



Itinerary for GeoWorld Travel 2023 Page 1

Wednesday 14th June - Friday 16th June

DAY 1 - UNST AND CENTRAL MAINLAND Wednesday 14th June

We will begin our tour of Shetland on the most northerly island of Unst. It is an island in two halves - the western half is comprised of Dalradian rocks from the ancient continent of Laurentia while the east is a section of oceanic crust (an ophiolite) thrust onto the continental mass when Iapetus Ocean closed around 420 million years ago.

The tour will start at Norwick beach, where the two halves meet, before visiting the Moho - the boundary between Earth's crust and the mantle. We will then explore what was once the largest chromite quarry in the UK. Our journey through the Shetland ophiolite will culminate in an expanse of serpentine desert, which is home to Edmondston's Chickweed - a plant found nowhere in the world except Unst.

Before taking the ferry south we'll take time to explore the ferry terminal area, where we can find the ophiolite shear zone.

In the afternoon we will make our way south through the Central Mainland discovering Shetland's Moine and Dalradian rocks, including limestones that tell a story of a snowball earth, and the distinctive and beautiful Valayre Gneiss. Finally we will enjoy a final view over Shetland's ancient capital of Scalloway, as we trace the line of the Nesting Fault.

Morning

Norwick Beach - continental and oceanic crust meet

Hagdale and Hamar - the Moho and lower layers of the ophiolite

Belmont quarry - shear zone

Afternoon

Kirkhouse quarry/burn - Dalradian limestones and boudinage

Grobsness quarry - Moine/Dalradian boundary

Strom Ness - cap carbonates

Scord of Scalloway - Nesting Fault viewpoint





Itinerary for GeoWorld Travel 2023 Page 2

Wednesday 14th June - Friday 16th June

DAY 2 - NORTH MAINLAND Thursday 15th June

Day two is an opportunity to get to know the North Mainland. With dramatic rugged hills, sea cliffs and stacks, this is a landscape to remember. We will begin by taking a scenic route north to Mavis Grind – a narrow strip of land with North Sea on one side and the Atlantic Ocean on the other. Between the two, a geowall provides an insight into the complex geology we will witness throughout the day, beginning with extraordinary granite and diorite mixing at the Mavis Grind quarry.

Breath-taking views may be enjoyed along the Eshaness coast as we walk through the flank of an ancient volcano and find vivid traces of its explosive past. The landscape remains dynamic today - as one of the highest energy coastlines in the world it is battered by the full force of the North Atlantic.

In the afternoon we will enjoy the beach at Braewick - granite at the eastern end is faulted against Devonian sandstones and volcanics to the west. We will then follow the magnificent Ronas Voe beneath Ronas Hill, Shetland's highest point at 450m formed as a granite pluton in the roots of the Caledonian mountains. At our finishing point of Ollaberry we will encounter the Walls Boundary Fault - the best exposure of the Great Glen Fault to be seen anywhere in Scotland.

Morning

Mavis Grind - geowall

Virdins quarry - granite and diorite mixing

Eshaness – section through volcano flank

Afternoon

Braewick Beach - Devonian volcanics and sandstones

Ronas Voe/Hill - granitic intrusion now Shetland's highest point

Ollaberry - Walls Boundary Fault





Itinerary for GeoWorld Travel 2023 Page 3

Wednesday 14th June - Friday 16th June

DAY 3 - SOUTH MAINLAND Friday 16th June

On our final day we will see some of Shetland's youngest rocks, still nearly 400 million years old! We will start with Devonian alluvial fan deposits in Lerwick before experiencing Shetland's Siccar Point - a nonconformity at Quarff. Braided river deposits may be seen as we take a walk along the Scatness peninsula. Lunch at Sumburgh head in the vicinity of a Stevenson lighthouse will afford views of dramatic cliffs teaming with seabirds including puffins, guillemots, razorbills and fulmars. This site played host to a WW2 radar station that successfully gave early warning of an attack on the British naval fleet stationed at Scapa Flow. The Old Red Sandstone cliffs are also home to *Asterolepis Thule* - a fossil fish found nowhere else in the world.

We will make the connection between geology and archaeology in the afternoon with a visit to a massive sulphide deposit that was mined in the 19th Century and a Viking soapstone quarry.

Morning

Rova Head - alluvial fan deposits

Wester Quarff - nonconformity

Scatness peninsula - braided rivers

Afternoon

Sumburgh Head - home of *Asterolepis thule*

Garths Ness - massive sulphide deposit

Catpund - soapstone quarry

