Ethiopian highlands is one of the most various tectonic areas in the world. It lies in close proximity to Ethiopian rift system in areas with volcanic landscape. As the main factors involved in development of river networks have been identified: volcanism, tectonics, erosion. The most important factor is the erosion, that work pays closer. Using the methods of remote sensing, GIS analysis and documenting the longitudinal and transverse river profiles were surveyed area of differentiation in the types of river networks, deep of river valleys, geological strata, etc. GIS and remote sensing analysis provided more supporting
data. Crucial is the analysis of the longitudinal profiles. Five rivers was profiled: Guder, Muger, Jemma, Birr, Blue Nile. Knickpoints in profiles were identified and were divided into three types according to the majority factor involved in the formation: Active uplift entire Ethiopian highlands which activizate river erosion, active uplift smaller areas, lithological. Crucial for next outputs are knickpoints linked to active uplift entire Ethiopian Highland. Lokalization of thats, were profiles divided into subprofiles, representing phasis of erosion development of entire area. During the past 31 million years, were identified 3 phases with increasing incision rates. Furthermore, significant relationship was found between uplift rates and incision rates which is evidence for tectonically controlled incision. We also identified areas with different types of drainage networks and identified factors influencing it. Also, the result is our own model of development areas.