Earth Observation

Evaluation summary

Project partners

IRIS The Institute for Research in Schools

Centre for Polar Observation and Modelling
Natural Environment Research Council

SEAICE

UK SPACE AGENCY

About the project

The Earth Observation research project encourages students to recognise the wealth of data available to them through satellite images and teaches them how to interpret this information.

Our planet is encircled by numerous satellites that collect valuable data and monitor ongoing changes. From glacial melt to forest fires, polluted rivers to penguin migration patterns, students use satellite data to discover how the natural world is adapting. Their findings support scientists' efforts to understand our evolving environment.

Earth Observation invites aspiring scientists to study data collected in different wavelengths and through various methods, investigating how these changes develop over time and affect specific areas.

Students gain insight into the various types of satellites and how images are captured, equipping them with the skills needed to extract maximum information from these resources.

Student registrations

The project attracts a higher proportion of female (up to 69%) and younger students (27%) compared to other IRIS research projects. Most participants are post-16 students, though this proportion is gradually decreasing over time.

	22-23	23-24	24-25
Number	106	231	124
Post-16	70%	57%	52%
Female	-*	69%	62%

*Data on gender was not collected until after 2022

Methodology

Impact and engagement data are collected through pre- and post-participation evaluation surveys since the inception of the project.

Item	23-24	24-25
IRIS pre-participation survey	155 students	86 students
IRIS post-participation survey	38 students 9 teachers	29 students 12 teachers

Impact on students

Teachers told us that this project supported students…

- Science capital
- Engagement and motivation in STEM subjects
- Interest in STEM beyond the curriculum
- Confidence in their own STEM abilities
- Understanding of the real-world applications of STEM
- To develop important transferable skills including communication, teamwork and problem-solving

"I would definitely recommend another student to complete an IRIS project. My favourite part of IRIS projects is that you get the choice to investigate any area of STEM that you're interested in. You have the opportunity to partake in cutting-edge research and make a real impact."

Year 10, female student

"One year's worth of work that is entirely worth it - really diving into scientific research and taking things into your own hands is an experience you will never forget."

Year 10, female student

Impact on students' skills development:

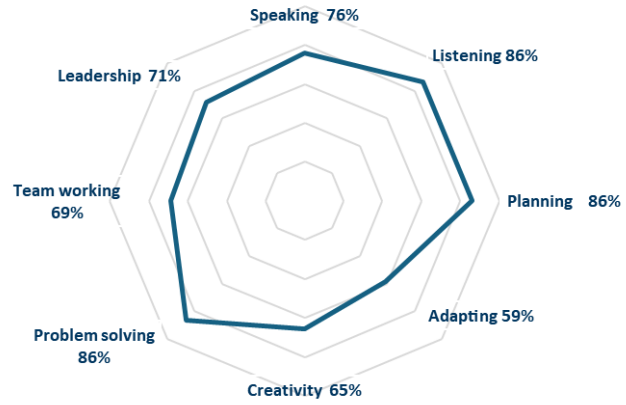
Students develop key transferable skills such as communication, teamwork, problem-solving, and leadership.

The radar charts show high gains in speaking, listening, planning, and research skills like finding information and presenting findings.

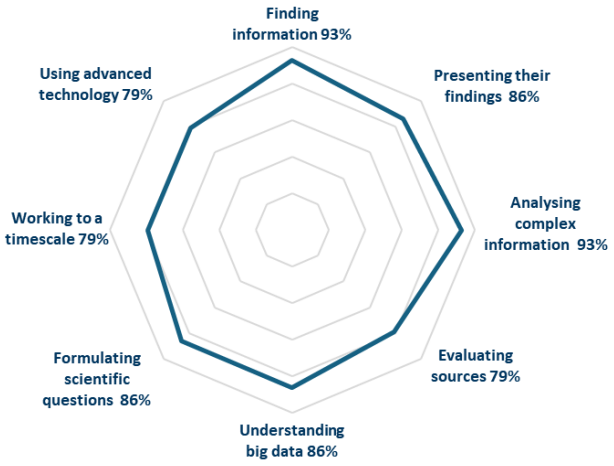
100% of students agreed that they developed important skills that will help them in the future.

