



## Bulletin of the North Staffordshire Group of the Geologists' Association Number 111 : October 2014



### WINTER LECTURE PROGRAMME 2014/15

The committee invites you to join them for a meal at 6pm in the "The Refectory" (formerly Comus - 01782 734121) to entertain the speaker before each lecture (except the AGM and Christmas Social). Please make your own booking with the restaurant mentioning that you wish to join the NSGGA party

**Thursday 9 October at 7:30pm :**      **'Living in Europe's Supervolcano: Volcanic Hazards and Emergency Management in the Bay of Naples'**  
**Speaker: Dr Martin Degg (Chester)**

**Please note that due to the popularity of this lecture, this will be held in the Alan Gemmell Lecture Theatre in the Huxley Building**

The Bay of Naples is arguably the world's riskiest volcanic region because of the high densities of population (among the highest in Western Europe) living in close proximity to two active volcanic centres, Somma-Vesuvius to the east of Naples city centre and the Campi Felgrei 'supervolcano' complex to the west. The former is best known for the Plinian eruption that it generated in 79AD entombing the Roman towns of Pompeii and Ercolano, and for an almost continuous phase of effusive activity that characterised the volcano from 1631 to 1944. The latter is generally poorly appreciated beyond southern Italy, despite the obvious risks associated with over 600,000 people living in an active volcanic caldera.

This talk examines the recent volcanic histories of these two zones, and seeks to characterise the hazard management challenges each presents with reference to some of the controversy and debate surrounding the National Emergency Plan (NEP) for Naples. The talk also seeks to shed light on some of the distinctive socio-economic and cultural influences on emergency management planning in this geologically and geographically fascinating part of Europe.



Naples & Vesuvius (Image : Massimo Finizio / Wikimedia Commons)

## The Fourteenth Wolverton Cope Lecture

Thursday 13 November at 7:30pm :

**'Earth After Us'**

Speaker: Dr Jan Zalasiewicz (Leicester)

Lecture in WS0.06 William Smith Building, Keele University

It is one hundred million years into the future. Human civilization has long disappeared. Alien explorers finally discover the Earth. What will they find? Analysing the Earth's history, they will uncover a story of glaciations and of greenhouse worlds, of the rise and destruction of mountain belts, of the evolution of countless life-forms. But, within this almost unimaginably long and dramatic narrative – will they encounter... us? We consider the evidence.

## Christmas Social at Keele Sustainability Hub

Thursday 11 December at 7:00pm : **Christmas Social with talk 'A Taste of Iceland'**

Speaker: Eileen Fraser

As well as Eileen's talk, there will be a quiz, the judging of the photographic competition and 'Bring your own geology' displays. Tickets, including a buffet meal with a free glass of wine cost £12 each. Please complete the booking form on page 23 of this bulletin and return with payment to Brenda Kay by post by Friday 14 November or in person at the October or November meetings.

## 2015 Lectures

Thursday 15 January at 7:30pm : **'Dinosaur Embryos'**

Speaker: Dr John Nudds (Manchester)

Thursday 19 February at 7:30pm : **'Sinking Cities'**

Speaker: Dr Tony Waltham (ex Nottingham-Trent)

Thursday 12 March at 7:00pm : **AGM & 'Tunisian Tales Part II'**

Speaker: Dr Patrick Cossey (Chair's Address)

## The NSGGA on Social Media



The NSGGA is finally embracing the digital social media age. You can now 'Like' us on Facebook at <https://www.facebook.com/NorthStaffsGA> or follow us on Twitter @NStaffsGA

## A Word From The Chairman

It's that time of year again! With the summer's field excursion programme now over we look forward to the beginning of our winter's lecture programme with some excitement. With lecture topics ranging from volcanic hazards and sinking cities to dinosaur embryos and the 'Earth after Us', it sounds as if we are in for a real treat - a thought-provoking list if ever I saw one. We hope you will support the programme. So, we hope to see you all there and if you'd like to bring a friend along too, they would be more than welcome.

