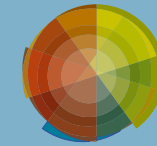


Thursday, May 12, 15:00

Lecture hall of the Institute of Geophysics
(Praha 4- Spo ilov, Bo ní II/1401)



INSTITUTE OF GEOPHYSICS
OF THE CZECH ACADEMY OF SCIENCES

Steve Sparks

University of Bristol, UK

Large silicic magma bodies and very large magnitude explosive eruptions



An enduring and fascinating problem is how to generate very large silicic magma bodies capable of feeding eruptions of hundreds or thousands of km³ of magma in the form of ignimbrite and tephra fall with associated caldera formation. A conceptual model is developed based on geological, geophysical and petrological evidence, and framed by physical models of fluxing magmas through the crust. Primitive basaltic magmas flux into the base of the crust where they stall, cool and crystallize, create mushy hot zones containing residual differentiated mafic to intermediate melts. These melts separate, ascend and accumulate at higher levels (broadly the middle crust) where the same process is repeated to generate mushy, hot-zone silicic melts through a combination of fractional crystallization, reactive flow and crustal assimilation. Petrological evidence for very rapid accumulation of shallow silicic magma bodies favours transport of silicic magma from the middle crust through dykes. Rapid magma transport enables fluxes that are orders of magnitude higher than time-averaged silicic melt generation in middle crustal mush.

Lecture will also be accessible remotely.

Those outside of the Institute of Geophysics interested in online access should contact kusbach@ig.cas.cz for obtaining a ZOOM meeting link.