Atmospheric G2 (AG2) Cleaned Historical Observations

Quick Links:

AG2 Global Data Sets

The method which may be used to access the AG2 global data sets programmatically is via a REST web services data request. First, establish an account with AG2 where a unique key will be created and provided. You may have multiple accounts. Each key is configured to allow up to X number of calls per year which was discussed and agreed upon in conversations with your AG2 account manager. The definition of a call is noted below.

An API call is defined as 7 days or less of data. For example, if you request 14 days of data it would be counted as 2 calls against your annual call allowance.

The API call volume limit is a maximum of 250 API calls per minute. Exceeding this limit will result in an error message being returned and the client being unable to retrieve data for a minute.

Client's access to the Cleaned Historical API will be disabled once the Client's annual entitlement is exceeded.

Hourly/Daily/Monthly Weather Variables

Certain parameters are required to initiate a weather request. As is standard in URIs, all parameters are separated using the ampersand (**&**) character. The list of parameters and their possible values are enumerated below.

Each API key is provisioned to provide data for a specific set of Standard and Premium Weather Variables. The specific set of Standard and Premium Variables can be found in tables listed below.

- **userKey (*required*)** — this unique client identifier is assigned by AG2
- **lat/long** or **zipcode *(required)*** – Data can be requested either by latitude/longitude, zip code METAR Station Code or Grid Cell ID. Currently searching by zip code is only supported for US zip codes. The Grid Cell ID is returned when requesting data via lat/long or zipcode and the closest available datapoint is a CFSR grid point. Subsequent queries can use the Grid Cell ID to ensure data is retrieved for the same location each time.
- **startDate (*required*)** — "mm/dd/yyyy" Indicates the starting date for weather request (Start date is first hour of requested date)
- **endDate (*required*)** — "mm/dd/yyyy" indicates the ending date for weather request (End date is first hour of date requested, Data will be returned between the first hour of start date and first hour of end date. Make end date an extra day if you would like data for that day.)
- **interval (*required)*** — The desired temporal resolution of the data being retrieved. Accepted values are:
  - **hourly**
  - **daily**
  - **monthly**
- **units (*required)*** — The desired units in which to express the data being retrieved. Accepted values are:

- ○ **imperial**
- ○ **metric**
- **format (*required*)** — The desired format in which to return the data being retrieved. Accepted values are:
  - ○ **json**
  - ○ **xml**
  - ○ **csv**

- **version (*required*) –** The specific version of the API to be utilized. Currently accepted values are:
  - ○ **2**
  - ○ **3**
- **station** – The specific data source to use for the requested location.
  - ○ **cfsr** – Use the closest virtual grid point to the requested location. You are guaranteed to have data returned for the entire time frame requested when using this value - **Default**
  - ○ **metar** – Will conduct a nearest neighbor search and chooses a METAR station if it is 17.5 km or less from the requested location. If a METAR station is used, you are not guaranteed to have data returned for the entire time frame requested. METAR data is only returned for the period of the requested time period in which it is available. **Premium Weather Variables are not available when using this option.**
- **fields** – Specify the specific set of variables to return in the data being retrieved. Accepted values are in the table provided below. You can specify more than one variable by separating each value by a comma, i.e. **fields=windSpeedMph,surfaceTemperatureFahrenheit.** *If no fields are specified, the Default Variables listed in the table below will be returned based on the value entered for the "units" parameter*
- **time –** Specify the time unit the requested data is returned in. Accepted values are:
  - ○ **lwt (local wall time)**
  - ○ **gmt (Greenwich mean time) – Default**

When requesting *daily* data for *metar* stations, a suite of additional variables are provided. They are summarized in the table below under the Daily section but an explanation of how the values are calculated is provided below.

The Calculation
These variables are calculated from continuous subhourly information, when that information is included in the METAR code. Otherwise the values are calculated from the raw observations over the 24-hour period. Each location had to report a minimum of 20 observations over the 24-hour period to be considered – if not that date was neglected.

Explanation of the Temperature Source
This variable describes which part of the METAR string was used to calculate the peak value. A zero value indicates that the max/min temperature was manually selected from the 24-hour range of temperature values. A value of 4 indicates that the temperature value comes from a 24-hour continuous measurement. Values from continuous temperature reports are checked against the hourly data to ensure that it corresponds to the correct day.

