



SOCIETY OF ECONOMIC GEOLOGISTS, INC.

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Student Chapter Annual Report Form

This form is used to report on Student Chapter activities over the previous year. The report provides a useful medium to document the status and progress of individual chapters. Annual Reports are used to evaluate applications for SEG support and to keep information up-to-date on the SEG website. Please provide a summary of chapter activities in a concise form as suggested below. Description of programs may be supported by a limited number of photographs and figures in a format appropriate for publishing on our website.

Submission Deadline: September 30th

Submit to: studentprograms@segweb.org

Month/Year Reported: From 09/2015 (mm/yyyy) – To 09/2016 (mm/yyyy)

Chapter Name: Cardiff University SEG Student Chapter

Chapter Mailing Address: Cardiff SEG Chapter, School of Earth & Ocean Sciences, Main Building, Park Place, Cardiff, CF10 3AT

Chapter E-mail: cardiffsegchapter@gmail.com

Chapter Website: N/A

Chapter Facebook: https://www.facebook.com/groups/CardiffSEG/

Chapter Executive Committee (*in office during the time frame captured on this report*) (type "Vacant" if position not filled):

President:	<u>Hannah Stephenson</u> Name	<u>StephensonHG@cardiff.ac.uk</u> E-mail
Vice President:	<u>Bartosz Karykowski</u> Name	<u>KarykowskiBT@cariff.ac.uk</u> E-mail
Secretary:	<u>Dyfan Roberts</u> Name	<u>RobertsDJ2@cardiff.ac.uk</u> E-mail
Treasurer:	<u>Peter Rust-Ashford</u> Name	<u>RustAshfordP@cardiff.ac.uk</u> E-mail

Chapter Academic Sponsor (*SEG Fellow membership in good standing*):

<u>Professor Hazel Prichard</u> Name	<u>hazelprichard@googlemail.com</u> E-mail	<u>+44 (0)29 2087 4323</u> Phone
<u>School of Earth & Ocean Sciences, Main Building, Park Place, Cardiff, CF10 3AT</u> Address		<u>N/A</u> Fax

Chapter Industry Sponsor (*SEG Fellow membership in good standing and not affiliated with the student chapter's institution*):

<u>Mark Davis</u> Name	<u>mdgeoinfo@gmail.com</u> E-mail	<u>+44 (0)79 1033 5520</u> Phone
<u>Saudi Arabia</u> Address		<u>N/A</u> Fax

Sponsoring Institution or Company (name): Fugro-Suhaimi Ltd

- Attach:**
1. a list of names of **all** Student Chapter members (please indicate by * if SEG Student Member).
 2. complete Student Chapter Membership Information form with the current Executive Committee listed on page 1.

On a separate page(s) provide a summary of student chapter annual activities:

1. Regular meetings, lectures
2. Field trips (dates, area visited, field trip leaders, number of participants, sponsors, benefits for students).
Note: this is not the place for a detailed field trip report that is required from a chapter who has received funding from the Stewart R. Wallace Fund.
3. If your chapter received funding from the Stewart R. Wallace Fund, please submit a separate actual accounting of how chapter funds were spent/used.
4. Organization of conferences, workshops, short courses (theme, number of participants, benefits for students)
5. Participation in conferences, workshops, short courses (theme, number of participants from the chapter, benefits for students)
6. Fund-raising programs
7. Other programs
8. Future plans

Cardiff University SEG Student Chapter Annual Report (Sep 2015 – Sep 2016)

Over the past academic year the SEG chapter has continued to provide students with the opportunity to engage with industry professionals and leading researchers in the field of economic geology. Highlights of this previous academic year include a keynote lecture by Professor Sarah-Jane Barnes (the 2014 SEG Distinguished Lecturer), two student attendees representing the Chapter at the North Atlantic Craton+ (NAC+) conference in Edinburgh and a fieldtrip to Finland, which was a great success.

The chapter acknowledges that there are areas that we need to improve on for the coming academic year. Currently, student participation is down on previous years (32 members compared to 80+ in 2014-2015); this is being tackled in the coming year with a new advertising strategy. This includes becoming affiliated with the Cardiff University Student's Union (CUSU), which allows us to have a presence at the 'Freshers' Fair' (see Figure 1) to advertise membership to the new intake of students (180 in geology). Other benefits include coverage by the CUSU insurance for any activities, exposure of our chapter on the internet (listed on the CUSU webpage) and access to their facilities for social activities. Encouraging more members to join, and more importantly take part, is a priority for the current committee over the coming year.



