
wxprofilers Documentation

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`wxprofilers` provides tools for working with weather profiler instruments such as wind lidars, microwave radiometers, and radiosondes in Python. It converts data files into `xarray` objects, and can derive or estimate weather variables such as wind speeds, PBL height, and CAPE.

INSTALLATION

1.1 Requirements

- a fortran compiler, such as gfortran
- Python 3
- cython
- numpy

Python 2 is not supported.

1.2 Installing with pip

After the requirements have been installed, `wxprofilers` can be installed from Github using pip:

```
pip install git+https://github.com/ASRCsoft/wxprofilers.git
```


WIND LIDARS

Functions for converting wind lidar files to xarray datasets are in the `wxprofilers.convert` module.

```
import wxprofilers.convert as wxp
```

2.1 NYS Mesonet csv files

```
lidar = wxp.lidar_from_csv(rws='20170225_whole_radial_wind_data.csv',  
                           scans='20170225_scan.xml',  
                           wind='20170225_reconstruction_wind_data.csv')
```


MICROWAVE RADIOMETERS

Functions for converting microwave radiometer files to xarray datasets are in the `wxprofilers.convert` module.

```
import wxprofilers.convert as wxp
```

3.1 Radiometrics csv files

```
mwr = wxp.mwr_from_csv('2017-02-25_00-04-11_lv2.csv', resample='5T')
```


RADIOSONDES

Functions for converting radiosonde files to `xarray` datasets are in the `wxprofilers.sonde` module.

```
import wxprofilers.sonde as sonde
```

4.1 NWS BUFR files

`wxprofilers` includes the National Climatic Data Center (NCDC)'s [RRS Decoder](#) to extract text files from binary radiosonde BUFR files.

```
sonde.decode_rrs('94983_2005102412', '56')
```


PLOTTING

`wxprofilers` adds a few plotting options in addition to `xarray`'s excellent plotting capabilities.

5.1 Vertical line plot

5.2 Skew-T

INDICES AND TABLES

- `genindex`
- `modindex`
- `search`