Difference from Current Variables
The daily METAR summary already includes a maximum and minimum temperature – how does this new information differ? The current METAR summary only considers the 24 individual hourly METAR reports (at 00:00, 01:00, 02:00, etc.) and selects the max/min/average from those values. These new variables consider each METAR reading throughout the 24-hour day and calculates the max/min from all the readings. This will help identify values that occur outside of the 24 hourly readings.

NOTE: A system maintenance window is reserved between 7AM-9AM Eastern Time each Tuesday where API responses may be limited or curtailed.

Hourly Data - Default Standard Variables

Name	Description
dateHrGmt	Greenwich Mean Time (GMT) date-time (also known as Universal Time)
dateHrLwt	Valid local date-time (Local wall time {includes daylight savings time})
surfaceTemperatureFahrenheit	Surface air (dry bulb) temperature at 2 meters
surfaceDewpointTemperatureFahrenheit	Atmospheric humidity metric (temperature at which dew will form)
surfaceWetBulbTemperatureFahrenheit	Atmospheric humidity metric (evaporative cooling potential of moist surface)
relativeHumidityPercent	Percent of water vapor in the air relative to its saturation point
apparentTemperatureFahrenheit	Air temperature that includes impact of wind and humidity
windChillTemperatureFahrenheit	Air temperature that includes impact of wind
heatIndexFahrenheit	Air temperature that includes the impact of humidity
precipitationPreviousHourInches	Liquid equivalent for types: warm rain, freezing rain, sleet, snow
snowfallInches	Total Snowfall
surfaceAirPressureMillibars	Atmospheric pressure at the Surface
mslPressureMillibars	Mean Sea Level Pressure
cloudCoveragePercent	Percentage of the sky covered by clouds
windSpeedMph	Unobstructed wind speed at 10 meters
windDirectionDegrees	Upwind direction (e.g., wind from east = 90, from south = 180, etc.) at 10 meters

surfaceWindGustsMph	Unobstructed wind gusts at 10 meters
diffuseHorizontalRadiationWsqm	Diffuse (indirect) solar radiation flux on a plane parallel to the Earth's surface
directNormalIrradianceWsqm	Direct solar radiation flux on a surface 90 deg to the sun
downwardSolarRadiationWsqm	Total solar radiation flux on a plane parallel to the Earth's surface
surfaceTemperatureCelsius	Surface air (dry bulb) temperature at 2 meters
surfaceDewpointTemperatureCelsius	Atmospheric humidity metric (temperature at which dew will form)
surfaceWetBulbTemperatureCelsius	Atmospheric humidity metric (evaporative cooling potential of moist surface)
apparentTemperatureCelsius	Air temperature that includes impact of wind and humidity
windChillTemperatureCelsius	Air temperature that includes impact of wind
heatIndexCelsius	Air temperature that includes the impact of humidity
snowfallCentimeters	Total Snowfall
precipitationPreviousHourCentimeters	Liquid equivalent for types: warm rain, freezing rain, sleet, snow
surfaceAirPressureKilopascals	Atmospheric pressure
mslPressureKilopascals	Mean Sea Level Pressure
surfaceWindGustsKph	Unobstructed wind gusts at 10 meters
windSpeedKph	Unobstructed wind speed at 10 meters
referenceEvapotranspirationInches	Reference Evapotranspiration (inches/hour)
referenceEvapotranspirationMillimeters	Reference Evapotranspiration (millimeters/hour)
Hourly Data - Premium Variables	

potentialEvapotranspirationMicrometersPerHour	Maximum evaporation rate possible (sum of evaporation and plant transpiration)
surfaceWaterRunOffMillimeters	Precipitation in previous hour expected to run off (not be absorbed)
surfaceWaterRunOffInches	Precipitation in previous hour expected to run off (not be absorbed)
zeroToTenLiquidSoilMoisturePercent	Layer-average by volume
zeroToTenSoilTemperatureFahrenheit	Layer-average
zeroToTenSoilTemperatureCelsius	Layer-average
tenToFortyLiquidSoilMoisturePercent	Layer-average by volume
fortyToOneHundredLiquidSoilMoisturePercent	Layer-average by volume
tenToFortySoilTemperatureFahrenheit	Layer-average
tenToFortySoilTemperatureCelsius	Layer-average
fortyToOneHundredSoilTemperatureFahrenheit	Layer-average
fortyToOneHundredSoilTemperatureCelsius	Layer-average
seaSurfaceTemperatureFahrenheit	Ground or Sea Surface Temperature
seaSurfaceTemperatureCelsius	Ground or Sea Surface Temperature
downwardTerrestrialRadiationWsqm	Long-wave radiation flux incident on a plane parallel to the Earth's surface (w/m^2)
directNormalInfraredRadiationWsqm	Same as DirectNormalIrradianceWsqm
netRadiationWsqm	Sum of incoming/outgoing solar and terrestrial radiation (w/m^2)
albedoPercent	Fraction of radiation reflected at the surface (percent)
specificHumidity	Daily water vapor content at 2m (kg/kg)

