

Conference Call

had an illuminating meeting of the POLYCHAR family. The scientific “children” and even “grandchildren” of the early participants from more than 20 years ago have come together. POLYCHAR 23 is scheduled for 11-15 May 2015 in Lincoln, Nebraska, hosted by Mehrdad Neghaban of the University of Nebraska-Lincoln and his team.

Thanks are due to Peter Mallon, his colleagues, and collaborators at the University of Stellenbosch for effective organization of the Course and the Forum. Good organization is a necessary condition for a creative and nice atmosphere, which was appreciated by the participants in Stellenbosch.

Global Experiments Spark International Years: Sharing Best Practices

International Years are both a celebration and an excellent opportunity to raise awareness about a wide range of topics. In the last decade, some of main branches of science including physics, astronomy, and chemistry have been recognized by the United Nations with International Years. During the 2011 International Year of Chemistry, IUPAC in partnership with UNESCO organized the Global Water Experiment [water.chemistry2011.org] as one of the flagship activities under the theme “Water: A Chemical Solution.”¹ Comprised of four simple experiments about water quality and purification, hundreds of thousands of students took part in this massive global activity, reported their data online, and helped to build an interactive global map where anyone can see, compare, and analyze the data collected in the yearlong activity.²

This year, on 20 January 2014, at the opening ceremony of the International Year of Crystallography at the UNESCO headquarters in Paris, Maciej Nalecz, Director of the Division of Basic & Engineering Sciences at UNESCO, said, “The international year of chemistry introduced the global water experiment that became part of the school curriculum in many countries,” adding that “crystallography has many possibilities for follow up, and I’m absolutely sure this will be a year to remember.”³ A few months later, the Royal Society of Chemistry launched the “Global Experiment 2014: The Art of Crystallisation,” a crystal growth competition, also consisting of simple experiments, sharing the data online, and creating a global interactive map.⁴

During the 4th International Conference of Young Scientists & Annual General Meeting of the Global Young Academy “Natural Resources in a Finite World” held in

Santiago de Chile from 21-23 May 2014, Javier Garcia Martinez, co-chair of the Global Water Experiment, gave the invited lecture “The Global Experiment of the International Year of Chemistry: Creating Online Communities for Learner-driven Education.” Javier talked about the lessons learned and showed how to organize simple, safe activities adaptable to different age ranges to how to create online communities using the web and social media.⁵ After his presentation, a discussion followed on best practices regarding global experiments, learner empowerment through technology and the opportunities offered by online education.

Angélica Bucio, Officer of ICSU Regional Office for Latin America and the Caribbean, gave a presentation on “ICSU & Future Earth: knowledge and support to accelerate our transformations to a sustainable world.” She explained the role of ICSU and International Unions in organizing a wide range of activities from International Years to Future Earth in order to reach large audiences, raise public awareness about critical issues, and gather the best expertise to solve our more urgent issues.

Finally, Jorge Sequeira, Director of the UNESCO Office of Education for Latin America and the Caribbean gave the keynote talk “Natural Resources in a Finite World—UNESCO’s commitment to supporting the efforts of young women and men in the sciences, education, culture and communication.” Dr. Sequeira focused on how to tackle global issues through better understanding of the scientific and technological challenges, a more effective education, and the empowerment of women.

Chemistry is the central science and therefore



Javier Garcia Martinez presenting at the 4th International Conference of Young Scientists & Annual General Meeting of the Global Young Academy held in Santiago de Chile in May 2014.

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touches with many other scientific and technical disciplines. The United Nations is providing us with an excellent opportunity through its International Years to promote a wide range of causes and topics.

Global Experiments is an exciting new tool thanks to which millions of young students from all around the world can be reached and connected. We can all learn from previous experiences about how to build successful and effective Global Experiments to engage with the new generations of scientists and inspire new scientific vocations.

 www.iupac.org/project/2010-011-1-050

References

1. www.iupac.org/publications/ci/2012/3403/3_martinez.html
2. www.visualizing.org/full-screen/39174/embedlaunch
3. www.rsc.org/chemistryworld/2014/01/unesco-international-year-crystallography-opening-ceremony
4. <http://rsc.li/ge2014>
5. www.iupac.org/publications/ci/2010/3204/1_garcia-martinez.html

See also www.iupac.org/publications/ci/indexes/stamps.html

Stamps International

Nickel Mining in Paradise

New Caledonia, an overseas territory of France located approximately 1400 km east of Australia, has what most people would expect from a rather secluded archipelago in the southwestern Pacific Ocean, including a fascinating biodiversity and a mixed population of Melanesian and European descent. Discovered by the celebrated British navigator and explorer James Cook in 1774, the main island, Grande Terre, is surrounded by coral reefs and consists primarily of coastal plains, lush mountains, and valleys. A rich array of flora and fauna, beautiful beaches, a myriad of waterfalls and hiking trails, moderate weather, and a unique blend of indigenous and French cultures make it an appealing tourist destination.

However, it may come as a surprise to many that New Caledonia, which is only half the size of Taiwan and has a population of roughly a quarter of a million, is one of the world's top producers of nickel, together with Australia, Canada, Indonesia, Russia, Brazil, and the Philippines. The French engineer Jules Garnier first encountered green deposits of nickel-containing minerals in New Caledonia in 1864, and commercial mining operations in the main island began in 1875. The export of nickel ores and ferromagnetic alloys is today a major driver of the economy in New Caledonia, which boasts some 10-15% of the world reserves of the versatile metal.

The stamp triptych featured in this note was issued in 2010 to highlight the three key steps involved in the

production of nickel in New Caledonia, namely the mining of mineral ores, the smelting process, and the transfer of the ensuing silvery-white metal for export. Nickel, often in combination with chromium or small quantities of other transition metals, is extensively used in electroplating applications and in the manufacture of stainless steel and a variety of nonferrous alloys, leading to the material's enhanced strength and corrosion resistance. Significant quantities of nickel



are also used in rechargeable batteries and catalytic hydrogenation reactions. With world production and consumption of nickel on the rise, renewed efforts are made in New Caledonia and elsewhere to minimize the adverse environmental impact of mining and processing of nickel ores. Interestingly, "nickel" (five-cent) coins in the United States, in circulation since 1866, contain only 25% of the metal, the balance being actually copper!

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