

International Earth Science Olympiad Experience

Feedback from Beijing 2024 by Eva Corot

The 17th International Earth Science Olympiad (#IESO2024) in Beijing 🇨🇳🏆 from August 8-16, 2024! 136 students from 35 countries in diverse #EarthScience challenges: Geosphere, Oceans, Solar system, Astronomy, Paleontology, Biology, Physics, Mathematics... Sharing Experience Feedback from the International Earth Science Olympiad for High School Students (Maths 🧮, Physics (Ocean 🌊 & Atmosphere 🌬️), Geology 🪨, Astronomy 🌌, Paleontology 🦕, Astrophysics 🌠, Data Science 💻, Theory & Fieldwork)

From France to Beijing

In France, the French team was selected and trained by the Science à l'École organization. We were prepared through tailored courses and specific field training sessions. Obtaining a visa for China was straightforward, thanks to the invitation letter from Peking University awaiting us. We set off for Beijing in July 2024.

Our journey takes us halfway around the globe, immediately exposing us to the geopolitical realities of the planet. Our flight must take several detours to avoid certain countries like Syria and Afghanistan, as well as regions like Xinjiang or Tibet.



We were immediately welcomed at the airport by a young Chinese student our age, who stayed with us throughout the entire trip, accompanying us everywhere. We communicated in English and a few words of French that she had learned in school. She helped us with logistics and any translation challenges. It was also a deeply enriching cultural exchange.

We had been in touch with her a few days before our departure and have stayed somewhat in contact since then. Her name is Shuyu.



We traveled across Beijing from the international airport in the south to the Olympiad site in the north. Right away, we were struck by the contrast between the modernity of the architecture and the rich traditions.

The program combined competition with cultural discoveries. The organizers adjusted the schedule based on the weather, as some of the competitive events were held outdoors—which I'll discuss later—and heavy rain became part of our experience. But for now, let's start with the cultural aspects.

Cultural Immersion

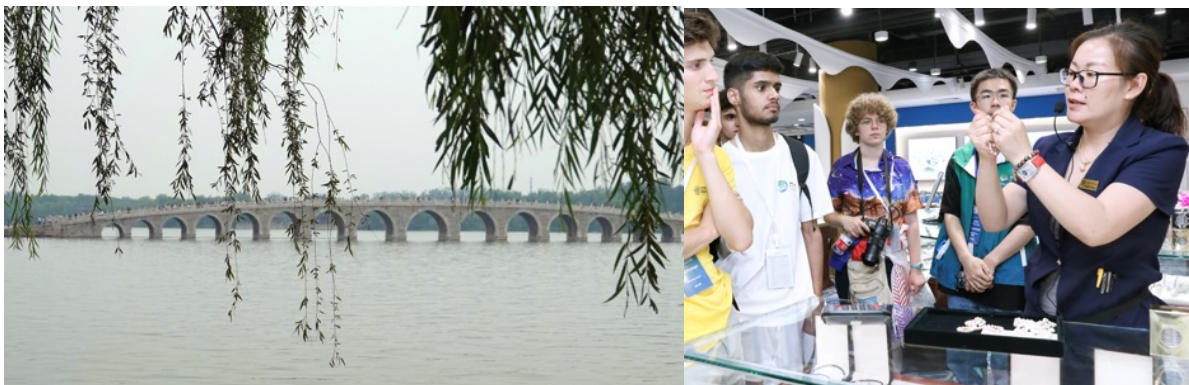
Traveling by organized bus, we visited the Summer Palace, the place where the dragon loses its strength. Take note of its front claw, which doesn't hold a pearl. We also saw the Stone of the God of Longevity and the beautiful gardens.



It's also a journey through history, with a visit to the Great Wall of China and a traditional tea ceremony.



We also explored the Seventeen-Arch Stone Bridge and visited shops specializing in jade and pearl cultivation.



When it comes to food, the markets are extraordinary, filled with products we're not used to seeing. Our guide was eager to show us that they have French bakeries, where you can find... ham-and-cheese croissants (which, ironically, you don't find in France).



We also visited the Olympic site with its iconic "Bird's Nest" stadium. To go up or down the Great Wall, there are pedestrian chairlifts, whereas in the city, a very large number of Chinese people use small scooters with blankets to get around.



