Ocean Bottom Seismology workshop: OBS Synchronization

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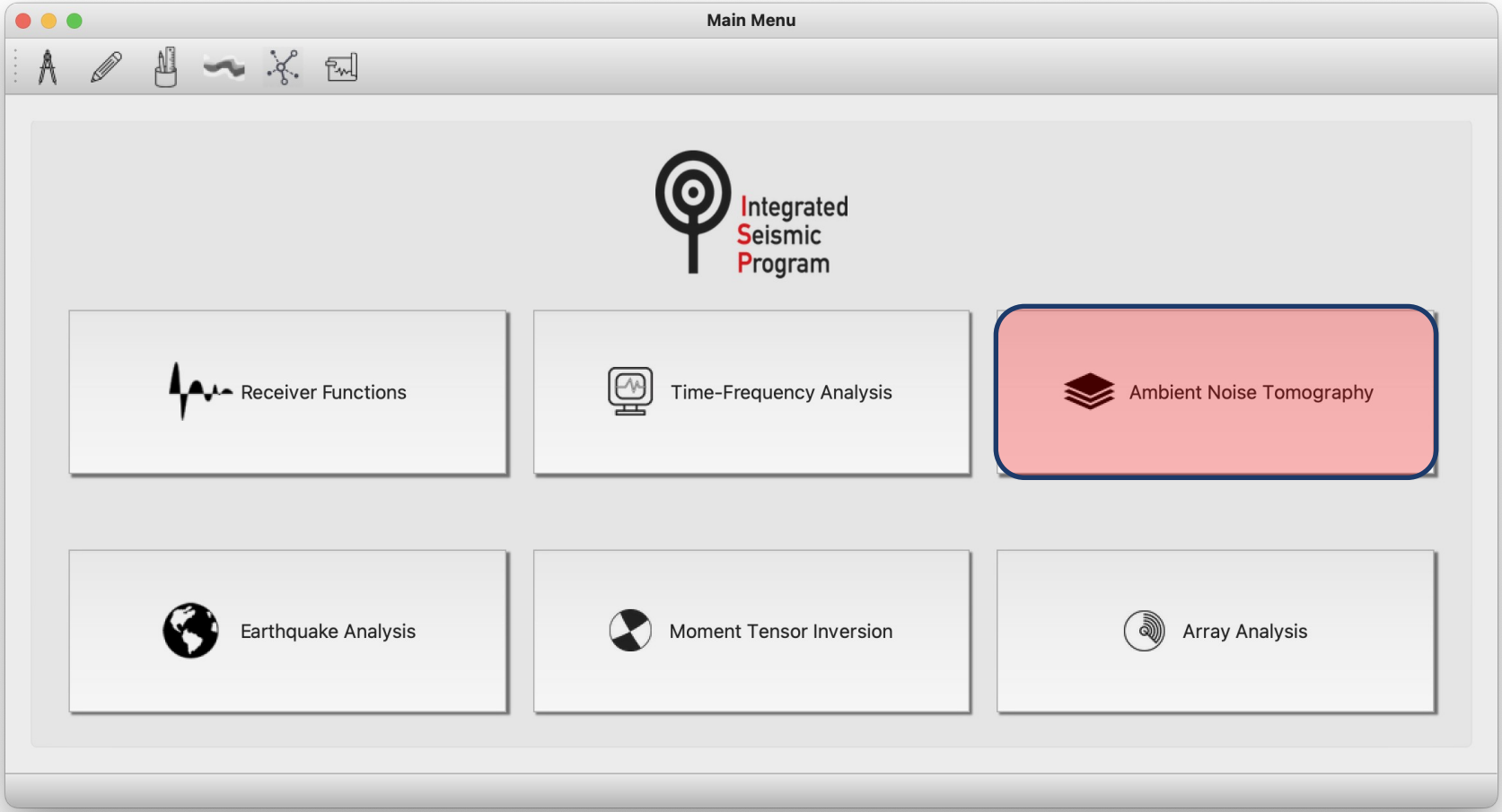
