

Sensor Registration

Sensor ID (using MAC Address), Sensor Model, Sensor Version

POSTed csv data... as one line or many

Time (UTC),	Temp (°C),	Humidity (%),	Pressure (Pa),	Altitude (m),	pm1 (ug/m³),	pm2.5 (ug/m³),	pm10 (ug/m³)
2016-08-31 16:47:04.645526,	23.3999996185,	35.09999984741,	85286,	1430.10073284,	3,	8,	11
2016-08-31 16:47:06.237403,	23.2000007629,	34.9000015259,	85287,	1430.19645369,	3,	8,	11

```
List of our pre-selected sensors
http://api.mesowest.net/v2/stations/timeseries
?recent=10&token=demotoken
&stid=mtmet,wbb,NAA,MSI01,UFD10,UFD11
&vars=wind_speed,air_temp,solar_radiation,wind_gust,
relative_humidity,wind_direction,volt,pressure,
precip_accum_fifteen_minute,precip_accum_five_minute,
ozone_concentration,altimeter,PM_25_concentration,
soil_temp,sensor_error_code,
photosynthetically_active_radiation,
clear_sky_solar_radiation,flow_rate,
internal_relative_humidity,air_flow_temperature,
evapotranspiration
```

```
?recent=10&token=demotoken
&std=mtmet,webb,NAA,MSI01,UFD10,UFD11
&vars=wind_speed,air_temp,solar_radiation,wind_gust,
relative_humidity,wind_direction,volt,pressure,
precip_accum_fifteen_minute,precip_accum_five_minute,
ozone_concentration,altimeter,PM_25_concentration,
soil_temp,sensor_error_code,
photosynthetically_active_radiation,
clear_sky_solar_radiation,flow_rate,
internal_relative_humidity,air_flow_temperature,
evapotranspiration
```

```

null measurements seem to be pretty common
with these sensors; only store records that
    have non-null PM2.5 measurements

```

The diagram illustrates the relationship between variables from two different datasets. On the left, a vertical list of variables is shown: time of registration, ID, Latitude, Longitude, Altitude, Sensor Model, Sensor Version, Start, and Sensor Source. On the right, there are two columns of variables. The first column contains: time of registration, ID, Latitude, Longitude, Altitude, Sensor Model, Sensor Version, Start, and Sensor Source. The second column contains: time of registration, ID, Latitude, Longitude, Altitude, Sensor Model, Sensor Version, Start, and Sensor Source. Green arrows indicate mappings between the two sets of variables. A red arrow points from the 'time of registration' variable in the left set to the 'time of registration' variable in the right set.

The Sankey diagram illustrates the flow of data from various sources to a central 'Sensor' node. The sources on the left are: ID, Latitude, Longitude, Altitude, Sensor Model, Sensor Version, Start, and Sensor Source. The central node is 'Sensor'. The flows are as follows:

- ID flows to Sensor.
- Latitude flows to Sensor.
- Longitude flows to Sensor.
- Altitude flows to Sensor.
- Sensor Model flows to Sensor.
- Sensor Version flows to Sensor.
- Start flows to Sensor.
- Sensor Source flows to Sensor.

```

time (UTC)
ID
Humidity (%)
Pressure (Pa)
Temp (*C)
pm1 (ug/m^3)
pm2.5 (ug/m^3)
pm10.0 (ug/m^3)
CO (ppm)
NO2 (ppm)
light (lux)

```

er:

titude and Longitude are defined, and within

(Latitude [36.999090, 41.993882]; Longitude[-114.041498, -109.045215])

DAQ sensors

List of all sensors, hourly measurements for the last 10 days
<http://air.utah.gov/xmlFeed.php>

```
<site>
  <name>Salt Lake County</name>
  <data>
    <date>03/27/2013 11:00:00</date>
    <oszone>0.034</oszone>
    <oszone_8hr_avg>0.031</oszone_8hr_avg>
    <pm25_24hr_avg>2.5</pm25_24hr_avg>
    <pm25_24hr_avg>2.5</pm25_24hr_avg>
    <nox>0.018</nox>
    <no2>0.013</no2>
    <temperature>41.99</temperature>
    <relative_humidity>93</relative_humidity>
    <wind_speed>4.4</wind_speed>
    <wind_direction>127</wind_direction>
    <co2>24.04</co2>
    <solar_radiation>112</solar_radiation>
    <so2 />
    <wsp>15.272</wsp>
    <bp>
    <pm10>1.6</pm10>
  </data>
```

they use Mountain Standard Time, does not change with Daylight Saving

values that DAQ doesn't supply:
Sensor Model, Sensor Version, Start, Pressure, pm1

also grab RH, PRMC coarse PM, SWD, WSW, and temp (scalar wind direction, scalar wind speed, and temp,

for each sensor, look up / hard code (Kerry provided this information):

