Quick guide to get historical environmental sample information into Matlab

Envirolytic, Feb 25, 2012.
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1. Where to find the information

Envirolytic Environmental Sample Data is stored as netCDF files centrally residing on a Azure Blob Storage Account.

For the moment, files are partitioned by variable and split into individual files per day.

You can find all the data for each variable using the http(s) address:

http(s)://envirolytic.blob.core.windows.net/variableName

Current Variables and Information

Temperature
Pressure
PressureSeaLevel
DewPointTemperature
PrecipitationRate
CloudCoverAggregate
GeopotentialHeight
HumidityRelative
Helicity
BoundaryLayerHeight
PrecipitationAccumulated
TurbulentKineticEnergy
Visibility
SnowAmount
SoilMoisture
SoilTemperature
SurfaceRunoff
TestTemp

Conceptual Information about these variables can be found at:

https://envirolytic.atlassian.net/wiki/display/DE/Weather+Variables

Example of files for variable BoundaryLayerHeight

http(s)://envirolytic.blob.core.windows.net/BoundaryLayerHeight

BoundaryLayerHeight_2012_01_01.nc

BoundaryLayerHeight_2012_01_02.nc

BoundaryLayerHeight_2012_01_03.nc

BoundaryLayerHeight_2012_01_04.nc

BoundaryLayerHeight_2012_01_05.nc

BoundaryLayerHeight_2012_01_06.nc

BoundaryLayerHeight_2012_01_07.nc

BoundaryLayerHeight_2012_01_08.nc

BoundaryLayerHeight_2012_01_09.nc

BoundaryLayerHeight_2012_01_10.nc

BoundaryLayerHeight_2012_01_11.nc

BoundaryLayerHeight_2012_01_12.nc

BoundaryLayerHeight_2012_01_13.nc

BoundaryLayerHeight_2012_01_14.nc

BoundaryLayerHeight_2012_01_15.nc

....

2. How to download some or all the data

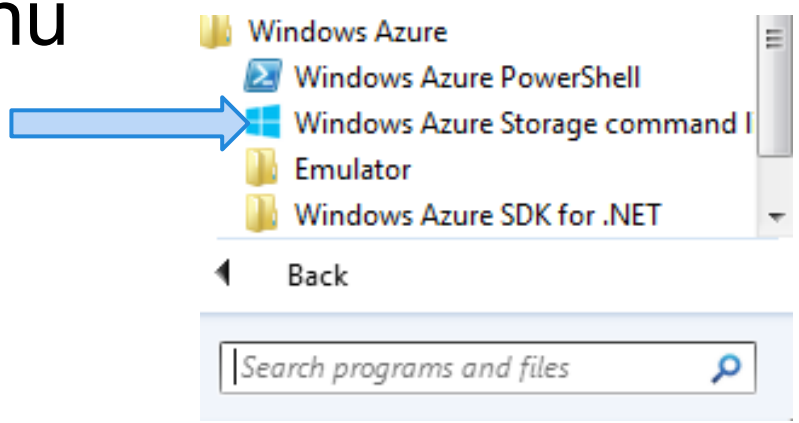
There are various ways of doing this but we explain here the simplest and more robust way of doing it - by using the windows command utility azcopy (free from Microsoft) that you can download from here:

http://aka.ms/WaCopy

Install azcopy

Download/Install from here: http://aka.ms/WaCopy

After install, you will see that on your windows ‘All Programs’ menu



Use AzCopy to download one variable information

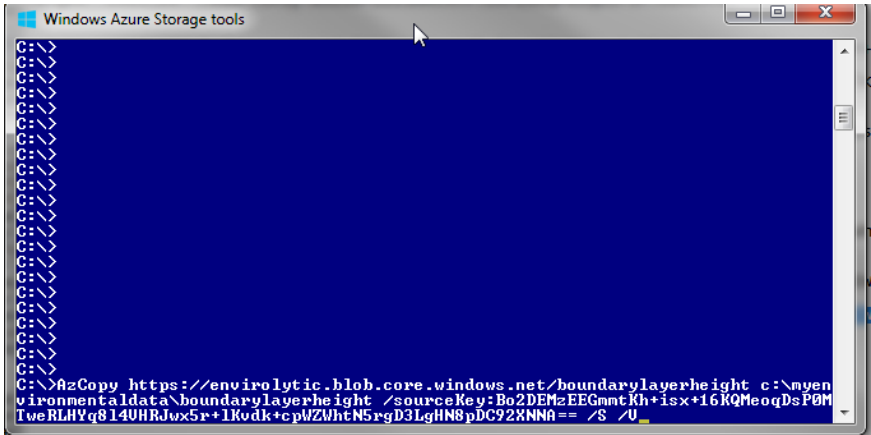
azcopy command is very simple and resembles DOS command copy.

azcopy <source> <destination> <prefix> <options>

For instance, to download the previous example you can run:

AzCopy https://envirolytic.blob.core.windows.net/boundarylayerheight c:\myenvironmentaldata\boundarylayerheight /sourceKey:<KEY> /S /V

a security “KEY” would be provided to you.



