

CAVES AND KARST FEATURES IN SILICICLASTIC ROCKS IN BRAZIL

*KARMANN, I. & *FERREIRA, N. B. * Instituto de Geociências, University of São Paulo, São Paulo, Brazil

A survey of caves in siliciclastic rocks of Brazil revealed at least 26 areas with caves, with a total of 170 mapped caves, ranging from several meters to about 3.5km of planimetric development. They occur mainly in Phanerozoic sandstones and Proterozoic quartzites of cratonic covers and fold belts. Collapse and dissolution dolines, collapse valleys, as well as kamenitzas, karren and sinkholes are typical surface features. Topographical karst forms are better developed over quartzites than sandstones. Two main morphological patterns of caves are recognized. In sandstones the dominant morphology consists of horizontal cone shaped conduits, which combine to form caves of up to 400m of extension. Almost all such caves contain springs with underground creeks. When such conduits intersect, breakdown chambers form. Caves with underground rivers associated with insurgences and ressurgences are less frequent. The second pattern, which occurs in quartzites, comprises integrated conduits of varied shapes, resembling the morphology of limestone cave systems. Of greater planimetric development (up to 3km), these caves exhibit large vadose entrenchments, breakdown halls and underground rivers. Some contain opal speleothems, such as stalactites, stalagmites, flowstones, rimstone dams and crusts. A speleogenetic model is proposed, in which a combination of piping and dissolution processes work in concurrence. In sandstones, arenization and piping close to the water table are dominant, resulting in pseudokarst features, whereas in quartzites, dissolution of quartz grains along groundwater flow routes is able to act during a longer time, resulting in forms closer to typical karst features