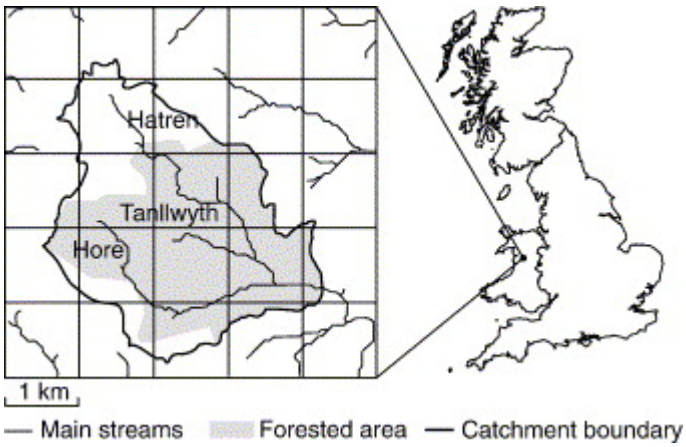

Fig. 1. Location of the Plynlimon catchment showing the main sub-catchments: Afon Hafren, Afon Hore and Tanllwyth.

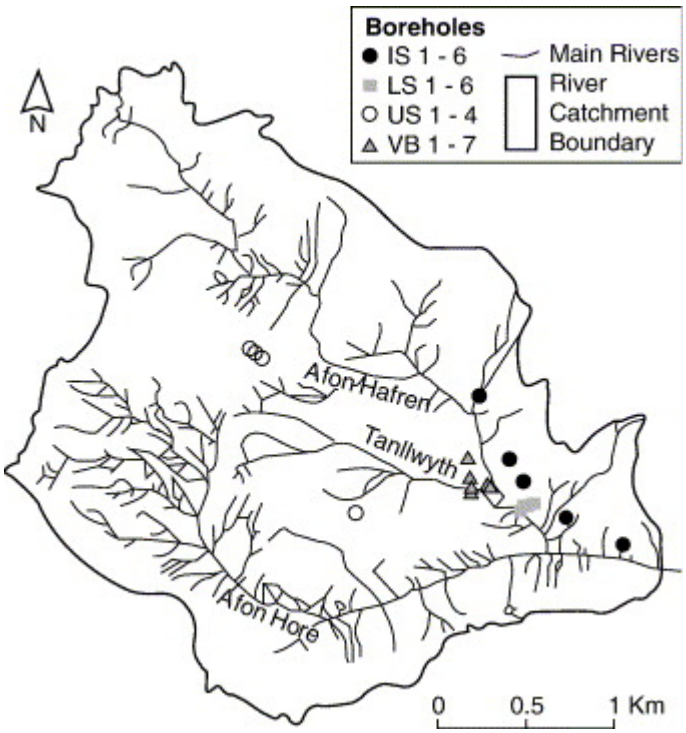

Fig. 2. Location map of boreholes in the Plynlimon forested catchment.

