

# *ISO 19131 Agroclimate Data – Data Product Specification*

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Revision: A

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## Data specification: *Agroclimate Data*

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## Data product specification: Agroclimate Data

### 1. OVERVIEW

#### 1.1. Informal description

The impact of climatic variability on the environment is of great importance to the agricultural sector in Canada. Monitoring the impacts on water supplies, soil degradation and agricultural production is essential to the preparedness of the region in dealing with possible drought conditions.

The 'Agroclimate Data' products are a series of agroclimate-themed datasets for precipitation, temperature, growing degree day, and other variables. These datasets are key to understanding the conditions, risks and potential impacts of weather and climate on agriculture in Canada.

#### 1.2. Data product specification metadata

This section provides metadata about the creation of this data product specification.

Data product specification title:	Agroclimate Data
Data product specification reference date:	2015-10-22
Data product specification responsible party:	Agriculture and Agri-Food Canada
Data product specification language:	English, French
Data product specification topic category:	Climatology/Meteorology/Atmosphere

### 1.3. Terms and definitions

- Feature attribute  
characteristic of a feature
- Class  
description of a set of objects that share the same attributes, operations, methods, relationships, and semantics [UML Semantics]  
NOTE: A class does not always have an associated geometry (e.g. the metadata class).
- Feature  
abstraction of real world phenomena
- Object  
entity with a well-defined boundary and identity that encapsulates state and behaviour [UML Semantics]  
NOTE: An object is an instance of a class.
- Package  
grouping of a set of classes, relationships, and even other packages with a view to organizing the model into more abstract structures

### 1.4. Abbreviations

AAFC            Agriculture and Agri-Food Canada

## 2. SPECIFICATION SCOPE

This data specification has only one scope, the general scope.

NOTE: The term 'specification scope' originates from the International Standard ISO19131. 'Specification scope' does not express the purpose for the creation of a data specification or the potential use of data, but identifies partitions of the data specification where specific requirements apply.

### 3. DATA PRODUCT IDENTIFICATION

#### 3.1. Data Series Identification

##### 3.1.1. Accumulated Precipitation (agclimate\_ac)

Title	Accumulated Precipitation
Alternate Title	agclimate_ac
Abstract	Accumulated Precipitation represents the amount of total precipitation (solid and/or liquid in mm) which has been recorded over a given period of time. Products are produced for the following timeframes: Agricultural Year, Growing Season and Winter Season as well as rolling products for 7, 14, 30, 60, 90, 180, 270, 365, 730, 1095, 1460 and 1825 days.
Purpose	These values are intended to provide users with a general idea of the amount of precipitation that has been received by a region over the given timeframe.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	Grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Precipitation
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.2. Percent of Average Precipitation (agclimate\_av)**

Title	Percent of Average Precipitation
Alternate Title	agclimate_av
Abstract	<p>Percent of Average Precipitation products compute the accumulated precipitation value for a location and divide it by the long term average value at that location. The long term average value is currently defined as the average amount over the period of 1981 – 2010.</p> <p>Products are produced for the following timeframes: Agricultural Year, Growing Season and Winter Season as well as rolling products for 30, 60, 90, 180, 270, 365, 730, 1095, 1460 and 1825 days.</p>
Purpose	These values are intended to provide users with a general idea of the how the amount of precipitation that has been received by a region over the given timeframe compares to the amount which is generally received.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	Grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Precipitation
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.3. Departure from Average Precipitation (agclimate\_dnp)**

Title	Departure from Average Precipitation
Alternate Title	agclimate_dnp
Abstract	<p>Departure from Average Precipitation products compute the accumulated precipitation value for a location and subtract the long term average value at that location from it. The long term average value is currently defined as the average amount over the period of 1981 – 2010. If the resultant value is negative it indicates that the location has received less than the usual amount of precipitation for that timeframe by the amount given in mm; conversely, a positive amount shows that the location has seen more than the usual amount of precipitation.</p> <p>Products are produced for the following timeframes: Agricultural Year, Growing Season and Winter Season as well as rolling products for 30, 60, 90, 180, 270, 365, 730, 1095, 1460 and 1825 days.</p>
Purpose	These values are intended to provide users with a general idea of the how the amount of precipitation that has been received by a region over the given timeframe compares to the amount which is generally received.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	Grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Precipitation
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.4. Current precipitation compared to historical distribution (agclimate\_pe)**

