

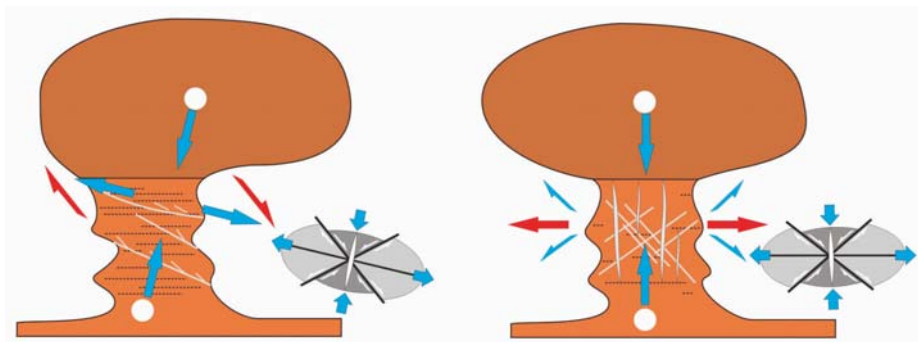
## WEATHERING INDUCED FRACTURES, EXAMPLES FROM THE STOŁOWE MTS

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In Upper Cretaceous sandstones over the area of the Stołowe Mts, at least 4 systems of fractures occur, which significantly influenced modern outcrop pattern of lithological formations, their hydrogeologic properties and landscape evolution of this mountain massif (Wojewoda *et al.*, 2011). Syndepositional fractures originated as results of seismic shocks (extensional fractures) or sediment deformation above active tectonic zones (shear zones). Both genetic types relate to deformation in soft sediments (Fig. 1). The latter is evidenced by fracture infill, which consists of wall-rock and/or over- and underlying deposits. Joints depict penetrative, orthogonal system of variably spaced fractures which dissect sandstone lithosomes into smaller or bigger blocks. This joint system determined the lithostratigraphic term introduced for sandstones occurring in the Stołowe Mts, which are referred as Jointed Sandstones Fm. Various explanations have been proposed for the origin of the joint system, among others diagenetic processes, seismicity and epirogenesis. The latter is considered as the most probable mechanism in geological settings analogous to the Stołowe Mts massif. Fault induced fractures developed in response to tectonic movements either over the area of the entire massif or locally. This type of fractures is spatially related to the regional system of faults or folds. In the area of the Stołowe Mts, the fault induced fractures



**Fig. 1. Deformation structures as related to the rock shape and stress distribution – simple shearing (left) and induced extension (right)**

distinctly are linked with the displacement along the Czerwona Woda Creek Fault Zone (eastern prolongation of a regional-scale fault zone – the Poříčí-Hronov Fault Zone), which is implied by similar fracture pattern both in the Cretaceous sandstones and their basement. Due to weathering **induced fractures** are coming into existence locally, as a result of the decay of rock forms becoming apparent or coming into existence on denudation surface of the massif of the Stołowe Mts (*cf.* Jerzykiewicz, 1967, 1968; Ollier, 1978). Their spatial orientation is almost entirely determined by the shape of individual rock forms, and the time of their origin is enigmatic.

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