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The Stability of Transfer Function of Seismometers in Slovenian Seismic Network

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Seismic station of the Slovenian National Seismic Network is equipped with a Quanterra Q730 data logger and a broadband Güralp CMG 40T seismometer. All stations are telemetrically connected to the network center via TCP/IP. While the producer of the seismometers guarantees long term stability of the sensor transfer properties, still there is a question, if it is really so. That is why calibration measurements of sensors need to be periodically performed. Typical significances for broadband seismometers are damping and natural period. For controlling the stability of the seismometers, it is enough to evaluate these two parameters. So we have developed our own software which starts calibration on request and automatically analyzes output signal from the seismometer. We do this task telemetrically using a sine and step calibration signal, built in Quanterra 730. The main benefit of a telemetrically controlled calibration system is that the sensor is in a stable environment. We do not need to transport the sensor or even open the shaft, when we do calibration procedure. Sensors are tested from the beginning of the year 2004, and during two years period, damping and natural period changed for less than 0.5%, where average is less than 0.2%.