

Review of the pilot CEOS in Schools programme

UK Space Agency (2025 CEOS Chair)

1.0 Executive Summary

As part of the UK Space Agency's 'Unlocking Earth Observation for Society' 2025 CEOS chair theme, the CEOS in Schools pilot was developed. The programme aimed to create a low-cost, repeatable mechanism to bring the youth voice into CEOS.

Launched to inspire the next generation and foster collaboration among students from across CEOS member countries, the programme also aimed to create a pathway for youth voices to be heard and considered within CEOS.

After discussions with educators and participating countries, in the initial year, the programme involved 125 students aged 14–16 across 6 countries. The initiative showcased how satellite-based Earth observation is used to address some of the world's most pressing challenges—from climate change and environmental protection to disaster response and sustainable development. Beyond the content, the programme provided students with a unique opportunity to collaborate with peers from around the globe, reflecting the international spirit of cooperation that defines CEOS.

Schools and students have expressed a strong interest in continuing the programme. The CEOS Plenary should consider whether—and how—this youth initiative could become a core component of CEOS moving forward.

This paper will be updated following the Youth summit, with a final version provided at CEOS SIT 41.

2.0 Recommendations

- 1.** Support Team Australia's continuation of the programme, embedding lessons learned from the pilot year and expanding participation.
- 2.** Explore practicalities of a permanent youth programme under the Working Group on Capacity Development

3.0 Objectives of Programme:

At the outset, the programme set the following objectives:

- **Inspire:** Create a low-cost repeatable programme that can introduce and inspire young people on the power of Earth Observations
- **Collaborate:** Provide an opportunity for students to work collaboratively across international borders.
- **Engage:** Facilitate a two-way discussion between CEOS principals and youth on key CEOS topic areas so that the views of the next generation are considered.

4.0 Background and programme structure:

As incoming CEOS Chair, UKSA's announced its intention to pilot a youth programme at SIT 38 (April 2024). All CEOS Agencies were invited to participate, and two webinars were held in June 2024 to help shape the programme, provide links to or examples of, pre-existing youth activity regarding Earth observation and to listen to concerns and practical suggestions for how it could be implemented in each country.

Following these discussions the programme structure agreed was:

- Targeted at students aged between 14-16 years old. [Old enough to be able to input their own ideas and opinions to a discussion yet young enough to be inspired for a possible career in STEM / space / earth observation]
- Intended to be viewed as 'extra-curricular' without the intention of being part of national curriculums or formal education. [This means there were significantly less barriers to uptake of the programme and no formal approval from education authorities would be needed. This is a 'nice to do' programme for students who are self-motivated/willing to be part of it]
- Initially targeting 'focused quality' engagement with smaller group of students opposed to mass participation for pilot year. [For logistical reasons the pilot needed to start with a small number of schools / students from each country. The aim is for each student to be given a voice and be heard. This is not possible on a broadcast type webinar, so the numbers of students are limited by the number of facilitators available]
- Split into four elements:
 - Earth Observation resources and materials
 - International interactive student Webinars
 - Poster Project
 - Youth Summit with intergenerational dialogue.

- The ‘formal’ programme for the students would run from January 2025 and culminate with the first CEOS Youth summit at the Bath Plenary in November 2025. [January and February are the times of the year when most schools around the world are in term time. The recruitment of the schools and onboarding the teachers, distributing the materials etc should start as soon as possible. This activity was started in June 2024 in the UK]
- Alongside the programme an online platform to facilitate student and teachers access to ready-made EO teaching material (<https://ceos.org/youth/>). [The teachers across multiple countries asked for a simple place to find tools to expand the knowledge of the students. CEOS members have a wealth of materials already and hence we created a list of these with the links to the material]
- Run in English only [Due to time and resource constraints and with the view that English is the common CEOS language. Options for translations should be explored to make it more inclusive in future iterations]
- Consider a longer term / legacy and hence be a low-cost high reward / repeatable programme.

The graphic below illustrates the initial three pillars of the Youth Programme, developed following the first round of calls. The programme was structured into three distinct workstreams:

1. **CEOS in Schools Pilot** – Directly engaged students through school-based activities and events.
2. **Educational Materials Workstream** – Focused on curating and developing an online platform to share educational resources.
3. **Legacy Workstream** – Explored the long-term role and sustainability of a youth-focused initiative within CEOS.