Title	Current precipitation compared to historical distribution
Alternate Title	agclimate_pe
Abstract	Current precipitation compared to historical distribution products are created by comparing the accumulated precipitation amounts (mm) for the time period being processed against all available historical information from the same window of time. This comparison will rank the current amount and assign it a percentile value determined by where it falls against the historic record. Products are produced for the following timeframes: Agricultural Year, Growing Season and Winter Season as well as rolling products for 30, 60, 90 and 180 days
Purpose	These values are intended to provide users with a general idea of the how the amount of precipitation that has been received by a region over the given timeframe compares to the amount which has been received in the historical record.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	Grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation
Scope identification	series
Feature Attribute Names	tType, dStart



**3.1.5. Maximum Temperature (agclimate\_tx)**

Title	Maximum Temperature
Alternate Title	agclimate_tx
Abstract	Maximum Temperature values hold the highest recorded temperature value at each location in degrees Celsius for the given period type and date. Available timeframes are the previous 24 hours and the previous 7 days from the available date where a climate day is defined as starting at 0600UTC
Purpose	These values can provide a user with a measure of (generally) daytime temperature highs.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	Grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.6. Minimum Temperature (agclimate\_ti)**

Title	Minimum Temperature
Alternate Title	agclimate_ti
Abstract	Minimum Temperature values hold the lowest recorded temperature value at each location in degrees Celsius for the given period type and date. Available timeframes are the previous 24 hours and the previous 7 days from the available date where a climate day is defined as starting at 0600UTC
Purpose	These values can provide a user with a measure of (generally) overnight temperature lows.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	Grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation
Scope identification	Series
Feature Attribute Names	tType, dStart

**3.1.7.Heat Wave (agclimate\_hw)**

Title	Heat Wave
Alternate Title	agclimate_hw
Abstract	Days above 25 and 30 degrees Celsius are defined as a count of the number of days within the date range where the maximum daily temperature was greater than 25 or 30 degrees respectively. Consecutive days above 25, 30 and 32 degrees Celsius is a count of the number of days, starting from the date of the product and going back in time, since there has been a day with a maximum temperature at or below 25, 30 or 32 degrees respectively. Heat wave products are only produced during the Growing Season, April 1 through October 31.
Purpose	The accumulation of too many consecutive hot days can be an indicator of heat stress on some crops in the growing season and is also used to identify heat waves which can also affect cases of hypothermia, increased power use and power outages due to increased use of air conditioning.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.8.Dry Spell (agclimate\_ds)**

Title	Dry Spell
Alternate Title	agclimate_ds
Abstract	<p>Dry spell periods are defined as a count of the number of days within the date range where daily precipitation was less than 0.5 mm.</p> <p>Consecutive days below 0.5 mm is a count of the number of days, starting from the date of the product and going back in time, since there has been a day with precipitation of at least 0.5 mm.</p> <p>This is not an accumulation of precipitation, simply a count of days.</p> <p>Dry spell products are only produced during the Growing Season, April 1 through October 31.</p>
Purpose	The accumulation of too many consecutive dry days can be an indicator of crop stress in the growing season and can also signal the presence of various types of drought.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.9.Crop (corn) heat units (agclimate\_ch)**

Title	Crop (corn) heat units
Alternate Title	agclimate_ch
Abstract	Crop heat units (CHU) are based on a similar principle to growing degree days. CHUs are calculated on a daily basis, using the maximum and minimum temperatures; however, the equation that is used is quite different. The CHU model uses separate calculations for maximum and minimum temperatures in order to account for a crop's negative response to higher temperatures. CHU values are only accumulated during the Growing Season, April 1 through October 31.
Purpose	To provide information that will allow users of the data to select crop varieties and hybrids that will be successful in a particular area.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.10. Growing Degree Days (agclimate\_gd)**