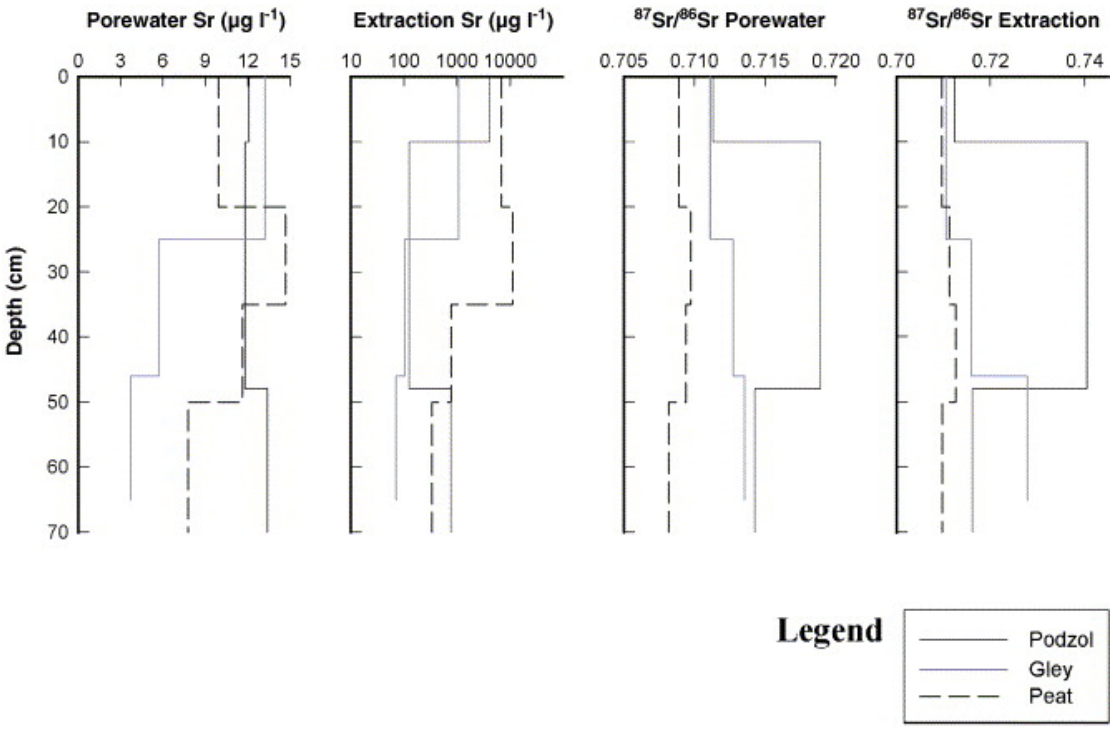

Fig. 3. Strontium concentrations and $^{87}Sr/^{86}Sr$ ratios for soil porewaters and acid extractions.