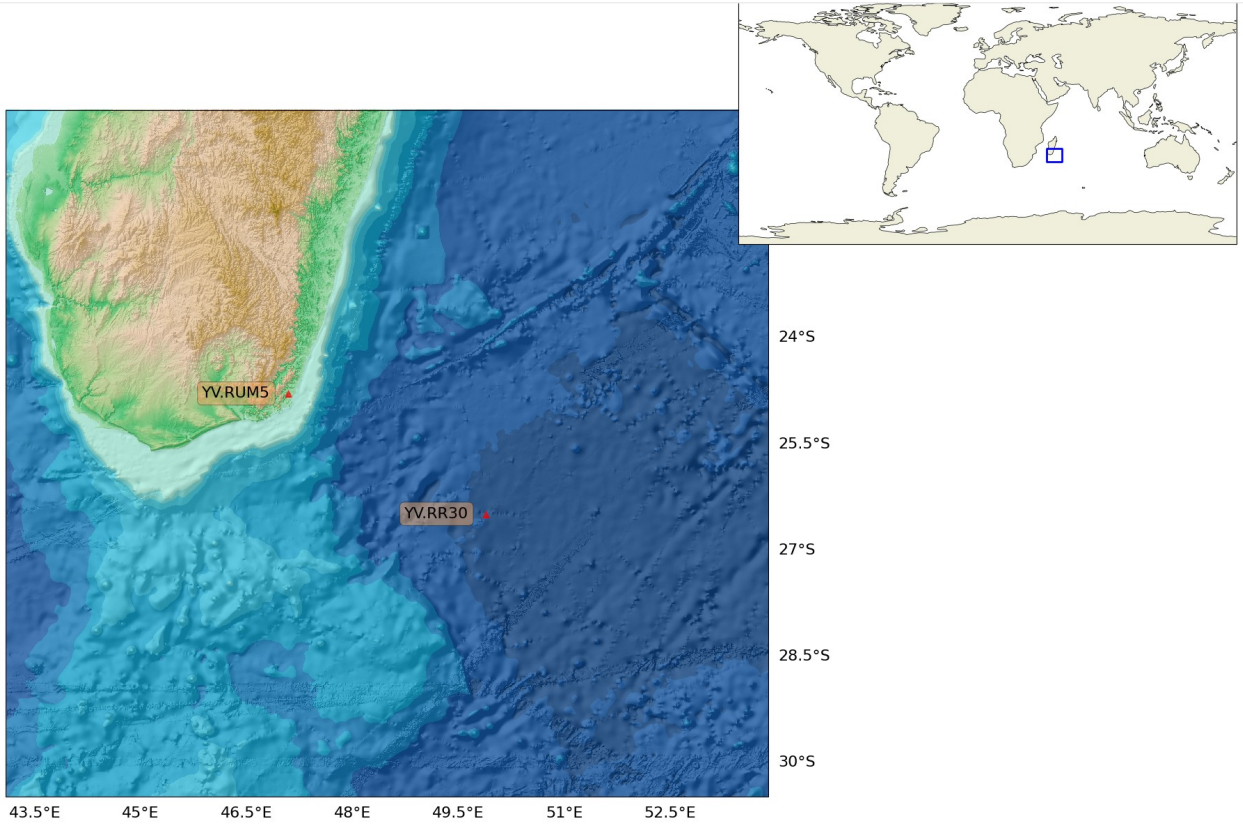
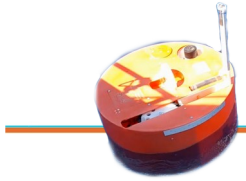
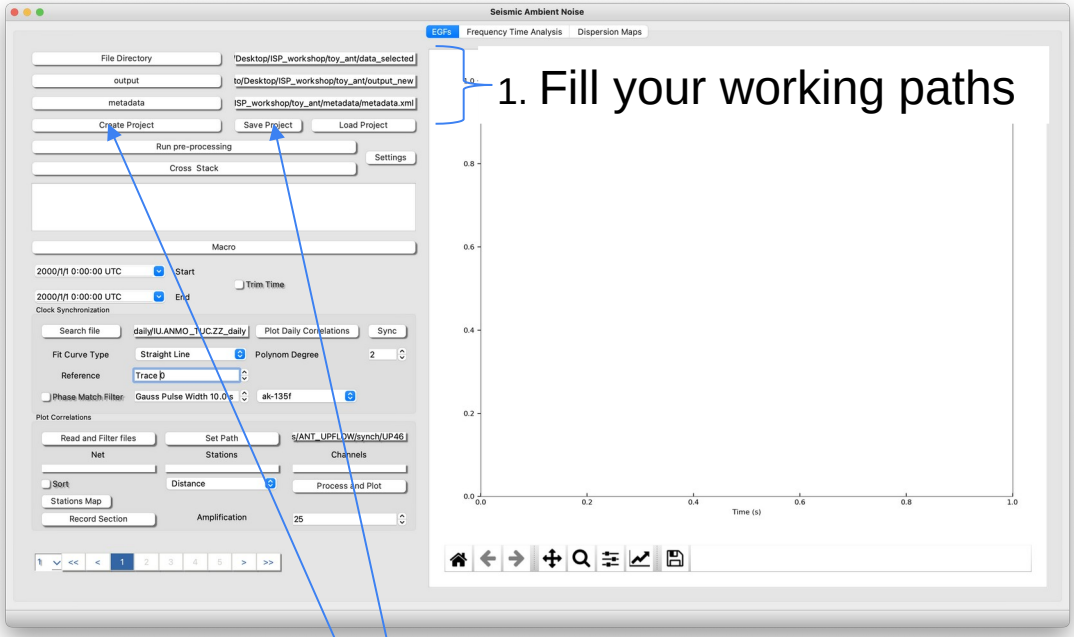