Title	Growing Degree Days
Alternate Title	agclimate_gd
Abstract	<p>Growing degree days (GDDs) are used to estimate the growth and development of plants and insects during the growing season. Insect and plant development are very dependent on temperature and the daily accumulation of heat. The amount of heat required to move a plant or pest to the next development stage remains constant from year to year. However, the actual amount of time (days) can vary considerably from year to year because of weather conditions. Growing Degree Day (GDD) values are computed by subtracting a base value temperature from the mean daily temperature and are assigned a value of zero if negative. Base temperatures are a point below which development does not occur for the organism in question. Growing Degree Day products are created for base 0, 5, 10 and 15 degrees Celsius. Base 0 values are commonly used for cereals, base 5 for alfalfa, canola and general plant growth, base 10 for grasshoppers and beans and base 15 values are commonly used for general insect development. GDD values are only accumulated during the Growing Season, April 1 through October 31.</p>
Purpose	To provide information that will allow users of the data to select crop varieties and hybrids that will be successful in a particular area.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.11. Blended Index (agclimate\_bi)**

Title	Blended Index
Alternate Title	agclimate_bi
Abstract	<p>The Blended Index (BI) is a model which employs multiple potential indicators of drought and excess moisture (such as Palmer values, rolling precipitation amounts and soil moisture to name a few) and combines them into a weighted, normalized value between 0 and 100. The inputs and weights used in this model are subject to change from time to time as it is optimized to best represent extent, duration and severity of impactful weather conditions.</p>
Purpose	These values are intended to provide users with a general idea of the agricultural growing conditions for a region over a given timeframe.

Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation, BI
Scope identification	series
Feature Attribute Names	tType, dStart

### 3.1.12. Standardized Precipitation Index (agclimate\_spi)

Title	Standardized Precipitation Index
Alternate Title	agclimate_spi
Abstract	The Standardized Precipitation Index (SPI) is a widely used index to characterize meteorological drought on a range of timescales. The SPI can be compared across regions with markedly different climates. It quantifies observed precipitation as a standardized departure from a selected probability distribution function that models the raw precipitation data. The raw precipitation data are typically fitted to a gamma or a Pearson Type III distribution, and then transformed to a normal distribution. The SPI values can be interpreted as the number of standard deviations by which the observed anomaly deviates from the long-term mean. The SPI can be computed for differing periods of 1 to 60 months.
Purpose	These values are intended to provide users with a general idea of the agricultural growing conditions for a region over a given timeframe.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation, SPI
Scope identification	series
Feature Attribute Names	tType, dStart

### 3.1.13. Standardized Precipitation Evapotranspiration Index (agclimate\_spei)

Title	Standardized Precipitation Evapotranspiration Index
Alternate Title	agclimate_spei

Abstract	The Standardized Precipitation Evapotranspiration Index (SPEI) takes into account both precipitation and potential evapotranspiration (PET) and the resultant index is mostly used to highlight water deficits and droughts but can also show excesses. Thus, unlike the SPI, the SPEI captures the main impact of increased temperatures on water demand. Like the SPI, the SPEI can be calculated on a range of timescales from 1-60 months.
Purpose	These values are intended to provide users with a general idea of the agricultural growing conditions for a region over a given timeframe.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation, SPEI
Scope identification	series
Feature Attribute Names	tType, dStart

#### 3.1.14. Temperature Difference From Normal (agclimate\_dnt)

Title	Temperature Deviation
Alternate Title	agclimate_dnt
Abstract	These values are computed by subtracting the normal minimum, average, and maximum temperature from the minimum, average, and maximum temperature for a specified time period. The average temperature is computed by obtaining the mean value of minimum, average, and maximum daily temperatures for a specified time period. If the time period was colder than normal the value computed will be negative and if it was warmer the value will be positive.
Purpose	These values are intended to provide users with a general idea of the temperature variation for the month when compared to the average conditions experienced.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation, Monthly
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.15. Palmer Drought Index (agclimate\_pdi)**