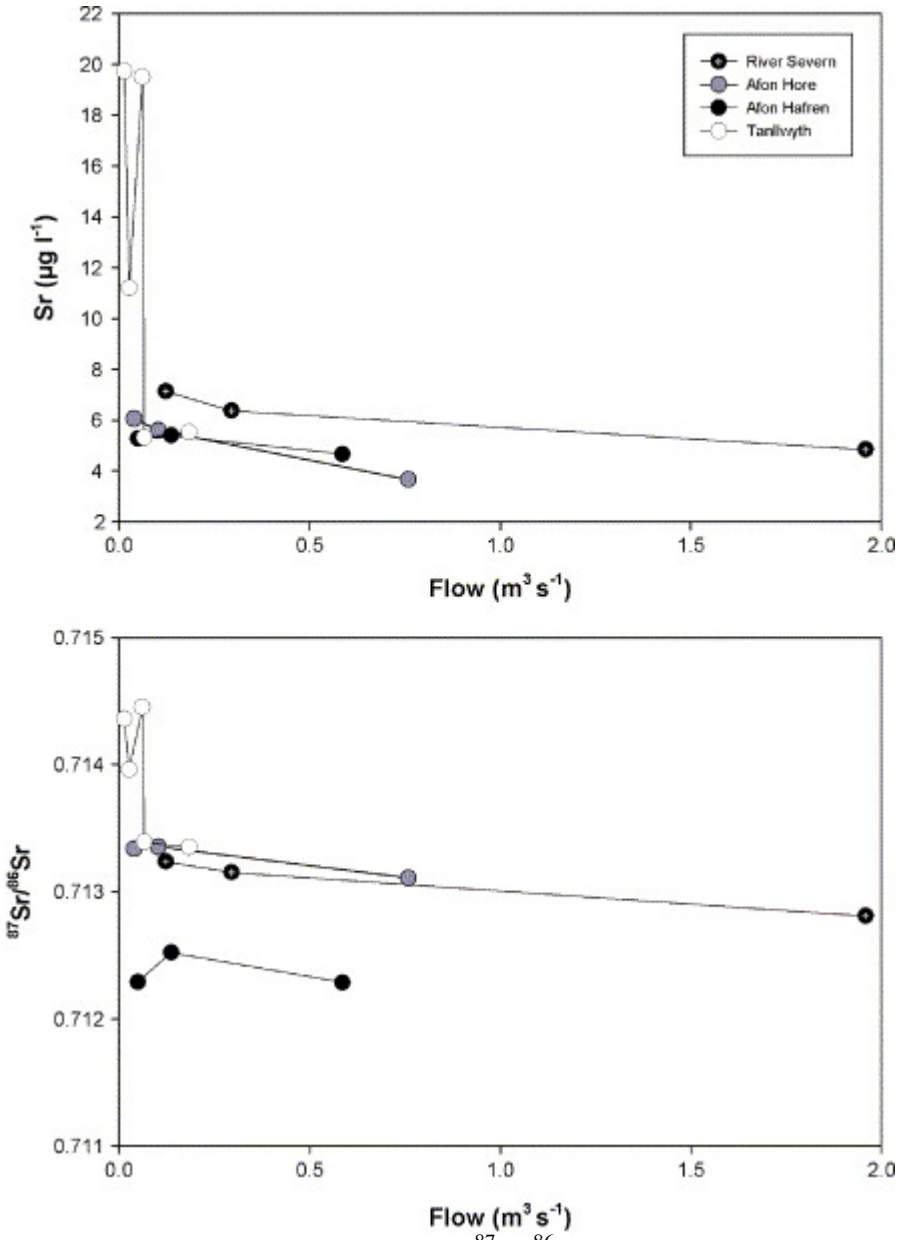

Fig. 4. Plots of Sr concentration and $^{87}Sr/^{86}Sr$ against flow in river waters.

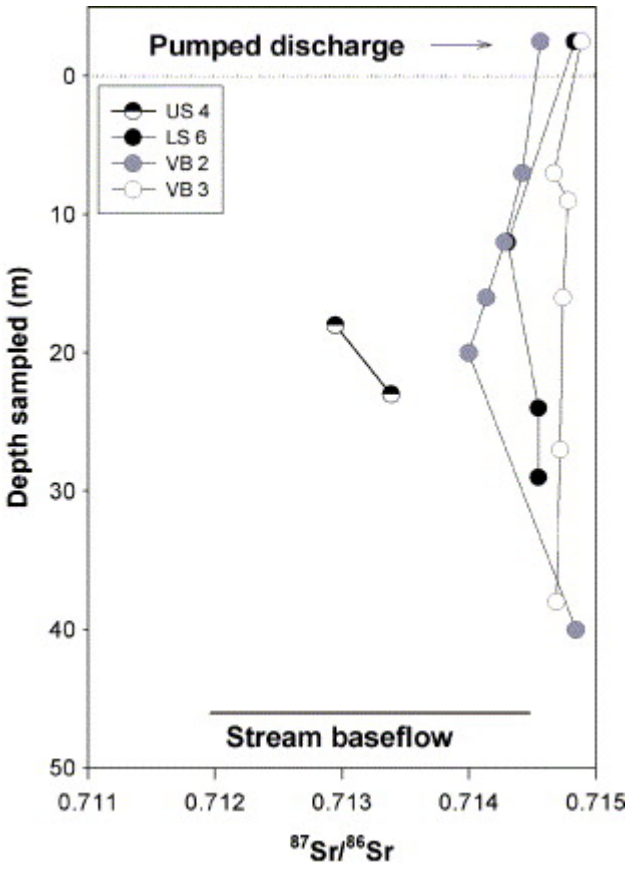

Fig. 5. Strontium isotope ratios in depth samples and pumped discharge for the Plynlimon deep boreholes. The small range in isotope ratios is due to the dominance of water with upward heads in deeper fractures.

