

## Great circle distance

Compute the distance between two geospatial points



Product: IBM® SPSS® Modeler

Extension type: Process

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## Description

Compute the shortest distance between two points on the surface of the Earth.

## Requirements

- SPSS Modeler v16.0 or later
- SPSS Modeler 'R Essentials' plugin
- R v2.15.x

## Installation

Close SPSS Modeler. Copy and paste the *.cfe* file in the CDB folder, located by default on Windows in “*C:\ProgramData\IBM\SPSS\Modeler\16\CDB*” or under your Modeler 16 installation directory.

Restart SPSS Modeler: the node will now appear in the Field Ops palette.

## R Packages used

None

## User Interface

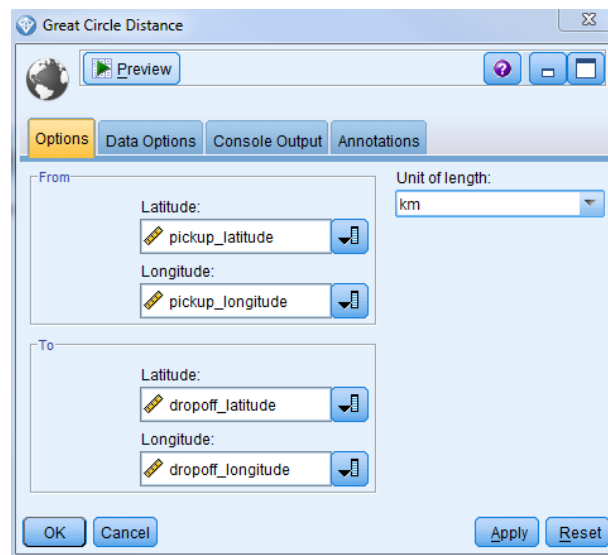
**Inputs fields:** Two sets of latitude and longitude and the measurement unit of length (kilometer or miles)

**Output field:** Distance between each pair in meters or miles.



## Result example

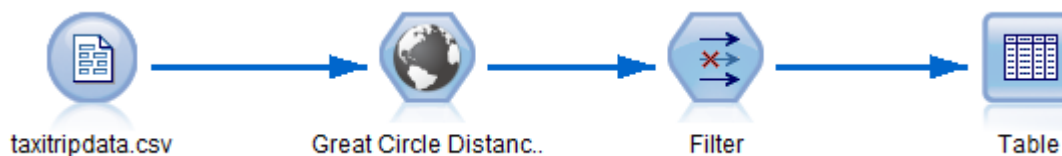
Double click on the 'Great Circle Distance' node.



Now select the fields Latitude and Longitude for the two sets of coordinates.

Choose the unit of length of the output.

Add an output node after the 'Great Circle Distance' node in order to visualize the distance.



You can try it yourself with the example stream 'GreatCircleDistance Exemple.str' and the data taxitripdata.csv

You can now compare the trip\_distance in the data and the Grand Circle distance :

| trip_distance | \$GD_distance |
|---------------|---------------|
| 1.100         | 0.896         |
| 0.300         | 0.263         |
| 5.700         | 4.765         |
| 1.200         | 0.858         |
| 10.300        | 6.573         |
| 0.600         | 0.471         |
| 1.200         | 0.764         |
| 1.100         | 0.787         |
| 1.200         | 1.063         |
| 2.300         | 1.725         |
| 0.600         | 0.575         |
| 1.000         | 0.816         |
| 2.000         | 1.583         |



## Important links

### Learn

- Learn more about [SPSS software](#).
- Visit [developerWorks Business analytics](#) for more technical analytics resources for developers.
- [The Comprehensive R Archive Network](#) is the main site for the R project and each R package. The help pages and manuals that are associated with `optimx`, `nlmrt`, and `Rcgmin` are detailed. Numerous references are provided.
- Read "[Do I need to learn R?](#)" (Catherine Dalzell, developerWorks, September 2013) to learn why R is a valuable tool for data analytics that was expressly designed to reflect the way that statisticians think and work.
- "[Calling R from SPSS](#)" describes how to use R code inside IBM SPSS Modeler 16.
- Read "[Using Google maps API](#)" to discover how to use Google Maps API with R.
- Read "[Create new nodes for IBM SPSS Modeler 16 using R](#)" to learn how to create new extensions easily.

### Get products and technologies

- Download the [R plug-in for SPSS](#) plugin.
- Download the [R 2.15.2 for Windows](#) package.

### Discuss

- Visit the [IBM SPSS DevCentral developerWorks community](#) to share tips and experiences with other IBM SPSS developers.
- Follow [developerWorks on Twitter](#) to be among the first to hear about new resources.