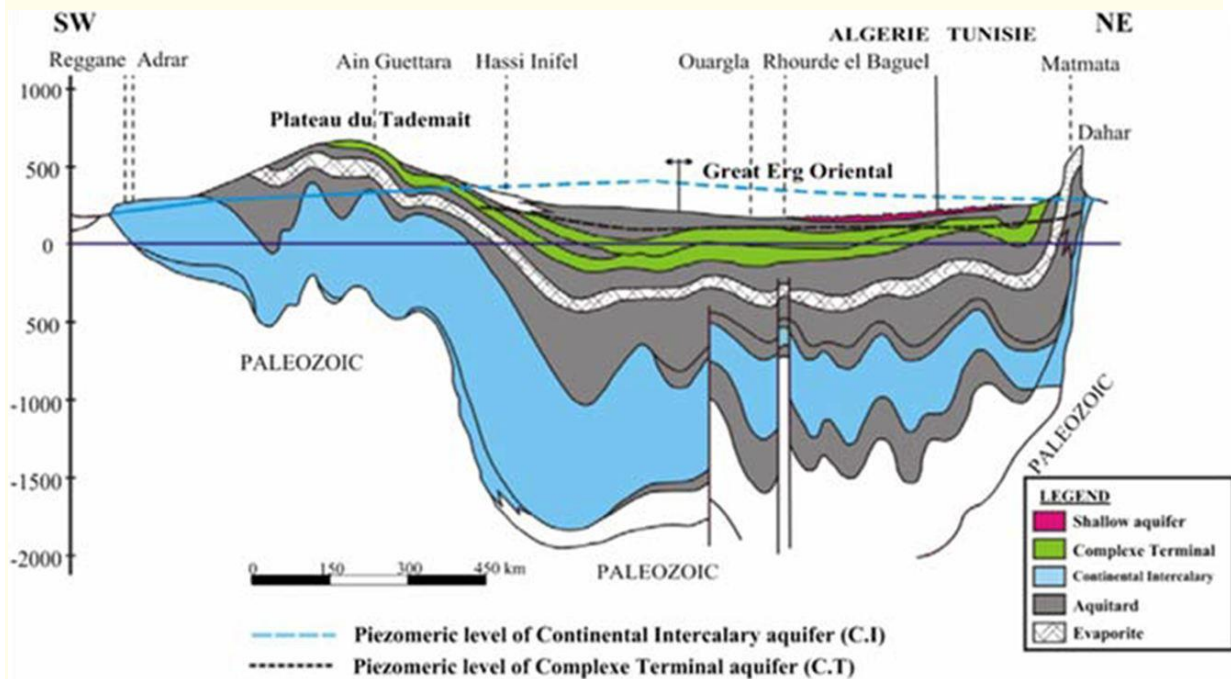


Fluoride content of drinking Sahara water and health impact



Fluoride is an essential element to prevent carious dental [Sohn et al, 2007]. Incorporated into the teeth, fluoride decreases the solubility of enamel in acid medium which consists mainly of hydroxyapatite and favors the remineralization of initial carious lesions of enamel [Singh et al, 2003]. Water is the main source of fluoride ions [Emmanuel et al, 2002; Featherstone, 2000].

In southern Algeria, the drinking water is characterized by a high level of fluorine. However, excessive consumption of this oligo-element becomes toxic. Thus, in 2001, endemic areas of fluorosis were detected in Algerian Sahara (El-Oued, Touggourt, Biskra, Timimoun, Ouargla and Ghardaïa), constituting a public health problem caused by the ingestion of an excess of fluoride. In southern areas, where temperatures are high, the daily intake of water becomes more important. The standards of the World Health Organization (WHO) set at 0.8 mg/L the maximum concentration of fluorine permissible for public distribution water in these warm regions [Sekkoum et al, 2012b; WHO, 2006; 2004].

Moreover, Dissananyake [1991], showed that dental caries occurs in regions where drinking water is less fluoridated, while it is absent in areas with fluorine-rich water. Other studies have indicated that fluoridation of water is very important to maintain the bucco-dental health [Angelillo et al, 1999; Levy, 2003]. Indeed, the amount of fluorine called "optimal dose of

fluoride in drinking water" which decreases the prevalence of dental carious with the absence of a significant fluorosis varies between 0.7 and 1.2 mg/L [Emmanuel et al, 2002].

Finally, if we consider the influence of temperature, all public supply waters of the south Algeria are excessively fluoridated. the extremely high temperature of the South is a major factor contributing to the increase in demand for drinking water and, consequently, the increase in dental fluorosis. Therefore, to reduce this risk in this region, consumers need to correct their food habits did not exceed the needs of the body in fluorine. Thus, 0.05 to 1 mg of fluoride are considered as not toxic daily dose on the health of the adult population.

Source: <http://dx.doi.org/10.5772/50319>