



Spectral experiments at time series of Jason altimetry at points in closed sea applied to reveal the frequency range of evident deterministic patterns

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A recent application of a visual algorithm based on a Phase Space representation of time series of raw Jason1 records at points in Atlantic and closed Mediterranean, revealed the expected different patterns between these regions and in particular determinism for the time series at points in Mediterranean. This work aims to elucidate the frequency range of the revealed determinism at the points in Mediterranean by applying 3 spectral analysis algorithms namely: a classic Fourier transform (FT) and two algorithms based on the Maximum Entropy (MEM1, MEM2). At first the three methods are applied to the time series of points in Atlantic, where no determinism had been found, for the purpose to compare the performance of each spectral algorithm and to select the optimal algorithm. Then this algorithm is applied to a number of time series at points in Mediterranean in the Western and Eastern part as well as in the middle of this closed sea and experimentally at points nearby coastal regions. The purpose of the experiments is to size up the resolving capacity of the used time series and of the spectral algorithm in revealing the frequency range of the previously found determinism. It is expected hopefully to elucidate certain frequency ranges associated to the found determinism in an attempt to orient a hint whether the processing of noisy altimetry data can be improved with regard of feasibility for altimetry data users. For sake of comparison the time correlation functions at the same time series are also computed.