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#10-304 Novel spectral gamma ray logger device

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The CORELA GRG-01 is a state-of-the-art spectral gamma logger designed for versatile use in both laboratory and field settings. It enables precise K-U-Th concentration pattern logging and gamma ray measurements. These measurements can be supplemental to chemical analysis or XRD. Equipped with a novel array of compact, high-sensitivity radiation detectors, the instrument offers enhanced accuracy while maintaining a lightweight and compact design.

In our study, the CORELA GRG-01 detection system was used to accurately determine the content of K, U and Th isotopes in boreholes from the Zlaté Hory area. This device allows, using scintillation detectors in massive shielding, effective analysis of even low isotope concentrations. The advantage of this system is its modular design, thanks to which the device can be easily relocated and measurements can be made directly at the exploration sites. The results on the cores of the investigated boreholes from the Zlaté Hory show a clear correlation between the type of rock and the content of K, U and Th isotopes. Measurements, carried out at five-centimeter intervals, revealed a significant increase in the concentrations of potassium, uranium and thorium at the interface between quartzites and metatuffs - up to double the values. In our paper, we will present detailed results of chemical analyses and their comparison with data obtained by measuring KUTh concentrations, which bring a new perspective on the petrographic classification of rocks in this area.

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