Quick guide to use Envirolytic dashboard to understand which information is available

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1.General data structure concepts.

A primary goals of our data structure is simplicity and uniformity.

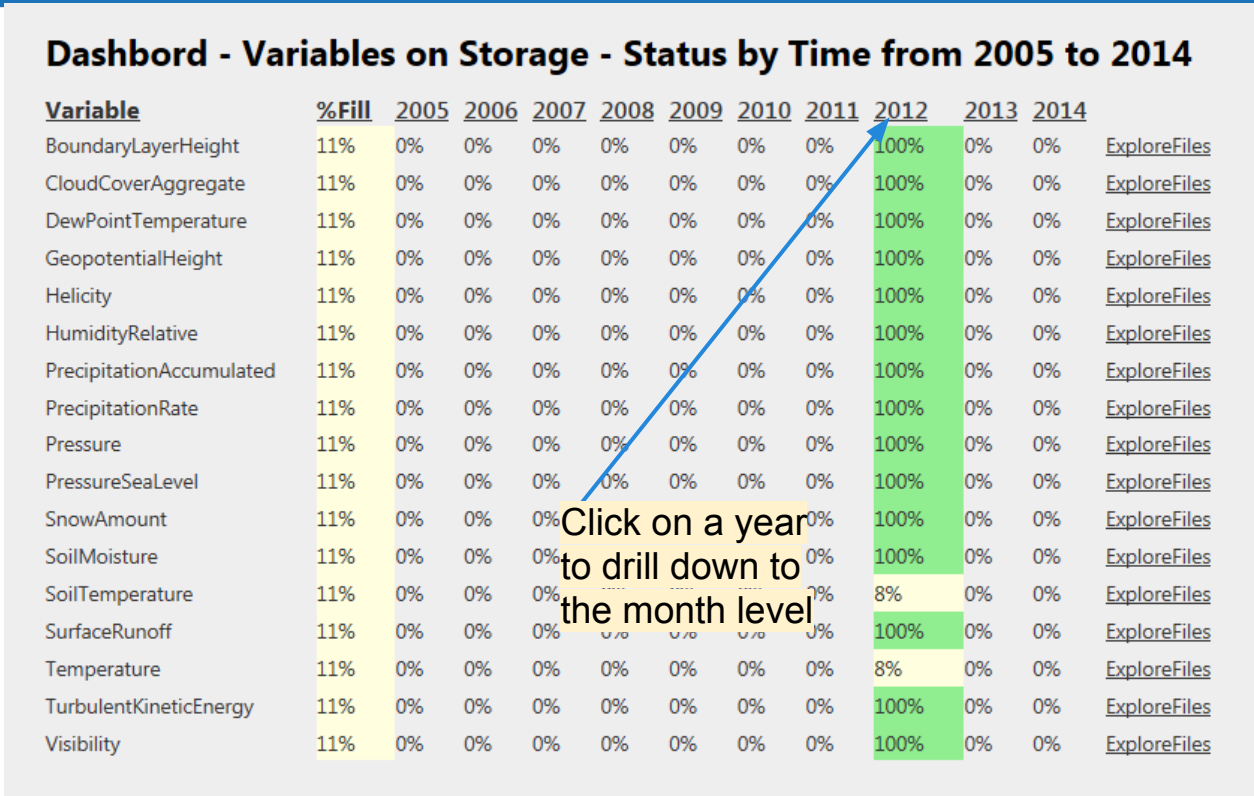
Envirolytic Environmental Data is stored as netCDF files centrally residing on a Azure Cloud Storage Account using a very simple model that will evolve and get richer but trying to keep options simple.

Currently, All our environmental data is partitioned by environmental variable and splitted by day. All data is on a 32km grid covering north america. Some grids will be just ‘monolevel’ on 3 dimensions “time,x,y”. Some information may have a 4 “level” dimension. Inside every day, we may have 8 measures, one every 3 hours.