- latitude
- longitude
- altitude

```

List of all sensors, hourly measurements for the last 10 days
http://air.utah.gov/xmlFeed.php

<site>
  <name>Salt Lake County</name>
  <data>
    <date>03/27/2017 12:00:00</date>
    <oszone>0.034</oszone>
    <oszone_rhr_avg>0.031</oszone_rhr_avg>
    <pm25_2_5</pm25>
    <pm25_24hr_avg>2.5</pm25_24hr_avg>
    <osno>0.018</osno>
    <ao2>0.013</ao2>
    <temperature>41.99</temperature>
    <relative_humidity>9.3</relative_humidity>
    <wind_speed>4.4</wind_speed>
    <wind_direction>127</wind_direction>
    <co>0.24</co>
    <scalar_radiation>112</scalar_radiation>
    <ao2_7>
      <avg>15.272</avg>
      <dp>
        <pm10_1_6</pm10>
      </dp>
    </ao2_7>
  </data>

```

they use Mountain Standard Time, does not change with Daylight Saving

values that DAQ doesn't supply: Sensor Model, Sensor Version, Start, Pressure, pml

also grab RH, PRMC coarse PM, SWD, WSW, and temp (scalar wind direction, scalar wind speed, and temp,

for each sensor, look up / hard code (Kerry provided this information):

- latitude
- longitude
- altitude

values that DAQ doesn't supply:
Sensor Model, Sensor Version, Start,
Pressure, pml

RMC coarse PM, SWD, WSW, and temp
rection, scalar wind speed, and temp, respectively)
e (Kerry provided this information):

```
RMC coarse PM, SWD, WSW, and temp  
irection, scalar wind speed, and temp, respectively)  
e (Kerry provided this information):
```

look up / hard code (Kerry provided this information):


```

List of all sensors
https://map.purpleair.org/json

{
  ID: 649,
  ParentID: null,
  THINGSPEAK_PRIMARY_ID: "198241",
  THINGSPEAK_PRIMARY_ID_READ_KEY: "482FKH0T8PVLQK2",
  Label: "Rowland Hall 2",
  Lat: "40.121026423394606",
  Lon: "-111.86373710632324",
  PM2_5_value: "0.33",
  Status: null,
  Type: "PM25003+RH280+PUB",
  Hidden: false,
  Flag: 1,
  DEVICE_BRIGHTNESS: "15",
  IsOwner: 0,
  A_W: null,
  temp_f: "52",
  humidity: "67",
  pressure: "864.50",
  RH: 0,
  THINGSPEAK_SECONDARY_ID: "198242",
  THINGSPEAK_SECONDARY_ID_READ_KEY: "80J27474V6WTU5MC",
  LastSeen: 1490640835,
  Version: "2.47c",
  LastUpdateCheck: 1490638185,
  Uptime: "1172469",
  RSSI: "-58",
  Status:
    {
      "v":0.33,"v1":0.7649148515564815,"v2":1.423589445142715,"
      v3":1.589338854105244,"v4":1.3443187226394843,"v5":2.21178
      67664101363,"v6":2.8938586977010923,"pm":0.33,"lastModified
      ":1490640835773,"timestampModified":69195}
    },

```

```
values that Purple Air doesn't supply:
Pressure*, Altitude
* (pressure IS in the all-sensor list, but AFAIK it's not
  available in the time series feeds)
```



```
channel: {
  id: 198242,
  name: "AirMonitor_Scfcf7fcf6b8e8 Counters",
  latitude: "0.0",
  longitude: "0.0",
  field1: "0.3um",
  field2: "0.5um",
  field3: "1.0um",
  field4: "2.5um",
  field5: "5.0um",
  field6: "10.0um",
  field7: "PM1.0 (CP=1)",
  field8: "PM10.0 (CP=1)",
  created_at: "2016-12-03T01:07:48Z",
  updated_at: "2017-03-27T20:00:45Z",
  last_entry_id: 243044
},
feeds: [
  {
    created_at: "2017-03-27T18:02:45Z",
    entry_id: 242945,
    field1: "341.90",
    field2: "93.35",
    field3: "11.33",
    field4: "1.55",
    field5: "0.58",
    field6: "0.06",
    field7: "1.00",
    field8: "2.00"
  }
]
```