We were very well accommodated in the student rooms (School 101) while it was their summer vacation. The beds were surprisingly comfortable, even though they don't use traditional mattresses but rather a sort of futon. Aside from at the airport and our rooms, the toilets are of the squat variety, but don't think that means they're not modern. In fact, everything is air-conditioned, and you'll find rubber strip doors everywhere to help keep the buildings cool.



For the cafeteria, at breakfast, we were offered a variety of savory dishes, such as hamburgers. We were staying in a middle school, but the middle schools in Beijing are sized to match the scale of the country. The basketball courts numbered in the dozens, side by side—something you'd never see in France. Not to mention the countless volleyball courts nearby. But the national sport is ping pong, and we had the chance to face off against the Chinese. No doubt about it, with their enormous, fully equipped halls, they are champions.



The Ceremonies

No Olympiad without a ceremony. We had one for the opening and another for the award ceremony at the end. They were grandiose. It all started with the parade of all the international teams. Each ceremony also featured the national anthem, sung with great emotion.



Then there were professional dance and music performances. Notably, there was an excerpt from a Beijing Opera show.



What was particularly interesting and moving was that some of the performances were put on by middle school students from Beijing. Notably, the Guzheng Middle School Orchestra performed. The Guzheng is an instrument with multiple strings that allows for playing many notes at once, somewhat like a piano. Another instrument resembled a violin, with two strings being bowed. It was truly wonderful.



We also had a shadow puppet show, once again performed by the middle school students of Beijing.



The Competition

There are several types of events.

In one day, you're taken to 5 different sites to uncover their past history (mine, outcrop, etc.). Identify and find fossils, spot the rock layers, and observe human activities. You have 🧭🔍🪛 (HCl) 📝 & no 📶! You don't know where you are without a mobile phone or GPS.



Theoretical tests are conducted in the form of multiple-choice questions on computers, with each participant in a small cubicle. It's surprising, but here they're used to it, with many rooms fully equipped.

Example of a theoretical question: Determine the distance of the Moon from Earth based on its age, density, and rate of drift over time (hint: it was formed at the Roche limit, obtained by equating the gravitational attraction of the two bodies).



$$d = R \sqrt[3]{2 \frac{\rho_P}{\rho_s}} \approx 1,260 \cdot R \sqrt[3]{\frac{\rho_P}{\rho_s}}$$

The field experiments are the highlight of the competition. They are called the "Team Field Investigations." You're taken to a lake an hour outside Beijing, given sampling equipment and various measuring devices. You have 2 days to present something insightful about the hydrological phenomena occurring there. 🌊 #IESO2024



There are also Poster/Data Mining sessions: These include presentation tasks (either in international teams or individually) involving data analysis and synthesis. 📊 🔊





Cultural Exchange

As we engaged with people from various countries, we had the opportunity to participate in a **Geological Youth Movement (GYM)** meeting. The session began with a speech by Nir Orion, chair of the IGEO (International Geoscience Education Organization), emphasizing that learning is less about *what* and more about *how*. He compared it to an instinct requiring stimulation, highlighting the challenge posed by the escalating effects of global warming.

Following this, Aswatha Biju, a participant from the Indian team, delivered an inspiring talk about her Fossil Forever club, which advocates for earth sciences and fosters self-awareness about climate issues and she encouraged us to celebrate "happy on earth," akin to wishing someone a "happy birthday." I think it is like the "eco-delegates" in France, each middle and high school class elects student representatives for education, known as *délégues*, as well as *eco-délégues* who focus on ecological projects. While these structures exist, their impact in driving tangible actions remains uncertain in my point of view.

We then explored ways to make earth sciences more engaging. Key ideas included:

- **Promoting field trips:** Supporting educators in organizing them by providing region-specific guides, much like those developed by associations for promoting math clubs or small physics experiments in schools. Field trips could also focus on observing the local impacts of climate change and geological phenomena, even in urban areas where rocks are used for construction. A Wikipedia-style website, with localized information and resources, would be invaluable for this purpose.
- **Encouraging exchanges:** Activities like quests, games, or interactions with people from distant regions, such as rock sample exchanges. An association could assist by offering classification guides, standardizing sample sizes, and providing a best practices code, including guidelines on where collecting rocks is permitted. Promoting these initiatives in schools would inspire young people to participate actively.
- **Highlighting practical applications:** Demonstrating how earth sciences relate to daily life through concrete examples.
- **Creating a dedicated committee with all the people concerned:** Inspired by the UN, this group formed with students, teachers, and earth-scientists, could draft and implement resolutions to raise awareness and foster collective responsibility. Similar to a Model United Nations (MUN), participants would simulate UN processes, debating global issues and drafting actionable solutions, while enhancing their diplomatic and communication skills, to manage to feasible measures.

