

Collapse kink structure and its contribution to the formation of the surpegene iron ores and to the development of the Cainozoic basins at the Quadrilátero Ferrífero, Minas Gerais, Brazil

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Depression formed by partial dissolution of the itabirite and gravitational rotation of the remaining loose hematite blades, to generate kink-like slump structures, subsequently filled by Cainozoic basinal sediments, bring questions on the probable origin of such structures. The formation of important supergene iron ore deposits of Quadrilátero Ferrífero (QF) is intimately related to such process. Several iron deposits at QF, such as Pico do Itabirito, Fabrica Nova, Brucutu, Casa de Pedra, Pau Branco, etc., reveal the aspects related to the proposed evolution, implying that the formational process of the soft iron ores had a regional character. In some deposits, a metric layer of soft and pulverulent hematite lies at the bottom of the basins suggesting the in situ alteration of the hematitic phyllites. Computational simulation of the dissolution process helped in the understanding of the development of the structure and the formation of the deposits. Detrital topaz and cobbles and pebbles of compact hematite exist frequently at the bottom of the basins. Weathering, which was the mechanism for the dissolution, contributed also to the formation of bauxite blankets after Kaolinitic sediments, Overlying most of deposits there lateritic blankets.