surfaceGeopotenitalHeightMeters	Surface height at mean sea-level pressure (m)
surfaceGeopotenitalHeightFeet	Surface height at mean sea-level pressure (ft)
surfaceSensibleHeatFluxWsqm	Rate of sensible heat energy transfer at the surface. Average or accumulated energy for previous hour (w/m^2)
surfaceLatentHeatFluxWsqm	Rate of latent heat energy transfer at the surface. Average or accumulated energy for previous hour (w/m^2)
oneHundredMeterWindSpeedKph	Wind speed at 100m (Kph)
oneHundredMeterWindSpeedMph	Wind speed at 100m (Mph)
precipitationRateMillimetersPerHour	Hourly measure of precipitation intensity. Average for previous hour (mm/hr)
categoricalFreezingRain	Indicator of precipitation falling as freezing rain (1=yes; 0=no) Not available in daily or monthly increments. Instantaneous reading at time shown (index)
categoricalRain	Indicator of precipitation falling as rain (1=yes; 0=no) Not available in daily or monthly increments. Instantaneous reading at time shown (index)
categoricalSnow	Indicator of precipitation falling as snow (1=yes; 0=no) Not available in daily or monthly increments. Instantaneous reading at time shown (index)
categoricalIcePellet	Indicator of precipitation falling as ice/graupel (1=yes; 0=no) Not available in daily or monthly increments. Instantaneous reading at time shown (index)
snowCoverPercent	Percentage of surface covered with snow. Average for previous hour (percent)
totalCloudCoverMiddlePercent	Cloud percent at multiple pressure levels (middle altitudes). Average for previous hour (percent)
totalCloudCoverLowPercent	Cloud percent at multiple pressure levels (low altitudes). Average for previous hour (percent)
convectiveAvailablePotentialEnergyJulesPerKilogram	Energy available for convective (storm) development in boundary layer. Average for previous hour (J/kg)
totalOzoneDobsonUnits	Atmospheric column ozone density. Average for previous hour (DU = Dobson Units)
planetaryBoundaryLayerHeightMeters	The depth of the lowest layer of the atmosphere. In this layer, friciton affects the wind speed and direction. Depth, meters.
bareSoilEvaporationWsqm	Water movement and evaporation through vegetation (w/m^2)

zeroToTwoHundredLiquidSoilMoisturePercent	Layer-average by volume (percent)
vegetationCoveragePercent	Percent of surface covered by vegetation. Not available in Daily or Monthly increments (percent)
vegetationType	Categorized description of vegetation content at the surface. Not available in Daily or Monthly increments, Vegetation Type Index (SiB analysis)
soilType	Categorized description of soil content. Not available in Daily or Monthly increments, Soil Type Index (Zobler Analysis)
surfaceSlopeType	Categorized description of the change in surface height. Not available in Daily or Monthly increments (index)
surfaceRoughnessMeters	Descriptor of surface texture (i.e. an indicator for the strength of frictional drag). Not available in Daily or Monthly increments
surfaceRoughnessFeet	Descriptor of surface texture (i.e. an indicator for the strength of frictional drag). Not available in Daily or Monthly increments
groundHeatFluxWsqm	Rate of heat energy transfer at the surface. Average or accumulated energy for previous hour (w/m^2)
snowDepthMeters	Calculated snow depth at the surface
snowDepthFeet	Calculated snow depth at the surface
iceCover	Surface ice coverage (index)
iceThicknessMeters	Depth of ice on the surface
iceThicknessFeet	Depth of ice on the surface
dateHrGmt	Greenwich Mean Time (GMT) date-time (also known as Universal Time)

Daily Data - Variables

Name	Description
MinSurfaceTemperatureFahrenheit or MinSurfaceTemperatureCelsius	Surface air (dry bulb) temperature at 2 meters

