

United Kingdom National Committee of the UNESCO/IUGS International Geoscience Programme (IGCP)

Report for 2017

1 The IGCP

The [International Geoscience Programme](#) (IGCP) is one of two components of UNESCO's [International Geoscience and Geoparks Programme](#) (IGGP), the other being the [UNESCO Global Geoparks](#).

UNESCO supports research and capacity-building in geology and geophysics through the IGCP. The programme is co-funded principally by the [International Union of Geological Sciences](#) (IUGS) and also by China; two projects in Africa are specifically co-funded by the Swedish International Development Agency. The IGCP sponsors international research projects under five themes:

- Earth Resources: Sustaining our Society;
- Global Change: Evidence from the geological record;
- Geohazards: Mitigating the risks;
- Hydrogeology: Geoscience of the water cycle;
- Geodynamic: Control our environment.

The IGCP research programme is administered by a Secretariat at UNESCO and directed by a [Scientific Board](#), responsible for assessing proposals and quality control of projects. The Scientific Board reports annually in February to the assembly of [National Committees](#). National Committees organise and coordinate IGCP-related outreach in each country and seek to sustain linkages between national geological institutions and individuals. In particular, the National Committees:

- endorse new IGCP project proposals coming from the country's geoscientific community before they are sent to the IGCP Secretariat;
- propose candidates for the IGCP Scientific Board;
- stimulate the participation of their country's geoscientists in new IGCP projects and enables them to share the ongoing international relevant geoscience research.

In some countries, IGCP projects are supported by national funding administered through the National Committees, although this is not currently the case in UK.

2 UK National Committee

The National Committee for the UK is the External Relations Committee of the Geological Society of London:

- Dr Sarah Gordon, chair, Satarla
- Mr Nic Bilham, secretary, The Geological Society of London
(nic.bilham@geolsoc.org.uk)
- Dr Richard Bevins, National Museum of Wales
- Ms Lesley Dunlop, Northumbria University
- Dr Marie Edmonds, Cambridge University
- Ms Marie Fleming, Arup
- Dr Joel Gill, British Geological Survey
- Dr Naomi Jordan, Nottingham Trent University

- Dr Rob Larter, British Antarctic Survey
- Mr Pete Loader, Aquinas College
- Dr Colin Prosser, Natural England and the Geological Association
- Mr Michael Young, formerly of British Geological Survey.

The Committee met on three occasions in 2017.

3 UK participation in IGCP

The following UK scientists sit on the Scientific Board:

Earth Resources

- Prof Reimar Seltzmann, Natural History Museum

Geohazards

- Prof Andy Cundy, University of Southampton

UK scientists were involved as co-leaders in IGCP projects 630, 640 and 653. UK scientists and research students were involved in 2017 in the following projects:

- 609: Cretaceous sea-level changes
- 610: From the Caspian to Mediterranean: environmental change and human response during the Quaternary
- 628: The Gondwana map project
- 630: Permian-Triassic Climatic and Environmental Extremes and biotic responses
- 632: Continental crisis of the Jurassic (152 participants, including nine from UK)
- 637: Heritage stone designation
- 639: Sea-level changes from minutes to millennia
- 640: Significance of Modern and Ancient Submarine Slope and Landslides
- 641: Deformation and fissuring caused by exploitation of subsurface fluids
- 648: Supercontinent Cycles and Global Geodynamics:
- 649: Diamonds and Recycled Mantle
- 653: The onset of the Great Ordovician Biodiversification Event .

4 UK-led projects

The following are current projects in which UK-based scientists have a leading or co-ordinating role.

630: Permian-Triassic Climatic and Environmental Extremes and biotic responses

UK co-leaders are Mike Benton (Bristol), Steve Kershaw (Brunel) and Paul Wignall (Leeds). There are 154 participants from 26 countries (2014 data).

