عنوان مقاله:

Investigating spatial heterogeneity by Implementing the mgwr python package, a case study: southwestern of Tehran Plain

محل انتشار:

چهارمین همایش ملی کاربرد مدلهای پیشرفته تحلیل فضایی (سنجش از دور و GIS) در آمایش سرزمین (سال: 1399)

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خلاصه مقاله:

Land Subsidence often causes irreversible damage to infrastructures and costs lots of expenses for governments annually; Hence, studying and monitoring subsidence in either plains or urban areas has become necessary in last decades. Studies have introduced excessive depletion of aquitards as the dominant factor in the occurrence of this hazard. In this study, the main aim was to take the impact of other spatial factors involving land subsidence into consideration. To devise a plan whether to pause or reduce the subsidence rate, we need to understand the mechanism of each factor inducing land subsidence. Here, we show the outcomes of a Geographically Weighted Regression (GWR) method with a fixed Gaussian kernel to identify the impact of each of the spatial factors inducing subsidence compared with the results from a Multi Linear Regression (MLR). In this regard, outputs of a compiled Interferometric SyntheticAperture Radar (InSAR) time series analysis of the ۱۵ Envisat ASAR images consumed to capture displacement from ۲۰۰۳ to ۲۰۰۵. Afterward, a kriging interpolation method is implemented to generate a surface of subsidence. The Python package, "mgwr" is used to compile both GWR and MLR models. Several statistical diagnostics are performed to assert the GWR superiority over other non-geographical methods when dealing with spatial data. Finally,the GWR results show that just six factors out of ۱۰ tend to be the dominant factors.

کلمات کلیدی:

Subsidence, Multi linear regression, Geographically Weighted Regression, InSAR

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