Dyke segmentation: an experimental approach
Jazmín Chávez and Mariano Cerca

Centro de Geociencias, UNAM. e-mail: lithosch@gmail.com, mcerca@geociencias.unam.mx

Dykes often emplace as individual, symmetric and planar structures, although they can also split into segments. Dyke segmentation have been associated with pre-existing structures (Magee et al., 2019), mixed-mode I+III loading (Pollard et al., 1982) and instabilities of dyke growth process as fluidization (Schofield et al., 2010).

Image of segmented dykes from Ship rock (Google Earth; Pollard and Seagal, 1987)
• Results of an experimental study of fluid injection in gelatin where we observe segmentation of the fractures transporting shear thinning fluids in the absence of stress rotation and heterogeneity of the host media.

• Hydrofractures transporting Newtonian fluid at the same conditions remain planar until its eruption at the surface.
a) no-Newtonian dykes development phases:

- Inception
- Development of a semi-stable coin-shape structure

Growth in the vertical direction and associated deflection of the dike trajectory

b) The shape of the non-Newtonian dykes during the *development phase* is significantly smaller than the Newtonian dykes at the same injected volume.

BIBLIOGRAPHY


SUPPLEMENTARY MATERIAL