- **Supporting enthusiastic educators:** Encouraging passionate teachers to lead field trips and integrate hands-on activities. In addition to existing resources like <https://planet-terre.ens-lyon.fr/carteinteractive/> for France and Europe, which focuses on major geological phenomena, there's a need for tools covering smaller-scale, localized observations of geology and climate change. Such tools should include modern features like apps, forums, photo sharing, and user ratings for points of interest.
- **Facilitating international exchanges:** Programs like Erasmus could broaden perspectives and foster collaboration among students worldwide.
- **Modernizing earth science platforms:** Developing an engaging, regularly updated website dedicated to earth sciences, such as the IESO Young Reporter page, but with expanded global coverage.

Finally, I reflected on how fortunate we are in France to have comprehensive earth science courses, unlike some countries where students are limited to geography classes.

Results

IUGS Young Reporter Award: A #ProudMoment for France🇫🇷 at Beijing's 17th #InternationalEarthSciences Olympiad! 🏆Eva & 🏆Marine more info
👉 <https://iugs-young-reporters.com/videos>

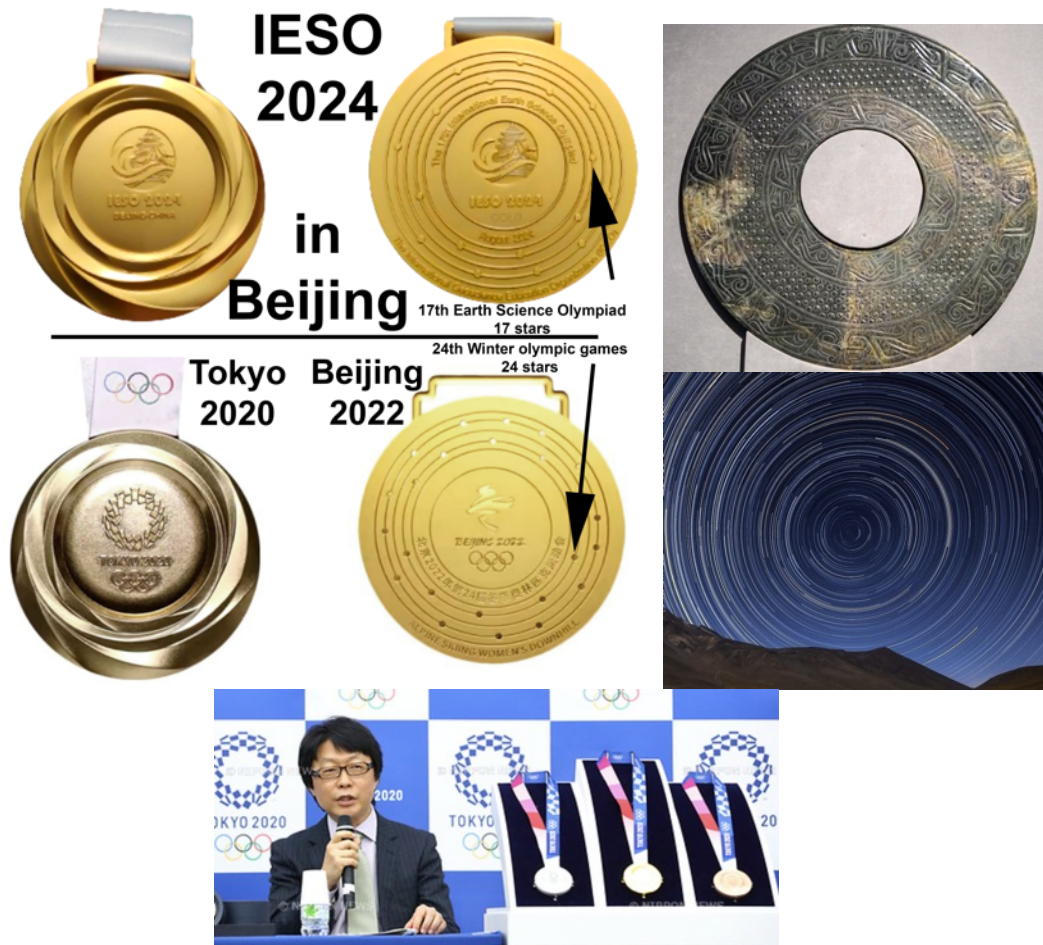


France Results for ITFI, ESP and Individual tests: At Beijing's 17th #InternationalEarthSciences Olympiad, our French 🇫🇷 team also clinched: Eva 🏆🏆, Axel 🏆🏆 and Amaury 🏆🏆





Medals combining all Earth science theme Front: designed as Kawanishi's #Tokyo2020 OG medals like polished rough stones & 🌀vortex & 🌱minerals Back: 5 olympic circles for 17 star trails for the 17th #IESO like the #Beijing2022 medals



Back to France

Thank you to Sylvie Retailleau for joining us on the Champs-Élysées for the medalists' parade on September 14th during our friendly meeting of the Scientific Olympiads: 🌍Earth Sciences #IESO2024, 🧩Maths #IMO2024, 🧬Biology #IBO2024, 🖥️Informatics #IOI2024.



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We have also been received at the Academy of Sciences for a special ceremony for Earth Sciences and other scientific fields with an olympiad on December 9, 2024.



