

FIELDWORK EXERCISE SUMMARIES GEOGRAPHY AS AND A2 – New for Sept 2008



Hydrology – Downstream Changes in a River Channel

An investigation of downstream changes in channel, bedload and valley characteristics, and the correlations between them. The Afon (River) Caerfanell flows through some of the finest scenery in the Brecon Beacons National Park.

Fieldwork involves the following measurements at a number of sites: width, depth, wetted perimeter, velocity, gradient, bedload size and shape, and Manning's 'n'. At each site valley shape and fluvial landforms are identified and discussed, and may be recorded with the aid of annotated field sketches. O.S. maps are used as secondary sources of information.

Follow-up work involves the calculation of cross-sectional area, discharge and hydraulic radius, and the drawing of cross-section diagrams to scale. Statistical analysis (e.g. Spearman Rank and Chi-Squared) can be used to assess the significance of trends in the data.

Hydrology and Brecon Flood Study

This exercise looks at the causes and effects of flooding by the River Usk of areas of Brecon in 1979 and the measures taken to try to prevent a recurrence/reduce the effects of flooding in the future. To help in the understanding of the fluvial processes involved in flooding and its prevention, measurements are taken of a natural river channel. The river studied is the Caerfanell, a tributary of the Usk that flows through some of the most spectacular scenery in the Brecon Beacons.

The rivers fieldwork (as described under previous study) is carried out at two contrasting sites, one near the source and the other further downstream. Additional note is taken of topography, landscape/river features, vegetation, with opportunities for field-sketching. In the afternoon the Brecon Flood Alleviation Scheme is visited and its features identified and discussed in the light of possible alternatives.

Flooding and Flood Management – A Case Study of the River Wye

During this day students investigate the causes and impacts of flooding in the Wye basin, with a focus on the town of Hereford. In the last eight years alone, there have been 6 notable flood events in Hereford, at least 4 of which have caused significant damage to properties, disruption to traffic, and financial loss to businesses.

Fieldwork and secondary data is collected to assess the likelihood of flooding in different areas of the town (linked to height of land and distance from river). Assessments of landuse (including level of development and value of land) are then used to assess the likely impact of flooding in different areas of Hereford. By combining this information students can calculate an overall flood risk score for each area sampled. Mapping these results will allow students to identify those areas in greatest need of defences. This information will be complemented by use of questionnaires to assess the views of residents on flooding and flood management in the town.

In addition to investigating flood risk students will also have the opportunity to evaluate the newly built Hereford Flood Defence scheme, through a mapping activity and completion of environmental quality surveys.

Coastal Erosion and Management: Glamorgan Heritage Coast

Inherent geological conditions, rising sea levels and conservation issues combine to produce management problems at Col Huw, on the Glamorgan Heritage Coast. Here, Liassic limestone cliffs and a relic pleistocene delta are the focus of both wave energy and visitor pressure, resulting in the need for a decision between engineering or more “natural” solutions.

Fieldwork includes a detailed assessment of the structural and lithological characteristics of the Liassic limestone cliffs. Historical evidence is used to assess rates of erosion, and landscape assessments and questionnaire surveys to help evaluate the alternative solutions.

Use of secondary data includes engineering reports, Heritage Coast information and old maps.

Follow-up work involves the collation of data and evaluation of the situation to date, leading to either the presentation of a report or a role-play exercise to debate the issues involved and the decisions to be made.

Ice and Landscapes: Glaciation Study

The Brecon Beacons and Usk Valley contain much evidence of the Pleistocene, and a fieldwork day can vary in its content to suit preferences.

Typically the day includes a walk into either Cwm Llŵch or Cwm Cerrig Gleisiad, both of which are major cirques, to sketch and/or morphologically map the main erosional and depositional features. These include well-preserved cirque moraines dating from the Loch Lomond Re-advance. Below the cirque, the Nant Cwm Llŵch has eroded river cliffs into deposits. Fabric analysis of these is carried out to determine their likely origin – either glacial or peri-glacial.

If time permits, visits can be made to see an excellent overflow channel now occupied by the Usk above Brecon, a superb recessional moraine with kame and kettle features near Abergavenny, and a kame terrace at Glanusk. Other features can be noted en route.

Succession on Colliery Spoil

Derelict land on mining spoil heaps is a legacy of the area’s industrial past and once occupied large areas of the South Wales coalfield. Whilst most have now been reclaimed, a large area above Blaenafon remains unaltered, and provides an excellent opportunity to examine the process of succession.

Areas of three different ages have been identified, dating from 1850’s, 1950’s and 1980’s. Detailed investigation of the vegetation composition is carried out in three areas, using random quadrat sampling.

