

Interactive
Comment

Interactive comment on “Interpreting muon radiographic data in a fault zone: possible application to geothermal reservoir detection and monitoring” by H. K. M. Tanaka and H. Muraoka

Anonymous Referee #2

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This paper looks at the use of muon radiography to measure densities around fault zones to look at rock porosity indicated by the lower density of water rather than rock in the pores.

It successfully shows that the low-density porous region around a fault can be imaged with muon tomography in a favourable environment where one can get below the fault zone. As stated in the paper, the real usefulness for geothermal development will require the development of borehole muon detectors.

One point I think should be mentioned is that it is only when the geology is well characterised that density measurements alone are likely to give useful porosity measure-

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ments, as otherwise differences in density may relate to different rock types.

Abstract and through paper. The term is "fault gouge", not "fault gauge".

p879 Some of lines 1-9 are not very clear. I suggest

Each segmented detector consisted of two plane arrays of scintillator strips, one each in the x and y direction. Each scintillator strip used a plastic scintillator 70 cm long by 7 cm wide and 2 cm thick, and a 2-inch photomultiplier tube. The two arrays each had 9 counters. The path of a muon can be determined by the combination of two signals from an x and a y plane detector, which defined a 7 cm square within which the muon passed. The path of a muon can be determined by the locations of its signals at the two segmented detectors, which were separated by a distance of 70 cm.

p880 Is zero azimuth angle the north direction, or along the fault plane?

Fig 4 The symbols are easy to confuse. It might make it easier if the symbols were different colours for each vertical angle.

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., 2, 875, 2012.

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