

# ANTRIM

**AREA OF COUNTY:** 2,844 square kilometres or 1,098 square miles

**COUNTY TOWN:** Antrim

**OTHER TOWNS:** Ballycastle, Ballymena, Ballymoney, Bushmills, Carrickfergus, Coleraine, Larne, Lisburn

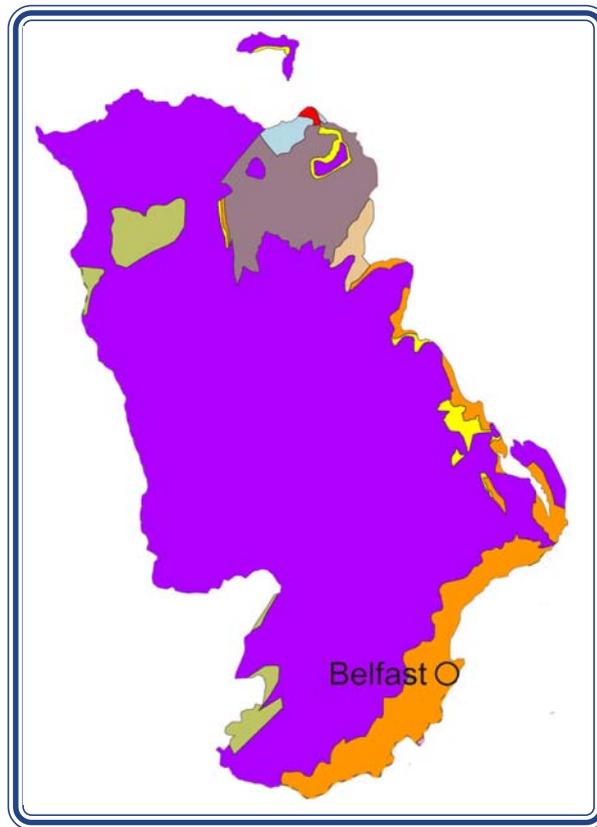
**GEOLOGY HIGHLIGHTS:** Giants Causeway, Fair Head sill, Antrim coast road, Glens of Antrim, Slemish volcanic plug, Tievebulliagh axe factory. Kilroot salt, Triassic and Jurassic sequence at Larne

**AGE OF ROCKS:** Precambrian; Devonian-Cretaceous, Paleogene



## **Polygonal columns in basalt at the Giants Causeway**

These basalts were formed some 60 million years ago and are part of more widespread lava flows that form the Antrim Plateau



**Geological Map of County Antrim**

**Pale purple:** Precambrian Dalradian rocks; **Pink:** Ordovician; **Beige:** Devonian; **Light blue:** Lower Carboniferous limestone; **Orange:** Triassic & Jurassic; **Yellow:** Cretaceous chalk; **Purple:** Paleogene volcanic rocks; **Olive green:** Paleogene Lough Neagh clays; **Red:** Paleogene Granite.

### **Geological history**

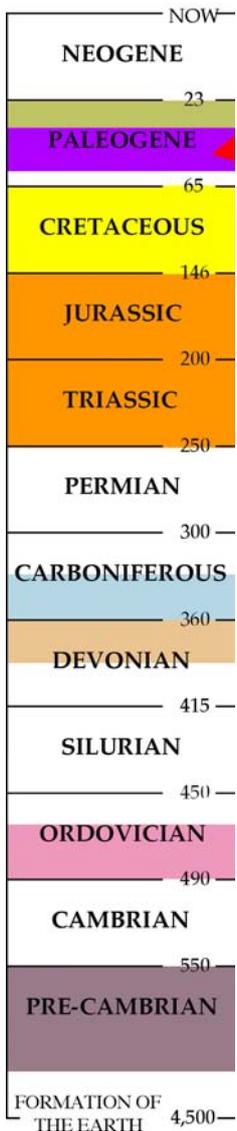
Northeast Country Antrim around Torr Head and Murlough Bay has the oldest rocks in the county, about 700-750 million years old. These are ancient metamorphosed sandstones, mudstones and limestones. These rocks have been baked and squeezed to form metamorphic schists and gneisses. They are part of a much bigger spread of these rocks across Donegal, Tyrone and across into western Scotland. A long time-gap occurs between such ancient rocks and the next series found at Cushendall and Cushendun. These rocks (red sandstones and mudstones) are about 380 million years old and formed on a land surface with relatively little plant cover because land plants were at an early stage in their evolution, when Northern Ireland lay much further south than at present. Near Ballycastle coal is found, and was mined until 1967. The coal formed in subtropical swamps (similar to the mangrove swamps of the Florida Everglades) about 310 million years ago.



**The Jurassic ammonite *Caloceras* from the Antrim coast**



**Paleogene basalt lavas above the Ulster White Limestone at Galboly, on the Antrim coast**



During the Triassic the climate was arid and large salt deposits were precipitated in shallow waters. Over time, Northern Ireland slowly drifted northwards and by about 200 million years ago, when dinosaurs ruled the Earth, County Antrim lay submerged beneath a warm, shallow, subtropical sea (similar to the Bahamas). These conditions allowed fine mudstones and limestones to form, examples of which can be seen at Larne and White Park Bay (where they contain many fossil ammonites).

By approximately 80 million years later, a deeper sea covered the area and thick, white chalk (made up of billions of microfossils, too small to see with the naked eye) was deposited. All around the coast of Antrim, and inland from Belfast to Moira, various places show the Triassic, Jurassic and Cretaceous rocks that covered the area. Differences in strength between these rocks have been a frequent cause of landslips along the coast road.

Finally, about 60 million years ago, Antrim became a very violent, volcanically active area (similar to Iceland today). Flows of hot basaltic lava were periodically erupted across the land as the Atlantic Ocean rifted open. Where these runny lavas collected in depressions they cooled more slowly to form polygonal columns like those of the Giants Causeway. This vast amount of volcanic activity not only produced the

**Geological timescale showing age of rocks in Antrim.**

Antrim flood basalts, but also released huge amounts of noxious gases into the atmosphere. Similar volcanic activity occurred all over the Earth, and it is thought that the extinction of the dinosaurs at this time probably resulted from a combination of volcanic ash and gases blocking out the sun and a catastrophic collision of the Earth with a gigantic meteorite.

## Mining



A prehistoric mining history in Antrim with Stone Age porcellanite workings at Tievebulliagh and at Brockley on Rathlin Island where volcanic rocks 'cooked' other rocks to make them suitable for knapping into stone tools and axes. Axes from here were exported as far away as to Britain and the Continent.

**Stone axe (left) and knapped fragment (right) made of porcellanite from Tievebulliagh.**

Quarries across the county today exploit the dark basalt lavas, mostly for road metal and aggregate for the construction industry, and the Ulster White Limestone, used mainly in the manufacture of cement. Beneath the surface many kilometres of mine levels at Kilroot, near Carrickfergus (pictured right), supply rock salt for putting on roads in winter for Britain, Ireland and even the east coast of the USA.



## Suggested reading

• Paul Lyle: *A geological excursion guide to the Causeway Coast*. Environment and Heritage Service, Belfast.

Map adapted with permission from Geological Survey of Ireland 1:1,000,000 map 2003.

Image credits: Patrick Wyse Jackson 1, 4 (top); Mike Simms 3 (right);

Matthew Parkes 4 (bottom); Ulster Museum 3 (left).