

**Characterizing recharge process in fractured hard rock aquifer- coupling geophysical and hydrogeological methods**  
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This study aims at characterizing recharge process in a fractured hard rock aquifer under Sahelian climate condition. For this, Sanon catchment located in the Central Plateau of Burkina Faso, which is constituted of hard rocks representative of hard rocks of Africa is identified as an experimental site. We initially described the geometry and the structure of the aquifer of Sanon site. Then, the incidence of the geometry and the structure in terms of water content is estimated by non-invasive Magnetic Resonance Sounding (MRS) measurements around existing observation wells on the site. The different water contents obtained allow at deducing from observed water table fluctuation monitored in each well the quantity of water that recharge the aquifer. We observe unequal distribution of water content at the catchment scale. The water contents obtained vary between 2 and 4.6%, the highest value is obtained in the central valley of the basin where recharge value is the highest (223 mm) and the lowest at downstream dominated by flooding areas where recharge value is lowest (22mm). The different recharge values obtained by the method described in this study are in agreement with those obtained from former studies using chemical and modeling methods.