Main Menu
Integrated
Seismic
Program
Receiver Functions
Time-Frequency Analysis
Ambient Noise Tomography
Earthquake Analysis
Moment Tensor Inversion
Array Analysis

Scenario


YV.RUM5
YV.RR30
24°S
25.5°S
27°S
28.5°S
30°S
43.5°E
45°E
46.5°E
48°E
49.5°E
51°E
52.5°E

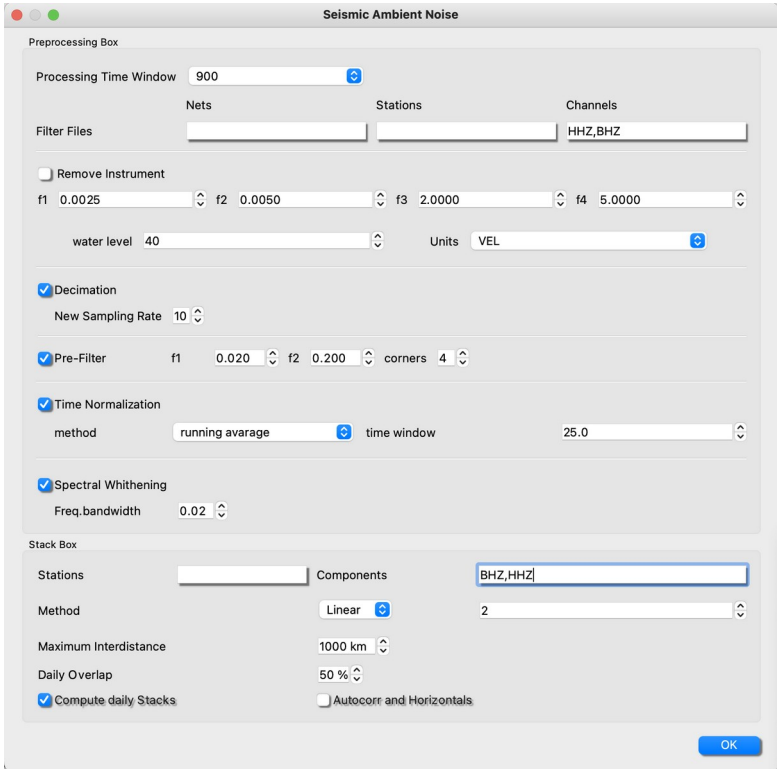
1. Fill your working paths
2. Open Settings and fill the boxes
3. Create your Project and save it
4. Run pre-processing
5. Run Cross-Stack
6. Click on “search file” and set the path to your daily file
7. Macro
8. Plot Daily Correlations & Synch
9. Select points dragging with left button and then enter
10. Look at the saved polynom