Note; /S specifies prefix option and /V is for ‘verbose’

so you see some logging information.

“azcopy /?” for more info/help.

To download only a year or a month or a day you can use a prefix pattern

This prefix in the command will only download Dec 2012 information

“BoundaryLayerHeight_2012_12”

AzCopy http://envirolytic.blob.core.windows.net/boundarylayerheight c:\myenvironmentaldata\boundarylayerheight2012_12 BoundaryLayerHeight_2012_12 /sourceKey:KEY /S /V

Full Example

AzCopy

http://envirolytic.blob.core.windows.net/boundarylayerheight

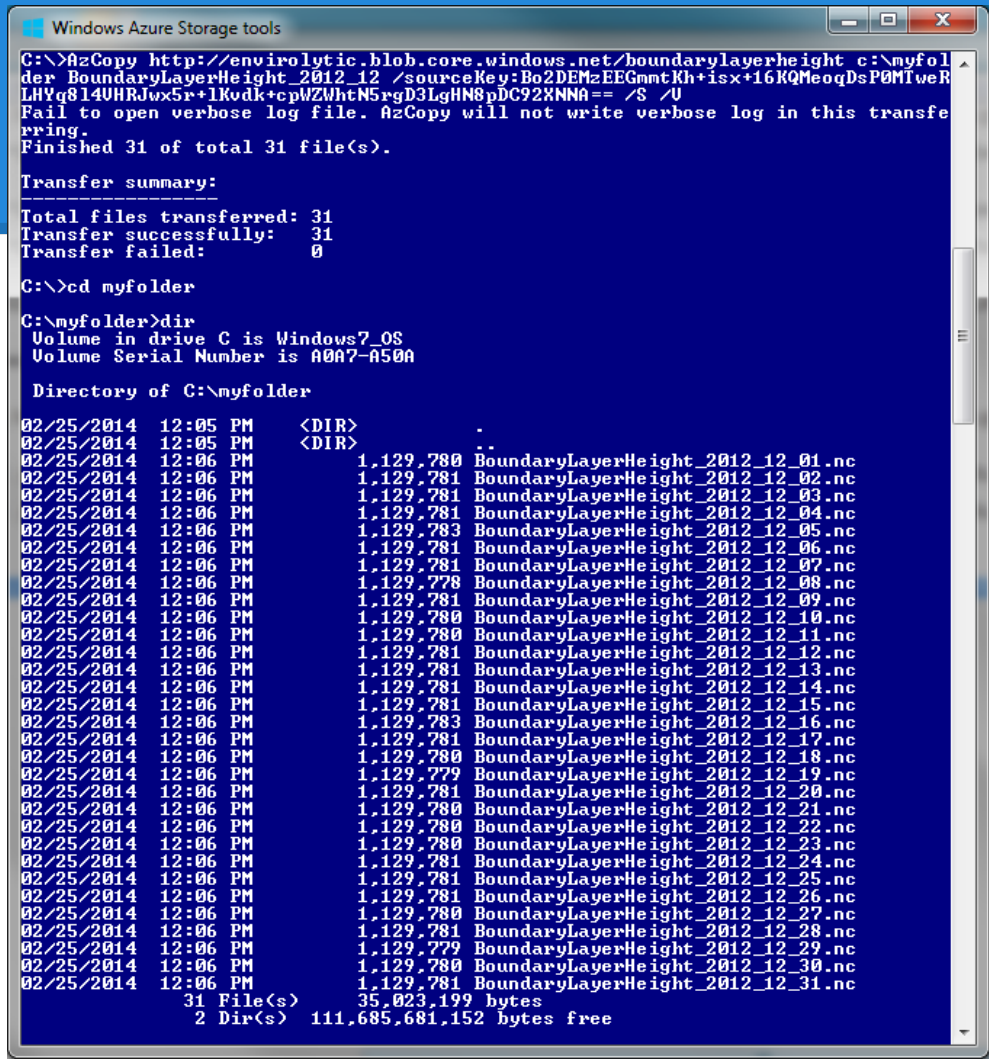
c:\myfolder

BoundaryLayerHeight_2012_12

/sourceKey:KEY

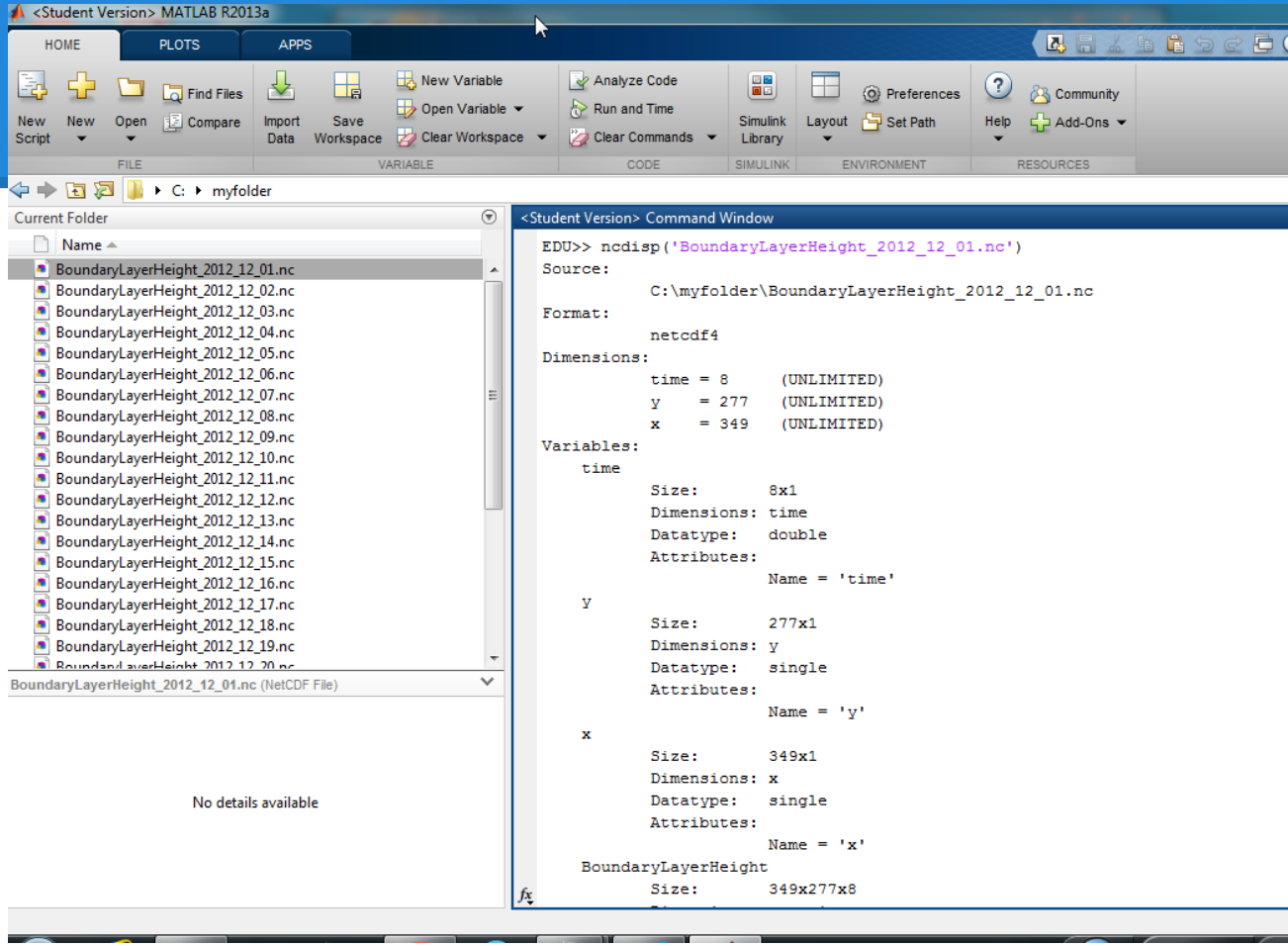
/S

/V



Open with MatLab

use the command “ncdisp” to check that the file is in good shape by displaying the metadata



Reading data into a Matlab variable

You can use the following commands to actually read the data into a Matlab variable

/*This command will open the file*/

>> myBoundaryLayerHeightFile = netcdf.open('BoundaryLayerHeight_2012_12_01.nc')

/*This command will declare a netcdf variable in Matlab */

>> myBoundaryLayerHeightVar = netcdf.inqVarID (myBoundaryLayerHeightFile,'BoundaryLayerHeight')

/*This command will get the actual data and put it into a Matlab variable */

>> myBoundaryLayerHeightData = netcdf.getVar(myBoundaryLayerHeightFile, myBoundaryLayerHeightVar)