Title	Palmer Drought Index
Alternate Title	agclimate_pdi
Abstract	<p>The Palmer Drought Index (PDI) is a measurement of dryness based on recent precipitation and temperature and is based on a supply-and-demand model of soil moisture. The index has proven most effective in determining long-term drought, a matter of several months, but it is not as good with conditions over a matter of weeks. It uses a 0 as normal, and drought is shown in terms of negative numbers; for example, negative 2 is moderate drought, negative 3 is severe drought, and negative 4 is extreme drought. Palmer's algorithm also is used to describe wet spells, using corresponding positive numbers.</p> <p>The Moisture Anomaly Index (PDI-Z) is an estimate of the moisture difference from normal (a 30-year mean). It compares conditions for the current month against the long-term average.</p>
Purpose	These values are intended to provide users with a general idea of the agricultural growing conditions for a region and is based on daily precipitation and temperature values.
Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation, Palmer, Drought
Scope identification	series
Feature Attribute Names	tType, dStart

**3.1.16. Versatile Soil Moisture Budget (agclimate\_vsmb)**

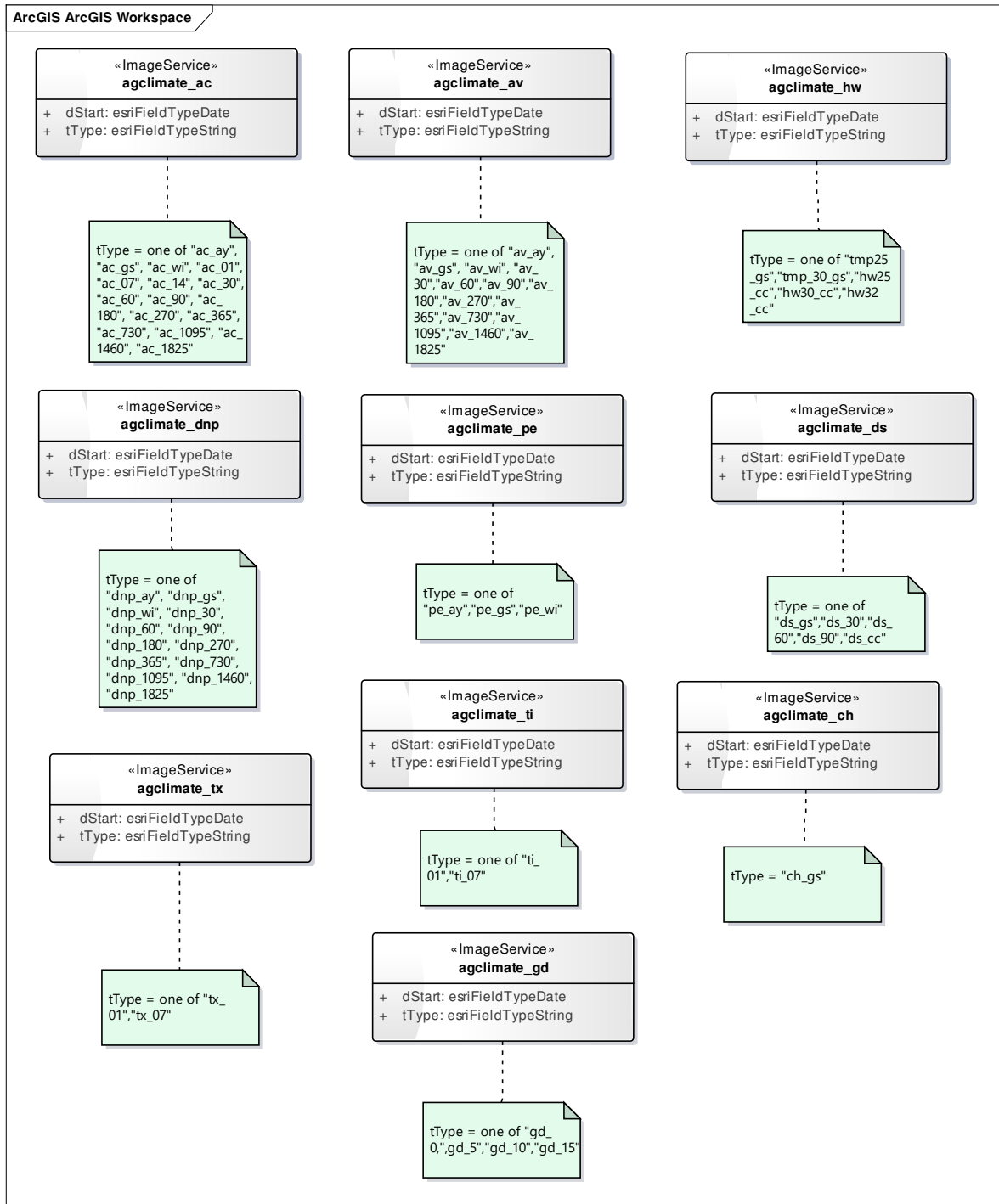
Title	Versatile Soil Moisture Budget
Alternate Title	agclimate_vsmb
Abstract	<p>The Versatile Soil Moisture Budget (VSMB) is a soil water budget model that is continuous and deterministic in nature and was developed by AAFC. It is based on the premise that the water available for plant growth is gained by precipitation or irrigation, and lost through evapotranspiration and runoff as well as lateral and deep drainage. The daily net loss or gain is added or subtracted from the water already present in the rooting zone. Water is withdrawn simultaneously, but at different rates, from different soil depths, depending on the potential evapotranspiration, the stage of crop development, the water release characteristics of each soil layer and the available water.</p>
Purpose	These values are intended to provide users with a general idea of the agricultural growing conditions for a region and is based on daily precipitation and temperature values.



