

Volcanoes sometimes host a lake at the Earth's surface. These lakes are the surface expressions of a reservoir, often termed a hydrothermal system, in highly fractured, permeable and porous media where fluids circulate. They can become monitoring targets since they integrate the heat flux discharged by an underlying magma body and condense some volcanic gases. Since they trap volcanic heat and gases, they are excellent tools to provide additional information about the status of a volcano and volcanic lake-related hazards.

This Special Publication comes at an exciting time for the volcanic lake community. It brings together scientific papers, which include studies of their structure, hydrogeological modelling, long-term multi-disciplinary monitoring efforts, as well as a number of innovative methods of sampling, data acquisition and in situ and laboratory experiments. Several papers challenge long-established paradigms and introduce new concepts and terminologies. This collection of papers will be a useful reference for researchers dealing with volcanic lakes and more generally with hydrothermal systems, phreatic/hydrothermal eruptions and wet volcanoes.