Determination of Compound and Overtide Constituents near the Eastern Iranian Coast of Makran

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Abstract

In this study, the compound and overtide constituents resulted from nonlinear triad interactions were evaluated using Bispectral method at the eastern Iranian coasts of Makran. It was found that the most significant compound constituents at the studies area were KO2, KP2, MS4 and MN4. Also, the overtides of M4 and S4 were detectable by means of implemented method. The superiority of Bispectral method comparing with least square method (harmonic analysis) is in recognizing some of compound tides such as KO2, which is never identifiable using least square method.

The corresponding Fourier harmonic frequencies to main tidal constituents were identified by comparing the results of the least square method and the Fourier analysis. Finally, the analysis was performed with d.o.f.s of 16, 32 and 64. The repeated significant bicoherence values in all three d.o.f.s and in the main tidal constituent frequencies range were regarded as the intensive and effective interactions.

Keywords: *Compound tides, Overtide, Nonlinear interaction, Bispectra, Makran.*