Earth Observation

Through the project, students developed their own transferable skills…



Through the project, students developed their own research skills…



"I learned a lot from completing an IRIS project, not restricted to science-specific skills such as research, referencing and technical skills but extending to more general skills such as communication, teamwork and problem solving."

Year 10, female student

"I would say that by doing this project, I have gained a wide range of transferable skills, such as communication, collaboration, time management and data analysis which I can use later on."

Year 10, female student

Evaluation Summary

"I learnt transferable skills which I could use later in life if I have to get a job in research, some of these skills were: data analysis, working in a team and more. Overall, it was a really fun and unique experience and something I would love to do again."

Year 10, female student

Understanding of STEM research

The project helps students to feel more positive about research and STEM. Students felt they…

89% …can make a valuable contribution to research

83% …understand success in STEM is a team effort

"As much as going into such an unknown field of work like research is daunting, I really enjoyed the experience of facing new challenges and ultimately feel so proud of my contributions to the project despite how out of depth it was."

Year 10, female student

"It was definitely a new experience as we have never done something like IRIS, especially so young, so I loved engaging in such research!"

Year 10, female student

"I made new friends, learnt how to gather data using satellite browsers, learnt how to present scientific ideas and approach research."

Year 10, female student

Understanding of STEM beyond the classroom

The project helps students see the broader impact of STEM, with students reporting increased knowledge of STEM fields, real-world applications, and career pathways. Students felt they…

90%	…have explored new areas of STEM
86%	…know about STEM beyond the school curriculum
83%	…know how STEM can make a difference in the real world

"Well supported project with access to a wealth of different information. It gave us a great opportunity to curate and develop our own ideas outside the traditional education system."

Year 10, female student

"Not only is it fun and rewarding, all the support you gain from teachers and other students make it worthwhile! It is also a great opportunity to explore science outside the curriculum."

Year 10, female student

"I really had fun taking part in the project, it was nothing like other research projects in school. It helped me explore different aspects of science I didn't realise before."

Year 10, female student

"I enjoyed it a lot because I loved working with my peers and investigating and researching a project by ourselves and not using a textbook."

Year 10, female student

96.6% of students rated their experience as 'good' or 'very good'.

Future career impact

The project helped students to improve their knowledge of STEM careers and increased their interest in pursuing STEM courses and careers in the future. Students…

80%	…know about a range of different STEM careers
73%	…know what it is like to work in STEM
76%	…know what qualifications they need to have a job related to STEM

Students felt they…

72%	… are interested in a career in STEM
86%	…have a better understanding what it might be like to study STEM at a higher level
80%	…agreed that being a researcher would be an interesting career

"It was incredibly informative - not only in terms of scientific knowledge but mainly in terms of paths into STEM careers and what working STEM is really like."

Year 10, female student

Impact on teachers

Teachers express high satisfaction, noting that the project helps them communicate the excitement of STEM, enriches their relationships with students, and reconnects them with research.

As a result, teachers are more likely to offer further research opportunities, encourage exploration beyond the curriculum, and highlight STEM careers.

Teachers found that running the project helped them to…

90%	…communicate the excitement of STEM
90%	…enrich their working relationships with their students
80%	…get back in touch with research

As a result of running Earth Observation, teachers are now more likely to…

90%	… give students other opportunities to carry out research
90%	…encourage students to explore beyond the curriculum
80%	…make links to current research
100%	…highlight STEM jobs and careers

"It is always a joy running research projects and feeling part of the scientific community. They provide students with the opportunity to learn about STEM subjects / roles outside of the classroom."

Teacher

"It allows you to have a different relationship with students. They have taught me things! I'm not the expert and I like that they can see that. Lots of other students have approached me about taking part next year."

Teacher