WAVELET EVALUATION OF INVERSE VENING MEINESZ INTEGRAL

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Abstract

Nowadays wavelet transform is a powerful tool in numerical analysis. Wavelet expansions and wavelet transforms have proven to be very efficient and effective in analyzing a very wide class of signals and phenomena, because (a) they have localization properties in both the time (space) and frequency (scale) domains and (b) the generation of wavelets and the calculation of the discrete wavelet transform is well matched to the digital computer.

Numerical calculation of some integrals such as Stokes integral has been important in geodesy and geophysics. In this paper the numerical solution of Inverse Vening Meinesz integral using wavelet transform has been done and the wavelet method is compared with point wise integration and Fast Fourier Transform in terms of computational efficiency and accuracy.

Inverse Vening Meinesz integral transforms deflections of vertical to gravity anomalies. Here deflections of vertical have been provided by satellite altimetry technique over the Oman Sea.