Structural Evolution of the Gandarela Syncline, Quadrilátero Ferrífero, Brazil

C.A. ROSIÈRE[1] & A.V. CORRÊA NETO[2]
[1]CPMTC/UFMG; [2]IGEO/UFRJ

The Gandarela Syncline is a curved alloctonous structure, folding the Minas Eoproterozoic metassediments. Its southeastern limb is inverted and faulted by the Fundão-Cambotas Thrust System, that throws the Archean Rio das Velhas greenstone belt over the Minas metasediments. A low-angle thrust system (interpreted as a sole thrust), runs along all the syncline's western limb, at the contact of the Minas metasediments with Archean rocks. The syncline can be divided in three sectors. The northeastern segment is controlled by a flat between both Cambotas and Fundão Thrusts, and has subhorizontal axis trending N60E. Thrusts in this sector may show strong oblique or strike parallel components. The central segment has low plunging N40E axis and is an overall low-strain domain. The third domain, located at the synclines southern end, is a N-S homoclinal structure, with splays from the main thrusts and transcurrent faults. The following structural evolution is proposed: (a) Nucleation of the syncline as a north-trending structure, perhaps in an early extensional event. (b) Development of west-verging, bedding-tangential shear zones. (c) Advance of the thrust sheets over an irregular basement generated a curved fault morphology, with clockwise rotation of early lineations and fabrics at its northern sector. (d) Generation of steeper, NE-trending thrusts, with the development of an oblique-ramp domain at the syncline's northeastern sector, break-back splays, and folds of different profiles, depending on the strain intensity.