

Swaledale, the Ice Age and Landscape



Copy of talk for Marske website.

If you would like to use this material (or have us talk to it) please let us know. If either of us can help we will.

To contact Stephen Clark/webmaster [click here](#).

Les Knight and Stephen Clark. Keld Resource Centre.

10 May 2026. 10am to 4pm.

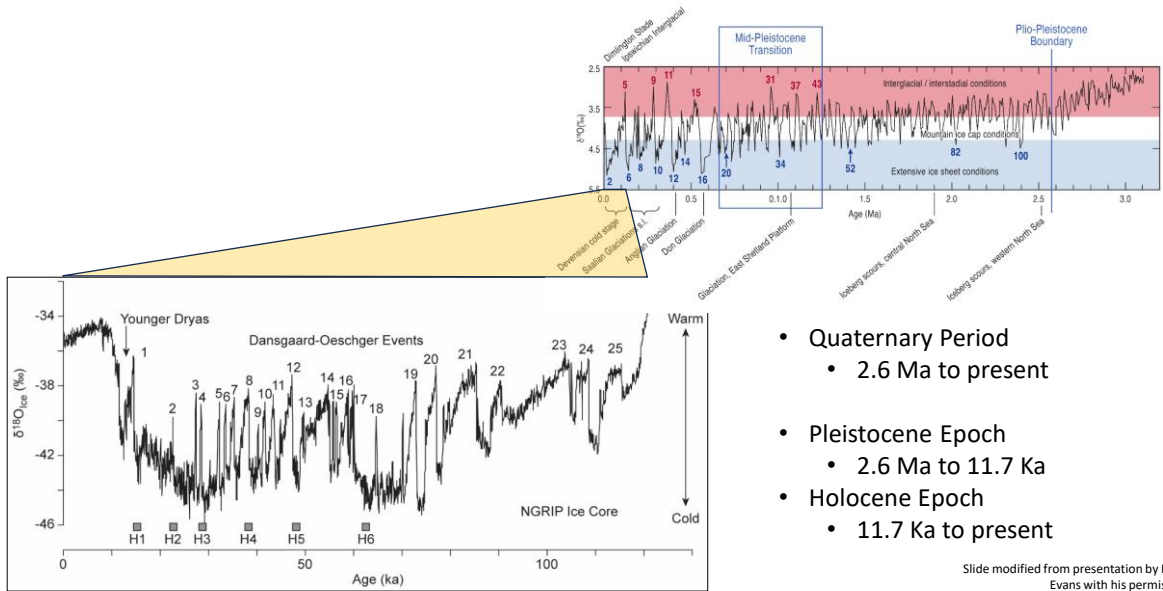
www.marskeswaledale.com

1

Swaledale and the Ice Age

2

Ice ages and The Ice Age

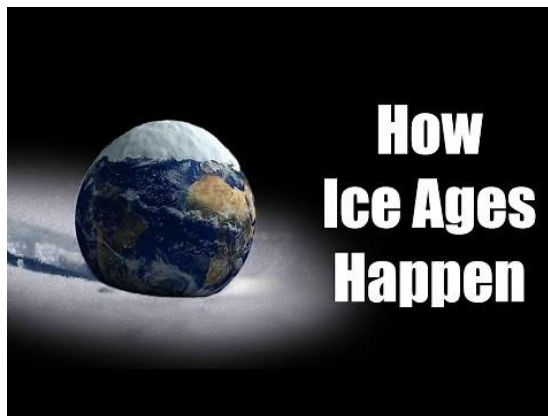


- Quaternary Period
 - 2.6 Ma to present
- Pleistocene Epoch
 - 2.6 Ma to 11.7 Ka
- Holocene Epoch
 - 11.7 Ka to present

Slide modified from presentation by David Evans with his permission.

3

What has caused these climatic cycles?



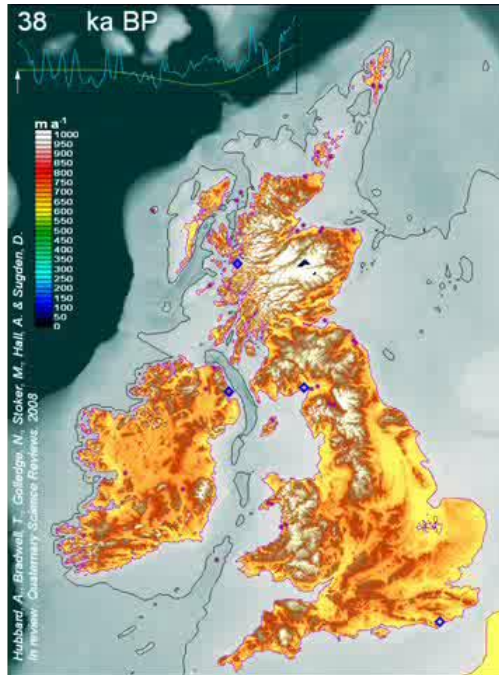
[Click here for glaciation and astronomy video](#)

Your Tube Video. By Its Just Astronomical.

