exercise_01_fake_timeseries

August 13, 2021

0.1 Exercise 01 - Make your own DataArray

For this exercise we are going to steal a fuction from the library `pandas`, even though we didn't learn about it yet. The function is called `date_range` and it creates an array of dates. Look at the code below, can you figure out what it does?

Task: Make an xarray dataarray of fake data. Make a dim for time, for the coordinates use `two_years` and for the data use `fake_data` defined as:

```
import pandas as pd
two_years = pd.date_range(start='2014-01-01', end='2016-01-01', freq='D')
fake_data = np.sin(2 *np.pi *two_years.dayofyear / 365)
```

Make a default plot of your dataarray and print out the data contents

Don't forget to import xarray and numpy!

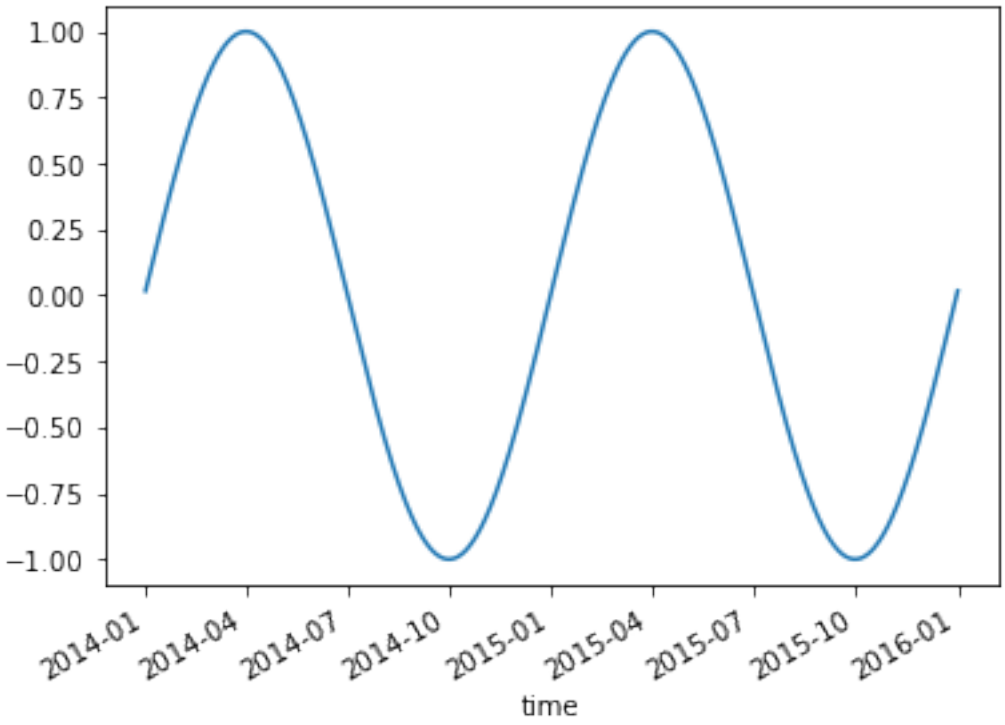
[1]:
```
import pandas as pd
import numpy as np
import xarray as xr
%matplotlib inline


two_years = pd.date_range(start='2014-01-01', end='2016-01-01', freq='D')
fake_data = np.sin(2 *np.pi *two_years.dayofyear / 365)

da = xr.DataArray( fake_data,
                   dims=['time'],
                  coords = {'time': two_years})
da.plot()

da
```

[1]:
```
<xarray.DataArray (time: 731)>
array([ 1.721336e-02,  3.442161e-02,  5.161967e-02, …, -1.721336e-02,
        6.432491e-16,  1.721336e-02])
Coordinates:
  * time     (time) datetime64[ns] 2014-01-01 2014-01-02 … 2016-01-01
```


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
2014-01
2014-04
2014-07
2014-10
2015-01
2015-04
2015-07
2015-10
2016-01
time