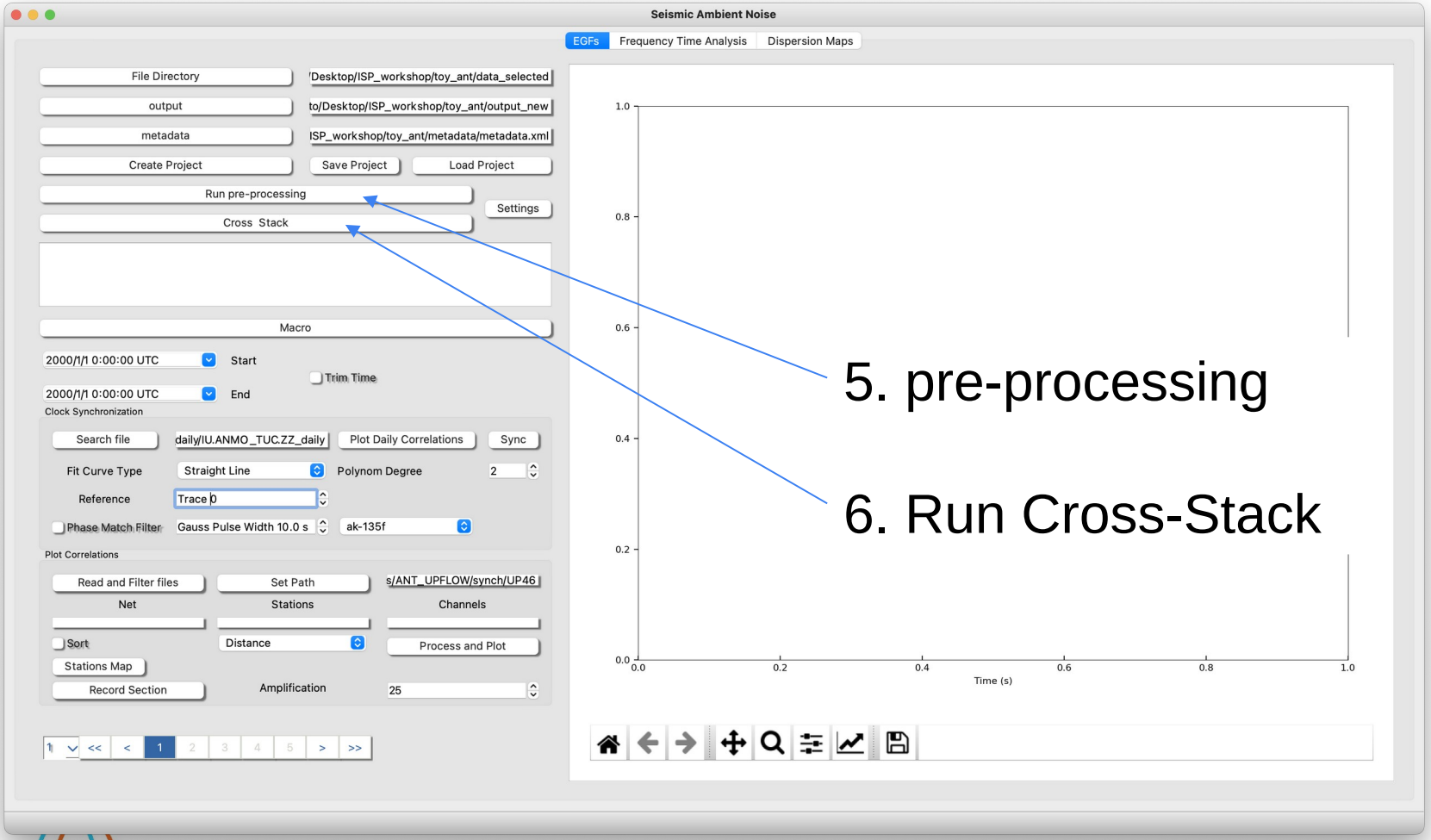


1. Fill your working paths

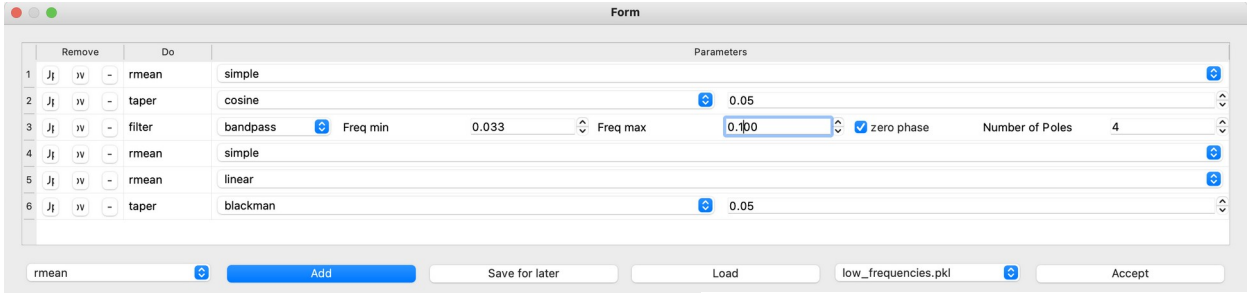
2. Open Settings and fill the boxes



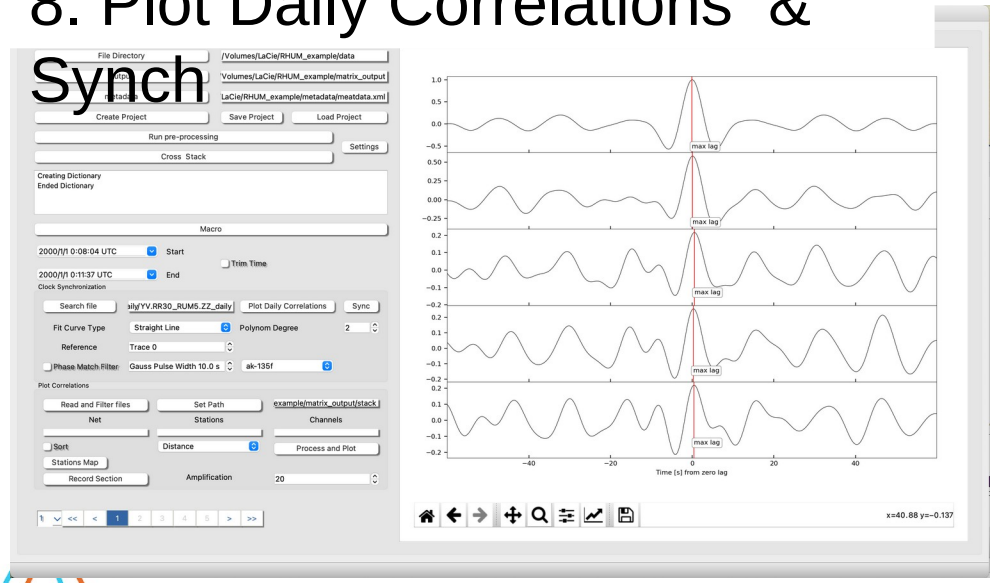
3. Create your Project and save it


Seismic Ambient Noise
EGFs
Frequency Time Analysis
Dispersion Maps
File Directory
'Desktop/ISP_workshop/toy_ant/data_selected
output
to/Desktop/ISP_workshop/toy_ant/output_new
metadata
ISP_workshop/toy_ant/metadata/metadata.xml
Create Project
Save Project
Load Project
Run pre-processing
Settings
Cross Stack
Macro
2000/1/1 0:00:00 UTC
Start
Trim Time
2000/1/1 0:00:00 UTC
End
Clock Synchronization
Search file
daily/IU.ANMO_TUC.ZZ_daily
