



## Contribution of geomatic tools for the study of geological control of ground movements in the province of Al Hoceima - Northern Morocco

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Morocco is one of the countries with a long geological history, tracing several orogenies. The most recent, called alpine, was at the origin of the formation of the Rifian chain by the collision of the two tectonic plates African and Eurasian. This activity continues to predominate because of the continuous approximation of the plates and the punching of the Alboran microplate. This results, among other things, in the decompression of rock masses and the reopening of inherited discontinuities. These, being associated with other soil-geological, climatic parameters, topographical and anthropogenic, make the Rif unquestionably the area most exposed to natural hazards including phenomenal of land instability. The effects of this hydro-gravity hazard are all the more important when they affect more or less vulnerable inhabited areas.

The region of Al Hoceima is part of the Rif, it presents several indices of instabilities. While some areas remain relatively stable, others are subject to factors that may generate ground movement.

The objective of this work is to analyze the relationship between the mapped ground movements of Al Hoceima province and the key geological parameters, namely lithology, and fracturing. Using the GIS tools, we analyzed the spatial distribution with the different classes of the two parameters mentioned above, using a two-stage geostatistical analysis.

**Keywords** : Risk, Cartography, GIS, Remote sensing, ground movements, Geostatistics, Al Hoceima.