4

Simulation of British Ice Sheet

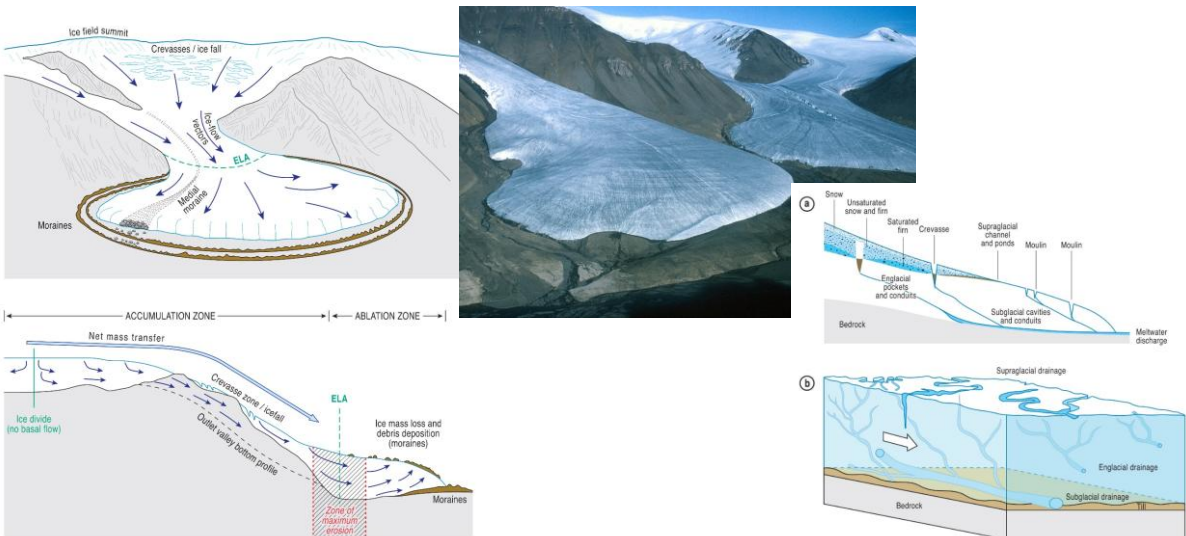
- Last ice age from 38,000 years to 10,000 years ago.
- Colours indicate *speed* of ice flow



Hubbard, A., Bradwell, T., Colledge, N., Stoker, M., Hall, A., and Sugden, D. *Quaternary Science Reviews*. 2009, p759-777.

5

How does a glacier work?



Slide modified from presentation by David Evans with his permission.

6

The North Pennines during the last glaciation

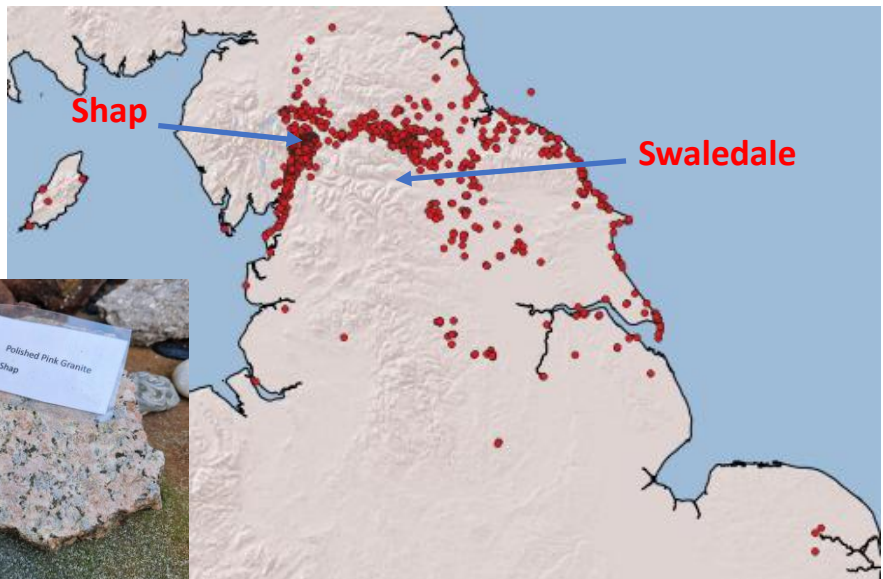


Slide modified from presentation by David Evans with his permission.