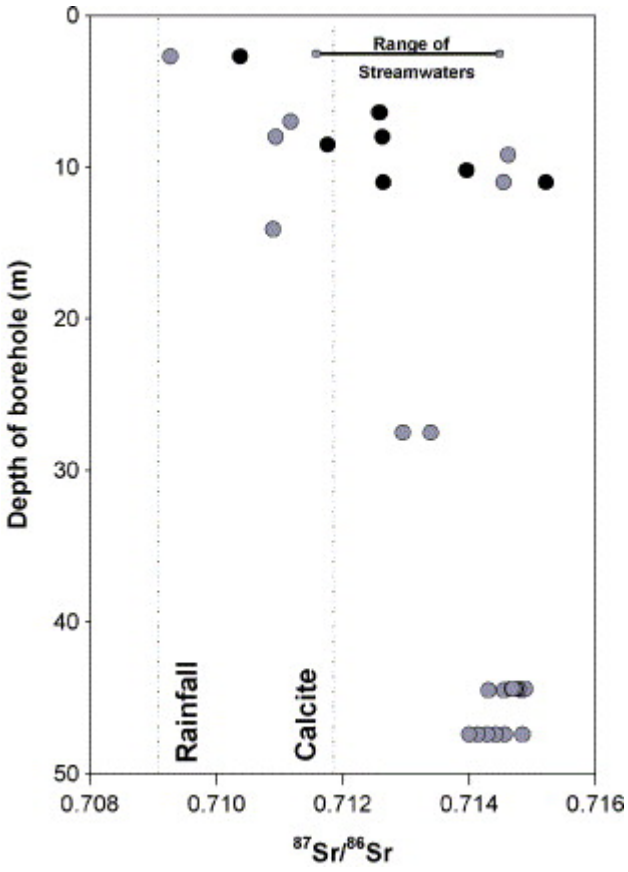

Fig. 6. Strontium isotope ratios plotted against depth for the Plynlimon groundwaters, showing an increase from values similar to rainfall at shallow depth to weathering-dominated values at greater depth.

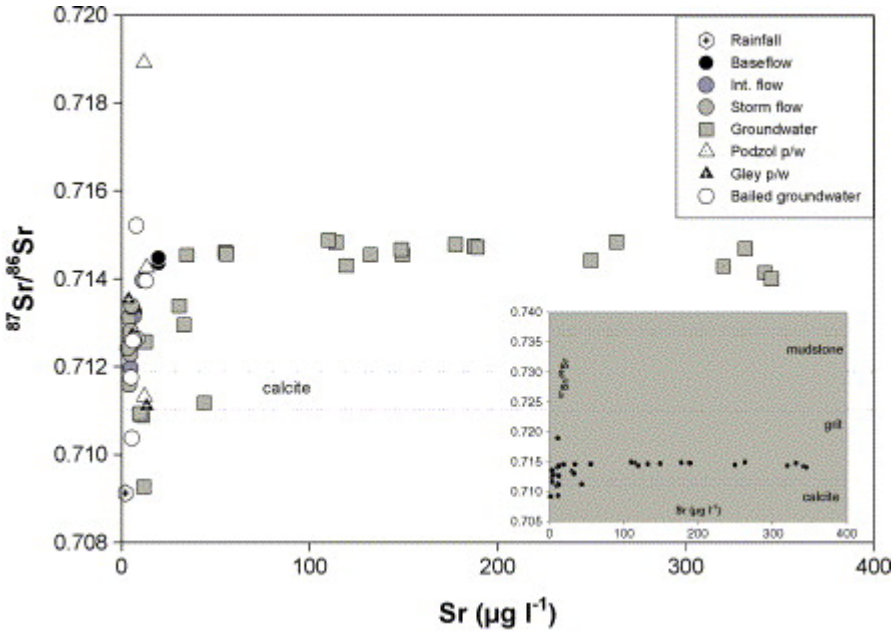

Fig. 7. Strontium concentrations plotted against $^{87}Sr/^{86}Sr$ in groundwaters, streams and soils. The $^{87}Sr/^{86}Sr$ ratio remains constant in the deeper groundwaters, despite large increases in Sr concentration implying control by a single mineral phase.

