

## **Classical Karst hydrodynamics: a shared aquifer within Italy and Slovenia**

**L. ZINI, C. CALLIGARIS & E. ZAVAGNO**

*Dipartimento di Matematica e Geoscienze (D.M.G.) – Università degli Studi di Trieste, Italy*

[zini@units.it](mailto:zini@units.it)

**Abstract** The classical Karst transboundary aquifer is a limestone plateau of 750 km<sup>2</sup> that extends from Brkini hills in Slovenia to Isonzo River in Italy. For 20 years, and especially in the last two years, the Mathematic and Geosciences Department of Trieste University has run a monitoring project in order to better understand the groundwater hydrodynamics and the relation between the fracture and conduit systems. A total of 14 water points, including caves, springs and piezometers are monitored and temperature, water level and EC data are recorded. Two sectors are highlighted: the southeastern sector mainly influenced by the sinking of the Reka River, and a northwestern sector connected to the influent character of the Isonzo River. Water table fluctuations are significant, with risings of >100 m. During floods most of the circuits are under pressure, and only a comparative analysis of water levels, temperature and EC permits a precise evaluation of the water transit times in fractured and/or karstified volumes.

**Key words** Classical Karst; hydrogeology; transboundary aquifer