Relationship between Water Level Change and Skempton's Coefficient B

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Water level changes at different monitoring stations are observed during the Wenchuan earthquake (Ms8.0) in the Chinese mainland. Our analysis of the data suggests that in the intermediate field, the size of the water level change is not only related to the earthquake magnitude and epicentral distance, but also connected to the extent of the confinement of the aquifer (which is related to Skempton's coefficient B). Verification of this fact comes from analyzing the water level changes from the wells with constant epicentral distance. In the intermediate field, large B-values come with large changes of water level. This phenomenon is a supplement to the reported empirical equations referring to the relationships between water level, epicentral distance, and magnitude, and hints at the key role played by poroelsticity in water level changes. What's more, the value of B may be used to predict the coseismic water level changes.