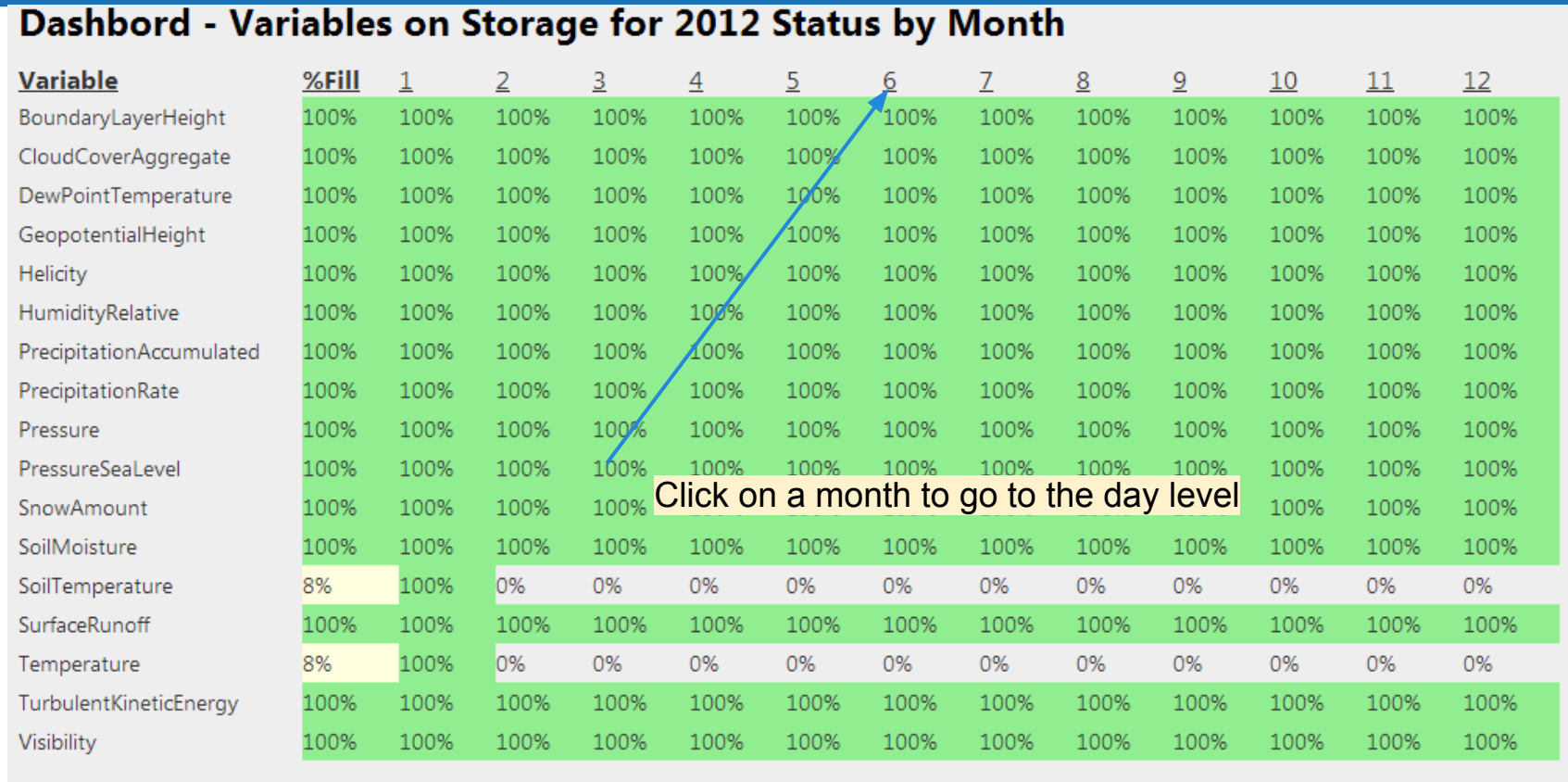
2.How to use the dashboard. (Year level)

Login to http://envirolytic.azurewebsites.net/ and click on the "Dashboard" menu option.