## The Photographic Competition

**The deadline for the submission of entries to this year's competition (October 31) fast approaches - so if you haven't done so already please get those entries in now before it's too late.**

Remember, the competition theme is 'UK and Irish Geosites (a geosite in this context 'could be a classic outcrop or a beautiful landscape. It could also include geo-engineered sites of economic importance, museums, structures featuring striking building stones or sites of significance to the history of geology or our geological industrial heritage'). Please send your entries through to [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk) as email attachments (a maximum of 3 digital images per person) as soon as possible. Entries are open to all NSGGA members and GeoConservation Staffordshire volunteers. For further details about our competition please see the rules & guidelines provided on page 4. **Note that we do still need more entries for the competition to be successful, so please, keep them coming in !**

## The Christmas Social

Following the success of last year's experience, this year's Christmas Social is once again being held in the Earth Observatory room at 'The Hub', Keele University's sustainability building at Home Farm just inside the University grounds close to the main entrance (see map and booking form on page 23). Among the range of 'Social' activities planned are: the results of this year's Photographic Competition (those attending vote for the winner), an illustrated talk by Eileen Fraser on 'A Taste of Iceland', a short quiz and members' geological displays (small display of rocks / minerals / fossils, old photographs, documents, books or maps, that sort of thing). Members wanting display space are asked to let the Chairman know roughly how much table display space (1/2 table - 1 m<sup>2</sup>; 1 table - 2m<sup>2</sup>) in advance ([patrick.cossey54@gmail.com](mailto:patrick.cossey54@gmail.com)) so that we can organise tables accordingly. And there's the buffet too - some good food and a glass of whatever you fancy to wash it down with - a festive feast for everyone!

## A new Vice-Chairman

Finally, we begin the winter season with the great news that Dr Ian Stimpson has agreed to become my successor as Chair of the Group when my term elapses at the AGM next March. Ian very kindly offered his services over the summer period and was duly co-opted on to the Committee in the role 'Vice Chairman' (and Chairman elect) for the remainder of 2014-15 'committee year' at a recent committee meeting. I am sure I speak for others when I say that we are extremely indebted to Ian for agreeing to take on this role (perhaps especially as with time it will become his 2nd term as Chair of the Group) and we thank him sincerely for doing so. Good luck Ian and we wish you every success.

*Patrick. J. Cossey*

## NSGGA PHOTOGRAPHIC COMPETITION 2014 – LAST CHANCE TO ENTER!

The theme for our second photographic competition is UK and Irish Geological Sites (Geosites). The Geological Society of London and partner organisations are celebrating our geo-heritage by launching a list of 100 Great Geosites across the UK and Ireland as part of Earth Science Week 2014.

So what is a 'Geosite'? A Geosite could be a classic outcrop or a beautiful landscape. It could also include geo-engineered sites of economic importance, museums, structures featuring striking building stones or sites of significance to the history of geology or our geological industrial heritage. The only rules are that the site is in the UK or Ireland, and can be visited by the public.

**Torres del Paine, Patagonia by Liz Hurst – Last Year's NSGGA / GCStaffs Photographic Competition Winner**



You can find out more about the GSL initiative at [www.geolsoc.org.uk/100geosites](http://www.geolsoc.org.uk/100geosites), their Facebook page [www.facebook.com/100geosites](http://www.facebook.com/100geosites), on Flickr [www.flickr.com/photos/99330142@N05/](http://www.flickr.com/photos/99330142@N05/) or search for the #100geosites hashtag on Twitter.

Entries in a digital format will be accepted via email to Ian Stimpson at [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk) together with your details in the format specified below, to arrive by the 31 October, 2014 closing date. A 'judging panel' will select '12 best photographs', these to be presented at the Christmas Social where all attending will have the opportunity of voting for the eventual winner(s). A small prize will be awarded to the winner of the competition and to the runner up.

## COMPETITION RULES

1. Entry restrictions: This year the competition is only open to NSGGA members and GeoConservation Staffordshire volunteers. The competition is not open to professional photographers. Entries cannot have either won a previous competition or been previously sold. Members of judging panel are excluded from the competition.
2. Electronic editing: Images may be cropped, enlarged and digitally enhanced to remove spots and scratches only but any further digital manipulation of images will be regarded as unacceptable.
3. Entry format: Digital images in jpg/jpeg format only. Images should have a minimum dimension of at least 500 pixels in either height or width but there is no maximum size.
4. Number of entries: Three maximum.
5. Entry submission: Images should be sent as email attachments to Ian Stimpson at [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk) with the body of the email containing your details and your image details as set out below.
6. Judging: A judging panel of three (the NSGGA chairman, a representative from GCStaffs and one other invited person) will select the '12 best photographs' from anonymised entries. The competition winner(s) will be determined by participants (members, GCS volunteers and guests) voting at the Christmas Social. All attending the 'Social' will be eligible to vote at this meeting. Entrants (and family members of entrants) whose images have been 'shortlisted' as a potential winning entry will be barred from voting for their own entries (or those of family members). In the event of a draw the Chairman (or the Chairman's nominee) will have a casting vote. The judging panel reserves the right to exclude any entry they consider in breach of the competition rules. The judges' decision will be final.
7. Copyright matters. Entrants will retain copyright to their images but by entering them into the competition they grant permission for the NSGGA and GCStaffs to reproduce the photographs free of charge in/on any NSGGA/GCStaffs bulletin, website, calendar, geotrail or other publicity material. Due acknowledgement of the copyright holder (photographer 's name) will appear alongside any images used in this way.