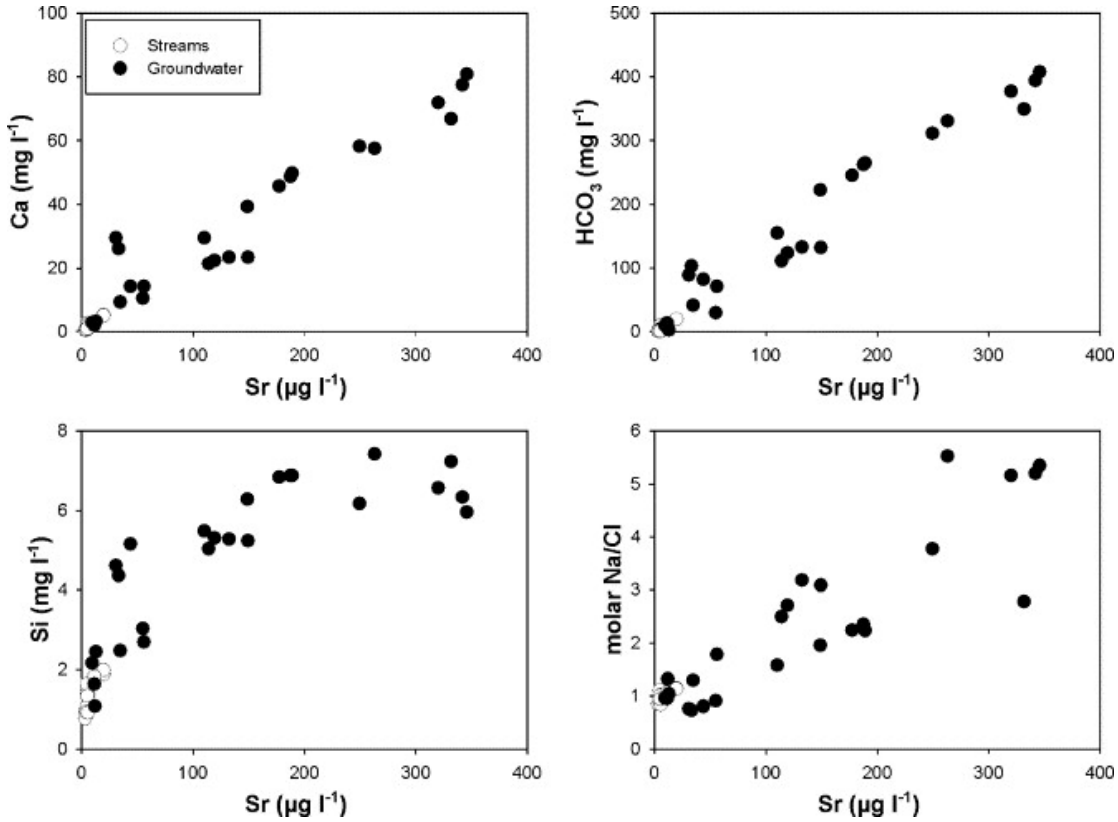

Fig. 8. Correlations between Sr concentration and major elements in streams and groundwater of the catchment.

