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Seasonal stress inversion trends of RTS in Song Tranh2 reservoir, Vietnam

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The Song Tranh 2 hydropower construction is located in the Quang Nam province (central Vietnam), it has a reservoir volume of 740 million cubic meters of water and a dam height of 96 m. The reservoir was filled to capacity for the first time in February 2011. The seismicity in the vicinity of reservoir is example of reservoir triggered seismicity(RTS). The natural seismic activity of the Song Tranh 2 reservoir is very low. After the reservoir was filled, the seismic activity increased, and the number and frequency of the tremors also changed as the water level changed. Water level changes are accelerating the tectonic process leading the critically stressed faults to slip. Data suggest that reservoir exploitation stress field changes as triggering origin of this seismicity. The stress inversion method was used to check if there were any seasonal trends. The inverted stress tensor and, in particular, the stress ratio, which is very sensitive to data quality and scope and difficult to accurately retrieve, can be influenced by porous pressure changes. Has been checked, how the average annual seismic activity is related to the change of the water level and if it implies the orientation of the principal stress during high and low water levels in the reservoir. The pore pressure changes and the stress ratio changes were also estimated in relation to the high and low water level periods.