

# Geology of the Andover area: Geological setting

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**This page is part of a category of pages providing a summary of the geology of the Andover district (British Geological Survey Sheet 283), which extends over approximately 600 km<sup>2</sup> of north-west Hampshire and a small part of eastern Wiltshire.**

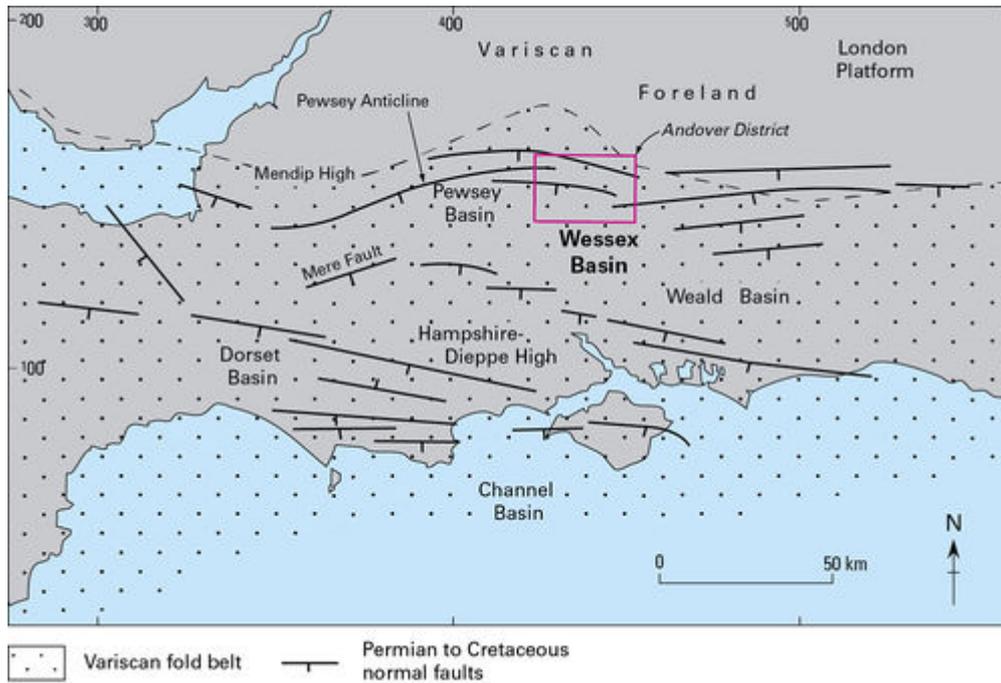
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**Authors:** J Thompson, K A Lee, P M Hopson, A R Farrant, A J Newell, R J Marks, L B Bateson, M A Woods, I P Wilkinson and N J Smith.

The basement geology consists of Palaeozoic strata that were deformed during the Variscan Orogeny – a period of compression and mountain building that culminated at the end of the Carboniferous (**Chadwick, 1986**<sup>[1]</sup>, **1993**<sup>[2]</sup>; **Chadwick and Evans, 2005**<sup>[3]</sup>). Variscan deformation, whose most significant structures were low angle northward-verging thrusts, was followed by a long period of erosion, and a major unconformity marks the base of the Permo-Triassic succession. The preserved thrusts in the basement formed the loci above which the major extensional faults of the overlying strata were formed.

Structurally, the Andover district lies within the Wessex Basin (**Figure P807820**). This basin, comprising a system of post-Variscan extensional sedimentary sub-basins and highs that covered much of southern England, influenced the deposition of strata from Permo-Triassic times through to the Cretaceous. Cycles of terrigenous and marine deposition in response to relative sea-level changes and extension through normal faulting reflect the expansion of the basin in response to the opening of the Central and North Atlantic. Subsequently widespread Palaeogene deposition associated with a more confined southern North Sea Basin effectively ended the extensional phase of the Wessex Basin. Many of the extensional normal faults preserved within the strata of southern England were reactivated in a reverse sense by compression and uplift associated with the Alpine Orogeny in the Mid Miocene. This compression produced a number of steeply dipping zones across southern England; the most northerly of which forms the northern margin to the Pewsey and Kingsclere anticlines in this district.

Much of the area is underlain by strata within the White Chalk Subgroup with the older Grey Chalk Subgroup cropping-out in the north-western and north-eastern corners of the district. Towards the southern part of the district, the younger units of the White Chalk Subgroup form a heavily dissected secondary escarpment. The Upper Greensand Formation crops out at the core of the western closure of the Pewsey Anticline in the north-west of the district and again in the north-east of the district where the structure re-emerges as the Kingsclere Anticline (**Hawkins, 1939**<sup>[4]</sup>). Both are manifestations of the major structure that forms the northern margin to the Wessex Basin (see below). In the most north-easterly part of the district, Palaeogene deposits unconformably overlie the older Cretaceous formations and form a portion of the steeply dipping southernmost margin of the London Basin.



Major structures of southern England and locations of the Andover district. P807820.

## References

1. [↑](#) Chadwick, R A. 1986. Extension Tectonics in the Wessex Basin, southern England. *Journal of the Geological Society of London*, Vol. 143, 465-488.
2. [↑](#) Chadwick, R A. 1993. Aspects of basin inversion in Southern Britain. *Journal of the Geological Society of London*, Vol. 150, 311-322.
3. [↑](#) Chadwick, R A, and Evans, D J. 2005. A seismic atlas of southern Britain - images of subsurface structure. Keyworth, Nottingham. *British Geological Survey Occasional Publication*, No. 7.
4. [↑](#) Hawkins, H L. 1939. The Geological Structure of the Kingsclere Pericline. The Eocene Succession between Kingsclere and Ecchinswell. *Quarterly Journal of the Geological Society*, Vol. 95, 235-260.

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