UK co-leaders contributed to these meetings of the project in 2017:

- 13-20 June, 2017: IGCP 630 Annual Meeting in Tohoku University, Sendai, Japan, with Post-Meeting Field Excursions in northeastern Japan.
- 8-14 Oct, 2017: IGCP 630 Field Workshop and Meeting in Armenia, to investigate the marine Lower Triassic in Armenia. [Website link](#)
- June 24-26, 2017: IGCP630 Session joint with the 4th International Geobiology Conference, Wuhan, China;

UK co-leaders Benton and Wignall successfully leveraged a substantial NERC research award for a BETR project on the Permian-Triassic crisis, based on collaborations that developed through IGCP 630 and its precursors. (BETR is a joint programme between the UK's Natural Environment Research Council and the National Natural Science Foundation of China).

640: Significance of Modern and Ancient Submarine Slope and Landslides

The UK Co-Chair is Claudio Lo Iacono, National Oceanography Centre (NOC), University of Southampton. Scientists and students from more than 35 countries participate in this project (Chaired by USA with co-chairs from Canada, Germany, Japan, Malta, New Zealand, Norway, Switzerland, and UK).

2017 achievements include:

- Compilation of a worldwide Morphometric Database: collection of morphometric parameters and their potential relationship with pre-conditioning factors and triggering mechanisms.
- Improvement in the understanding of Tsunamigenic Hazard Assessment in Lakes.

There were several well attended events in 2017:

- 23-24 January 2017: 1st Workshop on Subaqueous Landslides and Morphometric Parameters at The Royal Trafalgar Hotel, London. Participants from UK (12) (5), USA (3), Germany (1), Spain (1), Ireland (1) and Malta (1).
- 2-5 April 2017: A S4SLIDE session on *Non-turbidite deepwater units as key petroleum system elements*, held as part of the 100th AAPG Annual Meeting, Houston, Texas. 11 presenters (9 oral, 2 posters). Total attendance to the session was around 40 people.
- 23-28 April 2017: Vienna, Austria. S4SLIDE co-sponsored sessions at EGU (European Geosciences Union) "Submarine Landslide Hazard and Marine Paleoseismology: Regional and global implications" and "Subaquatic sediment gravity flow processes and products." Six oral and fourteen poster presenters. Estimated attendance of ~30 people per session.
- September 2017: A Statistics of Natural Hazards Hackathon in Southampton, UK.
- 25 October, 2017: S4SLIDE Session: Polygenetic Melanges: A Glimpse on Tectono-Sedimentary Recycling in Convergent Margins / Geological Society of America Annual Meeting (Seattle, Washington, USA). Eleven oral presentations from USA (5), Japan (2), China (1), Netherlands (1), Canada (1) and Italy (1).
- 6-11 November 2017: S4SLIDE Session: Submarine Geomorphology / 9th International Conference on Geomorphology (New Delhi)
- December 2017: S4SLIDE Session: Underwater Landslide – Triggering Mechanisms, Timing, and Mechanics / American Geophysical Union Annual Meeting (San Francisco, USA). Seventeen presentations from USA (10), China (2), Russia (1), Italy (1), Spain (2) and Germany (1).

S4SLIDE has also been fundamental in providing input for the framing of scientific questions of the ongoing EU-MSC ETN SLATE Project (Submarine Landslides and Their Impact on European Continental Margins). Two S4SLIDE co-chairs are part of the SLATE team and several S4SLIDE members are also part of the initiative.

653 The onset of the Great Ordovician Biodiversification Event

UK Leader: Prof David A.T. Harper, University of Durham.

Over 170 scientists representing more than 95 institutions in 30 countries are currently participating in IGCP 653. The 10 UK participants come from the Universities of Birmingham, Cardiff, Durham, Glasgow and Leicester; from the Natural History Museum and the National Museums of Scotland and Wales; and from the British Geological Survey.

Activity has accelerated during IGCP 653's second year with eight meetings focused on or related to the project. Some important research results have emerged and there has been emphasis on capacity building and outreach (with lectures and workshops with students in Nanjing, China and Novosibirsk, Russia).

