

Geology of the Llanidloes area: Geological description - Geophysics

From Earthwise

[Jump to navigation](#) [Jump to search](#)

This page is part of a category of pages providing a summary of the geology of the Llanidloes district (British Geological Survey Sheet 164).

Links to other pages in this category can be found at the foot of the page.

Authors: Wilson, D, Burt, C E, Davies, J R, Hall, M, Jones, N S, Leslie, A B, Lusty, P A J, Wilby, P R, and Aspden, J A.

The Bouguer gravity anomaly map ([Figure P930914](#)), reveals a more-or-less steady increase in gradient towards the north-west of the district. This pattern, which is apparent on a regional scale, reflects the main structural trend within the basin and is consistent with the presence of dense Lower Palaeozoic or basement rocks at a shallower crustal level in the coastal tract to the west. Euler deconvolution analyses of the regional gravity data (McDonald et al., 1992^[1]) suggests that the juxtaposition of rocks of different densities took place across long-lived basement structures such as the Glandyfi Lineament (Cave and Hains, 1986^[2]) and Bronnant Fault (Davies et al., 1997^[3]; Wilson et al., 1992^[4]).

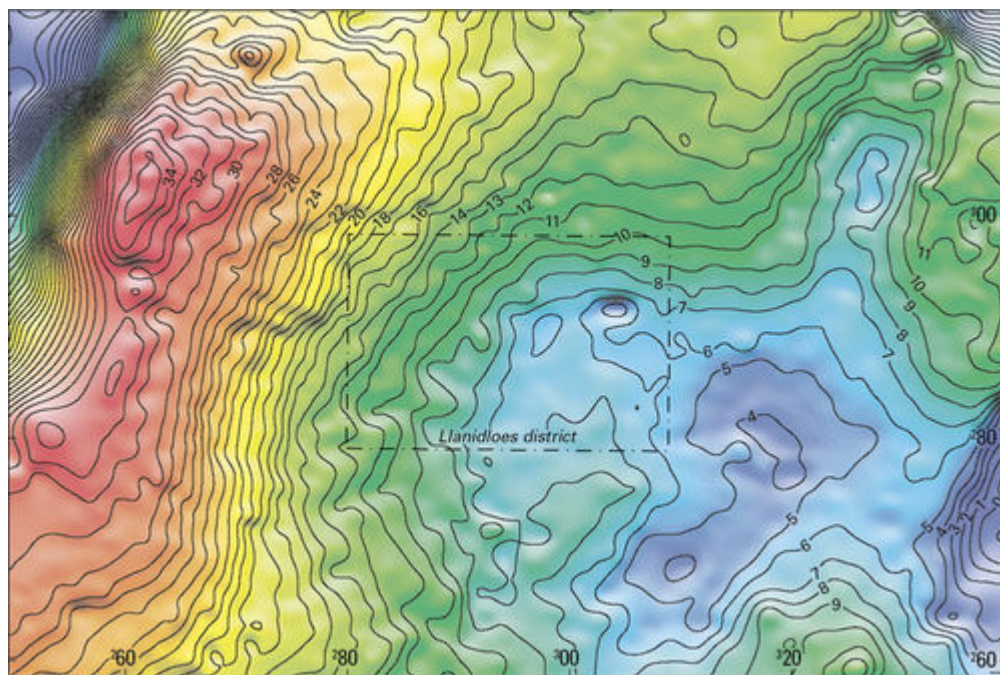


Figure P930914 Bouguer gravity anomaly map (scale 1:750 000). Bouguer gravity anomalies in milligals (mGal) calculated against the Geodetic Reference System 1967, referred to the National Gravity Reference Net, 1973. Variable Bouguer reduction density. The anomalies are shown as a colour-shaded relief presentation using the BGS COLMAP Package. The shaded topographical effect has been created using an imaginary light source, located to the north. Contour interval 1mGal (1mGal = $1 \times 10^{-5} \text{ m/s}^2$). Based on data in the BGS National Gravity Databank. Station distribution approximately 1 per 1.3 km². The inset frame indicates the extent of the Llanidloes district.

The regional aeromagnetic anomaly map ([Figure P930915](#)) shows a weak magnetic high in the

south-eastern part of the district. The reasons for this anomaly are unclear but reflect the presence of magnetic basement or a concealed igneous complex at a relatively shallow crustal depth. The feature is one of a series of weak anomalies that broadly lie along the Pontesford Lineament, one of the component structures of the Welsh Borderland Fault System (Woodcock and Gibbons, 1988^[5]).

