



Many dykes and sills are not mode-I fractures!

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Most studies concerning dykes or sills consider that these intrusions are mode-I fractures emplaced perpendicular to the minimum stress and parallel to the maximum horizontal stress. This has led to a very large number of tectonic interpretations and modelling. However detailed field data suggest that dykes may also inject slightly oblique with the principal stresses σ_1 and σ_3 . Most of these oblique intrusions cannot be considered as inherited from faults (ie magma injected along a previous shear plane). The observed pattern of intrusions is quite similar to the one predicted by tension-shear failure in the Griffith theory and is coherent with the stress regime that acted during their emplacement (when it can be independently determined). This observation has obvious consequences on the tectonic interpretation of dykes. We discuss how field observations and simple numerical modelling may give keys to better constrain the otherwise controversial Griffith tension-shear failure mechanism.