MaxSurfaceTemperatureFahrenheit or MaxSurfaceTemperatureCelsius	Surface air (dry bulb) temperature at 2 meters
AvgSurfaceTemperatureFahrenheit or AvgSurfaceTemperatureCelsius	Surface air (dry bulb) temperature at 2 meters
MinSurfaceDewpointFahrenheit or MinSurfaceDewpointCelsius	Atmospheric humidity metric (temperature at which dew will form)
MaxSurfaceDewpointFahrenheit or MaxSurfaceDewpointCelsius	Atmospheric humidity metric (temperature at which dew will form)
AvgSurfaceDewpointFahrenheit or AvgSurfaceDewpointCelsius	Atmospheric humidity metric (temperature at which dew will form)
MinWetBulbTemperatureFahrenheit or MinWetBulbTemperatureCelsius	Atmospheric humidity metric (evaporative cooling potential of moist surface)
MaxWetBulbTemperatureFahrenheit or MaxWetBulbTemperatureCelsius	Atmospheric humidity metric (evaporative cooling potential of moist surface)
AvgWetBulbTemperatureFahrenheit or AvgWetBulbTemperatureCelsius	Atmospheric humidity metric (evaporative cooling potential of moist surface)
MinRelativeHumidityPercent	Percent of water vapor in the air relative to its saturation point
MaxRelativeHumidityPercent	Percent of water vapor in the air relative to its saturation point
AvgRelativeHumidityPercent	Percent of water vapor in the air relative to its saturation point
MinSurfaceAirPressureMillibars or MinSurfaceAirPressureKilopascals	Atmospheric pressure at the Surface
MaxSurfaceAirPressureMillibars or MaxSurfaceAirPressureKilopascals	Atmospheric pressure at the Surface
AvgSurfaceAirPressureMillibars or AvgSurfaceAirPressureKilopascals	Atmospheric pressure at the Surface
MinMslPressureMillibars or MinMslPressureKilopascals	Mean Sea Level Pressure
MaxMslPressureMillibars or MaxMslPressureKilopascals	Mean Sea Level Pressure
AvgMslPressureMillibars or AvgMslPressureKilopascals	Mean Sea Level Pressure
MinCloudCoveragePercent	Percentage of the sky covered by clouds
MaxCloudCoveragePercent	Percentage of the sky covered by clouds

AvgCloudCoveragePercent	Percentage of the sky covered by clouds
MinWindChillTemperatureFahrenheit or MinWindChillTemperatureCelsius	Air temperature that includes impact of wind
MaxWindChillTemperatureFahrenheit or MaxWindChillTemperatureCelsius	Air temperature that includes impact of wind
AvgWindChillTemperatureFahrenheit or AvgWindChillTemperatureCelsius	Air temperature that includes impact of wind
MinApparentTemperatureFahrenheit or MinApparentTemperatureCelsius	Air temperature that includes impact of wind and humidity
MaxApparentTemperatureFahrenheit or MaxApparentTemperatureCelsius	Air temperature that includes impact of wind and humidity
AvgApparentTemperatureFahrenheit or AvgApparentTemperatureCelsius	Air temperature that includes impact of wind and humidity
MinHeatIndexFahrenheit or MinHeatIndexCelsius	Air temperature that includes impact of humidity
MaxHeatIndexFahrenheit or MaxHeatIndexCelsius	Air temperature that includes impact of humidity
AvgHeatIndexFahrenheit or AvgHeatIndexCelsius	Air temperature that includes impact of humidity
MinWindSpeedMph or MinWindSpeedKph	Unobstructed wind speed at 10 meters
MaxWindSpeedMph or MaxWindSpeedKph	Unobstructed wind speed at 10 meters
AvgWindSpeedMph or AvgWindSpeedKph	Unobstructed wind speed at 10 meters
MinSurfaceWindGustsMph or MinSurfaceWindGustsKph	Unobstructed wind gusts at 10 meters
MaxSurfaceWindGustsMph or MaxSurfaceWindGustsKph	Unobstructed wind gusts at 10 meters
AvgSurfaceWindGustsMph or AvgSurfaceWindGustsKph	Unobstructed wind gusts at 10 meters
MinWindDirectionDegrees	Upwind direction (e.g., wind from east = 90, from south = 180, etc.) at 10 meters
MaxWindDirectionDegrees	Upwind direction (e.g., wind from east = 90, from south = 180, etc.) at 10 meters
AvgWindDirectionDegrees	Upwind direction (e.g., wind from east = 90, from south = 180, etc.) at 10 meters

