

# workflow\_example

March 20, 2020

```
[3]: ls -l
```

```
total 152840
-rw-r--r--@ 1 sfranke  staff  26120338 Mar 20 13:55 Data_20170414_01_011.mat
-rw-r--r--@ 1 sfranke  staff  26053895 Mar 20 13:56 Data_20170414_01_012.mat
-rw-r--r--@ 1 sfranke  staff  26070428 Mar 20 13:56 Data_20170414_01_013.mat
-rw-r--r--  1 sfranke  staff      1301 Mar 20 14:03 workflow_example.ipynb
```

```
[7]: # calc elevation for all matfiles in folder
```

```
from radar_toolbox import calc_elevation
import glob

for matfile in sorted(glob.glob('*.mat')):
    calc_elevation(file=matfile, region='Greenland')
```

Filename: Data\_20170414\_01\_011.mat

Region: Greenland

No in\_path defined, setting cwd as in\_path

No out\_path defined, setting cwd as out\_path

Calculating true elevation for: Data\_20170414\_01\_011.mat

Using h5py to load matfile

/Users/sfranke/Documents/GitHub/Kangaroo/libraries/radar\_toolbox.py:93:

H5pyDeprecationWarning: The default file mode will change to 'r' (read-only) in h5py 3.0. To suppress this warning, pass the mode you need to h5py.File(), or set the global default h5.get\_config().default\_file\_mode, or set the environment variable H5PY\_DEFAULT\_READONLY=1. Available modes are: 'r', 'r+', 'w', 'w-'/'x', 'a'. See the docs for details.

```
mat = h5py.File(file)
```

==> Processed 1 of 3334 Traces

==> Processed 501 of 3334 Traces

==> Processed 1001 of 3334 Traces

==> Processed 1501 of 3334 Traces

==> Processed 2001 of 3334 Traces

```

==> Processed 2501 of 3334 Traces
==> Processed 3001 of 3334 Traces

/Users/sfranke/anaconda3/lib/python3.7/site-packages/pyproj/crs/crs.py:280:
FutureWarning: '+init=<authority>:<code>' syntax is deprecated.
'<authority>:<code>' is the preferred initialization method. When making the
change, be mindful of axis order changes:
https://pyproj4.github.io/pyproj/stable/gotchas.html#axis-order-changes-in-proj-6
    projstring = _prepare_from_string(projparams)

==> Done Calculating...
==> Saved Frame as: Data_20170414_01_011_elevation.mat
==> DONE !!

Filename: Data_20170414_01_012.mat
Region: Greenland
No in_path defined, setting cwd as in_path
No out_path defined, setting cwd as out_path

Calculating true elevation for: Data_20170414_01_012.mat
Using h5py to load matfile

/Users/sfranke/Documents/GitHub/Kangaroo/libraries/radar_toolbox.py:93:
H5pyDeprecationWarning: The default file mode will change to 'r' (read-only) in
h5py 3.0. To suppress this warning, pass the mode you need to h5py.File(), or
set the global default h5.get_config().default_file_mode, or set the environment
variable H5PY_DEFAULT_READONLY=1. Available modes are: 'r', 'r+', 'w', 'w-'/'x',
'a'. See the docs for details.
    mat = h5py.File(file)

==> Processed 1 of 3333 Traces
==> Processed 501 of 3333 Traces
==> Processed 1001 of 3333 Traces
==> Processed 1501 of 3333 Traces
==> Processed 2001 of 3333 Traces
==> Processed 2501 of 3333 Traces
==> Processed 3001 of 3333 Traces

/Users/sfranke/anaconda3/lib/python3.7/site-packages/pyproj/crs/crs.py:280:
FutureWarning: '+init=<authority>:<code>' syntax is deprecated.
'<authority>:<code>' is the preferred initialization method. When making the
change, be mindful of axis order changes:
https://pyproj4.github.io/pyproj/stable/gotchas.html#axis-order-changes-in-proj-6
    projstring = _prepare_from_string(projparams)

==> Done Calculating...
==> Saved Frame as: Data_20170414_01_012_elevation.mat
==> DONE !!

