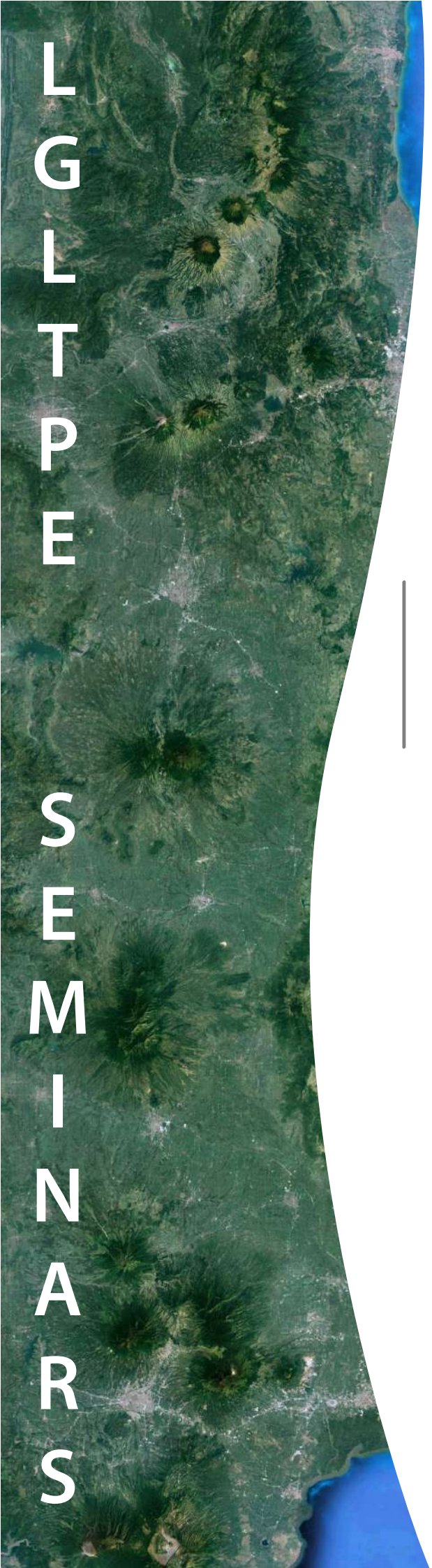

LGLTPE SEMINARS

Olivier Galland

University of Oslo

'The role of Mohr-Coulomb rock properties on magma emplacement – Implications for volcano geophysics and geodesy'

Mon, 27th June 2022 @ 14h

online: *https://ent-services.ens-lyon.fr/entVisio/quickjoin.php?hash=e77e029dfb2d19e4382a8765a26c4c5f4888f7b37005616ae290b561053d537b&meetingID=8777*

onsite: *ENS Lyon, Amphi L*

The main magma transport pathways through the Earth's crust are planar intrusions, such as dykes, sills, cone sheets and thin laccoliths. Because their sheet morphologies resemble those of fractures, their emplacement is commonly considered to be governed by the Linear Elastic Fracture Mechanics (LEFM) theory. This theory assumes that the tip of dykes and sills propagate by tensile fracturing of the host rocks, which deform mainly by elastic bending. The most common models used to analyse seismological and geodetic data monitored at active volcanoes are based on this theory.

However, recent geological observations show that drastically distinct emplacement mechanisms, involving inelastic shear failure and flow of the host rock, may play a significant role during magma propagation and emplacement. This presentation aims at (1) questioning the established LEFM theory applied to magma transport with a potential paradigm shift, and (2) discussing the geophysical and geodetic implications of this new knowledge for revealing the dynamics of active volcanoes.

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