Topic Category	Climatology/Meteorology/Atmosphere
Spatial Reference Type	grid, vector
Spatial Resolution	5000m
Geographic Description	Canada
Supplemental Information	
Constraints	Data are subject to the Government of Canada Open Data License Agreement: <a href="http://www.data.gc.ca">http://www.data.gc.ca</a>
Keywords	Thesaurus: Government of Canada Core Subject Date: February 1, 2000 Keywords: Farmlands, Crop, Agriculture, Temperature, Precipitation, Soil Moisture
Scope identification	series
Feature Attribute Names	tType, dStart

## 4. CONTENT AND STRUCTURE

### 4.1. Feature-based application schema



## 4.2. Feature catalogue – Drought Watch Interactive Mapping

Title	Agroclimate – Feature Catalogue
Scope	
Version Number	1
Version Date	2013-04-10
Producer	Agriculture and Agri-Food Canada, Government of Canada

System-generated attributes (for example, OBJECTID, Shape, Shape Length and Area) are not defined in the feature catalog.

### 4.2.1. Feature attributes

#### 4.2.1.1. Date of Observation (dDate)

Name	Date of observation (dDate)
Definition	Date of observation
Aliases	
Producer	<i>Agriculture and Agri-Food Canada</i>
Value Data Type	Date
Value Domain Type	0
Value Domain	

**4.2.1.2. Period Type Code (tType)**

Name	Period Type Code (tType)		
Definition	A unique code based on the combination of the product type code (i.e. the 2 character image service suffix) and the period type code. For example the tType code for the previous 7 days Maximum Temperature Image Service would be "tx_07".		
Aliases			
Producer	<i>Agriculture and Agri-Food Canada</i>		
Value Data Type	String		
Value Domain Type	1		
Value Domain			
	Feature Attribute Value		
	Label	Code	
		ay	agricultural year (September 1 to August 31)
		gs	growing season (April 1 to October 31)
		wi	winter season (November 1 to March 31)
		cc	number of consecutive days
		im	instantaneous measurement
		01	24 hours previous to the date of the raster
		07	Seven days previous to the date of the raster
		14	Fourteen days previous to the date of the raster
		30	Thirty days previous to the date of the raster
		60	Sixty days previous to the date of the raster
		90	Ninety days previous to the date of the raster
		180	One hundred and eighty days previous to the date of the raster
		270	Two hundred and seventy days previous to the date of the raster
		365	Three hundred and sixty five days previous to the date of the raster
		730	Seven hundred and thirty days previous to the date of the raster
		1095	One thousand and ninety-five days previous to the date of the raster
		1460	One thousand four hundred and sixty days previous to the date of the raster
		1825	One thousand eight hundred and twenty-five days previous to the date of the raster
	gd_0	Base 0° Celsius	
	gd_5	Base 5° Celsius	
	gd_10	Base 10° Celsius	
	gd_15	Base 15° Celsius	

