



**The newsletter of Malvern U3A Geology Group  
May 2016**

**The leader**

Kate Andrew's talk on the EHT Building Stones project was a perfect introduction to the walk she is leading on May 25<sup>th</sup> to view building stones in Malvern town centre. As a result the list of those wishing to attend is full. Realising that many of you could not attend the lecture and have not had the chance to put your name down, Kate is happy to lead a second walk if there is enough interest. So, if you would like to go on a walk around Malvern's building stones and have not already put your name down for the first walk, please let Richard Newton know. If there is sufficient interest he will negotiate a suitable date.

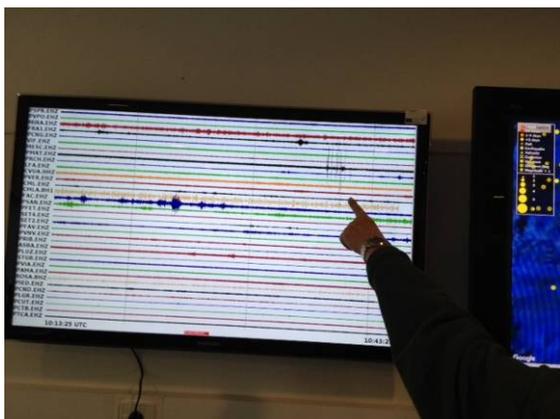
Next month's meeting on May 11<sup>th</sup> is the last of our indoor programme for this year and is an internally arranged event. The programme will include the following:

- A presentation on the Azores trip
- Rock on:
  - Rock of the month – Mary Geffen
  - Display of the Group's rock collection; view them using our microscopes.
- Reports from our Sub Groups.
- Improvement Q&A session; this is an opportunity to discuss the good and the bad with the Steering Group. So please make an effort to attend and help us to give you what you want. Possible topics:
  - The programme; indoor and outdoor
  - New members' sessions
  - Website
  - Newsletter
  - Library
  - What don't we do?

We now look forward to the summer outdoor programme. The first trip, to visit the Darrens etc on 18<sup>th</sup> May and the building stones walk mentioned above have been advertised and are fully subscribed. On 8<sup>th</sup> June, John Payne will lead a tour of the quarry locations cleared and cleaned by volunteers over the

recent months. The trip to Bude in the Autumn is now definite and work continues over the detailed administration.

As I write, the members of the group who attended the trip to the Azores are safely home after a thoroughly interesting time. We will hear more about this at the May meeting, but in the meantime here is a picture of Dick Harris pointing to a seismic trace showing evidence of an earthquake actually taking place while they were visiting the monitoring station! Apparently, the weather during the first 24 hours on the Azorean island of Sao Miguel was nothing if not exciting. They experienced thunder, sunshine, rain, hail and then this.....



Caroline Carver

### **The Hammer!**

At the last meeting I wielded a large geology hammer (see picture)! This came courtesy of Margaret Rodway who picked it up from Freegle where it was advertised as an ice axe! We have decided to give it away to any member of the Group who would like it – not that we are advocating a wholesale attack on our local rocks! So if you are interested please let me know by 6<sup>th</sup> May. I will draw lots if necessary.



### **Geology Library - how to borrow books over the summer.**

If you would like to borrow items from our library over the summer please first check the Malvern U3A Geology website, where there is a full catalogue of all the books, DVDs, maps, guides and booklets that we hold. Make a note of the item's title and reference number.

