Educational Resources for the EPN24 Planetary Field Analogue Sites

Rosie Cane\textsuperscript{1,2}, Tony Thompson\textsuperscript{1}, José Utreras\textsuperscript{3}, and Paul Roche\textsuperscript{4,5}
\textsuperscript{1}Thompson STEM Engagement, United Kingdom of Great Britain and Northern Ireland (tony@thompsonstem.co.uk)
\textsuperscript{2}The University of Edinburgh, United Kingdom of Great Britain and Northern Ireland (r.cane@ed.ac.uk)
\textsuperscript{3}Wandering Planet (planeta.errante.astro@gmail.com)
\textsuperscript{4}Faulkes Telescope Project, United Kingdom of Great Britain and Northern Ireland (paul.roche@faulkes-telescope.com)
\textsuperscript{5}Cardiff University, United Kingdom of Great Britain and Northern Ireland (paul.roche@astro.cf.ac.uk)

The Europlanet 2024 Research Infrastructure (RI) provides free access to the world’s largest collection of planetary simulation and analysis facilities. The project is funded through the European Commission’s Horizon 2020 programme and runs for four years from February 2020 until January 2024. The Transnational Access (TA) programme supports all travel and local accommodation costs for European and international researchers to visit 24 laboratory facilities and 5 Planetary Field Analogues (PFA) [1].

As part of the education and inspiration tasks associated with Europlanet 2024 RI, we have produced classroom resources aimed at age 10-14 year olds relating the conditions found within the PFA sites to astrobiology and the habitability of Mars.

These resources have been produced around all PFA sites:

- Rio Tinto River (Spain)
- Iceland Field Sites (Iceland)
- Danakil Depression (Ethiopia)
- Kangerlussuaq Field Site (Greenland)
- Makgadikgadi Salt Pans (Botswana)

These resources link in with common areas found in worldwide STEM curriculums, such as volcanism, pressure, pH and evaporation. To achieve this, we have filmed lab-based demonstrations and included them in a classroom lesson plan alongside teachers' notes. In addition, each lesson plan focuses on how the conditions of the PFA’s could affect the habitability of Mars, as can be seen in Figure 1.

Following studies such as Salimpour et al 2020 [2], highlighting the extent to which astronomy has been incorporated into school curriculums, we have chosen to highlight three subject areas with lower representation in high schools into our resources; physics, space exploration and astrobiology.

As these analogue sites can be linked to more planetary bodies than just Mars, our next steps are to create similar resources based around the habitability of the icy moons of the Solar System.
ICELAND FIELD SITES
Theme: Volcanism on Mars
This resource focuses on past volcanism on Mars and the formation of Olympus Mons, showing how the landscape of the red planet has changed over time. It also covers the topic of convection, explaining how and why volcanoes erupt.
Video: Formation of Olympus Mons.
Video: Convection Tube.

RIO TINTO (SPAIN)
Theme: pH
As the Río Tinto River is a highly acidic environment, resources encourage students to consider the effects that differing pH would have on the potential of life on Mars.
Video: Demonstration of the effect of pH changes with addition of carbonic acid.
Figure 1. Outline of resource plans for Europlanet Planetary Field Analogues.


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