Fluvial Environments

ENVS372

Fluvial processes are important in sculpting the Earth's surface and producing landforms. This module examines fundamental concepts and recent research relating to fluvial geomorphology. The module looks at the main components of the fluvial system, and develops an understanding of the dynamics and controls on water and sediment flux and how these produce different types of landforms. The amounts of water and sediment can vary with the environmental conditions and thus studying the drivers of these systems (such as climate and human activities, as well as how they have changed over time) is essential for being able to interpret the current landscape.

The first part of this module considers each of the major components: flow processes; sediment dynamics; the operation of these in different parts of the system (from hillslopes to channels and floodplains); then the characteristics of the landforms and how they change over various timescales and in relation to flood events.
In the second part of the module we look at specific types of fluvial environment and how we might interpret their characteristics, both those created in past phases and conditions and those operating at present. We consider an active upland environment in NW England that has gullies as well as very active channels and we take a field trip to examine these features more closely. We also consider large European rivers and longer-term development of features and deposits in continental Europe. Finally, we consider active meandering lowland rivers, particularly on the historical timescale and the impact of flow variation. Central to the module is how an understanding of these fluvial systems can help in the management of catchments, channels and floodplains.