THE EVOLUTION OF LPOS IN NATURALLY DEFORMED POLYPHASE ROCKS - IMPLICATIONS FOR MECHANISMS OF ROCK DEFORMATION

KURZ, W., UNZOG, W. Institut für Geologie & Paläontologie, Universität Graz, A-8010 Graz, Austria.

The analysis of Lattice Preferred Orientations (LPOs) and microstructural studies of deformation and recrystallization mechanisms are two of the most important tools to get information on the deformational behaviour and the rheology of tectonites. Generally, the LPOs of a single rock forming mineral phase does not reflect the deformation conditions within the entire rock sample; it only reflects a distinct phase along a deformation path. Furthermore, different ratios of rock forming minerals highly influence the rock rheology, which might result in strain partitioning and shear localisation. This highly influences the activity of glide and climb mechanisms, and, as a consequence, the LPO development.This study focuses on the relationship between varying modal composition of rocks, shear localisation and strain partitioning, and the textural (LPO) evolution of the rock forming minerals. Generally, the following assumptions can be drawn:¨ Deformation partitioning depends on the ductility contrast between several mineral phases.¨ Deformation partitioning occurs in terms of partitioning between pure shear and simple shear; each strain component is accomodated by glide systems of distinct mineral phases.¨ Distinct gliding systems in monomineralic samples might be not Active in polymineralic samples, but are replaced by gliding systems of other mineral phases.