

Figure S1. Below: Precipitation (blue line), River Discharge (black line) and Groundwater level (red line) from the Taro alluvial fan. The annual data are derived from quarterly sampling activities carried out over the period 1988 – 1998 over the river gauge (b) and the well (VII). Above: a detailed plot of the period October 1992 – April 1994, in which aquifer from the apical part has experienced a remarkable increase in recharge.



Figure S2. Precipitation (blue line), River Discharge (black line) and Groundwater level (red line) from the Enza alluvial fan. The annual data are derived from quarterly sampling activities carried out over the period 1976 – 2008 over the river gauge (c) and the well (XI).



Figure S3. NO3 concentration (in mg/l) in the three wells from different sectors (namely: apex, median and distal) of the Enza alluvial fan (modified after [39]). Biannual data cover the period 1987 to 2008. With reference to the distal part, it is noteworthy to say that the lower concentrations in NO3 are related to the redox condition (negative Eh). The three wells do not belong to the dataset exploited in this study.



Figure S4. δ18O- δ2H plots from precipitations (rain gauges; numbersfrom 1 to 3) and surficial rivers (rivers; letters from a to e). Black and red dots refer to unweighted and weighted isotopic values, respectively. Black dashed lines recalls Meteoric Water Lines (MWLs) and River Water Lines (RWLs). For further details, readers are referred to Table 3 and 4.