Figure 1: Initial Programme structure

4.1 Onboarding CEOS Agencies, Schools, Educators and Students

All participating Agencies were provided with outreach materials to help engage potential participants within their respective countries. The approach was intentionally flexible, acknowledging that each agency has a distinct mix of existing youth outreach initiatives and Earth observation content.

Outreach activities in the UK began in June 2024, ahead of the programme's official launch in January 2025. Recruiting schools proved more challenging than anticipated. Despite sending emails to over 60 schools in the Bath area, initial engagement was limited. It ultimately required personal outreach—through word of mouth and local connections—to reach the right teachers.

A key lesson learned was that teachers are extremely busy and often unable to respond to emails or take on additional activities during their working hours. However, four teachers were personally inspired to join the programme. Each established a lunchtime or after-school club, giving students the opportunity to explore the materials, participate in calls, and create their posters.

Key lesson: The programme would not be possible without direct teachers.

Due to varying timelines and local constraints, not all interested agencies were able to secure participation from students their country. However, schools and students from the United Kingdom, Australia, Canada, South Africa, Thailand, and Japan were successfully onboarded and provided with preparatory material to ensure a common base line of understanding of Earth Observation is before the first webinar.

Key lessons: CEOS members themselves were key in contacting teachers and getting them to participate. CEOS members used their own personal contacts. This approach needs to be flexible for each country to find ways to onboard the schools or students

Key lessons: Certain times in the school year are better for approaching teachers than others. Globally the school years run at different times so running the core programme January to June made the most sense for the most countries to avoid exams and holidays.

Key lessons: Groups of approximately 10 students per school worked well and supported effective engagement.

4.2 CEOS International student webinars:

In February and March 2025, over 125 students from the six participating countries took part in two international workshops designed to foster global collaboration and deepen understanding of Earth Observation. The themes of these workshops were:

- EO Satellites in Natural Disaster Response
- EO for Biodiversity Monitoring

Each session lasted 1.5 hours and included student participation from across the globe. Students had the opportunity to engage in virtual breakout groups, where they could discuss topics and exchange ideas directly with peers from other countries, sharing their unique experiences and perspectives.

The workshops were led by UKSA Education team with support from EO Experts. Prior to each workshop, all students were asked to complete a worksheet of activities aligned with the session's themes. This was designed to help them feel confident contributing to discussions, particularly supporting those for whom English is not a first language. The pre-work also encouraged students to research issues relevant to their own region or country, enriching the dialogue with diverse viewpoints

Key lessons: To accommodate global time zones, two twin webinars were scheduled—requiring some early starts and late evenings. It was not feasible to include both Canada and Australia in the same session, as the time difference made it impractical for students and teachers in either region.

Key lessons: The coordinator (UKSA) did not need the names of each student – just the contact details of the teachers. Privacy and respect of wellbeing etc were key – all schools were asked to not record. Schools and students will also have different policies regarding participating in online webinars. Clarity is needed when engaging schools to ensure that they are aware of the basic requires on students for when joining the webinars

Key lessons: Students engaged in different ways—some preferred writing in the chat function, while others opted to speak. It's important to accommodate both styles of participation. The provision of pre-session materials was well received.

Key lessons: A maximum duration of 1.5 hours was found to be optimal, aligning with students' attention spans and overall engagement levels.

Key lessons: Students consistently expressed a desire to continue conversations after the calls. A mechanism to support post-session interaction should be explored to facilitate ongoing engagement

4.3 Poster Challenge and Youth Summit

The CEOS Poster Project was the final element of the programme and was designed to provide the participating student an open platform to inform the wider CEOS Community of what issues are important to them. Students had between April to June 2025 to complete the projects and were invited to participate individually or in small groups. The suggested focus for students to either:

1. Outline how CEOS can improve international collaboration
2. Design a new Earth Observation satellite – what would it do? How? Why?
3. Conduct a research project on using Earth observation data on an issue important to you