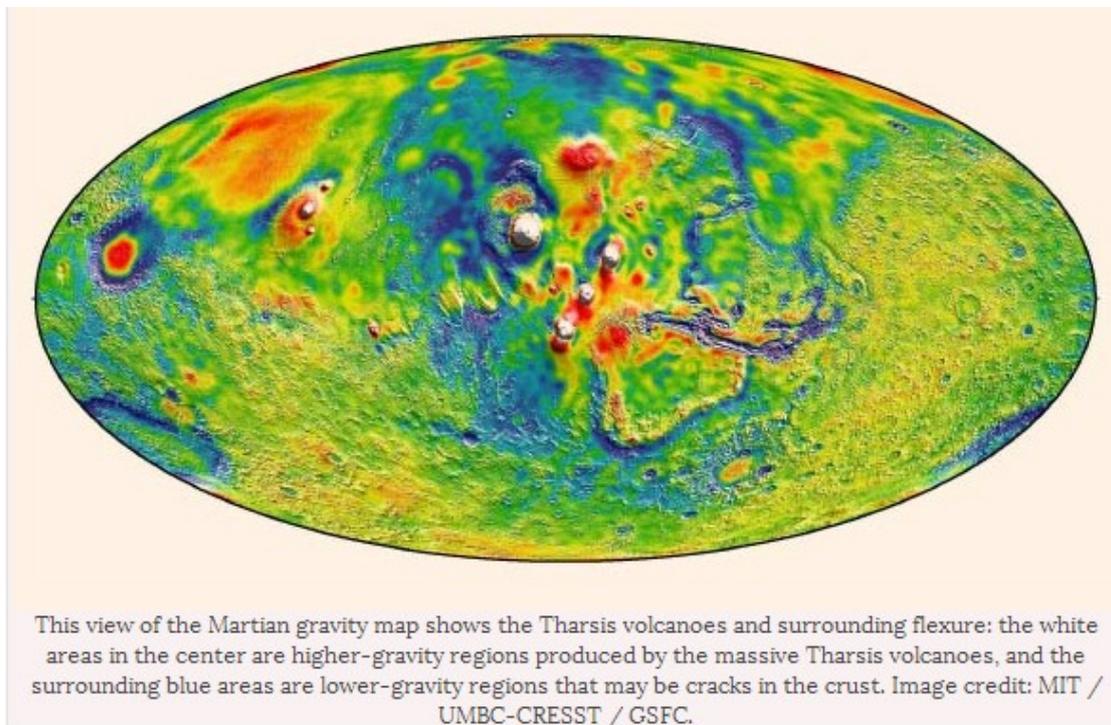
Then contact Gina Raitt on 01684 575759 (after 9.30am please) who will agree arrangements with you for collecting and returning the items that you wish to borrow.

...and finally

Attached to the email you will find a copy of the Down to Earth Extra magazine plus information about a U3A science day.

### **The geology of Mars – hot from the press, so to speak**

Well, bless them, no sooner had you read last month's news than NASA chose to release the latest updating on the geology of our near neighbour. Using data from a range of satellites, they have mapped the gravitational intensity of the planet. This is important for calculating the orbits of future satellites and also for giving us an insight into the geology and particularly the tectonics of the planet. Here is a rather odd shaped view giving a planet wide perspective:



If you would like further information then please follow this link:

[http://www.sci-news.com/space/nasa-map-mars-gravity-03720.html?utm\\_source=feedburner&utm\\_medium=email&utm\\_campaign=Feed%3A+BreakingScienceNews+%28Breaking+Science+News%29](http://www.sci-news.com/space/nasa-map-mars-gravity-03720.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+BreakingScienceNews+%28Breaking+Science+News%29)

Be assured that it is not written in scientific gobbledegook! It does also feature remarkable polar views of the planet.

### **Canarian travels**

This is the time of year when the garden is still not too demanding and the increasing day length encourages us to think about flying off southwards. If you have ever thought of visiting Tenerife but were maybe put off by concrete

developments on the south west coast? Well do give it another thought – the capital, Santa Cruz de Tenerife is a long established city with hidden charms, and then there is that magnificent volcano called Teide. Judy and Roger Smith visited recently and here is Judy’s account of this superb edifice.