MinPrecipitationPreviousHourInches or MinPrecipitationPreviousHourCentimeters	Liquid equivalent for types: warm rain, freezing rain, sleet, snow
MaxPrecipitationPreviousHourInches or MaxPrecipitationPreviousHourCentimeters	Liquid equivalent for types: warm rain, freezing rain, sleet, snow
AvgPrecipitationPreviousHourInches or AvgPrecipitationPreviousHourCentimeters	Liquid equivalent for types: warm rain, freezing rain, sleet, snow
SumPrecipitationPreviousHourInches or SumPrecipitationPreviousHourCentimeters	Liquid equivalent for types: warm rain, freezing rain, sleet, snow
MinSnowfallInches or MinSnowfallCentimeters	Total Snowfall
MaxSnowfallInches or MaxSnowfallCentimeters	Total Snowfall
AvgSnowfallInches or AvgSnowfallCentimeters	Total Snowfall
SumSnowfallInches or SumSnowfallCentimeters	Total Snowfall
MinDownwardSolarRadiationWsqm	Total solar radiation flux on a plane parallel to the Earth's surface
MaxDownwardSolarRadiationWsqm	Total solar radiation flux on a plane parallel to the Earth's surface
AvgDownwardSolarRadiationWsqm	Total solar radiation flux on a plane parallel to the Earth's surface
SumDownwardSolarRadiationWsqm	Total solar radiation flux on a plane parallel to the Earth's surface
MinDiffuseHorizontalRadiationWsqm	Diffuse (indirect) solar radiation flux on a plane parallel to the Earth's surface
MaxDiffuseHorizontalRadiationWsqm	Diffuse (indirect) solar radiation flux on a plane parallel to the Earth's surface
AvgDiffuseHorizontalRadiationWsqm	Diffuse (indirect) solar radiation flux on a plane parallel to the Earth's surface
SumDiffuseHorizontalRadiationWsqm	Diffuse (indirect) solar radiation flux on a plane parallel to the Earth's surface
MinDirectNormalIrradienceWsqm	Direct solar radiation flux on a surface 90 deg to the sun
MaxDirectNormalIrradienceWsqm	Direct solar radiation flux on a surface 90 deg to the sun
AvgDirectNormalIrradienceWsqm	Direct solar radiation flux on a surface 90 deg to the sun

SumDirectNormalIrradienceWsqm	Direct solar radiation flux on a surface 90 deg to the sun
ReferenceEvapotranspirationInches or ReferenceEvapotranspirationMillimeters	Reference Evapotranspiration (inches/hour)
Daily Data – METAR Specific Variables	
MaxInstantaneousSurfaceTemperature	Measurement taken at 2 meters
MaxInstantaneousSurfaceTemperatureTimestamp	Timestamp of the METAR report with the maximum temperature information
MaxInstantaneousSurfaceTemperatureSource	Integer value, indicating which part of the METAR string was used to determine the maximum temperature
MinInstantaneousSurfaceTemperature	Measurement taken at 2 meters
MinInstantaneousSurfaceTemperatureTimestamp	Timestamp of the METAR report with the minimum temperature information
MinInstantaneousSurfaceTemperatureSource	Integer value, indicating which part of the METAR string was used to determine the minimum temperature
MaxInstantaneousWindSpeed	Measurement taken at 10 meters
MaxInstantaneousWindSpeedTimestamp	Timestamp of the maximum sustained surface wind speed
MaxInstantaneousWindGust	Measurement taken at 10 meters
MaxInstantaneousWindGustTimestamp	Timestamp of the maximum surface wind gust

Monthly Data - Variables

Name	Description
SurfaceTemperatureFahrenheit or SurfaceTemperatureCelsius	Daily Minimum Surface air (dry bulb) temperature at 2 meters
SurfaceDewpointFahrenheit or SurfaceDewpointCelsius	Daily Minimum Atmospheric humidity metric (temperature at which dew will form)