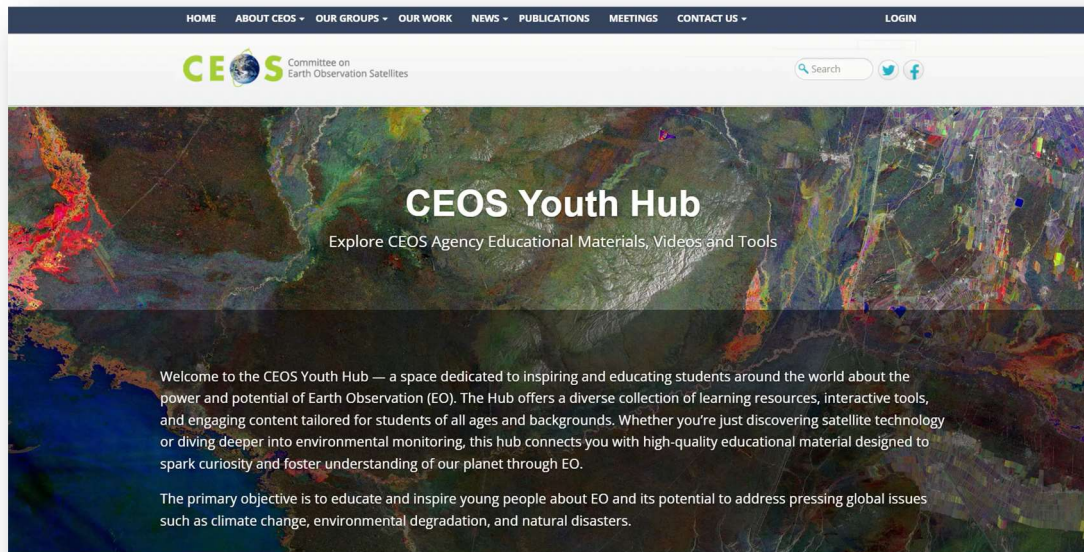
The posters were displayed at the CEOS Plenary in Bath, where students from the United Kingdom were invited to attend in person. Internationally participating students were encouraged to submit video presentations of their work. This was followed by a Q&A session with principals from a selection of CEOS Agencies in a hybrid format.

Key lessons: The timing of the Poster project and Youth summit crossed different academic years in northern hemisphere countries. Organisers should be aware of any practical implications this could have.

A fuller review of Youth summit will be included following the Bath Plenary.

4.4 Youth Hub

Following the initial engagement with CEOS Agencies and feedback from teachers, it was apparent that a key barrier to access to EO material was not that it hadn't been produced but they did not know where to look for it. There was a lack of a simplified platform to find the wide range of resources already available. Some CEOS members already have a well-established national or regional space education programme with strong uptake and open-source educational material. However, this information was not easily available. With CEOS' role of international coordination, it was deemed suitable to set up an online platform on the CEOS website to facilitate this exchange to promote wider access across CEOS Members to support development across borders.



[CEOS Youth Hub | CEOS | Committee on Earth Observation Satellites](#)

The CEOS Youth Hub was officially launched in September 2025 as a centralised platform to support youth engagement across CEOS member agencies. All CEOS members are strongly encouraged to contribute relevant outreach materials for inclusion in the Hub’s resource library. This growing repository is intended to serve as an accessible collection of materials for students and educators, facilitating the exchange of Earth observation knowledge and promoting global collaboration in science education. Contributions may include lesson plans, activity guides, multimedia content, and case studies that reflect the diverse expertise and initiatives of CEOS agencies.

5.0 Feedback

The CEOS in Schools programme was launched as a pilot to assess the appetite for youth engagement as a longer-term feature of CEOS. Throughout its implementation, feedback was actively gathered from students, teachers, and CEOS Agencies to provide an accurate overview of activities, highlighting widely supported elements, and identifying areas for improvement should the programme be repeated. A summarised version of the feedback is provided below alongside quotations from participating agencies & teachers.

‘The CEOS Youth Program has been an invaluable experience for our students, combining STEM learning, global citizenship, and cross-cultural communication. The structured lesson plans, international workshops, and creative outputs (posters) provided a well-rounded learning journey.’

‘The 90-minute workshop was well organised. Initial nerves settled quickly, and both participating schools engaged successfully. The Space Education team found the session inspiring, and student enthusiasm’

‘These materials gave us a clear framework to engage with Earth Observation topics and prepared us for the international collaboration that characterizes the CEOS effort’

‘Some students, and particularly the ASD students I included in the group, were very/extremely pensive about having to speak and show their face on camera. They were very relieved and actively participated when they saw they could contribute via the chat window. This is no small achievement with teenagers, and even more so for those with autism – so I do commend you on that choice of format for the webinar’

‘The briefing documents that were provided to me and from me to the students, were very well received. The language and topics were presented in a way that the students enjoyed them – they felt as though they were being treated like young adults, pre-University style, rather than high school-style delivery, and they really loved that!’