## **5. REFERENCE SYSTEM**

### **5.1. Spatial reference system**

Horizontal coordinate reference system: WGS 84

Map projection: Web Mercator Auxiliary Sphere; EPSG: 3857; Version 8.1.4

### **5.2. Temporal reference system**

Gregorian calendar

## **6. DATA QUALITY**

### **6.1. Completeness**

Measure not used at this time

### **6.2. Logical consistency**

Measure not used at this time

### **6.3. Positional accuracy**

This digital geo-spatial product was interpolated from ECCC/MSC station data with unknown positional accuracy (latitude, longitude and elevation). Latitude and longitude values are given to the nearest 1/100 of a degree.

### **6.4. Temporal accuracy**

Measure not used at this time

### **6.5. Thematic accuracy**

Measure not used at this time

### 6.6. Lineage statement

Lineage Statement	<p>Raw in-situ climate measurements of daily maximum and minimum temperature and daily total precipitation are gathered each day from multiple sources (data owners) including Environment &amp; Climate Change Canada (ECCC), CoCoRHaS, Alberta Agriculture, Manitoba Agriculture, Environment Saskatchewan and the Quebec Mesonet. Data are collected for the most recent completed climate day which is defined by a 0600 UTC start time (this will generally occur five hours after the climate day has completed) as well as for one or more previous climate days – extra historic collections are frequently gathered to obtain any available updates from the source; as a general rule, the further removed from the time period of interest you move, the more information about the period becomes available.</p> <p>Once this daily information has been collected from all available sources, it is transferred to a common format to be processed by the system. This processing is done through a QAQC (Quality Assurance Quality Control) program which analyses the data in an automated fashion searching for any possible errors which may exist within the data using assessments against historic values, recent values and surrounding values. Any values which are found to be a potential source of error are flagged by the automated system. Once the automated system has completed its analysis, it opens up a graphical user interface which can be further examined and manipulated by an operator who manually searches through all flagged information and resolves the identified issue by either committing the value as acceptable, by removing the data in question or by entering a more suitable replacement value. During this manual inspection, operators consult historic, spatial, forecast and remote sensed (RADAR and satellite imagery) and employ the combined information to select the most likely scenario for each datum in question.</p> <p>Upon release of all flagged information, and any extra checks which may be performed by the operator to ensure the best possible representation of the climate day being assessed, the system is prompted to interpolate any missing information where sufficient surrounding information is available to satisfactorily do so. When this process is completed, the operator then uses the program to initiate the final step which is to upload the final products to multiple destinations for archival and graphical (map) product creation.</p>
Scope	Series

## 7. DATA CAPTURE

The most recent information available is generally captured and stored approximately five hours after the event (the climate day) has completed. For the purposes of this project a climate day is set to begin at 0600 UTC.

Data are obtained from various sources using an input program which is capable of polling multiple internet sources for information in many formats. Information is currently obtained from comma delimited text files, XML files, amorphous climate objects and spreadsheets. All available information is processed into a single source output file which is then made available for further downstream processing.

## 8. DATA MAINTENANCE

No Maintenance

## 9. PORTRAYAL

Not applicable.

## 10. DATA PRODUCT DELIVERY

### **TIF**

*format name:*

*Tag Interleaved File:*

*version:*

*6.0*

*specification:*

*GeoTIFF is format extension for storing georeference and geocoding information in a TIFF 6.0 compliant raster file by tying a raster image to a known model space or map projection.*

*languages: eng*

*character set: utf8*

## 11. METADATA

The metadata requirements follow the Government of Canada's Treasury Board Standard on Geospatial Data (ISO 19115).