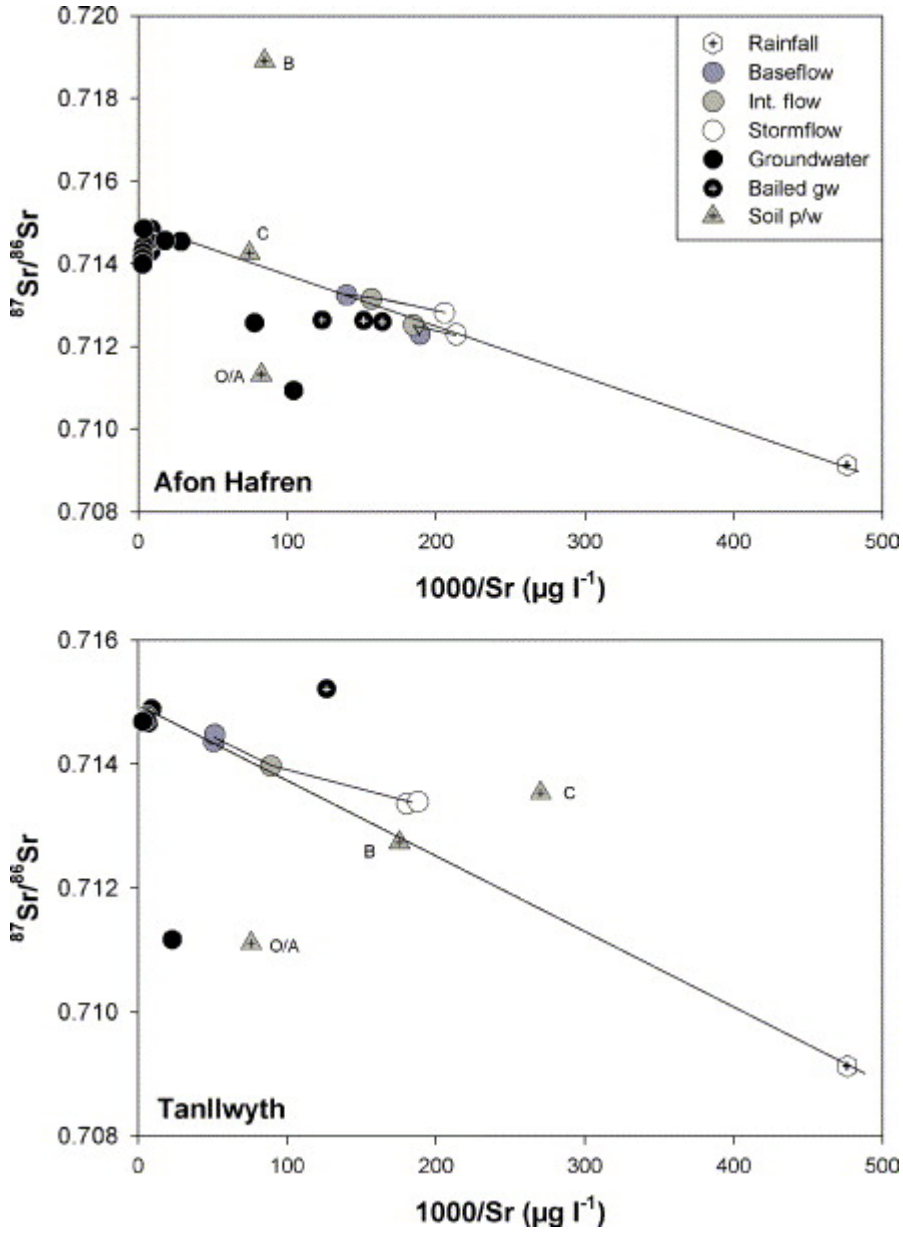

Fig. 9. Plots of $^{87}Sr/^{86}Sr$ against 1000/Sr concentration for the two areas (Afon Hafren and Tanllwyth) where boreholes were drilled close to the stream. Mixing between two components plot along a straight line on such plots.

