Fluvial Geomorphology of Wales (FLU-GME-WL)

Block Description

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Introduction

A general introduction to British fluvial geomorphology is provided under **Fluvial Geomorphology of England (FLU-GME-EG)**.

Fluvial systems in Wales have an extended evolutionary history of considerable interest, including, in particular, phases of rejuvenation and of glaciation; together, such phases have produced a landscape mixture of waterfalls, gorges, plateau uplands and flat-bottomed valley troughs. Present-day fluvial processes acting in Wales create a considerable variety of river types, ranging from upland source area streams, active boulder-bed channels, meandering and braided reaches, through to highly sinuous channels and stable lowland rivers.

The impacts of afforestation, land drainage and improvement, and river channelization, are modifying fluvial features in the landscape to an increasing extent.

The long-term geomorphological development of the Welsh landscape has been subjected to many different interpretations. In particular, the various plateau levels have been viewed as the product of either fluvial or marine planation at time periods ranging from the Devonian Period to the Quaternary Period. Some may have been exhumed from beneath a Mesozoic cover. In recent years this situation has been somewhat modified both in the light of plate tectonic models (creating a better understanding of the effects of the widening of the North Atlantic and the development of the faulted Welsh massif in a trailing plate margin environment, for example) and also as a result of new and offshore evidence from boreholes such as that at Mochras, Gwynedd, and other land-based sites, and from exploration work in the Irish Sea. These, like the reinterpretation of weathering products fragmentarily preserved, tend to emphasise the Tertiary reduction of landscape features to low-relief surfaces, but also the importance of Neogene faulting and then relative uplift of the Welsh uplands.

Quaternary glaciation added trough-like valleys and a widespread (if often thin) veneer of glacial sediments to the region. Fluvial processes are strongly conditioned by prior glacial activity. During the most recent ice-sheet glaciation, valleys were partially infilled with sediments that present rivers are currently removing. In some places, valleys may also be largely filled with glacial sediment, such that newer gorge sections have been excavated in bedrock to bypass them.

In the Holocene Epoch, the landscape has been evolving under fluctuating climatic and human influences; involving, for example, the development of a forest cover followed by its removal, and the development of upland and lowland peat deposits over the past several thousand years.