Figure 1: The Cardiff SEG stand at the Freshers' Fair (left) and our new logo (right).

To conclude, this year the Cardiff SEG Chapter has had some great successes but also struggled to attract student members. By promoting the Finland fieldtrip and rebranding the society (giving it an identity, see Figure 1 (right)) we hope to tackle these problems. Furthermore by modernizing certain aspects about the way the chapter is run including moving membership application online and creating an online bank account these small but important changes should hopefully sustain the chapter for future years.

Lectures & Presentations

Over the last few years, the Cardiff SEG Chapter has hosted a variety of guest lecturers from both industry and academia on a worldwide scale. These present a great opportunity for students to gain insight into the mining industry, to hear about the latest research in ore deposits and to network with potential future employers.

15th October 2015: Professor Sarah-Jane Barnes – “The use of trace elements in sulfides and oxides in ore deposits petrogenesis and exploration”. This high-level talk illustrated how *in situ* laser-ablation ICP-MS can be used to understand the controls on trace element concentrations in ore minerals (chromites and sulphides). The talk was well attended by chapter members and afterwards pizza and beer were provided giving the opportunity for the students to ask Sarah questions in a more informal setting.

3rd December 2015: Professor Thomas Blenkinsop – “The enigma of Gold in high-grade gneisses: examples from Africa and Australia”. Although Tom teaches at Cardiff University his courses focus on purely structural geology; this talk enabled the students to learn about his other research interest, orogenic gold. The take home message was that orogenic gold is a broad term and commonly misused for gold deposits occurring in very old Archean rocks; in fact there are many sub-types of gold deposits in

21st January 2016: Neil Hughes (Technical Director, Wardell Armstrong) – “*Mineral Resources of the Isle of Man: their Exploitation and Sustainable Management*”. Neil presented a detailed summary of the geology, the mineral resources and their ownership on this small island that nobody really knows much about. He covered a range of deposits from aggregate to base metals. The talk also provided some insight into the role of a UK-based consultant geologist and at the end of his presentation Neil advertised some summer internship placements with WA.

11th February 2016: James Williams (SRK Exploration) – “*Overview of my secondment to an active West African Gold Mine*”. James, a graduate of the Exploration and Resource Geology course at Cardiff University, presented a talk on his year-long secondment to West Africa with SRK Exploration (based in Cardiff). This gave the students insight into the role of a junior geologist on a mine site including near-mine exploration, in-pit mapping and grade control. James highlighted the importance of detailed and accurate field observations and structural measurements and how this geological information needs to inform any reliable resource model and for effective mine planning.

25th February 2016: Jennifer Ellis (Midland Valley) – “*3D modelling and structural analysis of the Grasberg-Ertsberg mining district, Papua, Indonesia*”. Jenny’s talk followed on nicely from James’ as it also emphasized the need for good field skills in industry. This talk was based on work Jenny completed with the consultancy firm Midland Valley from 2014-2015, with the aim of creating a geological Discrete Fracture Network (DFN) model. The structural approaches undertaken during this project for converting field data into a geological and DFN model were discussed.

Field Trips/Events

NAC+ 21st to the 23rd March 2016

Following the success of the inaugural NAC conference in 2014, organised jointly between Cardiff SEG Chapter, St. Andrews SEG Chapter and The Mineralogical Society of Great Britain and Ireland, the succeeding conference ‘NAC+’ was held from 21st – 23rd March 2016 in Edinburgh, UK. This was again organized with Cardiff SEG Chapter association which enabled two chapter members to attend these included; Hannah Stephenson who presented a poster outlining the Cardiff SEG Chapters recent activities and George Guice who presented a talk on his PhD research.

Finland Fieldtrip 13th to the 19th June 2016

A week-long fieldtrip was organized by two chapter members, Hannah Stephenson and Bartosz Karykowski, for a small group of 12 undergraduate and postgraduate students. This fieldtrip was generously subsidized by funding from the SEG Stewart R. Wallace fund and our industry sponsor SRK Consulting (UK) Ltd. Finland was chosen because of the wide-range of deposits at various stages of exploitation; from exploration to current open-pit and underground mining operations. In addition, this fieldtrip offered the opportunity for students to appreciate the role of geology in the mining economy, to see different mineralization styles *in situ* and a chance to experience geology in 3D.

