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## August 2016 ESE Newsletter

by *Amelia Davies*

05 September 2016



Fieldtrip to Grimsel, Switzerland as part of the Summer School on Radiactive waste Disposal

Events organised by ESE; from a mini-symposium on packing of irregular shape particles to a summer school on radioactive waste disposal

## Contents

[Publications](#)

[Conferences, Lectures and Seminars](#)

[Awards](#)

[Outreach](#)

[Research Activity](#)

[Impact and Media](#)

[Fieldwork](#)

[Notices](#)

## Publications

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Ali S. Al-Menhali, Hannah P. Menke, Martin J. Blunt, and Samuel C. Krevor

(2016). Pore Scale Observations of Trapped CO<sub>2</sub> in Mixed-Wet Carbonate Rock: Applications to Storage in Oil Fields. *Environmental Science & Technology*, DOI: 10.1021/acs.est.6b03111

D'Arcy, M., Whittaker, A.C. & Roda-Boluda, D.C. (2016) Measuring alluvial fan sensitivity to past climate changes using a self-similarity approach to grain size fining, Death Valley, California. *Sedimentology*, doi: 10.1111/sed.12308.

Davis J, M., Balme, P. M. Grindrod, R. M. E. Williams and S. Gupta, (2016) Extensive Noachian fluvial systems in Arabia Terra: Implications for early Martian climate. *GEOLOGY*, DOI: 10.1130/G38247.1

Jacobs C.T., G. J. Gorman, H. E. Rees, L. E. Craig (2016). Experiences With Efficient Methodologies for Teaching Computer Programming to Geoscientists. *Journal of Geoscience Education*, 64(3):183-198. DOI: 10.5408/15-101.1.

Nooruddin, H. A. and Blunt, M. J. (2016), Analytical and numerical investigations of spontaneous imbibition in porous media. *Water Resour. Res.*. Accepted Author Manuscript. doi:10.1002/2015WR01845

Phillips, T., Jackson, C.A-L., Bell, R.E., Duffy, O.D., & Fossen, H. (2016). Reactivation of intrabasement structures during rifting: A case study from offshore southern Norway. *Journal of Structural Geology*, 91, 54-73. doi: 10.1016/j.jsg.2016.08.008

Tvedt, A.B.M., Rotevatn, A., & Jackson, C.A-L. (2016). Supra-salt normal fault growth during the rise and fall of a diapir: perspectives from 3D seismic reflection data, Norwegian North Sea. *Journal of Structural Geology*, 91, Pages: 1-26.

## Conferences, Lectures and Seminars

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John-Paul Latham and Jiansheng Xiang organised a mini-symposium session on packing of irregular shape particles at the 7th International Conference on Discrete Element Modelling, Dalian, China, 1-4 August. The following four papers were presented by members of AMCG's 'Solidity' group in four different sessions of the Conference. Latham J-P., Xiang J. & Farsi A. Accurate modelling of particle shape effects in packed granular structures: a class of particulate problems solved by FEMDEM (Invited talk). Xiang J., Latham J-P. & Farsi A. Algorithms and capabilities of Solidity to simulate interactions and packing of complex shapes (Invited talk). Farsi A., Xiang J., Latham J-P., Carlsson M., Stitt E.H. & Marigo M. Simulation and characterization of packed columns for cylindrical catalyst supports and other complex-shaped bodies (Oral presentation). A new finite discrete element method for heat transfer in complex shaped multi-bodied contact problems (Oral presentation) Joulin C., Xiang J., Latham J-P. & Pain C.C. From over one hundred and fifty PhD student presentations, the papers above by Ado Farsi and by Clement Joulin were awarded best student papers.



Twelve members of ESE attended the EAGE 15th European Conference on the Mathematics of Oil Recovery. Contributions included presentations and posters on a wide range of topics including: surface-based reservoir modelling and simulation (Carl Jacquemyn, Pablo Salinas, Yulia Melnikova, Hossam Osman), capillary and viscous forces (Yacine Debbabi), viscous fingering (Alex Adam), miscible gas injection (Anuar Abdul Hamid, Ann Muggeridge), sweep efficiency (Paula Gago), reduced order modelling (Dunhui Xiao) and path integral methods (Marise Westbroek, Peter King).