WetBulbTemperatureFahrenheit or WetBulbTemperatureCelsius	Daily Minimum Atmospheric humidity metric (evaporative cooling potential of moist surface)
RelativeHumidityPercent	Daily Minimum Percent of water vapor in the air relative to its saturation point
SurfaceAirPressureMillibars or MinSurfaceAirPressureKilopascals	Atmospheric pressure at the Surface
CloudCoveragePercent	Percentage of the sky covered by clouds
WindSpeedMph or WindSpeedKph	Unobstructed wind speed at 10 meters
WindDirectionDegrees	Upwind direction (e.g., wind from east = 90, from south = 180, etc.) at 10 meters
PrecipitationPreviousHourInches or PrecipitationPreviousHourCentimeters	Liquid equivalent for types: warm rain, freezing rain, sleet, snow
netRadiationWsqm	Total solar radiation flux on a plane parallel to the Earth's surface
directNormalIrradianceWsqm	Direct solar radiation flux on a surface 90 deg to the sun
diffuseHorizontalRadiationWsqm	Diffuse (indirect) solar radiation flux on a plane parallel to the Earth's surface
downwardSolarRadiationWsqm	Total solar radiation flux on a plane parallel to the Earth's surface
potentialEvapotranspirationMicrometersPerHour	Reference Evapotranspiration (inches/hour)

Response Messages – *When using the Version 3 API, a message will be returned for non 200 Status Codes providing details on why the Error Status Code was returned*

HTTP Status Code	Reason
200	OK
204	No Content
400	Bad Request
401	Unauthorized
403	Forbidden
404	Not Found

429	Too many requests
500	Failed to process request

Disclaimer

There is a max of 1 year of historical data allowed per request. If you request more than 1 year of data your end date will be shortened. You would receive data from your start date to 1 year out.

Examples to Retrieve Parameters

Sample {Lat/Long} URL request (All Input Parameters Specified):
https://cleanedobservations.atmosphericg2.com/v3/wsi/metar/[42.303,-99.062]?startDate=05/01/2015&endDate=05/02/2015&interval=hourly&units=imperial&format=json&time=lwt&station=metar&fields=surfaceTemperatureFahrenheit,relativeHumidityPercent,windSpeedMph,downwardSolarRadiationWsqm&userKey=99999999999999999999999999999999

Sample {Lat/Long} URL request (Only Required Parameters Specified):
https://cleanedobservations.atmosphericg2.com/v3/wsi/metar/[42.303,-99.062]?startDate=05/01/2015&endDate=05/02/2015&interval=hourly&units=imperial&format=json&userKey=99999999999999999999999999999999

Sample {Zipcode} URL request (All Input Parameters Specified):
https://cleanedobservations.atmosphericg2.com/v3/wsi/metar/zipcode/01810?startDate=05/01/2015&endDate=05/02/2015&interval=hourly&units=imperial&format=json&time=lwt&station=metar&fields=surfaceTemperatureFahrenheit,relativeHumidityPercent,windSpeedMph,downwardSolarRadiationWsqm&userKey=99999999999999999999999999999999

Sample {METAR Code} URL request (All Input Parameters Specified):
https://cleanedobservations.atmosphericg2.com/v3/wsi/metar/station/KBOS?startDate=05/01/2015&endDate=05/02/2015&interval=hourly&units=imperial&format=json&time=lwt&station=metar&fields=surfaceTemperatureFahrenheit,relativeHumidityPercent,windSpeedMph,downwardSolarRadiationWsqm&userKey=99999999999999999999999999999999

Sample {Grid Cell ID} URL request (All Input Parameters Specified):
https://cleanedobservations.atmosphericg2.com/v3/wsi/metar/station/2268975643?startDate=05/01/2015&endDate=05/02/2015&interval=hourly&units=imperial&format=json&time=lwt&station=metar&fields=surfaceTemperatureFahrenheit,relativeHumidityPercent,windSpeedMph,downwardSolarRadiationWsqm&userKey=99999999999999999999999999999999

Sample {Lat/Long} URL request (Synop Station Weather Variables – All Input Parameters Specified):
https://cleanedobservations.atmosphericg2.com/v3/wsi/twc/synop/[51.48,-0.45]?startDate=05/01/2015&endDate=05/02/2015&interval=hourly&units=imperial&format=json&time=lwt&fields=surfaceTemperatureFahrenheit,relativeHumidityPercent,windSpeedMph&userKey=99999999999999999999999999999999

Degree Day Variables

Certain parameters are required to initiate a weather request. As is standard in URIs, all parameters are separated using the ampersand (**&**) character. The list of parameters and their possible values are enumerated below.