Over the period the group visited four projects covering a spectrum of deposit-types and development stages including: the Otanmäki brownfield exploration project (Fe-Ti-V deposit),

Pyhäsalmi underground Cu-Zn mine (Europe's deepest), the undeveloped Penikat sub-economic PGE deposit and the open-pit Kittilä gold mine. For more details about this fieldtrip please see our submitted Fieldtrip Report; a few of our favourite memories are shown below in Figure 2.

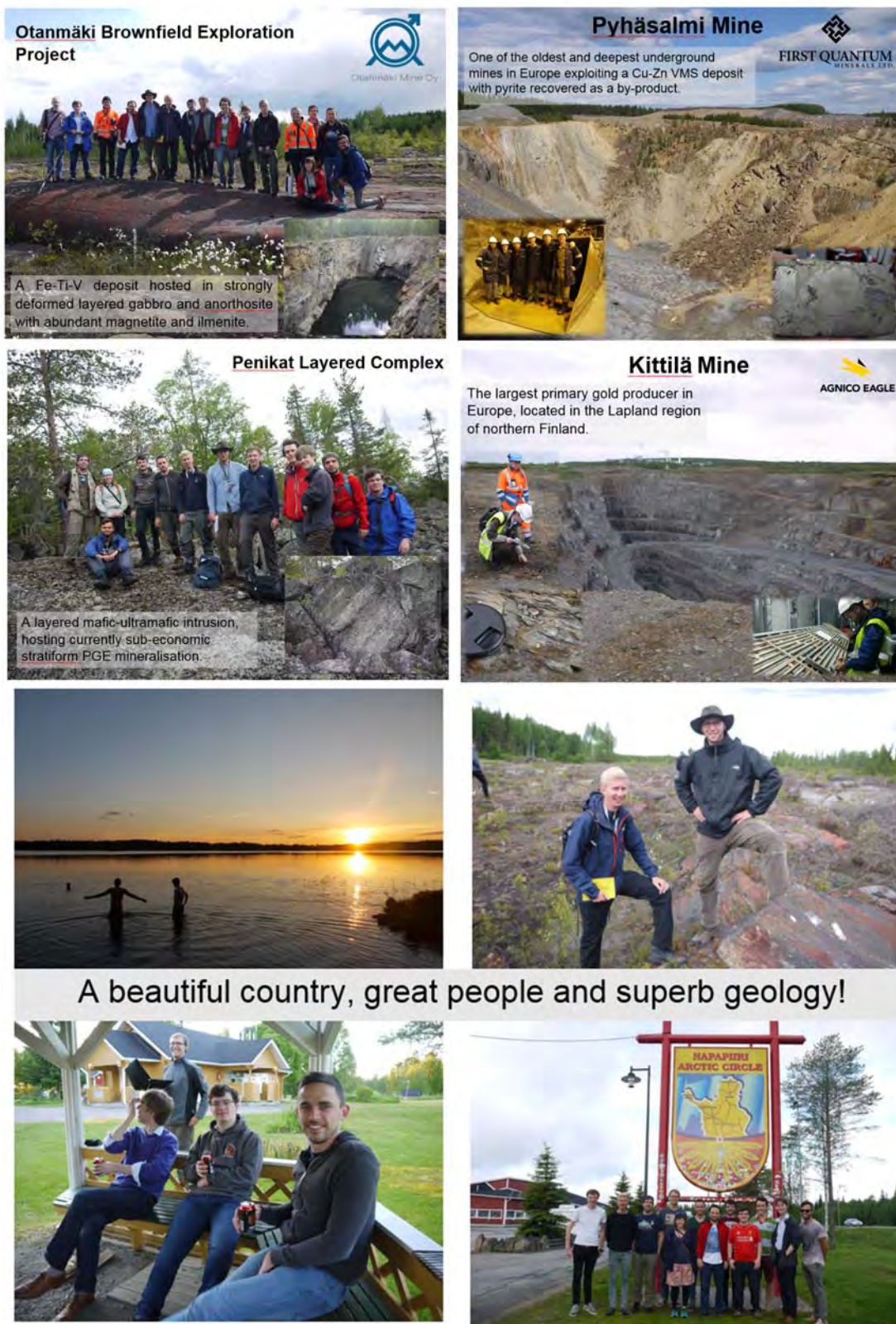


Figure 2: A collection of photos which summarise the Cardiff SEG fieldtrip to Finland.

Chapter member's participation in conferences, workshops, short-courses

(September 2015 – September 2016)

- **Oral presentation at MDSG 2016: Karykowski, B.**, Maier, W. D., Pripachkin, P.V., and Groshev, N. *'The Monchegorsk Layered Complex – a natural laboratory for mineral deposit types associated with layered intrusions'*.
- **Poster presentation at MDSG 2016: Stephenson, H. G.**, McDonald, I., and Grobler, D. *"Sulphide mineralogy, geochemistry and textures at the Flatreef deposit, northern limb, Bushveld Complex, South Africa."*
- **Oral presentation at 'NAC+': Guice, G. L.**, Hughes, H. S. R., and McDonald, I. *"Geochemical distinctions between ultramafic-mafic bodies in the Lewisian Complex"*
- **Poster presentation at 'NAC+': Stephenson, H. G.** *"Cardiff University Student Chapter of the Society of Economic Geologists"*.
- **Oral presentation at the Highly Siderophile Element (HSE) Workshop 2016: Stephenson, H. G.**, McDonald, I., and Grobler, D. *"Platinum-Group Element Mineralogy and Distribution in the Platreef on Turfspruit, Northern Bushveld Complex, South Africa"*.
- **Oral presentation at HSE geochemistry: Guice, G. L.**, McDonald, I., Hughes, H. S. R., Anhaeusser, C. A. *"Using PGE to characterise ultramafic complexes in Archaean craton"*.
- **Poster presentation at the HSE Workshop 2016: Jillings, K. E. L.**, Maier, W. D., Tinkham, D. K., and Barnes, S. J. *"Assimilation of dolomite by Bushveld magmas; implications for the origin of Ni-Cu-PGE mineralisation"*.
- **Oral presentation at the HSE Workshop 2016: Kennedy, B.**, McDonald, I., Tanner, D., and Longridge, L. *"PGE mineralisation in the Troctolite Marker, northern Bushveld Complex"*.
- **Poster presentation at SoS Minerals summer school: Martin, A.**, Prichard, H., McDonald, I., and MacLeod, C. *"Hydrothermal ore deposits of the Troodos ophiolite"*.
- **Poster presentation Rimini European Mineral Congress (EMC) 2016: Martin, A.**, Prichard, H., McDonald, I., and MacLeod, C. *"Initial observations on the distribution and enrichment of Te and Se in hydrothermal ore deposits of the Troodos ophiolite."*
- **Hannah Stephenson and Kate Jillings** are attending a NERC advanced training course entitled *"Multidisciplinary fieldwork and modelling skills for the mining industry"* running from the 28th September to 10th October 2016.

Future Plans

We have a variety of plans and ideas to both further encourage interest in the society and maintain the ongoing membership benefits. The key plans are underlined below:-

- 1) To continue the lecture series by inviting academics and professionals from across the mining and exploration industries.
- 2) In order to give members a better understanding of the local economic geology we would like to run a day trip to a nearby mine once per semester e.g. to a mine in the South Wales Coalfield and a kaolin mine in South West England.
- 3) A residential field trip for Cardiff SEG Chapter members; whether this is taken abroad or remains in the UK will depend on the funds which are available. For a UK-based fieldtrip options include: Boulby potash mine in North Yorkshire; the Scotgold Cononish mine Tyndrum, Scotland and two gold projects in Northern Ireland. If a fieldtrip can be run abroad (potentially in cooperation with another chapter) then Greece or Spain are being considered.
- 4) Organise a training day for a group of students to get experience using the Cardiff University hand-held XRF machine coupled to a GPS. This will involve a visit to a disused mine site to analyse samples in the field; data collection will be followed up by interpretation using ArcGIS similar as to what may be performed during mineral exploration.

- 5) We would like to be able to sponsor an Exploration and Resource MEng student to present their work at the UK based conference the Mineral Deposits Study Group.

Cardiff SEG Finland Fieldtrip Expenditures

Incomings		Outgoings	
Stewart R Wallace Fund	US\$ 1,500.00 (£1156)	Accommodation	£ 1115.3
Cardiff SEG Bank Account	£ 38.67	Flights	£ 1554
SRK Consulting (UK) Ltd	£ 500	Car Hire	£ 697.52
Student Contribution	£ 2400 (£ 200 pp)	Petrol	£ 430.58
		Car Insurance	£ 119.97
		Car Parking (Airport)	£ 146
		Extras (T-shirts & Field Guidebooks)	£ 172
Total	£ 4094.67	Total	£ 4094.67