

## **Five years of Earth and Moon: History of a Virtual Microscope**

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In 2012, the Virtual Microscope for Earth Sciences ([www.virtualmicroscope.org](http://www.virtualmicroscope.org)) was launched as an Open Educational Resource (OER) with 100 freely available thin sections of igneous, sedimentary and metamorphic UK rocks. Each rock could be explored on screen in a virtual petrologic microscope, allowing for the thin sections to be viewed in plane polarized light and under crossed polars by panning, zooming and rotating within a browser window. The site continues today, 5 years later, and allows students to learn to recognise minerals and rocks under the petrological microscope. Since the system is cloud based, it works on both desktop and mobile platforms without any software download.

Over the last 5 years the number of samples on the virtual microscope site has increased to over 1000 samples, and now includes rocks from around the world, meteorites and a rapidly expanding collection of Moon rocks. The system is used by teachers and students at universities to augment laboratory teaching not only to expand on the (always too short) lab-time but also to study samples otherwise inaccessible for teaching, such as samples from historic collections or protected sites, and – of course – rocks from other solar system bodies..

Studies of the use and efficiency of online OERs generally relate to the short period after their establishment and include user statistics, feedback and measurements of increased learning. We are not aware of any other assessment of the use and engagement with an OER over a longer timescale so the 5 years of data based on analytics running on the Virtual Microscope site may offer new insights into the use of OERs. We observe patterns of use including daily, weekly and annual cycles, changing behaviour in different areas of the world, and variations in user engagement.

We will discuss the key lessons to be learned for future OER projects and the use of screen learning in general.