Thank you and congratulations to you and the facilitators, and the planners behind the scenes, for a successful event! I am proud of our students for their contribution and impressed at the deep wonderings from other participants.

5.1 Challenges:

One of the consistent logistical challenges during the programme was managing time zone differences across participating countries. Coordinating live engagement sessions that were accessible and inclusive for students and educators in multiple regions required careful planning and, at times, compromise. This complexity was further compounded by the need to align with existing national education programmes and school calendars, which varied significantly across CEOS member agencies.

A common challenge across participating CEOS agencies has been the process of identifying suitable education providers and schools within each CEOS member country. As the programme relies on localised engagement, CEOS contacts were tasked with finding institutions that could participate in the pilot. This proved complex due to varying national education structures, and differing levels of existing collaboration between space agencies and education sectors. In many cases, CEOS contacts had to navigate

unfamiliar education landscapes, and coordinate across multiple stakeholders to secure participation.

The CEOS in Schools programme was deliberately designed as a low-cost initiative to minimise the burden on participating agencies and ensure that student involvement remained accessible and inclusive. This approach was central to the UK Space Agency's vision during its Chair year, with the pilot model intended to be replicable by other CEOS member agencies regardless of their available resources. However, operating within a limited budget presented challenges—particularly in the development and consolidation of high-quality educational materials. Without a dedicated funding stream, resources had to be drawn from multiple sources, relying heavily on the participation of supportive educational providers. While this collaborative model enabled the programme to move forward, it also placed additional demands on contributors and highlighted the need for coordination across EO Educational material and providers.

Additionally, while focused engagement with a smaller number of schools allowed for deeper interaction and more meaningful exchanges, it also limited the overall reach of the programme. Balancing the quality of engagement with the desire to involve a broader student base remains a key consideration for future iterations. Addressing these challenges will be essential to scaling the programme effectively while maintaining its impact and accessibility

5.2 Recommendations for future iteration:

All feedback was consistent in stating that the international (interactive) workshops were a standout feature of the programme. These sessions provided students with a unique opportunity to connect with peers globally, distinguishing 'CEOS in Schools' from typical national or regional education initiatives. This element is recommended as a foundational component for any future CEOS youth programme. The following were also identified as recommendations:

- **Workshop Format:** *Retain the interactive, discussion-led structure, which was found to support comfort across language and cultural differences.*
- **Student Interaction:** *Explore the use of shared digital platforms to facilitate ongoing engagement between students across CEOS member countries outside of formal calls.*
- **Expand the programme:** *Explore the potential for a greater number of students to take part in the programme each year to widen the impact without losing the ability for each student to contribute to the discussions.*

- **Early Engagement:** *Encourage younger students to join the CEOS team early to support continuity. Emphasise that a strong science background is not required—the programme is designed to be accessible and inclusive, focusing on youth perspectives on global challenges.*

Feedback from the Youth Summit, held in conjunction with the Bath Plenary, will be incorporated into the final version of this report.

6.0 Next steps:

Following the pilot phase, the next stage of the CEOS Youth Programme will explore opportunities to more formally integrate youth engagement within CEOS structures. This reflects an interest in establishing a framework for youth-focused activities that complement CEOS's broader education and outreach efforts.

The CEOS Working Group on Capacity Building and Data Democracy (WGCapD) has indicated its support for the initiative, noting its alignment with the group's objective of "establishing effective coordination and partnerships among CEOS Agencies offering Earth observation education and training." Initial discussions have begun to consider the potential transition of the Youth Programme into a WGCapD-supported activity, which could help ensure continuity and enable future growth.

In the near term, as Australia prepares to assume the CEOS Chair in 2026, the Bureau of Meteorology (BoM) will continue to advance the Youth Programme as part of their Chair priorities. This transition will be supported by the UK Space Agency, which will share documentation and insights from its own Chair year to assist with continuity and knowledge transfer.

CEOS Plenary are invited to comment on this report.