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2014-2015 Tritium values in small and shallow aquifers in northern Apennines

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Tritium data relating to actual rainfall in north of Italy and in particular in the northern Apennines are rare or missing. The reasons of this lack of data frequently depends on the high cost of analysis and the necessity of high amount of water to perform the analysis itself. In order to obtain these data a valid alternative can be analyze the amount of Tritium in unconfined, shallow and small aquifer not affect by human activities (such as sewage).
Recent studies, applied to the hydrogeology of the Po plain or of the Apennine slopes, highlight, in rainfall water recharging shallow aquifer, tritium values ranging between 6 T.U. and 12 T.U., higher than those detected in other and different areas of Italy or of the South Europe.
The aim of this paper is to highlight first results of tritium analyses performed on spring draining shallow aquifers in northern Apennines, characterized by the absence of human activities. The peculiarity of sampling point (spring are characterized by small and well defined catchment areas as well small differences between the infiltration/recharge elevation and the spring elevation) makes results representative of mean tritium value of rainfall recharge in the studied area.
In detail, during 2014-2015 three springs located at different elevation in Secchia Valley have been sampled and analyzed. Tritium analyses performed on a total of 5 samples highlight the following results: the maximum value (5.0$\pm$0.7 T.U.) is detected in water collected in November whereas the minimum value (3.7$\pm$0.6 T.U.) is obtained in May. Therefore a mean annual value of 4.2$\pm$0.7 T.U. in the studied area have been highlighted.