



European Association of Geochemistry

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THE SHAPE OF THINGS TO COME – HORIZON 2020

The European Union's 7th Framework funding programme (FP7) is at an end – long live Horizon 2020! This new programme is the 80-billion-euro successor to FP7, which will start in January 2014 and run until 2020. Details of H2020 are now widely available, and although many of the funding programmes, such as ERC grants and Marie Curie Actions (now Marie Skłodowska-Curie Actions) will be very similar, there are notable changes in structure and strategy, in addition to a simpler and less bureaucratic implementation. One major strategy change will be the opening up of international collaboration by including countries that are not EU members or associated states. Here we examine some of these changes and put the new strategies into perspective by examining a collaborative project from the end of FP7 with many of the characteristics that the EU will be looking for in the future.

The EU sets out clear goals for its new research and innovation programme. This new programme will respond to the economic crisis through investment in growth-building research and development (R&D), will address societal concerns in health and the environment, and will strengthen the EU's global position in research and innovation. Many of the measures in H2020 are aimed at strengthening the EU's highly valued small- and medium-sized enterprises (SMEs) – small companies responsible for much of Europe's R&D-driven growth. The EU has listened and learned from FP7, and is playing to its strengths by increasing the focus on excellence and science-driven initiatives, in addition to streamlining its application and auditing strategy.

Rather than the 4 programmes of FP7, H2020 will have just 3 main sections: (1) Excellent Science, with funding of around 24 billion euros (G€), comprises Marie Skłodowska-Curie training and mobility actions, improvement of research infrastructures, a new action on future and emerging technologies, and the European Research Council (ERC), which will receive over half the funds; (2) Industrial Leadership, with 18 G€, will invest in innovation in SMEs and attract more private investment into R&D; and (3) Societal Challenges, with 31 G€, will fund research addressing concerns such as health, food security and climate change. Research in health and food security, as well as in energy and (smart, green) transport, will account for most of these funds; however, 3 G€ are earmarked for research into climate change and resources.

Perhaps one of the biggest changes with respect to FP7 is that non-European countries will be able to take part in many actions. Such international cooperation was already worked into specific funding calls of FP7, but in H2020 the aim is to broaden this to include international collaboration across a range of programmes. The target here is not to integrate European cooperation into the research landscape of established economies, like those of the US or Japan, but rather into countries such as the BRICS nations – Brazil, Russia, India, China and South Africa – which account for a rapidly increasing share of the world's R&D expenditures.

Many of the continuing funding initiatives that will now come under the Excellent Science programme have become key features of European research over the years. The H2020 boost in funding for the ERC, for example, recognizes how well received and regarded this programme has become. But with such a large chunk of the budget going into research on societal challenges and with a general emphasis on international cooperation, it is important to consider what shape geochemical projects in this programme might take.

One project recently funded under the International Collaboration action of the FP7 Capacities programme ticks many of the boxes that H2020 reviewing panels might be considering in the future.



Stream sediments originating from the Andes exposed during a time of low water discharge on the riverbanks of Rio Solimoes, northwest of Manaus, Amazonia, Brazil

CLIM-AMAZON is a joint European–Brazilian cooperation termed Amazon, Climate Change and Geochemistry. The Amazon basin is almost the size of Europe, and it supplies more than 15% of the total freshwater input to the world's oceans. It is well recognised that deforestation, agriculture, mining and urbanization have put the region under anthropogenic stress, affecting, for example, regional climate, CO₂ balance, biodiversity, river discharge and sediment load. The damage has been hard to assess, however, as access to the region for detailed scientific research has in the past been difficult. CLIM-AMAZON is designed to provide access to one of the world's largest and most delicate field areas. The principal goal is to jointly investigate global transport and sedimentation processes in the Amazon basin, which plays a key role in global climate regulation and sediment supply to the Atlantic Ocean. In addition to Fundação Universidade de Brasília, the consortium includes research groups from France, Germany, the UK and the Netherlands.

Research goals call on key expertise from the participating groups. A team from Royal NIOZ Texel (Netherlands) will assess the palaeohydrological and palaeotemperature changes in the Amazon River using lipid biomarkers. Scientists from the University of Amsterdam will perform an integrated palynological study to gain new insights into the evolution of the Amazon drainage basin and its effects on algal blooms along the Brazilian Atlantic coast. Researchers from Imperial College London (UK) will test present and past atmospheric transport and deposition of mineral dust, particulate matter and trace elements in the Amazon basin, and they will estimate the implications for climate change and anthropogenic forcing. A team from the GeoForschungsZentrum Potsdam (Germany) will estimate changes in sediment loads during the past 5 million years in the lower Amazon basin using the cosmogenic isotopes ¹⁰Be and ²⁶Al. A research group from Jacobs University Bremen (Germany) will investigate the distribution and behaviour of high-technology metals, such as rare earth elements, yttrium, zirconium and tantalum, in large sediment particles, nanoparticles and waters from the Amazon River and its major tributaries.

Geochemistry is of course a broad discipline, which is reflected in the diverse interests of EAG members. However, it is a key field in the understanding and potential resolution of many societal challenges, such as global warming, water scarcity, pollution, energy shortages and mineral resources. Horizon 2020 should, therefore, be full of important opportunities for the geochemical community.