## COMPETITION ENTRY

Please copy the following text into the body of your email entry and complete with your details, your photograph details and send, attaching up to three photographs, to [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk) with the subject "NSGGA Photographic Competition 2014" by 31st October 2014

Name:

NSGGA Member / GCStaffs Volunteer [state which]:

I understand that by entering this competition I retain copyright to the images but grant permission for NSGGA / GCStaffs to publish any photograph, with due attribution, free of charge.

Entry 1 : Title

Entry 1 : Location

Entry 2 : Title

Entry 2 : Location

Entry 3 : Title

Entry 3 : Location

## FIELD TRIP REPORT

Sheringham, Norfolk. May 24-26 2014, Leader Richard Waller.

North Norfolk is renowned for its spectacular coastline which displays a range of impressive geomorphological features and modern sedimentary environments. In places, rapidly eroding cliffs have provided excellent sections in a variety of Quaternary deposits including a sequence of ancient glacial sediments dating from the Anglian glaciation. The main purpose of the field excursion was to examine evidence for the impact of Quaternary ice sheets on the geology of the coastal area including remarkable examples of large-scale glacitectonic deformation. Our excursion leader, Dr Richard Waller, had planned an informative two-day itinerary to highlight some of the area's key geological features. There was even an alternative non-geological option for interested members of the group in that Carol Stimpson had kindly offered to present informal landscape painting workshops at selected localities. For those with cameras, many of the localities visited on the excursion were extremely photogenic. In addition to the images contained in this report, a further set of photographs appears in Bulletin Number 110 (July 2014).

### Friday 23<sup>rd</sup> May

The field party was based at the Burlington Hotel, The Esplanade, Sheringham (TG 156435). With its cliff top position directly overlooking the North Sea and its close proximity to coastal defences, the hotel was an appropriate location from which to consider evidence for ancient and modern environmental change. Overall, our group comprised some 20 NSGGA members, partners and friends. The excursion started on the Friday evening with an illustrated after-dinner talk by the leader. This introduced us to the Quaternary geology and geomorphology of North Norfolk and gave an insight into the complexities of soft-bed glaciology. The associated information booklet prepared by Richard included a useful review of why the 'Contorted Drift' and associated features of North Norfolk have been the focus for more than a century of scientific research. The booklet also contained an outline itinerary, a risk assessment document, a Quaternary stratigraphical table and a series of explanatory diagrams relating to Quaternary palaeoenvironments and glacitectonic processes. The key sites and themes to be explored were identified as follows:

**Site 1: 'Beeston Bump' (Saturday)**

*Overview of the local and regional geomorphology.*

**Site 2: West Runton (Saturday)**

*Cromer Forest Bed and the West Runton "elephant".  
The "contorted drifts": an introduction to glacitectonics.*

**Site 3: Overstand (Sunday)**

*Ice-bedrock interactions and the entrainment of chalk rafts.*

**Site 4: The Blakeney Esker (Sunday)**

*The work of glacial meltwaters.*

## Saturday 24<sup>th</sup> May

Our scheduled departure from the hotel on Saturday morning was slightly delayed by an untimely shower of heavy rain. However, as soon as this had passed over, we were treated to an extremely pleasant walk eastwards along the coast to 'Beeston Bump' (TG 168433) a small but prominent hill rising to 63m AOD. This elevated vantage point afforded an excellent panoramic view of the coastal zone (Fig 1). Our leader pointed out several significant geomorphological features including the undulating cliff-top plain to the east towards Cromer (a possible relict subglacial surface), a number of low hills (which were likened to kames) and the pronounced Cromer Ridge (a large push moraine) lying just to the south. Members of the party commented on the remarkable state of preservation of these glacial landforms and discussed why they were still so evident in the landscape after a passage of some 430,000 years.

