

12th INTERNATIONAL ECLOGITE CONFERENCE

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Eclogite-facies rocks are a record of subduction and collision tectonics. Their fascinating characteristics have, once again, brought together scientists from all over the world at the International Eclogite Conference (IEC). The 12th edition of the IEC was held 20–29 August 2017 in Åre (Sweden) at the foot of Mt Åreskutan in the Scandinavian Caledonides, the place where, in 1888, Elis Törnebohm identified a major thrust that carried high-grade metamorphic rocks over fossiliferous sediments.



Some 121 participants from 18 countries and 5 continents convened in Sweden for the 12th IEC, which had the title, “High- and Ultrahigh-Pressure Rocks – Keys to Lithosphere Dynamics through Geologic Time”. The delegates contributed 58 oral presentations and 65 posters, which made for a densely packed program arranged in seven sessions over the three days.



Delegates at the 12th International Eclogite Conference. PHOTO: MATTIA GIGLIO.

Junior researchers and graduate students formed a large part of the delegates, with 25 of the students excelling in oral and poster contributions, something that impressed the scientific committee when making its decision on awards. After a tough selection between many outstanding presentations, the committee awarded the best student talk to Iwona Klonowska (Uppsala University, Sweden) and the best student poster to Michał Bukała (AGH University of Science and Technology, Kraków, Poland).



The winners of the student awards were Iwona Klonowska and Michał Bukała, pictured here with the current IEC President, Charlotte Möller (left), and the Past President, Hans-Peter Schertl (right). PHOTO: MATTIA GIGLIO.

Eclogites are intimately related to subduction and orogenic processes and their study is relevant to mineralogy, petrology and tectonics. Therefore, the topics for scientific exchange were many. Each of the seven conference sessions offered many points for discussion and are summarised here. “The Scandinavian Caledonides and its Eclogites” was the title of the first session, and here, keynote lectures from David Gee (Uppsala University) and Hannes Brueckner (Columbia University, USA) beautifully illustrated research milestones over the last few decades in

the understanding of this complex orogeny. “The Microstructures and Microchemistry of High Pressure and Ultra-High-Pressure Minerals” discussed everything from the presence of diamonds in ophiolites (keynote talk by Jingsui Yang, Chinese Academy of Geological Sciences) to garnet and polycrystalline inclusions. “The Chronology of Eclogite Facies Metamorphic Rocks” included talks on the most robust chronometers that are currently used, such as zircon, garnet and rutile. “Subduction and Continental Underthrusting” discussed the formation of high-pressure rocks and included two keynotes, one by Gisela Rebay (University of Pavia, Italy) and the other by Patrick O’Brien (University Potsdam, Germany). The “Garnet Peridotites” session saw William Griffin (Macquarie University, Australia) discuss the connection between garnet peridotites and the mantle. The “Fluids and Melts” session discussed the relation between metamorphism and subduction processes. The composition and dynamics of fluids and melts were subject of another session that included a keynote by Håkon Austrheim (Oslo University, Norway) on the role of fluids in producing intermediate-depth earthquakes. Finally, the session “The Chemical Dynamics of Subduction Zones” included keynote talks by Suzanne Baldwin (Syracuse University, USA) and by Yong-Fei Zheng (University of Science and Technology of China).

Following tradition, the 12th IEC had a strong field component, and the 3 days of scientific presentations were enriched by a pre-conference, a syn-conference and a post-conference field trip.

A memorable **pre-conference field trip** – led by Herman van Roermund, Jarosław Majka, Marian Janák, and Iwona Klonowska – took delegates to the Seve Nappe Complex in northern Jämtland (Sweden). On Day 1 we visited the type locality of central Seve belt eclogites and their migmatitic kyanite host gneisses. On Day 2, delegates honed their cross-country navigation and bog-avoidance skills during a vigorous hike and were rewarded by eclogite outcrops and beautiful views of the surrounding landscape from the top of Tjeliken mountain. A helicopter, skillfully landed on the windy mountaintop and shuttled delegates between Tjeliken and the base of the Friningen garnet peridotite outcrop.

The local geology of the Caledonian suture in central Jämtland was explored during the **mid-conference excursion**, which was led by Iwona Klonowska, Jarosław Majka, Marian Janák, and David G. Gee.

The **post-conference excursion** was led by Herman van Roermund, Dirk Spengler and Hans Vrijmoed and took the delegates to Molde (Norway). This trip was blessed by good weather. Hopping across fiords and little islands by ferry, the participants visited a small portion of one of the largest high-pressure terranes in the world: the Western Gneiss Region. Participants appreciated seeing spectacular kyanite eclogites and gneisses, as well as unique garnet websterites.

The meeting was organized by an international team, including Charlotte Möller (Lund University, Sweden), Jarosław Majka and Iwona Klonowska (Uppsala University, Sweden), Herman van Roermund (University Utrecht, The Netherlands), Marian Janák (Slovak Academy of Sciences, Slovak Republic), Dirk Spengler (Technical University Berlin, Germany), and Hans Vrijmoed (Free University Berlin, Germany). The eclogite community acknowledges the mighty effort by the organising committee and thanks them for a perfectly run conference.

The preparations for the next, 2019, edition of the IEC are under way. The eclogite crowd will then gather in Karelia (Russia) and visit the Belomorian high-pressure localities, which are some of the oldest eclogites on Earth.

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