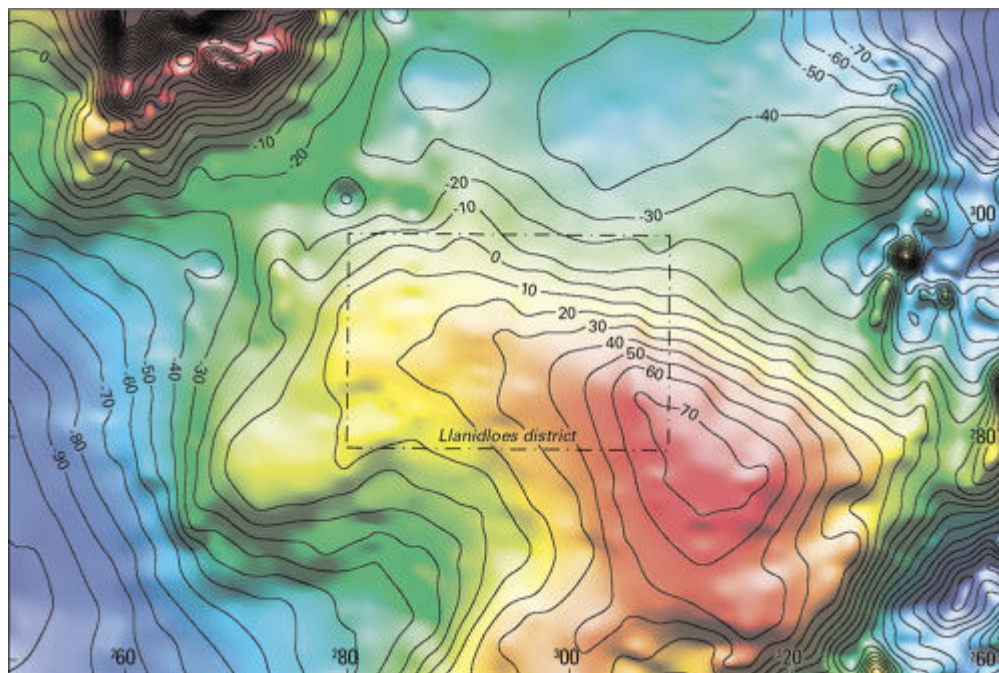


Figure P930915 Aeromagnetic anomaly map (scale 1:750 000).

Total field magnetic anomalies in nanotesla (nT) relative to a local variant of IGRF90. The anomalies are shown as a colour-shaded relief presentation using the BGS COLMAP Package. The shaded topographical effect has been created using an imaginary light source, located to the north. Contour interval 10nT. Based on data in the BGS National Aeromagnetic Databank. Flown at a mean terrain clearance of 305 m on north-south flight lines 2 km apart with east-west tie lines 10 km apart. The inset frame indicates the extent of the Llanidloes district.

References

1. [↑](#) McDonald, A J W, Fletcher, C J N, Carruthers, R M, Wilson, D, and Evans, R B. 1992. Interpretation of the regional gravity and magnetic surveys of Wales using shaded relief and Euler deconvolution techniques. *Geological Magazine*, Vol. 129, 523-531.
2. [↑](#) Cave, R, and Hains, B A. 1986. *Geology of the country between Aberystwyth and Machynlleth*. Memoir of the British Geological Survey. Sheet 163 (England and Wales).
3. [↑](#) Davies, J R, Fletcher, C J N, Waters, R A, Wilson, D, Woodhall, D G, and Zalasiewicz, J A. 1997. *Geology of the country around Llanilar and Rhayader*. Memoir of the British Geological Survey, Sheets 178 and 179 (England and Wales).
4. [↑](#) Wilson, D, Davies, J R, Waters, R A, and Zalasiewicz, J A. 1992. A fault-controlled depositional model for the Aberystwyth Grits turbidite system. *Geological Magazine*, Vol. 129, 595-607.
5. [↑](#) Woodcock, N H, and Gibbons, W. 1988. Is the Welsh Borderland Fault System a terrane boundary? *Journal of the Geological Society of London*, Vol. 145, 915-923.

Geology of the Llanidloes area - contents

[Acknowledgements and notes](#)

[Geological succession](#)

[Introduction](#)

[Geological description](#)

[Ordovician](#)

[Late Ordovician and Silurian](#)

[Structure and metamorphism](#)

Geophysics

[Cenozoic](#)

[Applied geology](#)

[Information sources](#)

Retrieved from

'http://earthwise.bgs.ac.uk/index.php?title=Geology_of_the_Llanidloes_area:_Geological_description_-_Geophysics&oldid=28719'

Category:

- [Llanidloes - the geology of the area](#)

Navigation menu

Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)
- [Request account](#)

Namespaces

- [Page](#)
- [Discussion](#)



Variants

Views

- [Read](#)
- [Edit](#)
- [View history](#)
- [PDF Export](#)



More

Search

Navigation

- [Main page](#)
- [Recent changes](#)
- [Random page](#)
- [Help about MediaWiki](#)

Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Cite this page](#)
- [Browse properties](#)

• This page was last modified on 21 June 2016, at 08:30.

- [Privacy policy](#)
- [About Earthwise](#)
- [Disclaimers](#)

