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Monitoring fluorescence of groundwater at distinct wavelengths with an on line flow-through fluorometer as potential tool for earthquake precursor research

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On-line measurements with an on line flow-through fluorometer, that was developed for the monitoring of tracer tests in karst areas using fluorescence substances as e.g. uranin, sulforhodamin or naphthionate is used for long term monitoring of fluorescence variations of groundwater and thermal water springs in Switzerland.

The presented measurements originate from an undisturbed spring within small old coal mine (Käpfnach, Horgen/ZH) situated in an area of low seismicity) and secondly of a thermal spring at Baden/AG (Northern Switzerland).

The comparison shows fluctuations a) related to natural variations of a) undisturbed spring (but influenced by infiltration events) and b) of a thermal spring, with possible influences of seismicity, but also of use of the spring water for a thermal spa.

REFERENCES

- [1] Burjanek, J.; Faeh, D.; Surbeck, H.; Balderer, W.; Kaestli, P.; Gassner, G. (2014) Continuous Monitoring of Potential Geochemical and Geomagnetic Earthquake Precursors: Lessons Learned. American Geophysical Union, Fall Meeting 2014, abstract.

