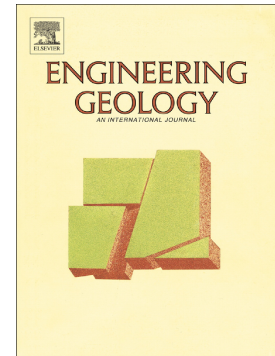


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Land subsidence by groundwater over-exploitation from aquifers in tectonic valleys of Central Mexico: A review

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1           **Land Subsidence by Groundwater Over-exploitation from Aquifers in**  
2           **Tectonic Valleys of Central Mexico: a review**

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11  
12          **Abstract**

13          Structurally-Controlled Differential Subsidence (SCDS) is the gradual sinking of the  
14          ground, characterized by the development of a damage band, terrain  
15          discontinuities and collapses, aligned according to the strike of a controlling  
16          geological structure. SCDS has been reported since the 1980s in several cities  
17          settled on tectonic valleys in central Mexico. Although groundwater abstraction is  
18          the main trigger, recent research efforts also point-out a tectonic component as a  
19          driving force. The monitoring and quantification of SCDS has been done through a  
20          variety of techniques, such as extensometry, GPS and InSAR. Furthermore, the  
21          associated hazards endangering the population are floods, aquifer pollution,  
22          cracking and housing collapse. This paper presents a comprehensive review of the  
23          current state of SCDS, allowing, for the first time, the standardization of its  
24          definition, mechanisms and triggering factors. Additionally, this helps to avoid  
25          misinterpretation in the cases of sinking produced by the Mexico City Subsidence  
26          Type (MCST) and thus, provides the elements for proper methodological study of  
27          SCDS. Finally, the review includes future research directions that need to be  
28          improved in order to reduce the impact of the phenomenon.

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