



Development of stressmeter and observed stress data

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Observation in deep boreholes can avoid the problems of both artificial noises and meteorological disturbances and enables the performance of high S/N ratio observations for detecting very small signals. Therefore, we have developed multi-component borehole instruments in order to achieve it. The instruments are composed of 7 strainmeters (4 horizontal, 2 inclined and one vertical), 2 tiltmeters, 3 seismometers, 4 magnetometers and a thermometer of high resolution. The multi-component borehole instruments of this type were installed into many boreholes with depths more than 500m by our institute and other governmental institutes for earthquake prediction studies. We then install the instruments by cementing at the bottom of the deep boreholes with expansion grout.

In the instrument strainmeter is equipped inside. However, stress is more fundamental observational quantity than strain for earthquake prediction study. Therefore, we have developed stress meter for observing stress variation. Then stress meters were equipped with multi-component borehole instrument and installed into deep boreholes with 500m depth. The stress meters have horizontal, inclined and vertical components. The stress meters can observe both stress and strain.

The stressmeters were installed into two deep boreholes and are accumulating well stress data like tidal stress variation, seismic stress waves.

In this presentation we demonstrate some results analyzed.