The organization was excellent, and the experience exceptional. The only regret I have is that we were isolated the entire time, without phones or our coaches, so we couldn't discuss or debrief after the events: for example, we couldn't learn more about the remarkable sites we visited and their history. So I'm not certain about everything we were exposed to. Nevertheless, being without a phone encouraged us to engage more with participants from other countries, making it an enriching experience.

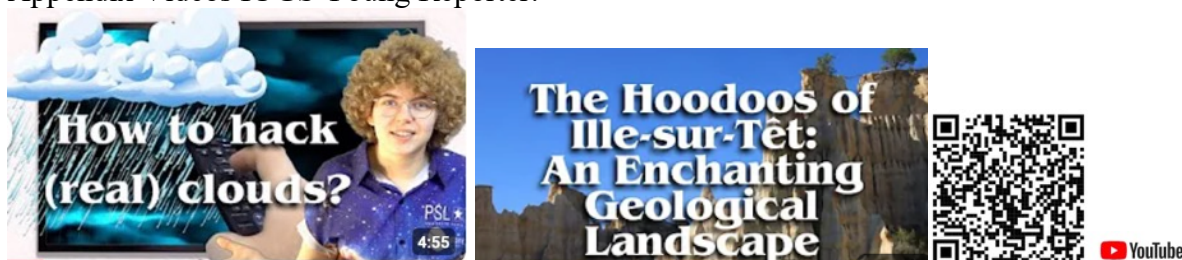
Since then, I've been leading a preparation club for the French selection for the International Earth Science Olympiad in Paris, around the Panthéon, called Club AstroPanthéon. I hope that at least one of the young members of the new generation will represent France at IESO 2025, which will be held in China again. And perhaps I could accompany them as an "observer" that summer in 2025, or at least I would be proud to be part of this competition again if I had an occasion to do so.

What You Need to Know to Participate in the Next National Selections

Registrations for the national selection close on January 10, 2024, through a SVT or physics (science) teacher. The competition consists of a written exam at the high school, a multiple-choice quiz, followed by an oral exam in English via video call. This is followed by a 4-day training session at ENS Lyon, a 5-day fieldwork training in the Alps in July, and then a final selection for the IESO 2025 in China, which lasts 10 days in August.

Participation in the competition is open to all French students in 10th, 11th, and 12th grade. However, only students in 11th and 12th grade will be eligible to be part of the selected delegation. The competition requires the SVT option in 11th grade, though it's not necessary in 12th grade. A good level of English is also required.

Appendix Videos IUGS Young Reporter:



Minister of Education of China, Minister of Higher Education and Education:

