

# School of Earth, Atmospheric and Environmental Sciences - PhD Projects 2012

## Atmospheric Sciences

1. **Aerosol and chemical transport in deep convection** - Professor G Vaughan
2. **Aerosol cloud interactions** – Professors H Coe and G McFiggans
3. **Airborne measurements of Organic acid budgets in the UK using Chemical Ionisation Mass Spectrometry** - Dr C Percival
4. **Atmospheric aerosols in the Amazon** – Professor G McFiggans ; co-supervisors: J Allan and J Whitehead
5. **Atmospheric airborne aerosol measurements** - Professor H Coe
6. **Atmospheric turbulence** - Professors G Vaughan and M Gallagher
7. **Capacity building: Sulphur Dioxide and Aerosol Optical Depth** - Dr A Webb and J Rimmer
8. **Development of a time of flight aerosol mass spectrometer (Updated)** - Professor H Coe and Dr J Allan
9. **Field, laboratory and numerical modelling studies of the persistence of super-cooled cloud layers**- Dr P Connolly (**no longer available**)
10. **Gas-phase atmospheric kinetics and branching ratios of formation of alkyl nitrates** - Dr C Percival
11. **How does inertial instability favour convection?** – Dr David Schultz and Professor Geraint Vaughan
12. **Improving conceptual models of extratropical cyclones and fronts** - Dr David Schultz
13. **Improving mixed phase cloud parametrizations through confronting cloud models with in-situ observations** – Dr Paul Connolly and Professor T Choulaton
14. **Inertia-gravity waves and layering in the lower stratosphere** - Professor G Vaughan
15. **Laboratory studies of atmospheric aerosol chemistry and reactivity** - Dr C Percival and A Horn
16. **Marine cloud brightening** - Dr P Connolly; Professor T Choulaton
17. **Measurements of black carbon and its coatings** – Professor H Coe; Co-Supervisor: Dr. James Allan
18. **Photochemical chamber studies -simplifying the complex atmosphere** - Professor G McFiggans and Dr M R Alfara
19. **Physical/chemical properties of aerosol components** - Professor G McFiggans and D Topping
20. **Pollution transport and deposition from cooling tower plumes** – Professor T Choulaton, K Bower and Professor M Gallagher CASE award
21. **Predicting air quality and climate -regional scale atmospheric modelling** Professors G McFiggans and Dr S Utembe
22. **Remote sensing measurements of the atmospheric boundary layer** - Professor G Vaughan
23. **Testing aerosol processes in regional models using field measurements** - Professors H Coe and G McFiggans
24. **The impact of aerosol on ice clouds; implications for climate change** - Professors T Choulaton, M Gallagher and Drs P Connolly and K Bower
25. **The formation of very high ice crystal number concentrations in tropical storms and their impact on aviation** – Professor T Choulaton and Dr P Connolly
26. **Tornadoes along squall lines** – Dr D Schultz, D Smart, M Clark and Professor J Trapp
27. **Vapour pressure measurements of Secondary Organic Aerosols using Knudsen effusion Mass spectrometry** - Dr C Percival

## Basin Studies and Petroleum Geoscience

30. **Basin-scale mineral and fluid processes within a shale gas play: the lower carboniferous Bowland basin, northern England**– Dr C Hollis and Professor K Taylor
31. **Characterizing 3D sedimentary architecture in fluvial gravels in a form suitable for groundwater flow modelling: A case study for the Canterbury plains New Zealand** – Drs M Jones and S Covey-Crump
32. **Characterizing the fracture properties of the Woodford Shale, Oklahoma, USA: Improving prediction of fracking in a major shale reservoir** – Professor K Taylor and Drs S Covey-Crump and J Mecklenburgh (**See also Structural and Petrological Geosciences for related topics**)
33. **Constraining the evolution of Permo-Carboniferous ice sheets across Gondwana: integrated regional sedimentological analysis and zircon dating using laser ablation ICPMS and analysis of U-Pb, Hf isotopes** - Professors J Redfern and B Williams
34. **Correlating the seismic and permeability properties of mudstones with lithofacies characteristics** – Dr S Covey-Crump, Dr J Mecklenburgh, Prof K Taylor, Prof P Lee (**See also Structural and Petrological Geosciences for related topics**)
35. **Deformation above mobile substrates: seismic interpretation constrained by numerical modelling** – Drs E Finch and M Huuse
36. **Developing new <sup>3</sup>He and <sup>21</sup>Ne cosmogenic nuclide techniques to investigate landscape evolution in the Columbia River Basalts** - Drs R Burgess and S Brocklehurst
37. **Development of submarine canyons and channels** - Drs N Mitchell, D Long, M Hicks and M Huuse
38. **Geological characterisation of the Borrowdale Volcanic Group as a analogue for a deep geological storage site using terrestrial 3D laser mapping (LIDAR) techniques** - Dr Dave Hodgetts (University of Manchester), Dr Nick Smith (NNL)
39. **Glacial landscape evolution -numerical approaches constrained by field analogues** - Drs S Brocklehurst, E Finch and K MacGregor (USA)
40. **Glaciation of the North Sea Basin: evidence from basin-scale 3D seismic geomorphology, stratigraphic boreholes and surrounding land areas** - Drs M Huuse, S Brocklehurst and D Irving
41. **Incorporating grainsize distributions into numerical models of landscape evolution and stratigraphic architecture in extensional settings** CASE - Drs E Finch and S Brocklehurst
42. **Integrating lidar surveys with libs analysis on nuclear decommissioning, storage and disposal sites for the assessment of radioactive contamination** – Drs D Hodgetts, N Smith and D Trivedi
43. **Integrating seismic and borehole study of basin -scale silica diagenesis** – Dr M Huuse and Prof K Taylor
44. **Linking meoscale atmosphere dynamics and landscape evolution models** – Drs S Brocklehurst and D Schultz
45. **Paleoproterozoic rise of oxygen: the origin of authigenic manganese and iron formations and carbonates in the keogas subgroup, South Africa** - Dr S Schroeder (Manchester) & Prof NJ Beukes (University of Johannesburg)
46. **Platform dynamics and diagenetic modification on a land-attached carbonate platform, lower carboniferous, North Wales** - Dr C Hollis and Professor P Burgess
47. **Salt flowage in the Red Sea and South Atlantic** – Dr N Mitchell and Professor E Rutter
48. **Seismic imaging of subsurface fluid flow: petroleum systems and shallow hazards** – Dr M Huuse
49. **Sequence stratigraphic and microfacies variability within the Mancos Shale, Book Cliffs, western USA: implications for understanding shale gas reservoir structure** – Professors K Taylor, J Redfern, and S Pattison
50. **Stochastic modelling of fault architecture** - Drs P Wilson, E Finch and D Hodgetts

51. **The timing of volcano-ice eruptions and deglaciation in Iceland** – Drs R Burgess, S Brocklehurst, and D McGarvie (The Open University)  
52. **Volcanism and tectonics in the Azores islands** – Drs N Mitchell and J Madeira (University of Lisbon)

## Environmental Geochemistry and Geomicrobiology

55. **Bioavailable carbon in cave systems** - Drs B van Dongen and R Wogelius and professors C Ballentine and J Lloyd  
56. **Biogeochemistry of radionuclides in model biomineral systems** – Professors K Morris, J Lloyd, F Livens and R Patrick  
57. **Cold adaptation in fungi: a metabolomics approach** - Dr C Robinson and Prof R Goodacre  
58. **Geochemical modelling of in vivo speciation and bioassessability of inorganic geochemical hazards** – Professor D Polya revised  
59. **Hydrological and hydrochemical controls on Fe, NOM and As mobility** - Dr S Boulton  
60. **Microbes, organic substrates and arsenic mobilisation in groundwater** - Dr B van Dongen and professors D Polya and J Lloyd  
61. **Reconstructing late quaternary climate change from loess successions in New Zealand using chemical proxies** – Drs M Jones, B van Dongen and S Covey-Crump and Dr P Almond (University of Lincoln, New Zealand) (**See Basin Studies and Petroleum Geosciences for related topics**)  
62. **Reducing greenhouse gas emissions from landfill by stimulating methane oxidation** - Drs B van Dongen and S Boulton and Professor J Lloyd  
63. **The Biogeochemistry of Iodine** - K Morris, JR Lloyd, N.D. Bryan, F.R. Livens  
64. **The Geomicrobiology of cementitious nuclear waste** - Professors J Lloyd, K Morris and Dr Dirk Engelberg  
65. **Understanding selenium toxicity in the natural environment: Natural and nuclear contamination** – Professors R Patrick, K Morris and J Lloyd

## Isotope Geochemistry and Cosmochemistry

67. **An in-depth study of meteorite matrix** - Dr I C Lyon and Dr P Bland (Imperial College London)  
68. **CO<sub>2</sub> Capture and Energy Resources: Tracking the Crustal Carbon Cycle Using Noble Gas Isotopes** - Professor C Ballentine, Dr Z Zheng and Professor B S Lollar  
69. **Evolution of the first asteroids** – Professor J Gilmour, Dr R Burgess and Professor E Scott (University of Hawaii)  
70. **Lunar regolith meteorites and absolute lunar crater dating** - K Joy and R Burgess  
71. **Probing the interstellar medium from laboratory samples** - Drs I C Lyon and J D Gilmour  
72. **Resonance Photoionization Mass Spectrometry of Krypton Applied to Extraterrestrial Samples** – Professor J Gilmour and Dr I Strashnov  
73. **Subduction of Volatiles into the Mantle** – Professor C Ballentine and Drs R Burgess and G Droop  
74. **The extraction and study of interstellar grains** - Drs I C Lyon and J D Gilmour  
75. **Tracing Shale Gas** – Professor C Ballentine, Dr Z Zhou and Professor K Taylor  
76. **Volatile composition of the lunar interior** – Dr R Burgess, K Joy and Professor C Ballentine

## Mineral Sciences

77. **Natural and experimental radiation damage in minerals** – Professor R Patrick and Dr G Droop  
78. **Exploring the metal-microbe interface using advanced mass spectrometry techniques** - Dr I Lyon and Professors D Vaughan and J Lloyd  
79. **Microorganisms and the formation of ferromanganese concretions: their role in bio-mineralisation and their potential as palaeo-climate indicators** - Dr B van Dongen and Professors R Patrick and J Lloyd

## Palaeontology

80. **Application of synchrotron techniques to fossil arthropod exoskeletons** – Drs R Wogelius, P Manning and B van Dongen  
81. **Keratin taphonomy in the fossil record** - Drs B van Dongen, R Wogelius and P Manning  
82. **Taphonomy of a multi-taxa bone bed in the hell creek formation of South Dakota** – Drs P Manning, R Wogelius, B van Dongen

## Structural and Petrological Geosciences

84. **A comparative study of texture development in marbles deformed under different loading geometries** – Drs J Mecklenburgh, S Covey-Crump, B Mariani and G Molli  
85. **Experimental Study of Deformation-Metamorphism Relationships** - Professor E Rutter and Dr K Brodie  
86. **Improving the descriptions of the plastic flow properties of geological materials** - Dr S Covey-Crump  
87. **Permeability of Rocks During High-Temperature Plastic Flow** - Dr S Covey-Crump, J Mecklenburgh and Professor E Rutter  
88. **Stabilities of phyllosilicates in subduction zones** - Drs A Pawley and G Droop  
89. **Time dependent flow of mudstones** – Drs S J Covey-Crump, Dr J Mecklenburgh, Professor E Rutter, Dr K Brodie

## Contact

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