The subject of the thesis is composed of the river bed sediments of Çoruh River. In this context, based on the geochemical characteristics of deposits is to obtain information about source areas providing material to the river, chemical weathering of source areas and heavy metal content and origins.

Along the Çoruh River have made working in an area about 40 km. This distance is named BM (between Bayburt centers and Gezköy, intensive residential), GK (between Gezköy and Gezhanları, sparse residential) and ZT (between Gezhanları and Ziyarettepe sırtı, rural) codes have been evaluated as three parts. There are positive correlations between Al₂O₃ and Na₂O, K₂O, TiO₂, P₂O₅, CaO content of this samples. The SiO₂, Al₂O₃,
K₂O, Na₂O, TiO₂, P₂O₅, MnO elements are generally depleted relative to Upper Continental Crust (UCC), the other main element are enriched.

There are positive correlations between Al₂O₃ and Rb, Sr, Ba, Th, Hf, Y, Nb, Zr, V, Pb, U, Cu content of the investigated samples. When the trace element components of the samples are compared with UCC, Rb, Sr, Ba, Th, U, Zr, Hf, Y, Nb and Pb are generally depleted, Co, Ni, Cu, Sc and V are generally enriched, Au is from time to time depleted and enriched. The ratios of (Gd/Yb)N are >1, (La/Yb)N are between 6.92 – 8.71 and Eu/Eu* are between 0.75 and 0.89. The light rare earth elements (LREE) and the heavy rare earth elements (HREE) showed positive correlation with Al₂O₃, K₂O, TiO₂, P₂O₅, Zr, Th, Y.

There are minor enrichment of Zn, Sn and Sc contents of analyzed samples, minor–moderate enrichment of Cu, severe enrichment of As and extremely enrichment of Ni. Copper content of the stream bed sediments is partially geological, partially anthropogenic, As is entirely anthropogenic, Ni is fully geological origin.

As a result, the stream bed sediments are derived from participle – mafic/ultramafic sources. Poor to moderate degrees of chemical weathering of this sediments indicates time to time increased tectonic activity, increased erosion and rapid sedimentation in semi arid-arid conditions in the sources region. Thus, the sediments are immature chemically. These sediments are exposed both lithogenic and anthropogenic contamination.

**Keywords:** Heavy metal, Bayburt, Çoruh River, Stream bed sediments, Geochemical of deposit