```

```

Filename: Data_20170414_01_013.mat
Region: Greenland
No in_path defined, setting cwd as in_path
No out_path defined, setting cwd as out_path

Calculating true elevation for: Data_20170414_01_013.mat
Using h5py to load matfile

/Users/sfranke/Documents/GitHub/Kangaroo/libraries/radar_toolbox.py:93:
H5pyDeprecationWarning: The default file mode will change to 'r' (read-only) in
h5py 3.0. To suppress this warning, pass the mode you need to h5py.File(), or
set the global default h5.get_config().default_file_mode, or set the environment
variable H5PY_DEFAULT_READONLY=1. Available modes are: 'r', 'r+', 'w', 'w-'/'x',
'a'. See the docs for details.
    mat      = h5py.File(file)

==> Processed 1 of 3338 Traces
==> Processed 501 of 3338 Traces
==> Processed 1001 of 3338 Traces
==> Processed 1501 of 3338 Traces
==> Processed 2001 of 3338 Traces
==> Processed 2501 of 3338 Traces
==> Processed 3001 of 3338 Traces

/Users/sfranke/anaconda3/lib/python3.7/site-packages/pyproj/crs/crs.py:280:
FutureWarning: '+init=<authority>:<code>' syntax is deprecated.
'<authority>:<code>' is the preferred initialization method. When making the
change, be mindful of axis order changes:
https://pyproj4.github.io/pyproj/stable/gotchas.html#axis-order-changes-in-proj-6
    projstring = _prepare_from_string(projparams)

==> Done Calculating...
==> Saved Frame as: Data_20170414_01_013_elevation.mat
==> DONE !!

```

```
[8]: ls -l
```

```

total 876104
-rw-r--r--@ 1 sfranke  staff   26120338 Mar 20 14:15 Data_20170414_01_011.mat
-rw-r--r--  1 sfranke  staff   128011672 Mar 20 14:15
Data_20170414_01_011_elevation.mat
-rw-r--r--@ 1 sfranke  staff   26053895 Mar 20 14:25 Data_20170414_01_012.mat
-rw-r--r--  1 sfranke  staff   121145256 Mar 20 14:25
Data_20170414_01_012_elevation.mat
-rw-r--r--@ 1 sfranke  staff   26070428 Mar 20 14:35 Data_20170414_01_013.mat
-rw-r--r--  1 sfranke  staff   121139952 Mar 20 14:35
Data_20170414_01_013_elevation.mat
-rw-r--r--  1 sfranke  staff      8824 Mar 20 14:35 workflow_example.ipynb

```

```
[1]: # combine frames

from radar_toolbox import combine_frames

frames = ['Data_20170414_01_011_elevation.mat',
          'Data_20170414_01_012_elevation.mat',
          'Data_20170414_01_013_elevation.mat']

outfile = 'Data_20170414_01_011_012_013_elevation.mat'

combine_frames(frame_list=frames, output_filename=outfile, z_mode='elevation')
```