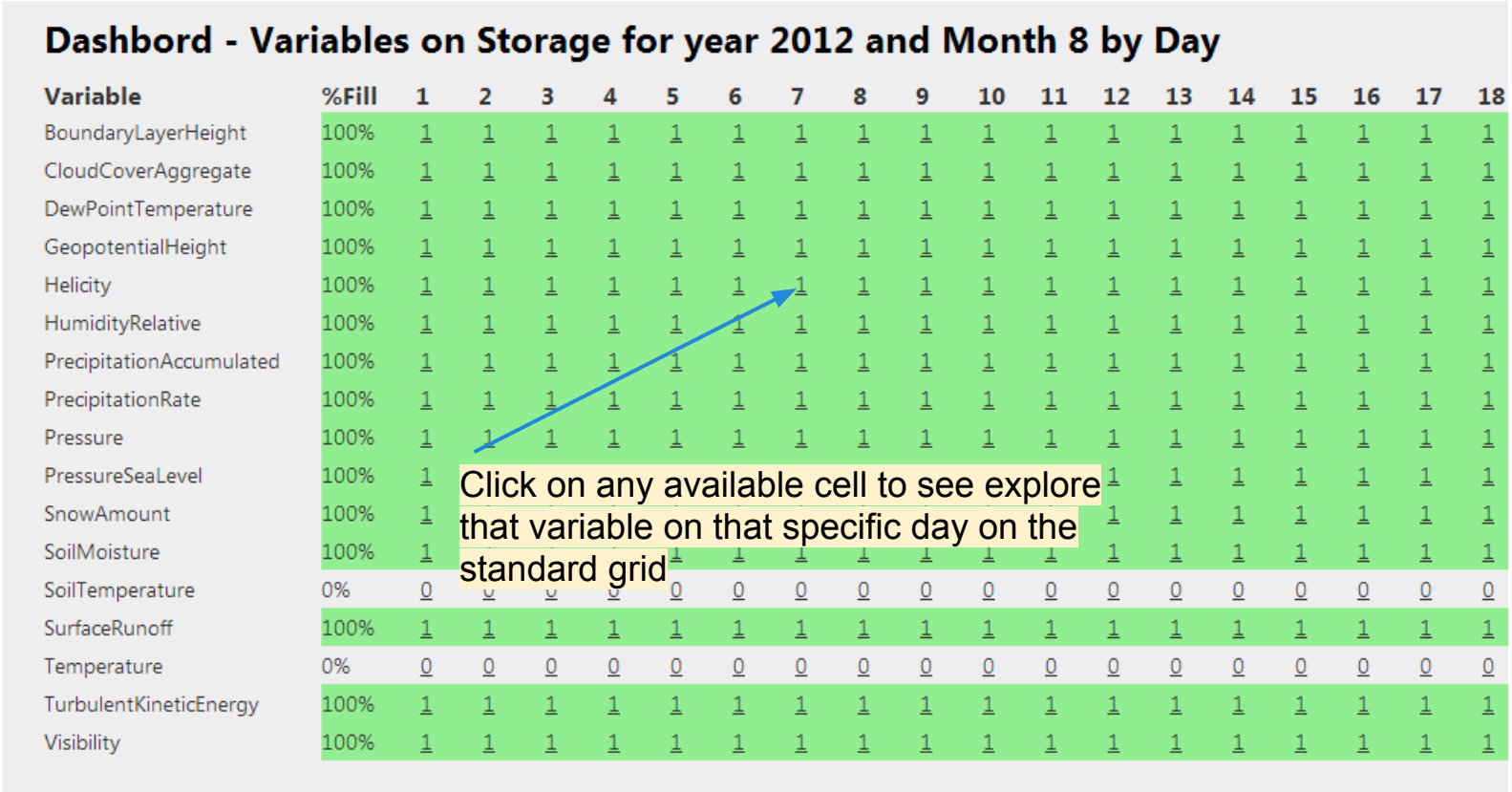
You will see here a report similar to the one showed here. All the variables are listed showing how much information is available per year



2.How to use the dashboard. (Month Level)



2.How to use the dashboard. (Day Level)



Dashbord - Variables on Storage for year 2012 and Month 8 by Day

Variable	%Fill	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
BoundaryLayerHeight	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
CloudCoverAggregate	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DewPointTemperature	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
GeopotentialHeight	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Helicity	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
HumidityRelative	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PrecipitationAccumulated	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PrecipitationRate	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Pressure	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
PressureSeaLevel	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SnowAmount	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SoilMoisture	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SoilTemperature	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SurfaceRunoff	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Temperature	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TurbulentKineticEnergy	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Visibility	100%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Click on any available cell to see explore that variable on that specific day on the standard grid

Warning, this page is slower and large.

2.How to use the dashboard. (Grid Level)

Values on File CloudCoverAggregate_2012_08_02.nc for time==0 level==0

MaxValue: 32766 MinValue: -32766 Range: 65532

You can see various metadata information here

Name:CloudCoverAggregate GRIB_id:71 GRIB_name:TCDC FillValue:-32767 actual_range:System.Single[] add_offset:327.66 dataset:NARR 3-hourly grid_mapping:Lambert_Conformal least_significant_digit:0 level_desc:Entire Atmosphere Considered As a Single Layer Forecast of Total Cloud Cover at Entire Atmosphere Considered as a Single Layer

