

## Fuerteventura field trip - 24 March 2019

On our last day of geology we moved to examine the central area of the island.

### 1. On the bus

As we progressed to our first stop, two aspects of the landscape were pointed out by Alan.

Firstly the large number of abandoned buildings. Most of the agriculture on the island now seems to have stopped, possibly due to the increasing cost of water. The main industry on the island is tourism, and a consequence of this is that many imported foods have become cheaper making island grown goods uneconomic.

Secondly, the large flat plain between the mountains. Originally Alan said that this was considered to be caused by two parallel faults at the base of the mountains and expansion, in the same way our own Worcester plain is formed. However, no faults were found and the modern view is that the plain is created solely by erosion.

### 2. Viewpoint - Mirador Guise y Ayose

We stood just north of the small town of Betancuria, looking east over the plains.



About 20 million years ago the northern part of the island was occupied by a large volcanic flank of more than 2km. in height. 16 million years ago this collapsed due to a large landslide. Today the remnants of the flank form a mountain range in the distance. The hillocks, where we are now stood, form the Betancuria massif. The plain in-between the two in the last two million years has been filled by new volcanic eruptions.

The Betancuria massif is a hard plutonic area, unlike the softer igneous rocks produced from the erosion of volcanic shield. This shield is what we have seen in the last three days. We are on the centre of the volcanic complex and this will be the focus on the day's field trip.

### 3. Betancuria quarry

We examined a small quarry on the outskirts of Betancuria. Composed of gabbro with some microsyenite dykes, Alan thought the rocks were probably used for road use.



Betancuria quarry. The horizontal lines are for machine extraction.



Microsyenite dyke (pale) in the gabbro (grey).

#### 4. Mirador Las Penita trail

Finally we had a reasonably long walk along the Mirador Las Penita trail. This took us to Vega de Rio Palmas - the Miocene ring complex of plutonic rocks is exposed at the heart of a very large felsic volcano. At the end of the trail we would be at the heart of the magma chamber. The rocks on the walk were alkaline in nature, meaning they contain undersaturated silica. This deficiency of silica produces pyroxinites, gabbros and syenites. As we progressed on the trail the underlying petrology altered from gabbro to syenite.



Gabbro at the start of the trail.



The dam. Over time, due to the loss of rain water, the dam has silted up.



There were abundant dykes. These are syenite dykes into the gabbro



Nepheline syenite (contains more Sodium than the normal syenite)



Syenite. Now moving into syenite petrology.



Mirador las Penitas: Vega de Rio de Palmas ring structure.