Abstract
We suggest an interpretation of the thermal history of Mars based on crustal deformations. Local deformations are associated with an increase of the thermal gradient with time and indicate tensional stresses in eruptive centers such as Alba Patera, Ascræus, Pavonis, Arsia and Elysium Mons. Regional deformations are associated to the crustal dichotomy and to the Tharsis bulge; they suggest subcrustal erosion (dichotomy) and a thermal component of lithospheric support (bulge). Global deformation of wrinkle ridges may be due to a planetary contraction in the early stages of Martian geologic evolution.

Keywords
Mars, crustal dichotomy, wrinkle ridges, thermal evolution.