Follow-up analysis of the results reveals distinct vegetation communities with changing species composition and diversity, culminating in a moorland plagioclimax. The Chi squared test and Simpson’s Index of Diversity can be used to strengthen the analysis.



Succession on Sand Dunes and Sand Dune Management

Similar work to the above is carried out on the dune-fringed Glamorgan coast at Crymlyn Burrows or Kenfig. Here, systematic sampling by means of a transect is used to show the full primary succession from embryo dunes to woodland. Quadrat analysis is accompanied by sampling of abiotic (especially edaphic) variables. Alternatively fieldwork may focus on the impact of visitors on the Nature Reserve including assessing levels of erosion and trampling. This can be achieved through footpath measurements and quadrat work on and off the path. The fieldwork can be coupled with a talk by a warden at Kenfig National Nature Reserve, dealing with conflicts and threats on the coast along with management issues.

Follow-up analysis is as for the colliery spoil investigation, and can include correlation tests and soil analysis for pH, moisture content and organic content.

Woodland Management and Conservation

This is a biogeographical exercise investigating the important issue of the impact unrestricted grazing has on the structure, diversity, conservation value and long-term future of deciduous woodland.

Students conduct an ecological survey of grazed and ungrazed areas of semi-natural ancient woodland in the Brecon Beacons National Park. An area of forestry plantation may also be studied for contrast.

The fieldwork consists of random quadrat sampling of the ground and field layers, a tree regeneration survey and measurement of soil pH and microclimate. This may be followed by a visit to an ancient semi-natural deciduous wood owned by Gwent Wildlife Trust, serving as a valuable case study of active woodland management for conservation.

Follow-up work involves collation of primary data, graph work, etc., leading to class discussion and analysis of results.

Blaina Landslip

A case study covering the triggers of landslides and the impact of this hazard on the small former mining town of Blaina. This half-day activity also covers monitoring and mitigation strategies.

The Changing Face of Quarrying

An investigation into the physical and human factors which have impacted on aggregate quarrying historically and in the present day, followed by a look at the use of secondary aggregates to allow sustainable use of the resource.

Forestry Visit

We are able to arrange a talk and tour with a Forestry Commission Warden on your behalf, dealing with human and physical reasons behind the location of Forestry in the National Park, the role of the Forestry Commission in resource management and its sustainability.



Farm visit

Students receive a guided tour and talk from a local sheep farmer. As well as looking at conventional aspects of farming, such as farm organisation, inputs, outputs, climate, etc., this also studies diversification, the influence of technological developments, the effects of Government/EU policies and changing market forces, and the influence of Local Authority planning regulations (e.g. the advantages/disadvantages of farming in the Brecon Beacons National Park).

Fieldwork involves an interview with the farmer to collect the basic statistics of the farm (area, inputs, outputs, etc.) and to discover why he/she has chosen to use the land in a particular way and what the plans are for its future use. A tour of the farm facilitates land-use mapping and field-sketching. (*N.B. the farm we normally use for this fieldwork charges a small fee per group*). If a contrast is required it may be possible to visit a local organic farm.

Abergavenny : Ebbw Vale Comparison

This study examines inequalities within South-East Wales. Abergavenny is a relatively prosperous market town in the County of Monmouthshire. In the neighbouring county of Blaenau-Gwent, Ebbw Vale, following the closure of its coal mines and steelworks, has suffered economic decline and faced the challenge of trying to reverse this process.

Fieldwork includes environmental and residential quality surveys, shopping area assessments, assessment of the CBD's of both towns, including Goad map work, and questionnaires of residents. This work is complemented by collection of data relating to general economic indicators, e.g. house prices, availability of employment, and by use of secondary data.

Assessment of the current situation is followed by a brief look at attempts to deal with the problems resulting from economic decline in Ebbw Vale, such as the Ebbw Vale Garden Festival, the regeneration of the former steelworks site, and the roles of Objective 1 funding and the Welsh Development Agency.

Comparing Socio-economic and Environmental factors in different areas of Cardiff

Following a transect through Cardiff, students will visit inner city, sub-urban, urban-rural fringe and rural sites. Students will be encouraged to look for disparity of wealth within the city and its environs, and the impacts this has on housing quality, service provision and the environment. (Please note – depending on the specification you are following this day may be reduced to a straight comparison between inner city and suburban areas of town).

Fieldwork includes environmental and residential quality surveys, shopping area assessments, and assessment of service provision. This work is complemented by collection of data relating to general economic indicators, e.g. house prices, availability of employment, and by use of secondary census data.

Follow-up work involves collation of primary data and selection of secondary data to produce a profile of each area visited. These profiles will take the form of group presentations.

