Crustal deformation due to the M4.0 earthquake near Matsushiro on 29th Oct.1999

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The M4.0 earthquake occurred near Matsushiro Seismological Observatory on 29th Oct. 1999. The contractile change was observed with the extensometers and the southerly upward change was observed with the tiltmeters. These changes began one day earlier than the occurrence of this earthquake. But we think that these changes were caused by the rainfall from 27th to 28th.

Strain and tilt steps were observed when this earthquake occurred. The amount of the strain step was -2.8e-8 strain for N-S component and 3.2e-8 strain for E-W component. The tilt steps were westerly upward by 5.6e-8 rad and southerly upward by 2.7e-8 rad. The theoretical steps were calculated with the fault mechanism determined by JMA. The calculated steps were consistent with the observed steps in both amount and polarity.