==> Saved Frame as: Data\_20170414\_01\_011\_012\_013\_elevation.mat

```
[3]: ls -l

total 1664912
-rw-r--r--@ 1 sfranke  staff   26120338 Mar 20 14:15 Data_20170414_01_011.mat
-rw-r--r--  1 sfranke  staff  400472048 Mar 20 17:50
Data_20170414_01_011_012_013_elevation.mat
-rw-r--r--  1 sfranke  staff   128011672 Mar 20 14:15
Data_20170414_01_011_elevation.mat
-rw-r--r--@ 1 sfranke  staff   26053895 Mar 20 14:25 Data_20170414_01_012.mat
-rw-r--r--  1 sfranke  staff   121145256 Mar 20 14:25
Data_20170414_01_012_elevation.mat
-rw-r--r--@ 1 sfranke  staff   26070428 Mar 20 14:35 Data_20170414_01_013.mat
-rw-r--r--  1 sfranke  staff   121139952 Mar 20 14:35
Data_20170414_01_013_elevation.mat
-rw-r--r--  1 sfranke  staff    3391871 Mar 20 17:33 Untitled.ipynb
-rw-r--r--  1 sfranke  staff     10568 Mar 20 17:51 workflow_example.ipynb
```

```
[3]: # Check files and how they look like

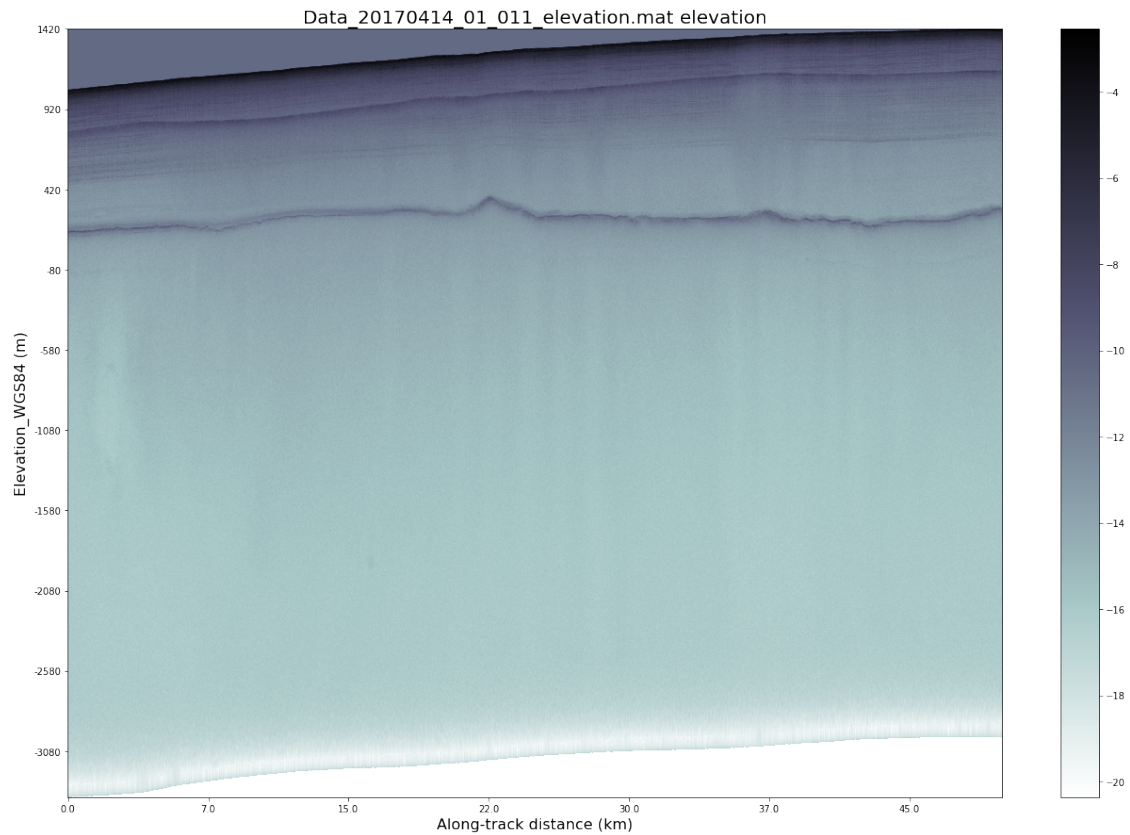
from radar_toolbox import plot_mat

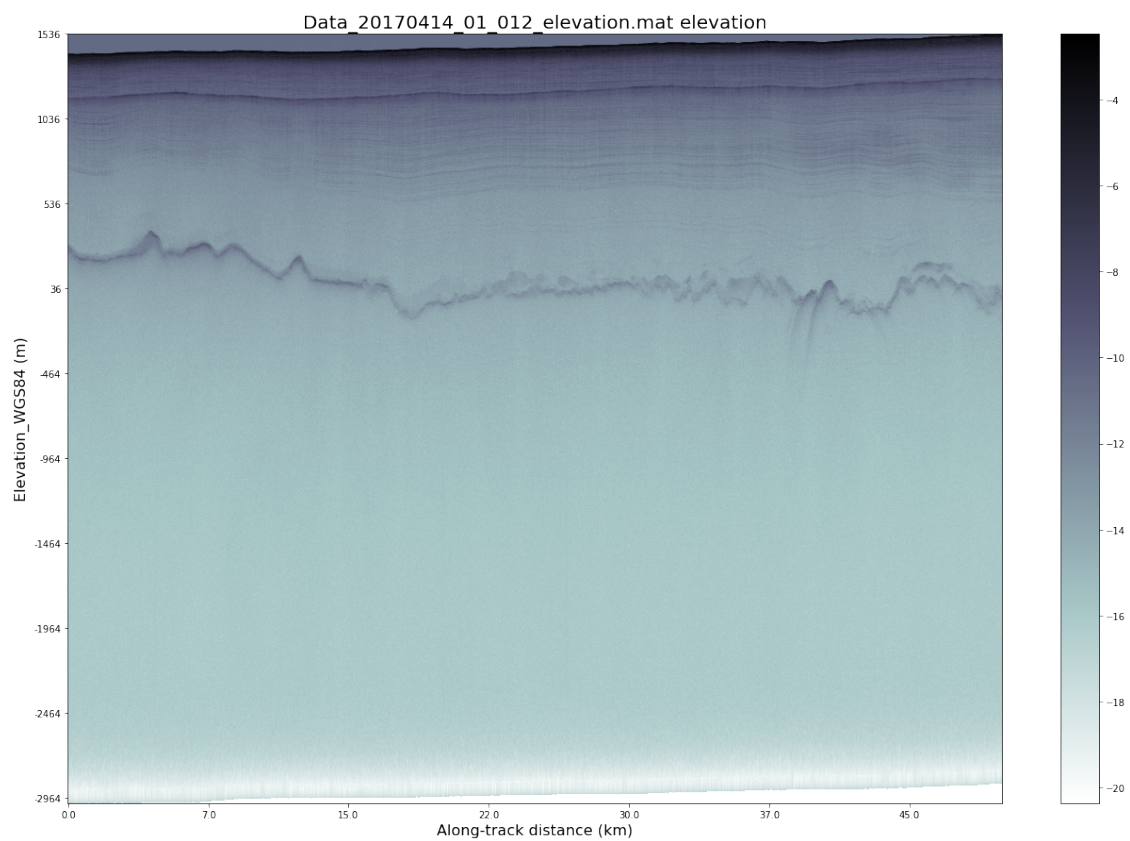
# single files
plot_mat('Data_20170414_01_011_elevation.mat', z_type='elevation')
plot_mat('Data_20170414_01_012_elevation.mat', z_type='elevation')
plot_mat('Data_20170414_01_013_elevation.mat', z_type='elevation')

# combined segment
plot_mat('Data_20170414_01_011_012_013_elevation.mat', z_type='elevation')
```