The group then walked along the cliff-top path to the slipway at West Runton (TG 186432). From here we continued eastwards for a short distance along the beach to the type locality of the 'Cromer Forest Bed' representing a temperate interglacial stage (the Cromerian) prior to the Anglian glaciation. At TG 188431 we examined an organic-rich sequence of Cromerian deposits exposed along the base of the cliff. These were seen to be particularly rich in non-marine molluscs (Fig 2) and deposition is considered to have occurred in a shallow oxbow lake on a floodplain. Amongst the numerous invertebrate and vertebrate fossils recovered from these deposits in the past, perhaps the most famous was the West Runton 'Elephant' discovered in the early 1990s as a result of cliff erosion. Surviving parts of the skeleton were subsequently excavated by the Norfolk Archaeology unit supported by a grant from the National Lottery Fund and may be seen in Norwich Castle Museum. They proved to belong to a large mammoth (*Mammuthus trogontherii*) which is estimated to have been about 4 metres high and around 10 tonnes in weight (Fig 3).

Lunch was taken at the West Runton Beach Cafe which was conveniently located on the slipway at the end of Water Lane. The cafe offered a range of food and drinks and was a good place to reflect on the dramatic coastal scenery. Fully refreshed, we then walked westwards along the beach towards Sheringham. However, our progress was soon halted by the sight of spectacular geological features that were evident on the foreshore and in the cliff face. Members were intrigued by paramoudra flints (pot-stones) and related flint circles seen on the scoured surface of the Chalk below the high water level. These are considered to be trace fossils of the burrows of an unknown animal (*Bathicnus paramoudrae*). Also noted on the Chalk were gravels with large diameter flints, in some cases iron-cemented and possibly representing remnants of the Wroxham Crag. In the cliff face were excellent sections of Anglian tills displaying banding which has been attributed to sub-glacial shear. In places the banding was highly contorted (Figs 4 & 5) and the deformation also affected included blocks of chalk, some of which were large. Processes such as glacitectonic thrusting and over-pressuring of the sediments beneath the ice sheet were debated as possible causes. Sand intraclasts, locally gravelly, found within the contorted sediments were considered to be evidence for the subglacial deformation of contemporary permafrost (Waller

et al., 2011). Also notable were a number of large 'sand basins' containing relatively undeformed sediments (Fig 4). Possible mechanisms such as scour by subglacial meltwaters or sediment loading of water-laden tills were discounted in favour of a concept of deposition in troughs formed between glacitectonic thrust blocks. The structural complexity displayed in cliff sections was fascinating and there were some mystifying contact relationships (Figs 6 & 7). Models for the formation of the 'contorted drift' were enthusiastically debated with the help of explanatory diagrams drawn on-site by Ian Stimpson. Reference was also made to the QRA glacitectonics field guide (Phillips et al., 2011). After an exhilarating walk with much more to see en route, Sheringham was eventually reached in warm sunshine.

### Sunday 25<sup>th</sup> May

On Sunday morning we travelled via Cromer to Overstrand, approximately 9 km ESE of Sheringham. From the cliff-top car park (TG 246 411) we made our way to Overstrand beach and walked south eastwards noting evidence of cliff instability (Fig 8) and recent storm damage to sea defences (groynes, revetments and gabions; Fig 9).

Soon we reached a well exposed sub-vertical cliff section (TG 256 404) which displayed large masses of displaced and now tilted slabs of bedrock (Chalk rafts) together with associated low angle thrusts (Fig 10). There was much discussion of likely glacitectonic scenarios. For example did the rafts result from ice contact with a palaeo-cliff or with a negative topographic feature? Consideration was also given to other contributory factors such as the thermal regime of the ice, permafrost conditions and porewater pressure. Reference was made to recent publications (e.g. Burke et al., 2009; Phillips et al., 2011).

Of particular note at this locality was a fresh section of Wroxham Crag which was well exposed above the higher of the Chalk rafts. Wind winnowing had picked out the presence of cross bedding and other sedimentary structures. After examining the variety of features on display, we eventually retraced our steps to the car park and took a break for lunch.

In the early afternoon, the group reconvened in the car park at Wiveton Down Local Nature Reserve (TG 032421), 13 km WSW of Sheringham. The main aim here was to view the Blakeney Esker. This sinuous, gravelly ridge extends for 3.5 km south eastwards from the coast near Blakeney towards the village of Glandford. It varies between 40 and 100 m in width and rises to approximately 20 m above the surrounding land surface. We examined a section showing gravels inclined toward the NW (Fig 11) and debated different ways in which the landform might have formed (Fig 12). The previous discovery of Nye channels below the gravels and aligned sub-parallel to the ridge was key evidence for the feature having been interpreted as an esker. However, questions raised in discussion related to the age of the feature and the extent to which a lowland glacial landscape would have been modified by subsequent erosional processes. We also discussed the effects of recent gravel extraction on this landform and considered its educational value, including the problems associated with geoconservation. Attention was drawn to a useful BGS online educational resource on the Blakeney Esker:

<http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/blakeneyEskerExplored/climateChange.html>

The excursion finished at this point. In proposing a vote of thanks on behalf of the entire group, Dr Patrick Cossey commented on the infectious enthusiasm for glacial features demonstrated by the excursion leader and on the care taken to explain to participants the complexities of the Quaternary geology. He also commented on the willingness of members of the party to join in the debate and make contributions to the discussion. Thanks were extended to Dr Ian Stimpson for so ably assisting Richard in the field and particularly for his informative hand-drawn field diagrams used to explain how the style of deformation could be related to glacio-tectonic processes. In response, Dr Richard Waller stated what a pleasure it had been to conduct the field excursion and thanked members of the group for their considerable interest and contributions. Thanks are also due to Brenda Kay and Steve Alcock for dealing with the hotel booking arrangements, to Dr Patrick Cossey for acting as field secretary throughout the weekend and to the Burlington Hotel manager (Mr Steve McDermott) and staff for making our stay so comfortable.

Overall, this was an exceptionally well organised and most enjoyable residential field excursion. We saw some fascinating geology which provided much scope for future reflection. In his introductory booklet, Richard stated that he hoped the excursion would provide "...an insight into the extraordinary and sometimes bewildering complexity of ancient glacial environments". It certainly achieved that, and doubtless whetted our appetites to find out even more.

## References

- Burke, H., Phillips, E., Lee, J.R. and Wilkinson, I.P. 2009. Imbricate thrust stack model for the formation of glaciotectionic rafts: an example of the Middle Pleistocene of north Norfolk, UK. *Boreas*, 38, 620-637.
- Gale, S.J. and Hoare, P.G. The Blakeney Esker. In: Candy, I., Lee, J.R. and Harrison, A.M., *Northern East Anglia QRA Field Guide.*, pp205.
- Phillips, E., Lee, J.R. and Evans, H.M. (eds) 2011. *Glaciotectionics - Field Guide*. Quaternary Research Association, 263pp.
- Waller, R.I., Murton, J.B. and Kristensen, L. 2012. Glacier-permafrost interactions: processes, products and glaciological implications. *Sedimentary Geology*, 255, 1-28.
- Waller R, Phillips E, Murton J, Lee J, Whiteman C. 2011. Sand intraclasts as evidence of subglacial deformation of Middle Pleistocene permafrost, North Norfolk, UK. *Quaternary Science Reviews*, 30, 3481-3500

Peter Jones



Figure 1. View from 'Beeston Bump' of eroding cliffs, coastal plain and Cromer Ridge to right. Photo: Peter Jones



Figure 2. Shelly organic mud, West Runton Freshwater Bed. Photo: Peter Jones



Figure 3. Part of Natural England's public information board at West Runton with a reconstruction of the 'elephant'.



Figure 4. Curved contact between contorted glacial sediments (left) and sand basin (right), Photo: Peter Jones.



Figure 5. Detail of deformation shown in Fig 4. Photo: Peter Jones.



Figure 6. Cavity showing contact between stratified sands and deformed glacial deposits.



Figure 7. Close-up of contact exposed in the cavity. Photos: Peter Jones



Figure 8. View from Overstrand towards Cromer pier showing cliff instability and coastal defences. Photo: Peter Jones



Figure 9. Storm damage to gabion baskets at Overstrand. Photo: Peter Jones



Figure 10. A thrust raft of Chalk bedrock with overlying and underlying Wroxham Crag at Overstrand. Photo: Peter Jones



Figure 11. Exposure of gravelly sediment in the Blakeney Esker. Photo: Peter Jones



Figure 12. Wiveton Down: discussion of the origin of the Blakeney esker. Photo: Peter Jones



Figure 13. The field group on Wiveton Down at the end of the excursion. Photo: Peter Jones



Figure 14. Isoclinal antiform in deformed glacial sediments, Cromer. Photo: Peter Jones

## Report on the public event held at Park Hall Country Park 6<sup>th</sup> September 2014.

Many NSGGA members will be very familiar with the geological features exposed in Park Hall Country Park and with the nature trail leaflet which describes them. On Saturday 6<sup>th</sup> September, there was an opportunity for other visitors to view the evidence for how the Park Hall landscape has changed through 350 million years of Earth history. This public event took the form of a geological walk led by Dr Patrick Cossey. Starting at the main visitor centre car park at 10.30 am, we visited a wide range of locations which allowed the leader to trace the history of palaeoenvironmental change from late Carboniferous times to the Quaternary, with particular emphasis being placed on the desert conditions of the Triassic period. We also took advantage of the excellent views of the surrounding area to discuss the impact of Quaternary glaciation on the local landscape. The geological history of the Park was well illustrated by a series of new diagrams which the leader had prepared for the event. A follow-up event on Saturday 1<sup>st</sup> November will focus on practical geoconservation work in the Park. This is being co-ordinated by Park Hall's Countryside Team.