The Palaeobiology Research Group had a strong presence at the 2016 Annual Symposium of Vertebrate Palaeontology and Comparative Anatomy, held in Liverpool (23–25 August). Phil Mannion and Susie Maidment both gave talks on their latest dinosaur research, and two PhD students also presented: Jonathan Tennant talked about the effect of sea level on diversity across the Jurassic/Cretaceous boundary, whilst Alessandro Chiarenza presented a poster and lightning talk on dinosaur environmental niche modelling. Jonathan Rio, who recently finished his MSci in the department and starts a PhD with Phil in October, also presented on his MSci thesis: his talk on giant fossil snakes won the prize for best talk of the conference! PhD student Lewis Jones and undergraduate Cecily Nicholl also attended. Alessandro also gave a presentation “Estimating dinosaur biodiversity in the Cretaceous using climatic envelopes and ecological modeling” in the London NERC DTP conference at King’s

## College.

Several members of the Natural Magnetism Group (Adrian Muxworthy, Charlie Penny, Jay Shah, Aike Supakulopas and Miguel Valdez) attended and presented at the "The Castle Meeting" on Earth Science Magnetism in Dinant, Belgium.

Six members of the MAGIC group (Naomi Pratt, Rachel Bertram, Patric Simoes Pereira, David Wilson, Susan Little and Tina van de Flierdt) attended the 12th International Conference on Paleoceanography, which took place in Utrecht (Netherlands). Besides lots of excellent science, the group enjoyed the traditional paleomusicology concert (see link below), where members of the community share their passion for music.

The ESE Department hosted a Summer School on Radioactive Waste Disposal, from 8-12 August, as part of the IC-led HydroFrame project within the NERC-funded Radioactivity and the Environment (RATE) programme. The first three days of the school included talks by seven international experts, presentations by HydroFrame researchers, a poster session for all RATE researchers, and hands-on computer workshops in geochemical modelling, groundwater flow and transport modelling, and discrete fracture geomechanics. The highlight of the school was the field trip to the Grimsel Underground Rock Laboratory in Switzerland (see photos). The school was organised by HydroFrame PI Robert Zimmerman, Project Manager Janice Kenney, and Co-Investigator John-Paul Latham, and was attended by over thirty PhD students and researchers from twelve UK universities, including Clement Joulin, Matt Kirby, Adriana Paluszny, Robin Thomas, and Jason Xiang, from ESE.



## Awards

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Several ESE staff members are undertaking University Learning and Teaching qualifications with the [Educational Development Unit](#). This year sees a double-win for ESE - Peter Fitch has been awarded the Rees Rawlings Prize for Best Portfolio ([PG Cert ULT](#)), whilst Emma Passmore has been awarded the Routledge Education Award for her Diploma project ([PG Dip ULT](#)), "Lost in the fog: liminality and authenticity in geological fieldwork".

Qinghua Lei was awarded £1235 from the Arthur Holmes Centenary Research Grant to fund his attendance to the 50th US Rock Mechanics/Geomechanics Symposium at Houston in June.

## Outreach

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Lizzie Day helped out with the Explosive Earth exhibit in the Royal Society's summer science exhibition. This exhibit focused on the earthquakes associated with the eruption of Bárðarbunga in 2014. The associated Holuhraun lava field is big enough to stretch from the

RSM to Walthamstow ([see here](#))!



In August ESE welcomed the final few summer schools of 2016 through the doors. On 3 August Pete Fitch and Sarah Dodd co-hosted a successful new geophysics workshop for 20 students as part of the Sutton Trust summer school. In this workshop students were introduced to the various applications of physics within Earth Sciences, focusing largely on exploration seismology. Following this was the second of the Global Summer Schools seeing the Department welcome over 50 students for a 3 hour workshop on planetary science and Mars exploration. The workshop was run by Lizzie Day, Sarah Dodd, Steve Banham and Rebekah Moore and featured guest speaker Robert Myhill from Bristol who spoke about the new Mars Insight mission. August also saw the Department's involvement with 'Bring your kids to work day' where more than 40 children descended on ESE to hunt for fossils with Chris Dean, pan for gold with Rob Lowther, explore Mars with Rebekah Moore and much, much more. Both children and adults left with grins on their faces marking the event a great success.



## Research Activity

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As part of his Visiting Scientist role, Chris Jackson spent six weeks at the Bureau of Economic Geology (BEG), University of Texas at Austin, working with members of the Applied Geodynamic Laboratory (AGL). Chris worked on a range of project focusing on salt tectonics of the Southern North Sea and Kazakhstan.

