Gases in thermal waters of North of Tunisia

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Several thermal springs in North Tunisia present emissions of gas as impulse which varies in time and from a source to an other. Gases associated to thermal waters in this part of Tunisia present different origins. Their contents vary according to their localities. Gases can bring informations on their origin, as well as on physico-chemical processes that can occur to during the ascension of these thermal waters.

The oxygen is of an atmospheric origin for the majority of studied thermal springs. Nitrogen would have an atmospheric origin, for the majority of studied springs, however, a deep origin could be evoked for springs of H. Sollah, H. Nefzas and H. Ket Ettout. Methane would have for origin, especially for thermal springs of diapirs zone, the bacterial fermentation of organic matter.

Carbon dioxide would be bound in all studied springs, to two different origins, a juvenile and another organic. Carbon monoxide would be the result of the reaction between the CO_2 and the CH_4 in depth. For helium, we especially admit a deep origin mainly for springs of Biadha, Ali Dhaoui, H. Bourguiba, H. Sollah and H. Kef Ettout. The composition in gas of these thermal waters in North of Tunisia permits to differentiate between the Nappes zone and Diapirs zone. In Diapirs zone, rates of CO_2 and CH_4 are very raised, while N_2 shows weak rates.

For Nappes zone, rates of nitrogen are important with elevated contents of helium. However, the CO_2 and the CH_4 remain relatively weak.

Key words: North Tunisia, Thermal springs Gaz.