## Description:

Provides users with basic soil moisture and temperature data at varying depths as estimated by Iteris' proprietary Land Surface Modeling. **Basic Soil Conditions API** are best for generalized information on unirrigated land, lacking user-provided specific soil texture class information and thus relying on various public sources of geospatial soil characteristics.

For users needing soil moisture and temperature information for specific field or sub-field crop zones, Iteris offers ClearAg Focus<sup>™</sup>--a **premium modeling solution that provides soil temperature and moisture information customized to specific crop zones**. ClearAg Focus provides hyperlocal insights for areas where a zone is defined as a particular combination of crop, planting date, soil characteristics, or varying irrigation or nutrient management strategy.

Use cases for zone-specific Soil Conditions API include companies that have developed their own nutrient or other models and will benefit from soil moisture and temperature information specific to those models. The ClearAg Focus Soil Conditions API is also beneficial for irrigated fields for which the end user needs to know temperature or moisture for planting and harvesting activities.

## Basic Soil Conditions

All of these endpoints provide data for any location in the world. Hourly conditions are available for any period beginning January 1 of the previous calendar year through nine days into the future. Daily values are available for any period beginning January 1, 1980 through nine days into the future. Note that daily values represent summaries of conditions spanning midnight to midnight local time for the requested location's timezone.

**Endpoints include:**

*Hourly Soil Temperature and Moisture Data:*

Provides hourly soil temperature and moisture data from Iteris' proprietary land-surface models for two layers (0-10 cm and 0-200 cm) for a user-defined range spanning up to 240 hours per query. For the soil moisture information, the response includes raw values, values scaled in an absolute sense to the soil wilting and saturation point, values scaled to the historically driest and wettest periods, and normalized values relative to the long-term climatological modeled soil moisture.

*Daily Soil Temperature and Moisture Data:*

Provides daily average soil temperature and moisture data from Iteris' proprietary land-surface models for two layers (0-10 cm and 0-200 cm) for a user-defined range spanning up to 366 days per request. For the soil moisture information, the response includes raw values, values scaled in an absolute sense to the soil wilting and saturation point, values scaled to the historically driest and wettest periods, and normalized values relative to the long-term climatological modeled soil moisture.

## ClearAg Focus Soil Conditions

All of these endpoints provide data for any location in the world. Data are available for any period beginning January 1 of the previous calendar year through nine days into the future. Note that daily values represent summaries of conditions spanning midnight to midnight local time for the requested location's timezone.

**Endpoints include:**

*ClearAg Focus Custom Hourly Soil Conditions:*

Hourly soil temperature and moisture data for eight

layers, valid for a user-defined time range of a specified growth custom to their field, irrigation and crop specifications. The query time range is range inclusive with a maximum range per request of 240 hours.

*ClearAg Focus Custom Daily Soil Conditions:*

Daily soil temperature and moisture data for eight layers, valid for a user-defined time range of a specified growth custom to their field, irrigation and crop specifications. The query time range is range inclusive with a maximum range per request of 366 days.

*Field Soil Sample.*

This endpoint allows a user the option to add a soil sample to improve ClearAg Focus results, including soil texture class and soil organic matter content information.

*Irrigation System Properties.*

These endpoints allow a user to configure and modify irrigation system properties for a given field. By default every field will contain unconfigured irrigation system properties. These settings will affect ClearAg Focus soil modeling and related irrigation advisement products.

*Irrigation Activity.*

These endpoints allow the user to input irrigation events to allow the model to consider the system applied water in its soil moisture and temperature solution.

These endpoints require the use of the **Accounts API** for user and field setup. They also require use of the **Crop Growth API** for crop setup, as ClearAg Focus depends on the crop type and stage. Supported crops are show in the "Focus" column of [Appendix A](#).