Y	0	1	2	3	4	5	6	7	8	9	10
0	84.0000091083348	56.0000097341836	56.0000097341836	68.0000094659626	62.0000096000731	72.0000093765557	65.0000095330179	68.0000094659626	65.0000095330179	61.0000096224248	67.0000094883144
1	90.0000089742243	83.0000091306865	87.0000090412796	84.0000091083348	80.0000091977417	82.0000091530383	78.0000092424452	79.0000092200935	75.0000093095005	69.0000094436109	68.0000094659626
2	93.0000089071691	92.0000089295208	92.0000089295208	92.0000089295208	89.0000089965761	89.0000089965761	86.0000090636313	86.0000090636313	84.0000091083348	82.0000091530383	82.0000091530383
3	94.0000088848174	93.0000089071691	94.0000088848174	88.0000090189278	92.0000089295208	93.0000089071691	91.0000089518726	91.0000089518726	91.0000089518726	90.0000089742243	87.0000090412796
4	94.0000088848174	91.0000089518726	88.0000090189278	75.0000093095005	91.0000089518726	93.0000089071691	93.0000089071691	93.0000089071691	94.0000088848174	94.0000088848174	91.0000089518726
5	92.0000089295208	93.0000089071691	94.0000088848174	89.0000089965761	91.0000089518726	91.0000089518726	91.0000089518726	95.0000088624656	93.0000089071691	94.0000088848174	95.0000088624656
6	93.0000089071691	92.0000089295208	89.0000089965761	91.0000089518726	83.0000091306865	84.0000091083348	80.0000091977417	89.0000089965761	88.0000090189278	94.0000088848174	95.0000088624656
7	87.0000090412796	90.0000089742243	84.0000091083348	90.0000089742243	87.0000090412796	89.0000089965761	89.0000089965761	94.0000088848174	91.0000089518726	93.0000089071691	94.0000088848174
8	86.0000090636313	92.0000089295208	92.0000089295208	93.0000089071691	92.0000089295208	92.0000089295208	92.0000089295208	93.0000089071691	92.0000089295208	91.0000089518726	91.0000089518726
9	92.0000089295208	92.0000089295208	93.0000089071691	93.0000089071691	94.0000088848174	93.0000089071691	92.0000089295208	91.0000089518726	90.0000089742243	88.0000090189278	89.0000089965761
10	91.0000089518726	91.0000089518726	93.0000089071691	94.0000088848174	97.0000088177621	97.0000088177621	96.0000088401139	94.0000088848174	92.0000089295208	85.000090085983	86.0000090636313
11	92.0000089295208	94.0000088848174	95.0000088624656	97.0000088177621	98.0000087954104	99.0000087730587	98.0000087954104	98.0000087954104	96.0000088401139	88.0000090189278	85.000090085983
12	94.0000088848174	95.0000088624656	96.0000088401139	97.0000088177621	98.0000087954104	100.000008750707	100.000008750707	99.0000087730587	96.0000088401139	87.0000090412796	84.0000091083348
13	92.0000089295208	92.0000089295208	93.0000089071691	95.0000088624656	98.0000087954104	100.000008750707	100.000008750707	100.000008750707	98.0000087954104	87.0000090412796	91.0000089518726
14	91.0000089518726	92.0000089295208	92.0000089295208	95.0000088624656	98.0000087954104	100.000008750707	100.000008750707	100.000008750707	91.0000089518726	78.0000092424452	88.0000090189278
15	94.0000088848174	95.0000088624656	95.0000088624656	97.0000088177621	98.0000087954104	99.0000087730587	100.000008750707	99.0000087730587	89.0000089965761	83.0000091306865	83.0000091306865
16	95.0000088624656	95.0000088624656	95.0000088624656	96.0000088401139	95.0000088624656	94.0000088848174	96.0000088401139	96.0000088401139	85.000090085983	85.000090085983	86.0000090636313
17	91.0000089518726	90.0000089742243	89.0000089965761	91.0000089518726	90.0000089742243	85.000090085983	87.0000090412796	83.0000091306865	80.0000091977417	84.0000091083348	86.0000090636313
18	85.000090085983	84.0000091083348	84.0000091083348	84.0000091083348	84.0000091083348	81.00000917539	82.0000091530383	80.0000091977417	83.0000091306865	84.0000091083348	86.0000090636313
19	78.0000092424452	81.00000917539	83.0000091306865	82.0000091530383	82.0000091530383	83.0000091306865	83.0000091306865	83.0000091306865	83.0000091306865	84.0000091083348	86.0000090636313
20	73.0000093542039	80.0000091977417	81.00000917539	82.0000091530383	82.0000091530383	82.0000091530383	82.0000091530383	81.00000917539	81.00000917539	82.0000091530383	84.0000091083348
21	67.0000094883144	75.0000093095005	79.0000092200935	79.0000092200935	82.0000091530383	81.00000917539	78.0000092424452	77.000009264797	77.000009264797	77.000009264797	79.0000092200935
22	42.0000100471079	62.0000096000731	68.0000094659626	75.0000093095005	82.0000091530383	84.0000091083348	75.0000093095005	78.0000092424452	72.000009376557	69.0000094436109	66.0000095106661

Information is shows here for a specific y (rows) x (columns) for that day (for simplicity this is for level=0 in case the grid has level and 12AM in case the grid has 8 time slots.

3. Remark on metadata and values

The previous slide shows number in the right unit as specified in the file metadata, for example, if temperature is expressed in Kelvin you will see decimal numbers in the range of 200s.

However, the number that you will see in the actual file have been packed and need to be upacked with this very simple formula.

RealValue = add_offset + scale_factor * RawValue

this two values can be found in the variable metadata.