Urban and Industrial Regeneration – Cardiff Bay



This major regeneration project is transforming the former Cardiff Docklands, an area which had for many years experienced socio-economic decline and environmental degradation. Now there is redevelopment on a huge scale. At the heart of these developments is the barrage across the Taff and Ely river estuaries which has created a large freshwater lake as a visual and recreational amenity. The purpose of the exercise is to assess the appropriateness and level of success of the scheme from a variety of perspectives.

The day involves a tour through Cardiff and around the Bay, with various stops for fieldwork activities at key and contrasting locations. These comprise environmental and residential quality surveys, shopping area assessments, industrial site evaluations, surveys of recreational facility and activity provision and questionnaires of residents and visitors. Where relevant this may be combined with a visit to Goldcliffe Wetlands, Newport, a habitat that was created as compensation for the loss of the mudflats at Cardiff Bay when the barrage was constructed.

Follow-up work involves collation of primary data, graph work, land-use mapping, etc., leading to class discussion of results or, alternatively, group presentations.

Rural Inequality

This day involves visits to local villages to look at examples of rural decline. Themes to include impact of loss of services, second home ownership within the National Park, counter-urbanisation, impact of decline on housing quality and environmental quality, and a look at schemes which aim to combat problems of rural decline. This will be followed by a farm visit where the impact of decline in primary industry on the local area will be discussed, along with diversification, particularly into tourism (details of farm visit on previous page). As a contrast we then visit a more prosperous village, where students consider the impact of growth on services, housing provision and the environment.

Fieldwork will involve landuse mapping, house age assessments, residential and environmental quality surveys. This work is complemented by collection of data relating to general economic indicators and by use of secondary census data.

Rebranding of Blaenafon through Heritage Tourism

Blaenafon was at the forefront of industrial innovation and development in the Industrial Revolution. Many old sites still exist, such as Big Pit coal mine and the ironworks. Because of its historical importance and the interest generated by its industrial heritage, Blaenafon achieved world recognition in 2000 when UNESCO awarded the town World Heritage status.

In view of this, Blaenafon provides an ideal case study of the impact of industrial decline and regeneration, with the focus on heritage tourism as a possible replacement economic activity. The fieldwork is designed to assess the present and potential impact of tourism and includes bipolar assessments of various tourist/recreational facilities, questionnaires, land-use mapping of the high street and environmental quality surveys of residential areas. An underground tour at Big Pit National Mining Museum of Wales is an integral part of the day (*this visit is free*).

Use of secondary data includes historical information and maps, Census data and newscuttings.

Follow-up work involves collation of primary data, graph work, land-use mapping, etc., leading to class discussion of results or, alternatively, group presentations.

Abergavenny Town Study



Abergavenny is a rural market town with a wide sphere of influence. As such it forms an ideal case study for 'key' ideas in urban and rural geography. The exercise involves hypothesis-testing and a wide range of fieldwork techniques are employed.

The day is divided as follows:-

- 1) Transects of the main routes from the edge to the centre of Abergavenny are followed, plotting land-use and environmental quality at regular intervals.
- 2) CBD study involving: Goad mapwork, shopping area surveys, environmental quality surveys, pedestrian counts, traffic counts, car park and public transport surveys and questionnaires.

Follow-up work involves collation of primary data, graph work, etc., with class discussion and analysis of results. This full day may also be taught as separate half-day studies depending on the requirements of your exam board.

Further work using the data collected could include pie-charts, isoline/isopleth maps, flow maps, Spearman's Rank Correlation.

The Social, Environmental and Economic Impact of Industrial Change in Ebbw Vale

With the closure of its coal mines and steelworks Ebbw Vale has suffered economic decline and faced the challenge of trying to reverse this process. The main objective of this exercise is to identify the various effects this has had on the local community and environment. Also included is hypothesis-testing of the factors affecting decisions about industrial location.

The fieldwork involves: environmental quality surveys of industrial sites of various ages that are in different stages of disuse/reclamation/redevelopment, evaluating the suitability of these sites for modern industrial development, Goad mapwork of the CBD, a detailed survey of a modern industrial estate, and collection of data relating to general economic indicators, e.g. house prices, availability of employment, upkeep of the town.

Use of secondary data includes historical information, newscuttings and Census figures.

Follow-up work involves collation of primary data, graph work, land-use mapping, etc., in preparation for group presentations to analyse findings.

Tourism in the Brecon Beacons National Park

This study aims to give an overview of a variety of ways in which tourism impacts on the local area. Fieldwork may involve investigating the impacts of tourism on social, economic and environmental aspects in a National Park village. Themes include second home ownership, holiday lets, diversification in agriculture, and impacts on local services. We will then go on to consider a National Park honeypot site; either conflicting use of Llangors lake or footpath erosion on Pen-y-fan. In both cases the causes and management of the issue will be discussed. This day may include a stop at the National Park visitor centre if required.