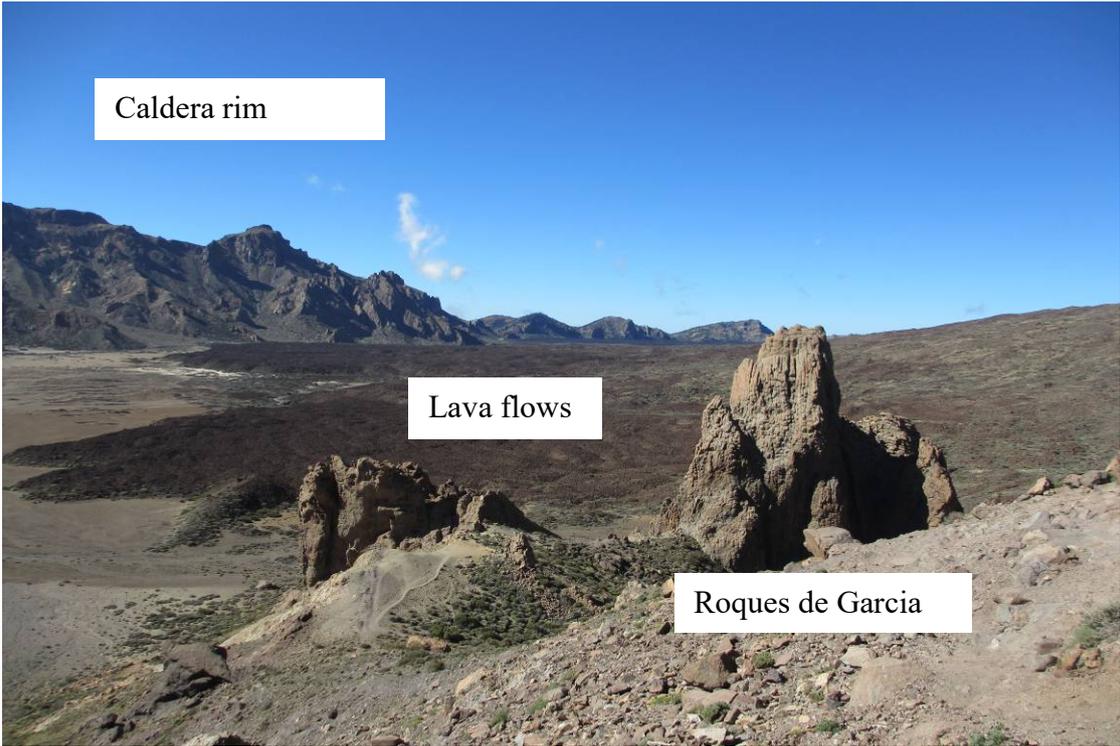
### **Mount Teide on Tenerife – well worth a visit!**

At 3,718 metres Teide is the highest mountain in Spain and in all the Atlantic archipelagos and rises steeply within 13 km of the coast. It is a strato-volcano edifice sitting on an ancient and gigantic cauldron-shaped depression made up of two semi-calderas separated by the Roques de Garcia. The top is crowned by the Pilon de Azucar (Sugar Loaf) which is still residually active in the form of fumeroles of steam and sulphur at 86 °C.

The whole of the central part of Tenerife is occupied by the grand volcanic structure called the Canadas Edifice volcano, a composite volcano, which is made up of successive layers of lava flows and pyroclasts emitted over a period of 3.5 million years – basalts, basanite, trachybasalt, phonolites, trachytes etc. These layers are exposed on the sides of the amphitheatre which is elliptical in shape and measures 16km across at its widest, 10km at its narrowest and has a perimeter of 45 km, although the later formation of the Teide – Pico Viejo volcano on the northern perimeter has obscured 22 km of the perimeter. The latest theory about the formation of the Las Canadas caldera is that there were massive gravitational landslides of over 100 cubic km of rock, especially to the north some 0.17 million years ago that formed the Canadas caldera. Evidence for this exists in the large deposits of submarine material or deposits of avalanches from the original Canadas edifice on the sea bed to the north of Tenerife. Since then, the strato cones of Pico Teide and its lower neighbour Pico Viejo were formed by explosive Strombolian and Plinian eruptions within the caldera on the northern rim: lava flows have partly infilled the floor of the caldera. The most recent significant eruption was in 1798 on the slopes of the subsidiary Pico Viejo, leaving both “aa” and “pahoehoe” lava fields.