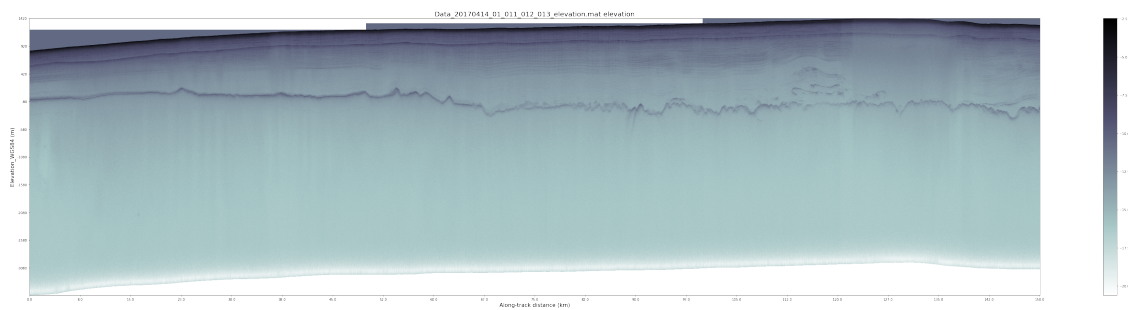
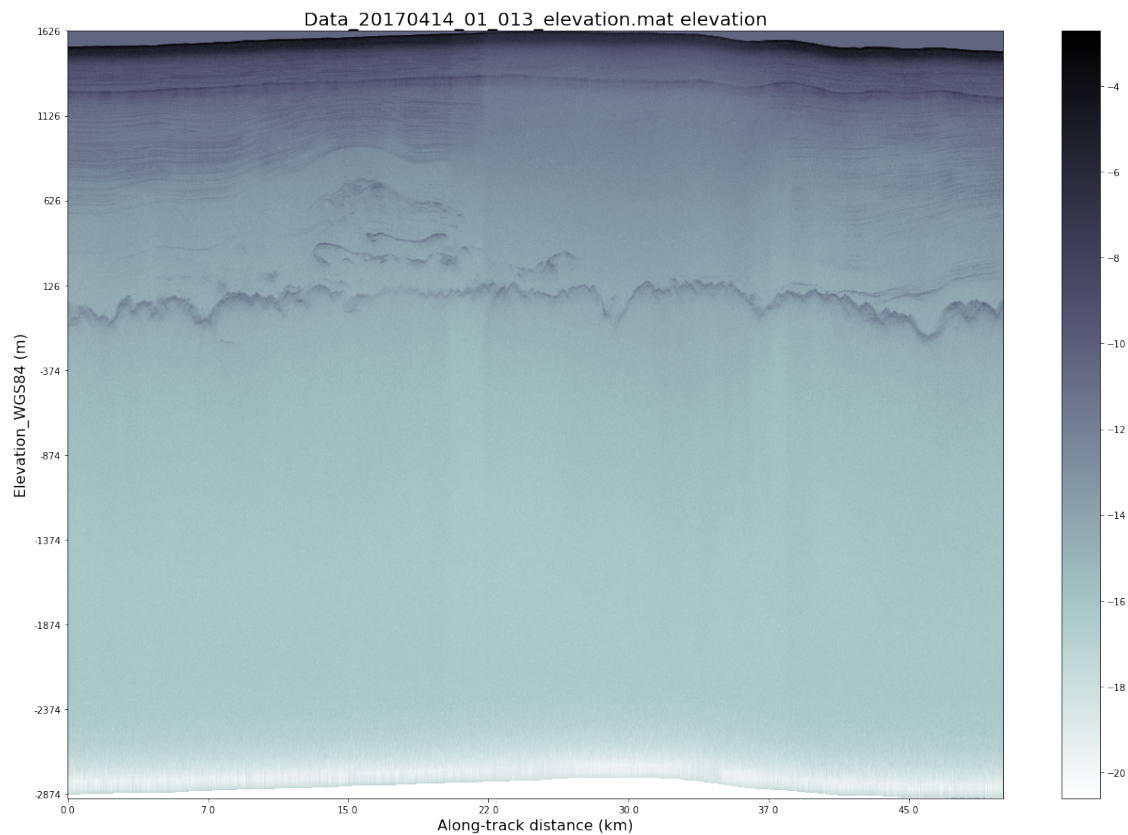
No in\_path defined, setting cwd as in\_path  
 No out\_path defined, setting cwd as out\_path  
 Using scipy.io to load matfile  
 No in\_path defined, setting cwd as in\_path  
 No out\_path defined, setting cwd as out\_path

```
Using scipy.io to load matfile
No in_path defined, setting cwd as in_path
No out_path defined, setting cwd as out_path
Using scipy.io to load matfile
No in_path defined, setting cwd as in_path
No out_path defined, setting cwd as out_path
Using scipy.io to load matfile
```









```
[5]: # segy conversion

from segy_toolbox import mat2segy

matfile = 'Data_20170414_01_011_012_013_elevation.mat'

mat2segy(matfile, elevation=True, region='Greenland', differenciate=False)
```