## Impact and Media

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Christian Jacobs wrote a blog post [“Teaching Python to undergraduate geoscientists: A summary of our approaches and experiences over the years”](#) for [Software Carpentry](#) a open source project teaching computing skills for researchers in science, engineering, medicine and



related disciplines.

## Fieldwork

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Adrian Muxworthy and Phd-student Radchagrit Supakulopas, along with Prof. Conall Mac Niocaill (Univ Oxford), Dr. Morten Riishuus (Univ. Iceland) and MSc-student Mike Sara (Univ. Iowa), headed off to Eyjafjardardalur and the very remote Bleiksmýrardalur in northern Iceland for two-weeks successful palaeomagnetic sampling come rain, snow or flies.





## Notices

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Congratulations to Xiaoguang Wang who successfully defended his PhD on 'Fluid flow in multi-scale fractured networks: from field observation to numerical modelling' on 22 August. Xiaoguang's project was funded by Total and was supervised by John Cosgrove, Oliver Gosselin and Lidia Lonergan, with collaborators at the University of Montpellier II and Total (Pau). His examiners were Sebastian Geiger (Heriot Watt) and Robert Zimmerman. Xiaoguang has now taken up a Post-Doc position at Montpellier doing further research into fluid flow in limestones. His supervisors are quite envious of his new project as he is involved with the drilling of new boreholes into the aquifer, which was the subject of his PhD research.

There are still a few spaces available for the Gradsoc End of Summer ESE Departmental Dinner to be held at Mare Moto on the Kings road on the 23 September. It is set to be a fantastic social event so if you are interested please contact Amelia Davies for more information.

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## LATEST NEWS



### BROADENING PERSPECTIVES

Engineering students explore unconscious bias with new training sessions

### HACK THE FUTURE

Imperial College Advanced Hackspace hold their 2016 Demo Day

### STRONG SWIMMERS

Spinning semen provides a measurement of fertility

## LATEST MULTIMEDIA



### LONDON CENTRE FOR NANOTECHNOLOGY (LCN)

Developing a new generation of early-warning sensing systems to identify disease outbreaks, and creating new types of structures for use in tissue regeneration, are some of the discoveries made by researchers at the LCN.

**MOST POPULAR**



### 1 BUG CATCHER:

Diagnostic device developed by Imperial start-up secures major US contract

### 2 SURGICAL RISKS:

Surgical procedure for aortic aneurysm associated with long-term mortality risk

### 3 HOT TOPIC:

New data on weird state of matter could help the development of fusion power

### 4 ALZHEIMER'S CLUES:

Alzheimer's disease could be treated with gene therapy, suggests animal study

## LATEST COMMENTS

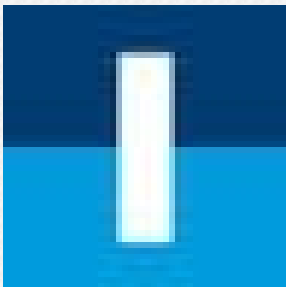
Comment on Imperial recognised as one of Britain's most family friendly workplaces: *Thanks for your comment on the story. The Working Families ranking compares*

*family-friendly policies...*

Comment on Dialysis device developed by Imperial team a step closer to patients : *Excellent project would be good to see the clinical trial outcome fairly soon. Well done.*

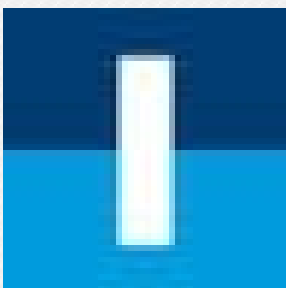
Comment on Paris Agreement on climate change to come into force earlier than expected: *At long last we are witnessing the seriousness of the developed world to adequately respond to the c...*

## LATEST TWEETS



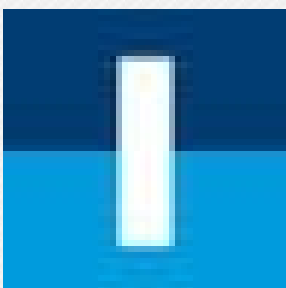
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President @AliceGast is hosting an evening for #OurImperial alumni and friends in Frankfurt with HMCG Susan Speller... <https://t.co/Loq89zcEOF>



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The @ImperialBiz #MOOC series with @edXOnline, Essentials for MBA Success, starts on Monday. Open to all, enrol now... <https://t.co/l4Sy1Nqo63>



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Ciao, Italy! Our international student recruitment team is heading your way on 18 & 20 Oct. Find out more:... <https://t.co/gaE6ITFAg5>

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