Geophysical Research Abstracts, Vol. 8, 01361, 2006
SRef-ID: 1607-7962/gra/EGU06-A-01361

Correlation between sinkhole phenomena, mineralised fluids upwelling and deep buried structures in some karst areas of the central and southern Italy.

G. Caramanna , S. Nisio , P. Polselli
APAT- Environmental Protection Agency and Technical Services

The distribution of natural collapse phenomena (sinkholes) in some plain areas of the central-southern Italy shows that these sinkholes occur close to thermo-mineral springs, along main regional still active faults in alluvial plains characterized by a deep buried carbonatic bedrock,.

Upward erosion and pressurized water upwelling are supposed to be the triggering factors for the sinkhole genesis.

The water filling some of these collapses (sinkhole ponds) shows a chemical composition typical of fluids of deep origin.

Several of the studied sinkholes collapsed after high or low magnitude earthquakes.

The geological and hydrogeological setting of some geothermal areas of Latium and Campania regions (Telese and Contursi areas in Campania, S. Vittorino in Latium) have been studied in detail with particular attention to the depth of the buried karst carbonatic bedrock.

Ancient collapses have been assessed including the buried or artificially filled sinkholes. Some genetic mechanisms have been proposed.

Following the Italian sinkhole classification these collapses have been classified as deep piping sinkholes.

The sinkholes genetic mechanisms and their distribution and the migration, through the time, highlight a strict correlation of the collapse phenomena with regional deep faults, seismic events and uprising of high mineralised and pressurised waters.