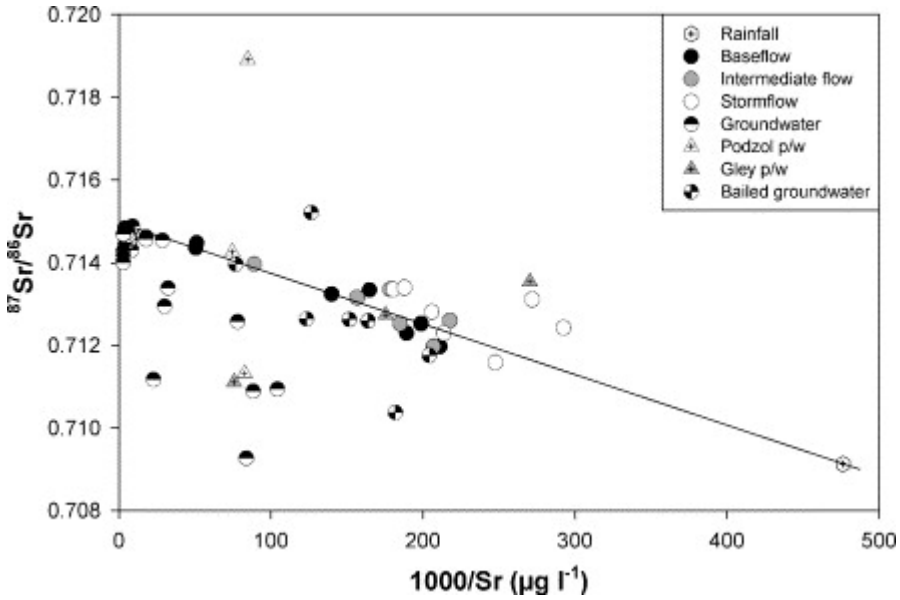

Fig. 10. Plot of $^{87}Sr/^{86}Sr$ against 1000/Sr for all data from the catchments. The river data and shallow bailed groundwaters plot along a potential mixing line between deeper groundwater and rainfall. The stream waters do not show a trend, at higher flow, towards either the upper organic horizons of minerals soils or the peat at the head of the catchment.

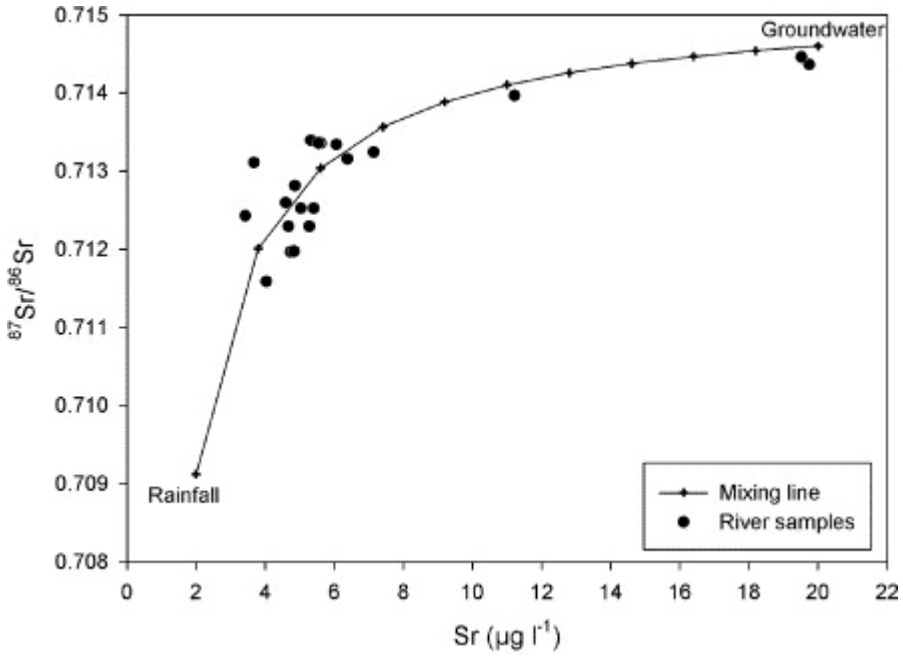

Fig. 11. A potential mixing line between rainfall and groundwater assuming an Sr concentration in the groundwater of 20 µg l^{-1} and a rainfall concentration of 2.1 µg l^{-1}(the long-term flow-weighted average). Although the stream data imply a dominance of rainfall component (ticks on mixing curve are at 10% intervals), stable isotope studies indicate that stream flow is mainly pre-event water.