

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](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

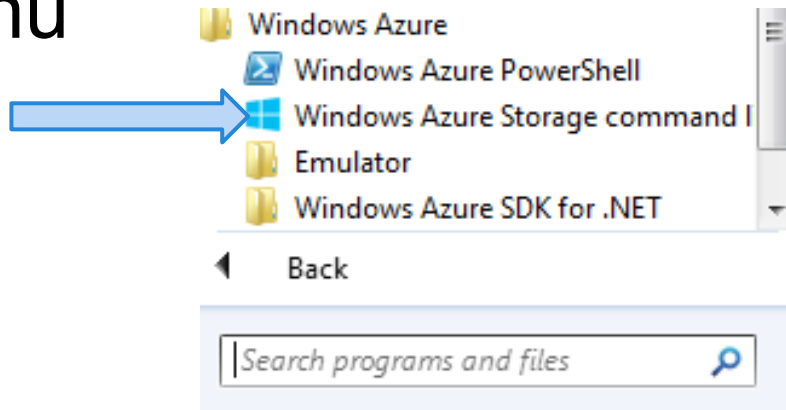
There are various ways of doing this but we explain here the simplest and more robust way of doing it - by using the windows command utility azcopy (free from Microsoft) that you can download from here:

<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>

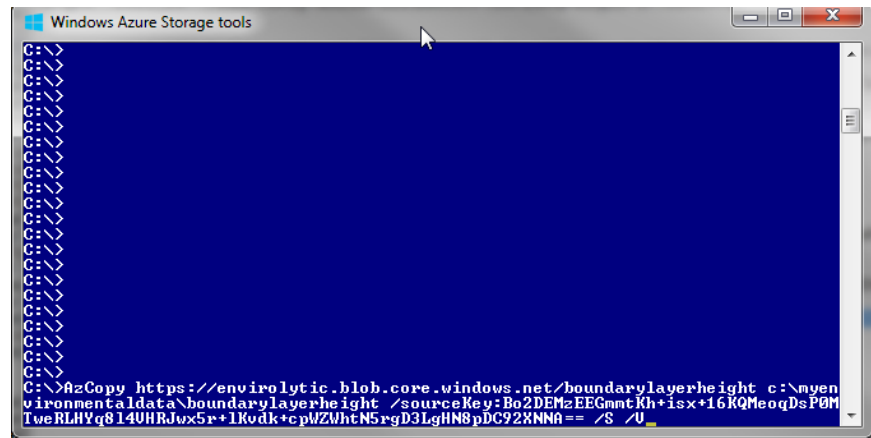
For instance, to download the previous example you can run:

AzCopy https://enviolytic.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

```
Windows Azure Storage tools
C:\>AzCopy http://envirolytic.blob.core.windows.net/boundarylayerheight c:\myfolder BoundaryLayerHeight_2012_12 /sourceKey:Bo2DEMzEEGmntKh+isx+16KQMeoQDsP0MIwERLHVq814UHRJwX5r+1Kvdk+cpWZWhtN5rgD3LgHN8pDC92XNNA== /S /V
Fail to open verbose log file. AzCopy will not write verbose log in this transferring.
Finished 31 of total 31 file(s).

Transfer summary:
-----
Total files transferred: 31
Transfer successfully: 31
Transfer failed: 0

C:\>cd myfolder

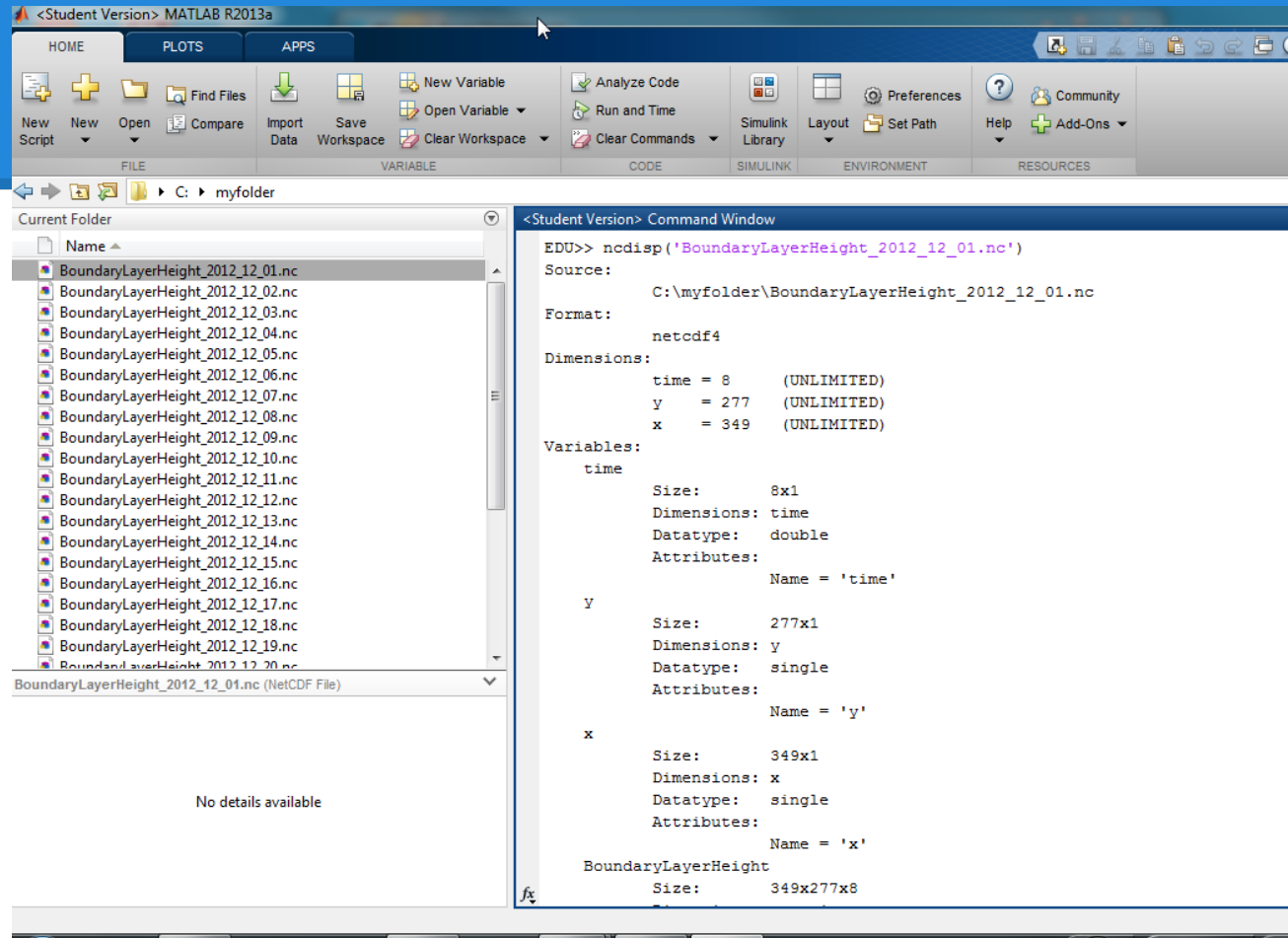
C:\myfolder>dir
Volume in drive C is Windows7_OS
Volume Serial Number is A0A7-A50A

Directory of C:\myfolder

02/25/2014 12:05 PM <DIR> .
02/25/2014 12:05 PM <DIR> ..
02/25/2014 12:06 PM 1,129,780 BoundaryLayerHeight_2012_12_01.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_02.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_03.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_04.nc
02/25/2014 12:06 PM 1,129,783 BoundaryLayerHeight_2012_12_05.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_06.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_07.nc
02/25/2014 12:06 PM 1,129,778 BoundaryLayerHeight_2012_12_08.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_09.nc
02/25/2014 12:06 PM 1,129,780 BoundaryLayerHeight_2012_12_10.nc
02/25/2014 12:06 PM 1,129,780 BoundaryLayerHeight_2012_12_11.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_12.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_13.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_14.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_15.nc
02/25/2014 12:06 PM 1,129,783 BoundaryLayerHeight_2012_12_16.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_17.nc
02/25/2014 12:06 PM 1,129,780 BoundaryLayerHeight_2012_12_18.nc
02/25/2014 12:06 PM 1,129,779 BoundaryLayerHeight_2012_12_19.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_20.nc
02/25/2014 12:06 PM 1,129,780 BoundaryLayerHeight_2012_12_21.nc
02/25/2014 12:06 PM 1,129,780 BoundaryLayerHeight_2012_12_22.nc
02/25/2014 12:06 PM 1,129,780 BoundaryLayerHeight_2012_12_23.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_24.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_25.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_26.nc
02/25/2014 12:06 PM 1,129,780 BoundaryLayerHeight_2012_12_27.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_28.nc
02/25/2014 12:06 PM 1,129,779 BoundaryLayerHeight_2012_12_29.nc
02/25/2014 12:06 PM 1,129,780 BoundaryLayerHeight_2012_12_30.nc
02/25/2014 12:06 PM 1,129,781 BoundaryLayerHeight_2012_12_31.nc
31 File(s) 35,023,199 bytes
2 Dir(s) 111,685,681,152 bytes free
```

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)
```