Meetings included:

- 15-16 May: IGCP 653 Workshop:, Nanjing, China - [Programme](#) ;
- 25-30 June: 4th International Conodont Symposium:, University of Valencia, Spain. Theme session "The rise of conodonts prior to and during the Great Ordovician Biodiversification Event" organized by Drs. Ian Percival and Yong Yi Zhen. [First circular](#), [2nd Circular](#);
- 7-10 July: 6th International Conference on Trilobites and their Relatives, Tallinn, Estonia. GOBE theme session. [Website](#);
- 4-9 September: Ordovician Geodynamics: The Sardic Phase in the Pyrenees, Mouthoumet and Montagne Noire massifs, Figures, Catalonia. Indoor sessions and field trips to the eastern Pyrenees, Mouthoumet massif, and Montagne Noire. [First circular](#), [Second circular](#);
- 12-14 September: 10th Baltic Stratigraphic Conference, Holy Cross Mountains, Poland. Indoor sessions and field excursions within the Holy Cross Mountains. [First circular](#), [Second circular](#);
- 20-25 September: Dayangcha International Workshop on the Cambrian-Ordovician Boundary (DIWCOB), Changchun, NE China. Indoor sessions and field workshop. [First circular](#);
- 8-18 October: Main Annual Meeting of IGCP 653, Yichang, China. Indoor sessions (8-12 Oct.) and field excursions (13-18 Oct.) to the Lower Palaeozoic sections of the South China Platform (Yangtze Platform). [website](#), [First circular](#), [Second Circular](#);
- 22-25 October: Geological Society of America Annual Meeting, Seattle, Washington, USA. Theme session "The onset of the Great Ordovician Biodiversity Event (GOBE): Testing hypotheses with diverse data sets" organized by Drs. Alycia Stigall and Rebecca Freeman. [GSA website](#), [blog post](#).

The project webpage has been further expanded with information about all past and current activities including meetings and publications: <http://www.igcp653.org/>. There is also an active Twitter account.

Apart from the many publications already arising from the project a thematic issue of *Lethaia*, arising from the Van Mildert College, Durham University meeting, is in press and contains 14 contributions, spanning a wide range of Lower Palaeozoic topics.

5 New projects proposed in 2017

During 2017 UK scientists collaborated with others in presenting three new project proposals:

- Orogenic architecture and crustal growth from accretion to collision: examples from the Central Asian Orogenic Belt and Tethyan orogeny (UK partner: Natural History Museum, London).
- Himalayan glaciers: assessing risks to local communities from debris cover and lake changes using new satellite data (UK partner: University of Aberystwyth)
- Land resource evolution mechanism and its sustainable use in global black soil critical zone (UK partner: University of Leeds).

6 UNESCO Chair on Geoscience in Society, at the University of Plymouth

The UK Committee is delighted that Prof Iain Stewart MBE, a former member of the IGCP Scientific Board, has been appointed to a new UNESCO Chair at the University of Plymouth.

The purpose of this new Chair is to promote an integrated system of research, training, information and documentation on geoscience in society. It will facilitate collaboration between high-level, internationally-recognized researchers and teaching staff of the University and other institutions in the UK and internationally.

This project will confront sustainability at the level of the global Earth Science community, specifically embedding sustainable development goals into training materials for young geoscientists. The project will actively work with agencies such as UNESCO, the British Council and the UK Foreign and Commonwealth Office to support strategic national initiatives around science education and public engagement, particularly in developing countries. The UNESCO Chair will actively engage in regional-level initiatives in science education and capacity building, particularly related to geo-environmental issues and climate change.

Specific objectives of this Chair and the associated programme are:

- development of interdisciplinary expertise, notably through research projects that integrate geoscience, social science and communication science;
- development of a postgraduate course in “Sustainable Geoscience”, training courses, workshops and materials for geoscientists;
- to forge key international research partnerships in critical areas of sustainable geoscience e.g. disaster risk reduction, geo-energy, resource management and environmental degradation;
- to foster community-based, participatory approaches to stakeholder engagement in local socially contested geo-environmental projects;
- to build links with geoscience professionals in industry to promote sustainability thinking and practice in commercial activities;
- to enhance sustainable geoscience education through the popular media and across a range of communication platforms;
- to collaborate closely with UNESCO and other UNESCO Chairs on relevant programmes and activities.

M E Young
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