

DetrendDrop

Basic Summary

DetrendDrop detrends signals with strong periodicities by taking the maximum in Fourier space and setting its transform equal to neighbouring values. It looks for the maximum after dropping a user determined number of low frequency components. This routine can be iterated several times if needed. It is mostly useful for removing sharp periodicities such as diurnal and annual cycles and their harmonics.

Inputs

There are two inputs: “field” and “drop”. “field” is the 1D array of data to be analyzed. “drop” is the number of Fourier coefficients at the beginning and end of the series that will be dropped before finding the maximum.

Outputs

There is one output: “detrended”. This is the field after it has been detrended.

Example

Input: field=lander (1x34696 daily temperature data set)

drop=1

Output: ans =

1.0e+04 *

Columns 26563 through 26568

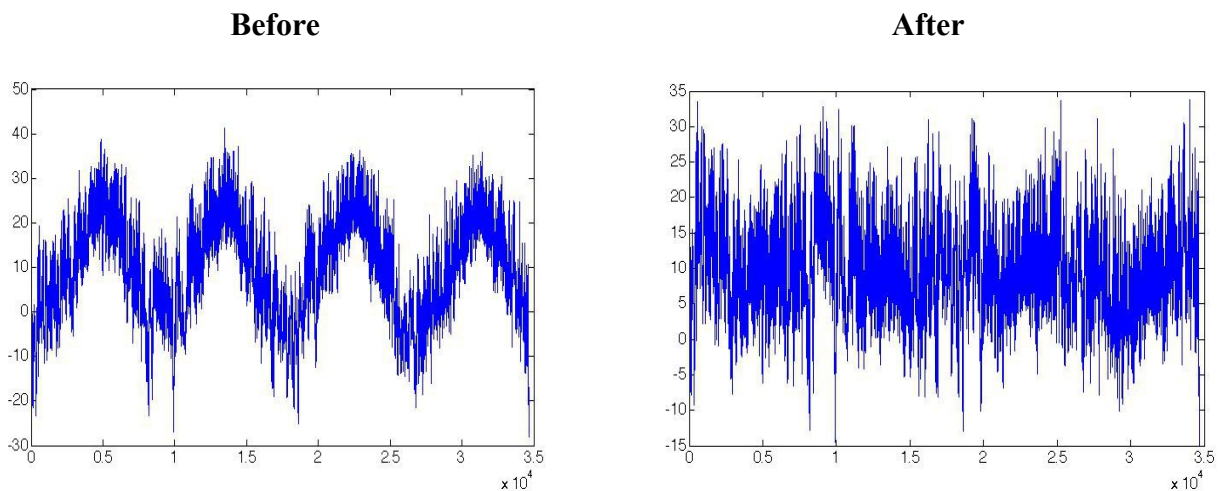
13.2263 14.0263 13.7263 13.5262 12.8262 11.3261

Columns 26569 through 26574

11.4260 11.2260 10.6259 11.4258 11.1257 11.6256

etc. (The output was 1x7458 so only a small part is shown here)

You can see the difference in the normal plot of the data vs. time:



Errors

Index exceeds matrix dimensions.

Error in DetrendDrop (line 10)

```
seri=modftest(drop+2:dim-drop+1);
```

- This error occurs when drop=0. Must choose nonzero, positive integer value for drop

Attempted to access posmax(2); index out of bounds because numel(posmax)=1.

Error in DetrendDrop (line 29)

```
if posmax(2)==dim
```

- This error occurs if length of field is less than 10