



## Abstract View

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# A Variational Technique for Extracting Directional Spectra from Multi-Component Wave Data

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### ABSTRACT

The problem of extracting directional spectra from observed, multi-component wave data has two facets: 1) the observations provide information only on a finite number of integral properties of the wave field; hence the directional spectrum cannot be determined uniquely from the wave data alone; and 2) the observations contain statistical errors. These difficulties are dealt with by choosing an *optimal* directional spectrum model which simultaneously minimizes some integral property of the spectrum (its “nastiness”) and passes an appropriate test of statistical significance. Although developed here in the context of surface wave directional spectra, the technique (adopted from the Backus-Gilbert inverse method) is applicable to any problem requiring the fitting of a model to data which represent integral properties of the function being modeled.

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