7

Glacial flow in the North and Swaledale

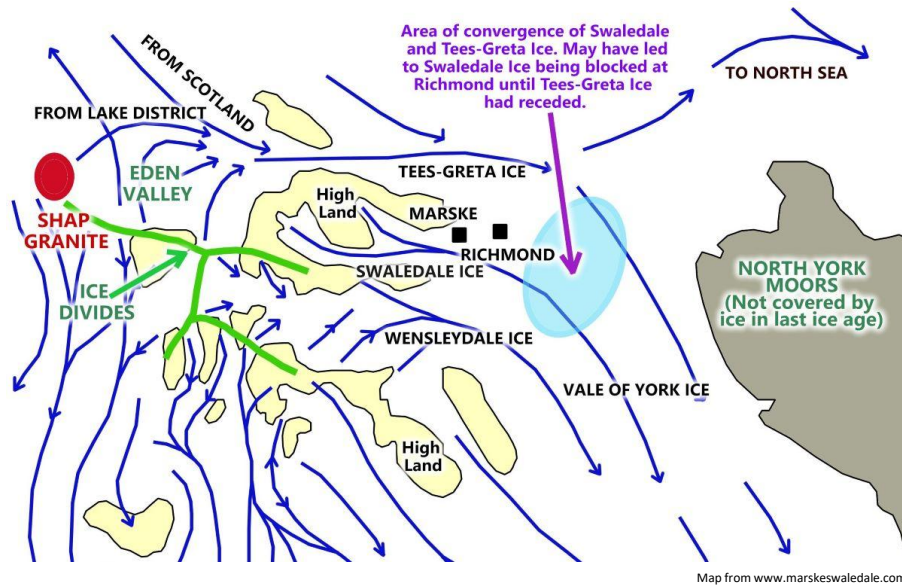
- Shap Granite erratics across North
- None in Swaledale
- Swaledale ice was isolated



Map with permission of Les Knight.
Shap granite specimen, with permission of White Hare Cafe, Kirkby Stephen.

8

Schematic map of ice flows during last Ice Age



9

A picture show of glacial landscape features in Swaledale

10

Landscapes mainly shaped during glaciation

11

Ice-scoured hillsides exposing underlying geology **Muker**



12

An erratic block (not Shap granite!)

Marske area



If you see one like this let us know: its Shap granite!



13

Glacial end moraine

Ewelop Hill, Marrick/Grinton



14

An Esker
Thwaite area



15

**Landscapes mainly during melting and
retreat of glaciation**

16

Frost shattered rocks

Ravenseat



17

V-shaped or U-shaped?

East of Reeth



18

Glacial meltwater channels

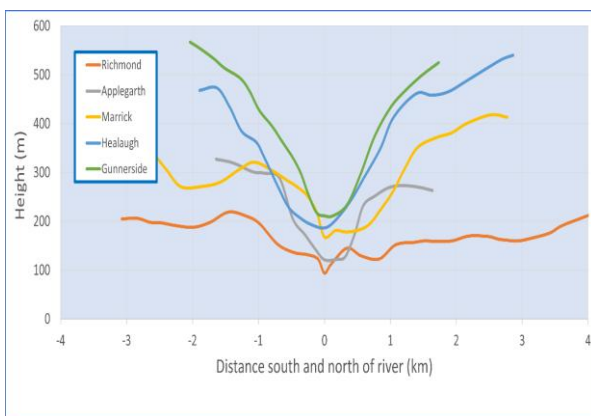
Deepdale and Harker Moss + Keld Gorge on field trip



19

V-shaped valley carved by post-glacial meltwater and/or relative changes in sea-level

Richmond



Painting from Marske Edge by George Cuit. Reproduced here with kind permission of Christies © 2001. Christies Images Limited.

20

Old river channels

Richmond and Round Howe



© Google LLC. All rights reserved. Imagery from 2018.



Painting of Round Howe by George Cuit. Reproduced here with kind permission of Christies © 2001. Christies Images Limited.

Landscapes shaped after retreat of glaciation

Landslips

Keld and Orgate



23

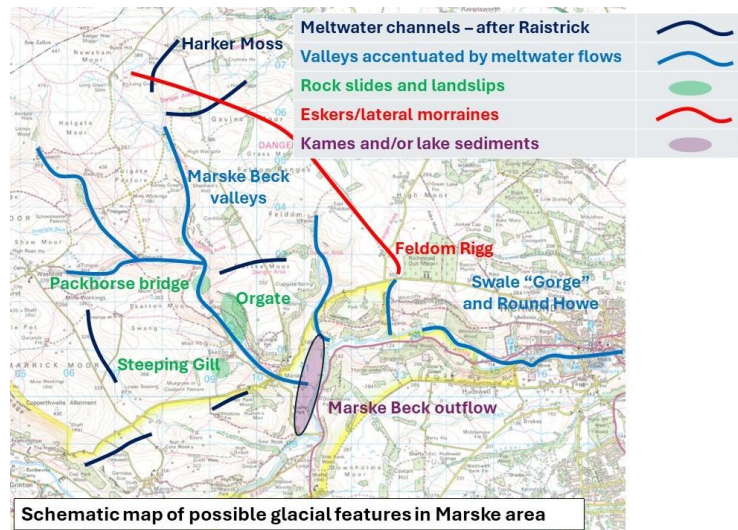
Unstable land for roads

Reeth to Richmond



24

Putting some of this together: Marske area



Map by Stephen Clark on www.marskeswaledale.com. Base map © Crown Copyright 2023. Ordnance Survey licence number 0000861910.

25



Cordilleras Lane, Marske. Painting reproduced with the permission of David Morgan Rees, and Richmondshire Museum.

26