- userKey (*required*) — this unique client identifier is assigned by AG2
- lat/long *(required)* – latitude/longitude for which data is being requested for
- startDate (*required*) — "mm/dd/yyyy" Indicates the starting date for weather request (Start date is first hour of requested date)
- endDate (*required*) — "mm/dd/yyyy" indicates the ending date for weather request (End date is first hour of date requested, Data will be returned between the first hour of start date and first hour of   end date. Make end date an extra day if you would like data for that day.)
- units (*required)* — The desired units in which to express the data being retrieved. Accepted values are:
    - Imperial
    - metric
- format (*required)* — The desired format in which to return the data being retrieved. Accepted values are:
    - json
    - Xml
    - csv
- version – The specific version of the API to be utilized. Currently accepted values are:
    - 2
- crop – Specific to Growing Degree Days and Killing Degree Days. Currently accepted values are:
    - Corn - Default
    - Wheat
    - Potato
    - Cotton
    - Peanut
- basetemp – The base temperature to be used in the Growing/Killing Degree Day calculation. The value can be provided in either Fahrenheit or Celsius but needs to be consistent with the value used for the "units" parameter. If both the "crop" and "basetemp" parameters are not provided a Default value of 50F is used. Otherwise, the default basetemp for the entered crop will be used which are listed below within the Definitions section.

Definitions

Cooling Degree Days - Difference of average daily temperature and 65 F / 18 C. If positive, equals the difference. Else is 0.

Heating Degree Days - Difference of 65 F / 18 C and average daily temperature. If positive, equals the difference. Else is 0.

Growing/Killing Degree Days - Difference from average daily temperature from base temperature of a crop (base temperature is defined by crop). Equals 0 if average daily temperature is below 32 F / 0 C or above 86 F / 30 C.

Default basetemp based on crop:

Corn: 50 F / 10 C

Wheat: 40 F / 4 C

Cotton: 60 F / 16 C

Peanut: 56 F / 13 C

Potato: 45 F / 7 C

Date Range Restriction

There is a max of 1 year of historical data allowed per request. If you request more than 1 year of data your end date will be shortened. You would receive data from your start date to 1 year out.

Example

Calculate Growing/Killing Degree Days for Corn with a basetemp of 55F:
https://cleanedobservations.atmosphericg2.com/v3/wsi/metar/degreeday/[42.134,-78.132]?startDate=05/01/2015&endDate=05/02/2015&units=imperial&crop=corn&basetemp=55&format=json&userKey=[userKey]

Usage Tracking:

API can be used to track calls made to the Cleaned Historical API and monitor the number of calls left on the contract.

- userKey (*required*) — this unique client identifier is assigned by AG2

- start (*required*) — "mm/dd/yyyy" Indicates the starting date for the usage request – *Note: The start date cannot be earlier than 12 months prior to the current date*

- end (*optional*) — "mm/dd/yyyy" indicates the ending date for the usage request

Request without an end date
https://cleanedobservations.atmosphericg2.com/v3/usage?start=05/01/2015&userKey=99999999999999999999999999999999

Requests without an end date will return all usage information up to the present. Use this information to determine how many calls have been made over the duration of the contract and how many calls remain.

- **userKey** – confirms and restates the API key

- **callsUsed** – returns the total number of API calls that have been used since the start date of the request
- **callsRemainingInCurrentContract** – this will return the number of calls left in the contract right now
  - This parameter is independent of the start date of the request and will always show the calls left in the active contract.
- **daysUntilExpiration** – returns the number of days from present until the end date of the contract
- **contractEndDate** – returns the end date of the contract in MM/DD/YYYY format

Request with an end date
https://cleanedobservations.atmosphericg2.com/v3/usage?start=05/01/2015&end=06/01/2015&userKey=9999999999999999999999999999999

Requests with an end date will return usage information between the two dates specified in the request. Use this information to determine how many calls were made between those two dates. Additional information about the number of calls remaining on the contract will be returned.

- **userKey** – confirms and restates the API key
- **callsUsedOverRequestedTimePeriod** – returns the number of API calls that were used between the start date and end date of the request
- **callsRemainingOnRequestedEndDate** – returns the number of calls left in the contract on the requested end date. This parameter is only returned if the requested end date does not precede the most recent contract start date.
  - This is the only parameter with that is not guaranteed to be returned (i.e. it depends on the input information)
- **callsRemainingInCurrentContract** – this will return the number of calls left in the contract right now
  - Again, this parameter is independent of the start and end date of the request and will always show the calls left in the active contract.
- **daysUntilExpiration** – returns the number of days from present until the end date of the contract
- **contractEndDate** – returns the end date of the contract in MM/DD/YYYY