Spatio Temporal Analysis Toolbox

version 0.1

This set of programmes for Matlab is mainly dedicated to the analysis of data recorded with a circular probe array. Frequency analysis (spectra, bicoherence) and PDFs can also be performed on time series recorded with a single probe, and f/k spectrum can be obtained from 2-probes measurements (method of the delays).
Up to now, the wavenumber bicoherence analysis is limited to 64 probes. The possibility of varying the number of probes will be provided later.

To run the graphical interface, go to the folder where you copied this Toolbox and type 'sta' in the matlab command line.
If you feel brave enough, you can also use directly the following functions with the command line:

kspec.m	Wavelet k spectrum
fspec.m	Wavelet f spectrum
kspecFou.m	Fourier k spectrum
fspecFou.m	Fourier f spectrum
spec2.m	f/k Fourier spectrum
twopspec.m	f/k Fourier spectrum from 2 time series, using the method of the delays
pdf.m	PDF of a signal
kbictot.m	Wavelet k bicoherence
wbicw.m	Wavelet f bicoherence
kbicmov.m	Creates a movie showing the time evolution of the k bicoherence

Forthcoming developments: Empirical Mode Decomposition (EMD, for analysis of non stationary signals and filtering), Hilbert spectra, Phase Portrait analysis, Fourier f- and k- bicoherences, and finally 2D continuous wavelet analysis for image analysis (if I have enough time!).

The more IMPORTANT thing to know about the graphical interface is that the analysis is performed over the interval plotted in the active figure. For example, if you load a time series containing 65000 data, and then choose the interval from 1 to 10000 wit a step value of 10, all the calculations will be made for the corresponding interval of length 1000.

Read the Users Guide Manual for more information on how to use this Toolbox.

Any comments, suggestions, bugs found... ?
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