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Abstract. Analysis of winter stream chemistry data from the Afon Hafren in mid-Wales reveals links between stream chemistry and the North Atlantic Oscillation (NAO). K, Y, Al and dissolved organic carbon (DOC) concentrations increase during high NAO index months (relatively warm and wet weather), while Ca, Mg and NO<sub>3</sub> concentrations increase during low NAO months (relatively cold and dry conditions) with the increased concentrations lasting into the next month. The cause of the concentration changes varies between constituents: Y, Al and DOC are impacted by short term variations in rainfall; Mg and Ca are influenced by flow conditions; and NO<sub>3</sub> is temperature controlled. The dominant control mechanism for K concentration seems to be related to rainfall after tree felling has taken place but, prior to felling, the relationships are less certain.

Keywords: nitrate, potassium, yttrium, aluminium, Dissolved Organic Carbon, magnesium, calcium, North Atlantic Oscillation, stream chemistry, Plynlimon, Hafren

Final Revised Paper (PDF, 629 KB)

Citation: Ness, L., Neal, C., Davies, T. D., and Reynolds, B.: Impacts of the North Atlantic Oscillation on stream water chemistry in mid-Wales, Hydrol. Earth Syst. Sci., 8, 409-421, 2004. ■ <u>Bibtex</u> ■ <u>EndNote</u> <u>Reference</u> <u>Manager</u>

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