The saw tooth profiled Roques de Garcia are an outcrop of lavas with highly resistant dykes and phonolitic towers weathered by temperature change and frost action and eroded by rain and wind. The Cinchado rock is the most striking block – its layers showing the varying resistance to weathering and erosion. Its image even appeared on the old 100 Peseta banknote. In 2007 Mount Teide and its surrounding National Park was added to the UNESCO World Heritage Site list.





## Rock (s) of the month

This month we have two offerings. The first is provided by Mary Geffen who has written a piece about Leckhampton ragstone and its fossils. I have attached this article to the email in order to keep the size of the newsletter manageable - it is well worth a read.

The second is going to be a bit of a treat if you are interested in minerals and especially rare ones. It is a report about the rarest minerals on the planet; some are so rare that they only occur in one location. Follow the link and enjoy!

<http://www.bbc.co.uk/news/science-environment-35569659>

## Odd geological terms

You don't have to take an interest in geology for very long before you start coming across some rather unusual words. How about aa for starters, that cropped up in Judy's article or Barchan or Nappe? Well, be puzzled no longer, here is an explanation of a beautiful Nappe.

The Dent de Morcles - when the large nappes of rock detached from the lower crust and were pushed up and folded like a tablecloth to form the Alps during Africa ongoing slow motion collision with Eurasia, the sediments of the now defunct intervening Tethys Sea became mountains. The rocks ground and heaved into their current folded positions, including these marine Mesozoic (65-245 Ma) limestones that now form this 2969 metre peak in the Bernese Alps of Switzerland. They have been folded so powerfully as the nappe pushed onto the Eurasian crust that these rocks are nearly now upside down relative to their depositional position, and are now part of the limb of a recumbent fold.

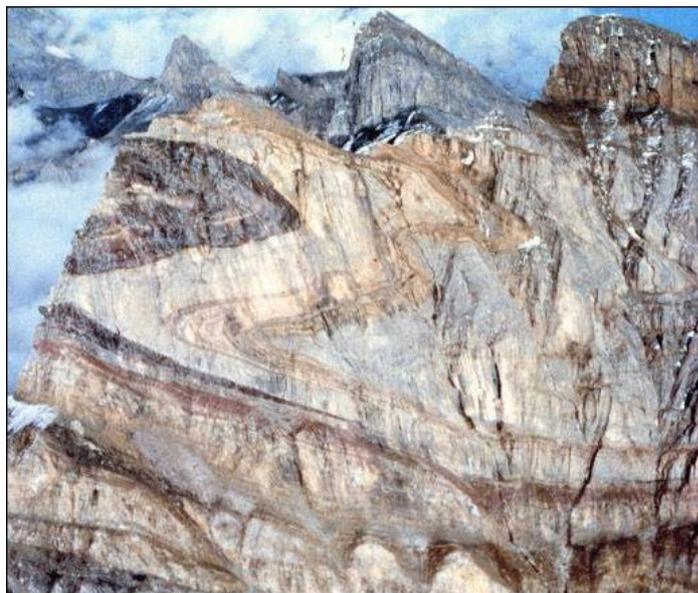


Image credit: Globe at Night via EPOD

## **A dictionary of geological terms**

So just in case things do get a bit complicated of recumbent folds, here is a link that takes you to a dictionary provided by Iowa State University:

<http://www.ge-at.iastate.edu/glossary-of-geologic-terms/>

## **From the group's website**

The word "calendar" in the following link gives a small clue and in this case it's the calendar of our sunny season field trips. Please note a new date for John Payne's walk.

<http://geology.malvernu3a.org.uk/calendar/index.htm>

## **Who's who?**

### **Steering Committee**

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### **Subgroup contacts**

#### **Fossils**

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#### **Landscape Appreciation**

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#### **Maps**

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#### **Plate Tectonics**

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#### **Library**

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<http://geology.malvernu3a.org.uk/>