For more information on CLIM-AMAZON, go to www.clim-amazon.eu or contact Michael Bau (m.bau@jacobs-university.de) or Lucieth Vieira (lucieth@gmail.com).

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2014 EAG AWARDS: TIME TO SEND NOMINATIONS

The EAG invites nominations for the Urey Award, the Houtermans Award, the Science Innovation Award and the GS/EAG Geochemical Fellows Award. Your nomination can make a difference by ensuring the recognition of deserving scientists from all generations. Below is a short description of these awards. The nomination process is simple.

	The Urey Award recognizes outstanding contributions advancing geochemistry over a career.
	The Houtermans Award is given to a scientist no more than 35 years old or within 6 years of their PhD for a single exceptional contribution to geochemistry, published as a single paper or as a series of papers on a single topic.
	The Science Innovation Award subject area differs every year according to a five-year cycle. In 2013, the award will be named in honour of Samuel Epstein for his work in isotope geochemistry. This award is conferred for important and innovative breakthroughs in geochemistry, and the recipient must be between 35 and 55 years of age.
	The GS/EAG Geochemical Fellows Award is bestowed upon outstanding scientists who have made major contributions to the field of geochemistry.

Please submit your nominations **before 15 October 2013** for the GS/EAG Geochemical Fellows Award and **before 15 November 2013** for all other awards. The web page www.eag.eu.com/awards/nomination/ provides details.

DISTINGUISHED LECTURE TOUR 2013



Thomas Röckmann

The third edition of the EAG Distinguished Lecture tour will take Thomas Röckmann (Utrecht University, Netherlands), a leading specialist in the development and application of isotope techniques to atmospheric research, to three institutions in Eastern Europe:

- Institute of Geography and Earth Sciences, Eotvos University, Budapest, Hungary (25 November)
- Faculty of Environmental Science and Engineering, Babeş-Bolyai University of Cluj-Napoca, Romania (27 November)
- Faculty of Physics and Applied Computer Science, University of Science and Technology, Kraków, Poland (29 November)

Thomas Röckmann, whose research covers a wide field of applications using isotopes (e.g. global trace-gas budgets, detailed kinetic isotope effects, impact of anthropogenic activities on the atmosphere or stratosphere-troposphere exchange), will present the following lectures:

- "Oxygen isotope anomalies in the atmosphere"
- "Reconstructing changes in atmospheric trace gases in the industrial era from isotope measurements on air extracted from polar firn"
- "The isotopic composition of long-lived trace gases in the stratosphere"

Details are available at www.eag.eu.com/education/dlp, and videos of the lectures will be made available after the tour.



Japan Association of Mineralogical Sciences

<http://jams.la.cocan.jp>

ADVERTISING ELEMENTS MAGAZINE AT JPGU

The Japan Geoscience Union (JpGU) 2013 annual meeting was held from May 19 to 24, 2013, at Makuhari Messe, Chiba, Japan. The meeting featured more than 40 international sessions, and many non-Japanese researchers attended the events.



Atsushi Kamei, associate professor at Shimane University, Japan, staffing the JAMS booth at the 2013 JpGU annual meeting, with a poster of *Elements* and back issues stacked in a rack.

The Japan Association of Mineralogical Sciences (JAMS) installed a booth at the venue to exhibit our journals—*Journal of Mineralogical and Petrological Sciences* and *Ganseki Koubutsu Kagaku*—as well as books authored by our members. In addition, some back issues of *Elements* were also exhibited. All copies of *Elements* were soon distributed among the participants, demonstrating the popularity and strong public interest in the magazine. We welcome your participation in the JpGU Meeting 2014, which will be held in Yokohama (April 28–May 2, 2014).

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ORIGINAL ARTICLES

Steady-state luminescence measurement for qualitative identification of rare earth ions in minerals Maria Barbara CZAJA, Sabina BODYL-GAJOWSKA, and Zbigniew MAZURAK

Petrology, geochemistry, and origin of metamorphosed mafic rocks of the Trans Vietnam Orogenic Belt, Southeast Asia Kazuhiro YONEMURA, Yasuhito OSANAI, Nobuhiko NAKANO, Masaaki OWADA, and Sotaro BABA

Texture of lutecite Toshiro NAGASE, Koichi MOMMA, Takahiro KURIBAYASHI, and Masahiko TANAKA

LETTERS

Makovickyite and cupromakovickyite from the Obari mine, Yamagata Prefecture, Japan Yuya IZUMINO, Kazuo NAKASHIMA, and Mariko NAGASHIMA

Water molecules in the channel-like cavities of osumilite Nozomi SOGAWA, Keiji SHINODA, and Norimasa SHIMOBAYASHI

Namibite and hechtsbergite from the Nagatare mine, Fukuoka Prefecture, Japan Seiichiro UEHARA and Yohei SHIROSE

The structure of hydrated copper-silicate gels, an analogue compound for natural chrysocolla Tsuyoshi HARIU, Hiroshi ARIMA, and Kazumasa SUGIYAMA

Talmessite from the Uriya deposit at the Kiura mining area, Oita Prefecture, Japan Masayuki OHNISHI, Norimasa SHIMOBAYASHI, Shigetomo KISHI, Mitsuo TANABE, and Shoichi KOBAYASHI