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The phenomenon of ascendant flow which characterizes karst springs, southern Apennines

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The hydraulic phenomenon of upwelling, affecting several karst springs of Apennines, has been investigated through water level monitored in several boreholes of different depth, and chemical-physical data of springs water. Three different springs in Campania region, southern Italy, were analyzed (Serino, Grassano and Caposele springs), characterized by different groundwater hydraulic schemes, but with the same upwelling phenomenon at the springs.

Even if the ascending groundwater flow is expected from the hydraulic features connected to the local and regional groundwater flow theory, these observations are original in areas analyzed.

Some data (spring discharge and piezometric levels) have been acquired mainly from aqueduct companies, other data (physical-chemical parameters and Radon values (^{222}Rn)) have been collected ad hoc in spring waters.

All data pointed out that karst springs considered are fed by groundwater flux that locally is vertical; in some cases, CO_2 and H_2S dissolved gas in the deep groundwater are transported in surface by the ascendent flow, which can cause typical collapse sinkholes near the karst springs. All these features, common to others springs of Apennines, can be relevant in the realization of the tapping work, in their maintenance and for the definition of the protection area of the springs.