==> Processing Data\_20170414\_01\_011\_012\_013\_elevation.mat

==> Written: Data\_20170414\_01\_011\_012\_013\_elevation.sgy

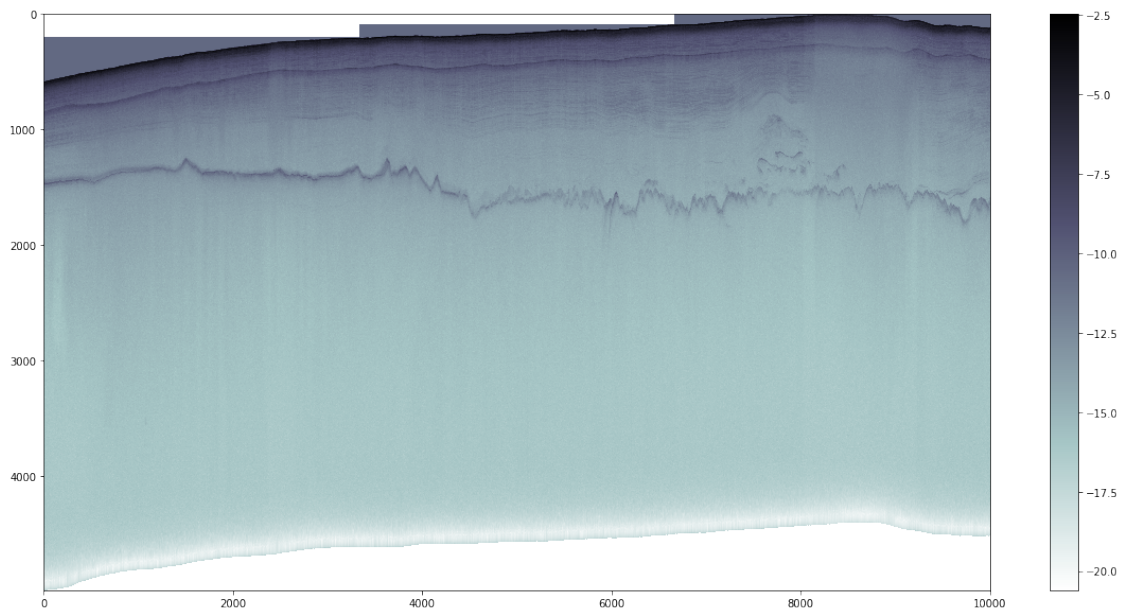
```
[6]: # check output if you like

from segy_toolbox import plot_segy

plot_segy('Data_20170414_01_011_012_013_elevation.sgy')
```

/Users/sfranke/anaconda3/lib/python3.7/site-packages/IPython/core/interactiveshell.py:3331: FutureWarning: arrays to stack must be passed as a "sequence" type such as list or tuple. Support for non-sequence iterables such as generators is deprecated as of NumPy 1.16 and will raise an error in the future.

```
exec(code_obj, self.user_global_ns, self.user_ns)
```



```
[6]: (<Figure size 1440x720 with 2 Axes>,
      <matplotlib.axes._subplots.AxesSubplot at 0x1222f9a10>)
```

```
[ ]:
```