*Peter Jones*



Figure 1. Survey of the surrounding landscape by human and canine members of the group. Photo: Peter Jones.



Figure 2. Interpretation of the evidence for palaeoenvironmental change. Photo: Peter Jones.

## SUMMER FIELD PROGRAMME 2015

Our field programme for 2015 is currently being arranged. Please pass on any suggestions for future trips to our field secretary Steve Alcock as soon as possible via e-mail ([steves261@aol.com](mailto:steves261@aol.com)),

## GEOCONSERVATION NEWS

### Geoconservation Day in Hulme Quarry National Nature Reserve at Park Hall Country Park (10am-12noon and 1pm-3pm). Saturday, 1st November, 2014

Join the Park Hall Environment Team for a day of practical conservation work to help maintain Park Hall's nationally important rock faces. Please wear outdoor clothes, boots and gloves. All tools and full supervision will be provided. Meet at the main visitor centre car park (OS grid reference SJ 930447), off Hulme Road, Weston Coyney at 10am and 1pm. Sessions last approximately 2 hours. Bring a packed lunch if you would like to stay all day!

### Geoconservation Day at Brown End Quarry, Waterhouses Sunday 16th November, 2014 (11am to 3pm) – to be confirmed

Following GeoConservation Staffordshire's successful Spring site clearance event at Brown End Quarry jointly with Staffordshire Wildlife Trust, GCStaffs are planning a follow-up event this November to clear some of the remaining vegetation from in front of the Tournaisian-Visean boundary and clean up the Hopedale Limestone section. If you would like to join up with the extreme gardening team please e-mail your interest to [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk) and we will confirm the joining details closer to the date.



Site Clearance at Brown End Quarry. Image Sarah Taylor

## Other Societies

### Geologists' Association

Lectures are held at Geological Society of London, in Burlington House, Piccadilly but the lectures are available to view by members of the GA online via their website.

**Friday 3 October @ 18:00**

The Incredible Story of the Stone Pipe Company  
1805-1815, London, Manchester and Dublin –  
Hugh Torrens (Keele University)

**Saturday 1 – Sunday 2 November** "Festival of Geology" – University College, London  
More details at [www.geologistsassociation.org.uk](http://www.geologistsassociation.org.uk)

### Black Country Geological Society

Indoor meetings are held at Dudley Museum & Art Gallery, St James's Road, Dudley

**Sunday 5 Oct & 2 Nov 10:00 (field)** Geoconservation days at Saltwells Nature  
Reserve – Alan Preece

**Monday 20 Oct. @ 20:00 (indoor)** The Island of Rum, Diary of a 60 Million Year Old  
Magma Chamber in 2014. - Dr Brian O'Driscoll  
(Manchester University)

**Monday 17 Nov. @ 20:00 (indoor)** The Galapagos - geology, fauna and flora - Dr  
Les Riley (Consultant Stratigrapher)

More details at [www.bcgs.info](http://www.bcgs.info)

### East Midlands Geological Society

Indoor meetings are held at lecture theatre B3, Biology building at the University of Nottingham

**Saturday 11 October @ 18:00** What we have learned from Mars Science  
Laboratory – Dr John Bridges

**Saturday 15 November @ 18:00** Geotourism in the UK: celebrating our natural  
landscapes – Dr Kirstin Lemon

More details at [www.emgs.org.uk](http://www.emgs.org.uk)

### East Midlands Regional Group of the Geological Society

Room N108, University of Derby (Kedleston Road campus)

**Wednesday 8 October @ 19:00** The Whirlygig of Hydrogeological Time – James  
Dodds (Envireau Water)

More details at [www.geolsoc.org.uk/en/Groups and Networks/Regional  
Groups/East Midlands](http://www.geolsoc.org.uk/en/Groups%20and%20Networks/Regional%20Groups/East%20Midlands)

### Liverpool Geological Society

Indoor meetings are held at James Parsons Building, Liverpool JMU, Byrom Street,  
Liverpool, L3 3AF

More details at [liverpoolgeologicalsociety.org.uk](http://liverpoolgeologicalsociety.org.uk)

