

The use of GIS data in the desertification risk's cartography case of south of the Aurès region (Algeria)

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Abstract: The risk's cartography is a primordial step for the valuation and management of desertification phenomenon but it is a complicated spot, which necessitate a big amount of spatial and statistic's data. The use of GIS permits to manage and use these data efficiency.

The objective of our study is the realization of the sensitivity to the desertification map of south of the Aurès region by means of Geographical information system in accordance with the MEDALUS method (Mediterranean Desertification and Land Use), which use the qualitative indices to define the sensitive environment zones to the desertification.

The creation of the database consist of four information layer (soil quality, vegetation quality, climate quality and the socioeconomic state) when the articulation in the space and in the time is submit to the validation on ground.

Once the database has corrected it help to the elaboration of the sensitivity to the desertification map with calculation of the indices of the sensitivity to the desertification (ESAs).

The result is a risk's map at a middle scale which presents a big efficacy in word of synthesis of a desertification phenomenon. The maps make a tool of help to decision as far as the protection of natural resources is concerned in regions stroke by the aridity.

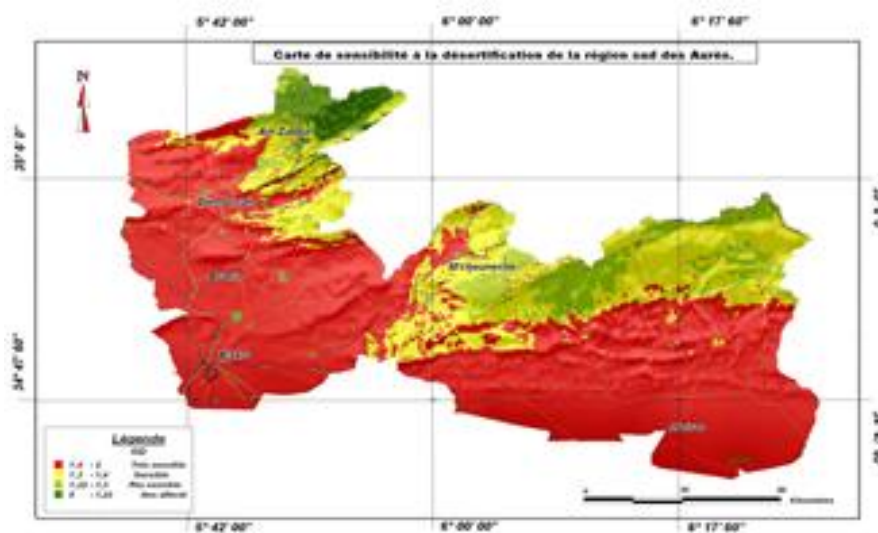


Figure 1. Map of sensitivity to the desertification of southern Aurès region

Analysis and interpretation of the map of sensitivity to desertification: The final map produced from the combination of maps previously enables us to understand and classify our arid and semi-arid regions according to their sensitivity to desertification. The analysis of this map of the area south of the Aurès, the database and the various existing documents

enables us to highlight the main areas that characterize the sensitivity to desertification: 1 - highly sensitive Type 2 - Type sensitive 3 - Type insensitive; 4 - Type unaffected, as shown on Table 1 and Figure 1).

Table 1: Area of different types of sensitivity to desertification

Type	ESAs	Area (sq km)	Area (%)
Very Sensitive	1.40 - 2	1696.166	67.83%
sensitive	1.30 – 1.40	516.073	20.64%
Insensitive	1.22 -1.30	218.406	8.73%
Unaffected	0 – 1.22	69.921	2.80%

After this work, one can conclude that the development of the map of sensitivity to the desertification of the study area has revealed clearly the main features of the distribution areas sensitive to this phenomenon

The analysis of results shows the importance of desertification which threatens virtually the entire area that appears across the various classes of sensitivity to desertification, in fact over 88 % of the area of this zone have been classified sensitive very sensitive, while less than 12 % are ordered not allocated to low sensitivity.

The idea is MEDALUS a scientific approach that responds to an objective approach to regional indicators of desertification. The nature of these essentially provides a global view, and their impact on susceptibility to desertification. Some act more than others do but all have a role in this process.

The value of GIS is to collect the necessary data on a harmonized basis which allows to assess the risk of this process, it allows the use of indicators, develop tools for decision support integrating them.

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