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Chronological Aspects of River Sediments Contamination – Kutná Hora (Czech Republic) Silver Mining Region

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Extended Abstract

The presentation sums up the preliminary results of contamination research in Kutná Hora region. Last seasons of research have brought the knowledge about contamination characteristics in region by metaanalysis of all data.

The season of 2013 aimed on using contamination for distinguish sediment origin and spatial distribution of contamination in area of confluence of Klejnárka and Labe Rivers. There have been performed 25 probes by soil drilling probe and the samples untill 80 cm depth were taken (every 10 cm). Other analyses including organic carbon content or magnetic susceptibility are provided. All data from all probes are also analysed by XRF spectrometry.

Some of samples (from depths of 20 and 70) were analysed by ICP MS. The concentrations were analysed by factor analysis. Three main factors were extracted, they generally agree with all data from region: one factor represents contamination, one represents natural background and one is represented by mercury itself.

The results of factor analysis were interpolated in ArcGIS for the area of Rivers confluence. The results show, that contamination is not only diversified horizontally and, as older research results indicated, but the factors can be clearly diversely bound to Labe and Klejnárka sedimentary environments.

The contamination and its multifactorial analysis can be used for identification of spatial distribution of sediments of different origins (by different contamination characteristics) and can be therefore used as a general stratigraphic and sedimentary marker.

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