### Manchester Geological Association

Indoor meetings are held at the Williamson Building, University of Manchester

**Wednesday 15 October @ 19:00** Dinosaur Diversity in the British Isles - Dean Lomax (Doncaster Museum and Art Gallery)

**Saturday 15 November @ 13:30** Eden Valley Deposits - Dr Noel Worley (Yorkshire Geological Society)

**Saturday 6 December @ tbc** Ophiolites

More Details at [www.mangeolassoc.org.uk](http://www.mangeolassoc.org.uk)

### North West Regional Group of the Geological Society

**Thursday 16 October @ tbc** Acute Risk of Contamination? How Safe is it to Raise Threshold Values? – tbc - Venue: The Centre, Birchwood, Warrington

**Friday 21 November @ tbc** The Preservation of Plants as Fossils - with particular reference to the Brymbo Fossil Forest, Wrexham- Prof Barry Thomas (Aberystwyth University) – Venue: Chester University

More details at [www.geolsoc.org.uk/en/Groups and Networks/Regional Groups/North West](http://www.geolsoc.org.uk/en/Groups%20and%20Networks/Regional%20Groups/North%20West)

### Shropshire Geological Society

Indoor meetings are held at The Shire Hall, Shrewsbury at 19:30

**Wednesday 8 October @ 19:30** Discovering the foundations of our modern ecosystems: evolution of life on land after the end-Devonian mass extinction - Prof Sarah Davies, (Leicester University)

**Wednesday 12 November @ 19:30** Wine, whisky and beer - Prof Maltman (Aberystwyth University)

**Wednesday 10 December @ 19:00** AGM followed by reports on the Society's field trips, rock hops and field work projects

More details at [www.shropshiregeology.org.uk/SGS/SGSintro.html](http://www.shropshiregeology.org.uk/SGS/SGSintro.html)

### Warwickshire Geological Conservation Group

Indoor meetings are held at St Francis Church Hall, Warwick Road, Kenilworth CV8 1HL

**Wednesday 15 October @ 19:30** AGM & Microfossils – Jen Clayton

**Wednesday 17 November @ 19:30** Chips off the old block: a geological perspective on the Stonehenge bluestones – Dr Rob Ixer (Institute of Archaeology, University of London)

More details at [www.wgcfg.co.uk](http://www.wgcfg.co.uk)

## **West Midlands Regional Group of the Geological Society**

Indoor Meetings at Lapworth Museum of Geology, Birmingham University

**Tuesday 14 October @ 18:30**

Our Geoheritage - Engineering the Future –  
Graham Worton (Dudley Museum)

**Tuesday 11 November @ 18:30**

Advanced Technologies for Contaminated Site  
Remediation – Dr. Jeremy Birnstingl (Regenesis)

**Tuesday 9 December @ 18:30**

A Life in Oil - Prospecting, Recovery and Future

More details at [www.geolsoc.org.uk/en/Groups and Networks/Regional Groups/West Midlands](http://www.geolsoc.org.uk/en/Groups%20and%20Networks/Regional%20Groups/West%20Midlands)

## **Western Institute of Mining and Minerals**

Indoor meetings are held at the William Smith Building, Keele University

**Monday 6 October @ 19:00**

Geoforensic Investigation into Nomadic Graves,  
West Africa – Christine Blackmore (Wardell  
Armstrong International)

**Monday 3 November @ 19:00**

Re-opening and Re-furbishment of Fluorspar  
Mine, Derbyshire – Peter Robinson (British  
Fluorspar)

**Monday 1 December @ 19:00**

The History of Boulby Potash Mine - Phil Bains  
(Cleveland Potash Ltd)

More details at [www.iom3.org/wimm](http://www.iom3.org/wimm)

**NSGGA - Next Committee Meeting:****Thursday 20 November @ 19:00**

In room WS1.44, the William Smith Building, Keele University

**Contacts List: NSGGA Committee 2014-15****Chairman: Dr Patrick Cossey**

22 Heath End Road, Alsager, Cheshire, ST7 2SQ. Tel. 01270 872002

e-mail: [patrick.cossey54@gmail.com](mailto:patrick.cossey54@gmail.com)**Vice-Chairman: Dr Ian Stimpson,**

Geography, Geology &amp; the Environment, Keele University Tel. 01782 733182

e-mail: [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk)**General Secretary: Eileen Fraser,**

47 Longdown Road, Congleton, Cheshire CW12 4QH Tel. 01260 271505

email: [fraser@fraserco.co.uk](mailto:fraser@fraserco.co.uk)**Treasurer: Brenda Kay,**