Plot Daily Correlations
Sync
Fit Curve Type
Straight Line
Polynom Degree
2
Reference
Trace 0
Phase Match Filter
Gauss Pulse Width 10.0 s
ak-135f
Plot Correlations
Read and Filter files
Set Path
s/ANT_UPFLOW/synch/UP46
Net
Stations
Channels
Sort
Distance
Process and Plot
Stations Map
Record Section
Amplification
25
1
<<
<
1
2
3
4
5
>
>>
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
Time (s)
5. pre-processing
6. Run Cross-Stack

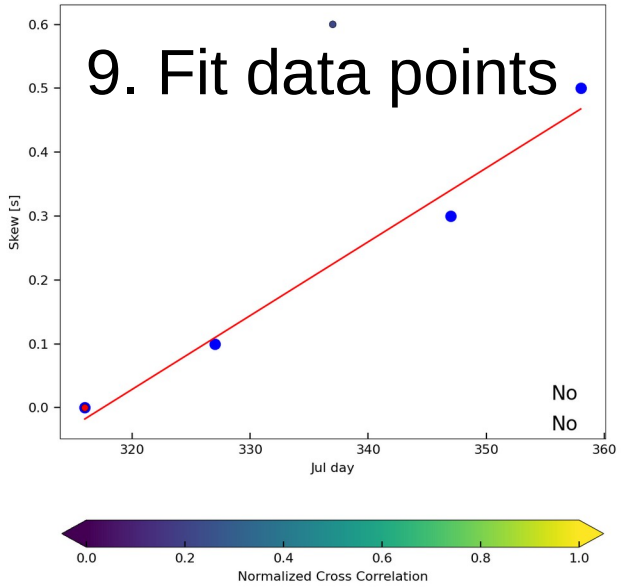
7. Macro



8. Plot Daily Correlations & Synch



9. Fit data points



Polynomial output. ISP/isp/ant/clock_dir

```
import pandas as pd
path = "/Users/roberto/Documents/ISP/isp/ant/clock_dir/ANMO_TUC_ZZ"

df = pd.read_pickle(path)
print(df)
```

{'ANMO_TUC_ZZ': [0.0, 0.0], 'Dates': [11, 21, 31, 41, 51], 'Dates_selected': array([11., 21., 31., 41., 51.]), 'Drift': array([0., 0., 0., 0., 0.]), 'Ref': 11, 'R2': nan, 'resid': array([0., 0., 0., 0., 0.]), 'chi2_red': nan, 'std_err': 0.0, 'cross_correlation': array([1. , 0.93907899, 0.84667755, 0.85778996, 0.83752536]), 'skew': [], 'model': poly1d([0.]), 'y_model': array([0., 0., 0., 0., 0.])}

Important:
Dates: Drift dates (Consecutive days). Polynom is valid in this points!
Drift: Measured Drift from cross correlations
Model: Python NumPy object poly1d
Ref: Your zero drift reference. Example is the day 11. Means first EGF.