

EXCITE: A European infrastructure to promote electron and X-ray microscopy of Earth materials

**ERIC HELLEBRAND¹, SYLVIA WALTER¹, VEERLE
CNUUDE^{1,2}, OLIVER PLÜMPER¹ AND GEERTJE TER
MAAT¹**

¹Utrecht University

²Ghent University

Presenting Author: e.w.g.hellebrand@uu.nl

Understanding earth materials is critical to creating a sustainable, carbon-neutral society. Earth materials control the feasibility of subsurface energy storage, geothermal energy extraction, and are a source of critical elements for future-proof battery technologies. Perturbations to geological systems can also result in hazards, such as human-induced earthquakes. If we want to tackle the current, pressing scientific questions related to sustainable development for a circular economy, there is an urgent need to make multi-scale, multi-dimensional characterizations of earth materials available to a broad spectrum of earth-science disciplines. In addition to the society-relevant topics, the properties of earth materials determine how the Earth works on the most fundamental level.

To overcome this challenge, 15 European facilities for electron and X-ray microscopy joined forces to establish EXCITE. EXCITE is a Horizon Europe infrastructure project, and enables access to high-end microscopy facilities and to join the knowledge and experience from the different institutions. By doing so, EXCITE will develop community-driven technological imaging advancements that will strengthen and extend the current implementation of leading-edge microscopy for earth-materials research. In particular, the EXCITE strategy is to integrate joint research programs with networking, training, and trans-national access activities, to enable both academia and industry to answer critical questions in earth-materials science and technology. As such, EXCITE builds a community of highly qualified earth scientists, develops correlative imaging technologies providing access to world-class facilities to new and non-expert users that are often hindered from engaging in problem-solving microscopy of earth-materials.

This presentation gives an overview of EXCITE, its activities and open calls, and the progress of the first year of the project.