Paleo-stress orientations from various deformation microstructures: temperatures and histories for healed and sealed microcracking

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Based on crack healing experiments, while microcracks can be immediately healed after the injection of hot fluids (>300 oC), the crack healing becomes sluggish and they become rather sealed by minerals precipitated from the solution with decreasing temperature (<200 oC). A natural observation that healed and sealed microcracks dominantly formed perpendicular to the minimum (s3), and intermediate (s2) or maximum (s1) principal stress directions, respectively could indicate that the former formed immediately after the injection of the hot fluids while the latter formed at a stage of decreasing temperature, when the fluid pressure was reduced in the s3-, but increased in either the s2- or s1-direction.