There are increasing lines of evidence of basement-involved shortening in fold-and-thrust belts (FTB) and external zones of orogens. Reactivation/inversion of pre-existing extensional/transfer basement faults is widespread during the evolution of (collisional) orogens and this process strongly controls their structural and mechanical evolution. Basement fault reactivation may induce localization of thrusts and folds in the developing shallow compressional wedge, development of crystalline thrust sheets, out-of-sequence thrusting and refolding of shallow nappes, development of accommodation structures such as lateral ramps or development of basement uplifts. In some cases however, inherited normal faults are not reactivated whereas newly-formed compressional shear zones develop. This brings into question the bulk rheology of the crust vs the rheology of preexisting fault zones available for reactivation.

In basement-involved, or thick-skinned, FTB, shortening is distributed throughout the whole crust and is usually lower than in their thin-skinned (subduction-type) counterparts, which likely requires/reflects a specific thermo-mechanical behavior of the underlying lithosphere (e.g, hot and young, hence weak). Basement-involvement in FTB also raises the question of the way the orogen is mechanically coupled to the foreland and how orogenic stresses are transmitted through the heterogeneous basement of the foreland/plate interior. Well-known case studies like the active Sierras Pampeanas or the Laramide uplifts are probably linked to specific geodynamic settings like flat-slab subduction, hence increased interplate coupling.

In some cases, two thrust systems may develop, an upper, thin-skinned one and a lower basement-involved one. These can be coeval or separate in time.

This session aims at furthering our knowledge of what controls the involvement of basement deformation in FTB, how it is accommodated, and with which kind of crustal/lithosphere rheology it is associated. We welcome contributions reporting regional case studies of basement-involved shortening as well as mechanical investigations of this type of belts together with analogue or numerical modeling approaches.