9 Copthorne Drive, Audlem, Crewe, Cheshire, CW3 0EQ Tel. 01270 811650

email: [r.peter.k@gmail.com](mailto:r.peter.k@gmail.com)**Membership Sec.: David Osborn,**

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Tel. 01538 360431 or mobile 07711 501028

e-mail: [steves261@aol.com](mailto:steves261@aol.com)**GeoConservation Staffordshire Liaison Officer: Dr Ian Stimpson,**

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e-mail: [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk)**Bulletin Sec.: Dr Ian Stimpson,**

Geography, Geology &amp; the Environment, Keele University Tel. 01782 733182

e-mail: [i.g.stimpson@keele.ac.uk](mailto:i.g.stimpson@keele.ac.uk)**Honorary Life Member: Ann Myatt****Executive Committee** (honorary):

Dr. Colin Exley; Terry Jones; Ted Watkin.

**Executive Committee** (elected):

Dr Lloyd Boardman; Dr Stuart Egan; Janet Osborn (Minutes Secretary); John Reynolds; Barbara Kleiser; Christina Bourne; Tony Marks; Peter Jones

**Executive Committee** (co-opted):

Don Steward, Vicky Ward (John Myers Awards); Becca Wiltshire (Keele GeoSoc).

**NSGGA web pages:** [www.esci.keele.ac.uk/nsgga](http://www.esci.keele.ac.uk/nsgga)

**Thursday 11 December 2014 at 19:00**

**The Christmas Social at The Keele Sustainability Hub**

with the judging of the NSGGA/GCStaffs Photographic Competition, bring you own geology displays (rocks /minerals / fossils / books / maps etc.) and a short talk "A Taste of Iceland" by Eileen Fraser

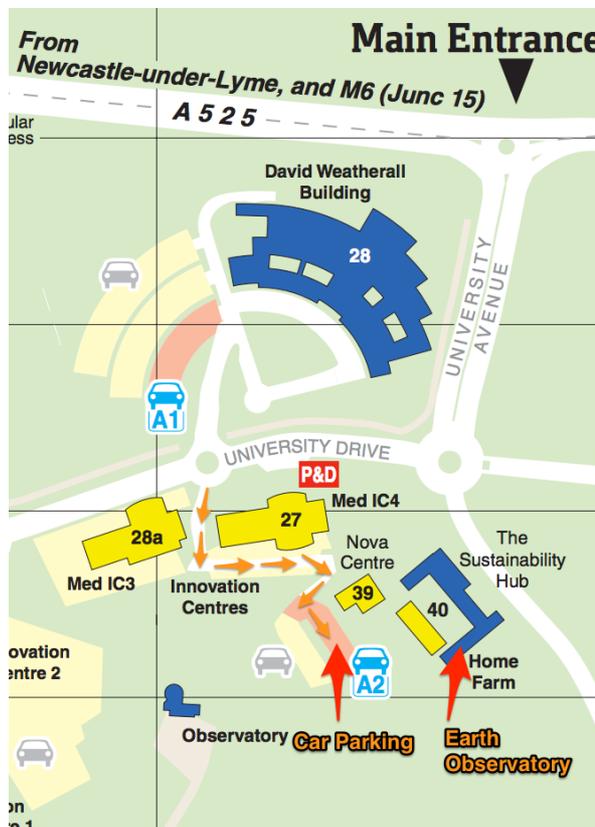
The buffet for NSGGA Members / GCStaffs Volunteers and their families will be £12 per person with free glass of wine, please book using the booking form below, enclosing payment, by **Friday 14th November.**

The Christmas Social this year will again be held in the Earth Observatory at the Keele Sustainability Hub, Home Farm by the main Keele entrance.

There is limited parking outside the Hub itself but ample parking is available in car park A2 behind the MedIC4 building which will be free of charge at that time of the evening.

Please send form with payment to:

Brenda Kay,  
9 Copthorne Drive, Audlem, Crewe, Cheshire, CW3 0EQ  
Tel. 01270 811650



**Early booking is essential, as numbers have to be pre-booked with the caterer**

To book a meal, please enclose a cheque (payable to NSGGA) for the full amount

I/We would like to book \_\_\_\_\_ places for the Christmas Social on Thursday, 11th December, 2014

I/We enclose a cheque for £ \_\_\_\_\_ payable to NSGGA

Name/s \_\_\_\_\_

Address \_\_\_\_\_

Telephone \_\_\_\_\_

Please Tick: I am a member of NSGGA

I am a GCStaffs Volunteer