



Pseudo strain tensor from wavelet transform of repeated gravity observations, case study: earthquake prediction studies in Central Alborz, northern Iran

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This paper deals with extension of strain approach to gravity domain, and deriving pseudo strain tensor components. At first step, repeated gravity observations are differentiated and gravity variations are calculated. Then using Gaussian wavelet derived by green kernel of gravity potential field, upward continuation of those gravity difference values determined. By upward continuation horizontal and vertical details of wavelet transform obtained. As pseudo displacement vectors, these horizontal and vertical detail components are input to 2D pseudo strain analysis. For approximating discrete space we used Delaney Triangulation as finite element approach. In Central Alborz, northern Iran, three repeated gravity observation have been carried out in 1997, 1998, and 1999, containing 467 stations and CG/3M gravimeter has been used for this survey. These data after necessary corrections like drift and body tide, have been analyzed using the above mentioned method. In this presentation the relation between derived pseudo strain components variation and earthquake prediction in the study area will be discussed. In addition the mathematical details and numerical results will be presented.