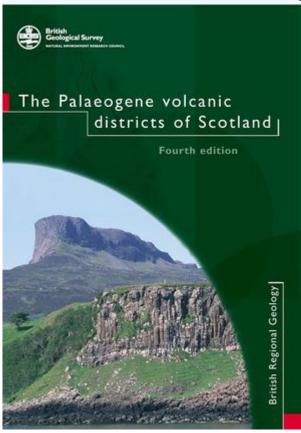
# British regional geology: The Palaeogene volcanic districts of Scotland

From Earthwise
Jump to navigation Jump to search

The British regional geology: The Palaeogene volcanic districts of Scotland has been converted to a series of articles for this wiki. The book is available for purchase at the <u>BGS Online Shop</u> Its full reference is:

Emeleus, C H, and Bell, B R. 2005. British regional geology: The Palaeogene volcanic districts of Scotland. Fourth edition. Keyworth, Nottingham: British Geological Survey.



## **Contents**

**Introduction** 

Summary of geology

**Pre-Mesozoic** 

Archaean

	<u>Torridonian</u>	
	Moine Supergroup	
	Dalradian Supergroup	
	Lower Palaeozoic	
	Caledonian igneous rocks	
	Old Red Sandstone	
	Carboniferous	
	<u>Permian</u>	
	Intrusions of Carboniferous and Permian age	
Mesozoic		
	<u>Triassic</u>	
	<u>Jurassic</u>	

#### Cretaceous

Pre-Palaeogene structure			
	Early Palaeozoic and older structures		
	Late Palaeozoic to Mesozoic structures		
Palaeogene igneous geology: regional setting			
	Timing and igneous stratigraphy		
Palaeogene lava fields and associated sedimentary rocks			
	Petrography of the lavas		
	Field characteristics of the lavas		
	Lava sequences		

**Eigg Lava Formation** 

Skye Lava Group

## Mull Lava Group

## Dykes, dyke swarms and volcanic plugs

	Dyke swarms
	Volcanic plugs
Sills and	sill-complexes
	Little Minch Sill-complex
	Loch Scridain Sill-complex, Mull
	Holy Island and Dippin sills, Arran
	Microgranitic and rhyolitic sills, south Arran
	Composite sills of Arran and south Bute
	Tighvein Intrusion-complex, Arran

Raasay Sill

Gars-bheinn Ultrabasic Sill, Skye

Other sills

## **Central complexes**

St Kilda

Skye

Rum

Ardnamurchan

<u>Mull</u>

Blackstones Bank

**Arran** 

Ailsa Craig

Rockall

## **Magmas**

	Early concepts	
	Major-element compositions	
	Contamination processes	
	Depth of magma generation	
	<u>Ultrabasic and basic magmas of the central complexes</u>	
	Minor intrusions	
	Silicic rocks	
	Magma mixing	
Palaeogene and later structure		
	<u>Major faults</u>	
	Structure of the lava fields	

#### Structures associated with the central complexes

## <u>Late Palaeogene and Neogene</u>

**Quaternary** 

Pre-Late Devensian glaciations	
Dimlington Stadial	
Windermere Interstadial	
Loch Lomond Stadial	
Sea level changes	
Other Late-glacial and postglacial features	

### **Economic geology**

#### References

## Foreword to the fourth edition

Uniquely in the British Regional Geology series, the boundaries of the area covered by this volume are not easy to define, either geographically or geologically. In broad terms it covers the northern islands of the Inner Hebrides, with parts of the adjoining mainland, plus the Isle of Arran in the Firth of Clyde. This area spans several geological terranes in which most of the pre-Mesozoic rocks are already well described in other volumes of this series. It is characterised by extensive outcrops of igneous rocks of early Palaeogene age (formerly Tertiary) and by locally thick sequences of Mesozoic sedimentary rocks that, in many places, owe their preservation to a protective cover of Palaeogene lavas. Consequently, the descriptions in this volume concentrate largely upon the geological

processes and products of the Mesozoic and Cainozoic eras. The term 'Tertiary' is no longer approved, having been replaced formally in both chronostratigraphical and lithostratigraphical nomenclature by the Palaeogene and Neogene systems/periods. However, it continues to be used informally by some authors.

The first edition of this book, by J E Richey, was published in 1935. It was revised and updated mainly by the original author in the second edition of 1948 and by A G MacGregor and F W Anderson in the third edition of 1961. At the time of the last edition, many of the tools and techniques now taken for granted in geological and geophysical research were in their infancy, and the concepts of global tectonics were hardly known. The purpose of this completely rewritten new edition is to provide an up-to-date, generalised account of the geology that is comprehensible and of interest to the informed amateur, undergraduate and professional geologist, planner or civil engineer. While the emphasis is on the fundamentals of the regional geology and, in particular, what can be seen in the field, this account also demonstrates how some of the major advances in our understanding of the area have been made possible through the application of new techniques and concepts, and for some of these this region has provided a crucial test bed. This is most apparent in the extensive geochemical investigations of the igneous rocks, which have contributed so much to our knowledge of magma generation and evolution, both in the Hebrides and worldwide. For this reason a chapter has been devoted to the subject of magmas, which the authors feel is necessary for a complete discussion of the processes involved in the evolution of this igneous province of worldwide importance.

Although an enormous amount of specialised research has been conducted in the area in the last 40 years by university workers from around the world, there has been no systematic resurvey by Geological Survey staff. However, following in the footsteps of Alfred Harker of Cambridge University in the early 20th century, resurveys of the Small Isles, parts of Skye and to a lesser extent Ardnamurchan and northern Mull have been conducted on behalf of the British Geological Survey by university staff. Almost all of this work has been by Henry Emeleus of Durham University and Brian Bell of Glasgow University, and we are very fortunate that they have pooled their collective experience, gained from this and other work in the area, to produce this new edition.

David Falvey, PhD. Director. British Geological Survey.

## Acknowledgements

This edition of British regional geology: the Palaeogene volcanic districts of Scotland has been completely rewritten by C H Emeleus of the University of Durham and B R Bell of the University of Glasgow, under contract to the British Geological Survey as part of the University Collaboration Programme (Consultancy agreement number GA/94E/19). The authors would like to acknowledge assistance from J D Hudson of the University of Leicester with the Mesozoic chapter, J W Merritt and J D Peacock of the BGS with the Quaternary chapter and K Hitchen of the BGS for advice on offshore Palaeogene igneous rocks. Information from the glass-sand mine at Loch Aline was kindly provided by Tilcon (Scotland) Ltd. M A Hamilton, University of Toronto, provided the U-Pb ages quoted in Table 8.

Scientific editing and compilation on behalf of the BGS was by D Stephenson, and manuscript review

by P Stone; the series editor is A A Jackson. Figures were produced by BGS Cartography, Edinburgh: page setting by A Hill.

Photographs were taken by the authors, unless otherwise stated in the captions; they have been deposited in the BGS National Archive of Geological Photographs.

#### Retrieved from

 $\label{lem:continuous} \begin{tabular}{l} http://earthwise.bgs.ac.uk/index.php?title=British_regional_geology:_The_Palaeogene_volcanic_districts_of_Scotland&oldid=34644'\\ \underline{Category}: \end{tabular}$ 

• Palaeogene volcanic districts of Scotland

## 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

Search Go

## **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 1 February 2018, at 11:17.
- Privacy policy
- About Earthwise
- <u>Disclaimers</u>



