

Home

Online Library HESS

- Recent Final Revised Papers
- [Volumes and Issues](#)
- Special Issues
- Library Search
- Title and Author Search

Online Library HESSD

Alerts & RSS Feeds

General Information

Submission

Review

Production

Subscription

Comment on a Paper

Impact  
Factor  
2.270

ISI  
indexed



- Volumes and Issues
- Contents of Issue 4
- Special Issue

Hydrol. Earth Syst. Sci., 8, 601-613, 2004

www.hydrol-earth-syst-sci.net/8/601/2004/

© Author(s) 2004. This work is licensed under a Creative Commons License.

## Rainfall and runoff water quality of the Pang and Lambourn, tributaries of the River Thames, south-eastern England

C. Neal<sup>1</sup>, R. Skeffington<sup>2</sup>, M. Neal<sup>1</sup>, R. Wyatt<sup>1</sup>, H. Wickham<sup>1</sup>, L. Hill<sup>1</sup>, and N. Hewitt<sup>1</sup>

<sup>1</sup>Centre for Ecology and Hydrology, Wallingford, OXON, OX10 8BB, UK

<sup>2</sup>Department of Geography, Whiteknights, P.O. Box 227, Reading, RG6 2AB, UK  
Email for corresponding author: cn@ceh.ac.uk

**Abstract.** The water quality of rainfall and runoff is described for two catchments of two tributaries of the River Thames, the Pang and Lambourn. Rainfall chemistry is variable and concentrations of most determinands decrease with increasing volume of catch probably due to "wash out" processes. Two rainfall sites have been monitored, one for each catchment. The rainfall site on the Lambourn shows higher chemical concentrations than the one for the Pang which probably reflects higher amounts of local inputs from agricultural activity. Rainfall quality data at a long-term rainfall site on the Pang (UK National Air Quality Archive) shows chemistries similar to that for the Lambourn site, but with some clear differences. Rainfall chemistries show considerable variation on an event-to-event basis. Average water quality concentrations and flow-weighted concentrations as well as fluxes vary across the sites, typically by about 30%. Stream chemistry is much less variable due to the main source of water coming from aquifer sources of high storage. The relationship between rainfall and runoff chemistry at the catchment outlet is described in terms of the relative proportions of atmospheric and within-catchment sources. Remarkably, in view of the quantity of agricultural and sewage inputs to the streams, the catchments appear to be retaining both P and N.

**Keywords:** water quality, nitrate, ammonium, phosphorus, ammonia, nitrogen dioxide, pH, alkalinity, nutrients, trace metals, rainfall, river, Pang, Lambourn, LOCAR

Final Revised Paper (PDF, 638 KB)

Citation: Neal, C., Skeffington, R., Neal, M., Wyatt, R., Wickham, H., Hill, L., and Hewitt, N.: Rainfall and runoff water quality of the Pang and Lambourn, tributaries of the River Thames, south-eastern England, Hydrol. Earth Syst. Sci., 8, 601-613, 2004. [Bibtex](#) [EndNote](#) [Reference Manager](#)

Search HESS

Library Search

Author Search

News

- New Service Charges
- Financial Support for Authors
- ISI Impact Factor: 2.270

Recent Papers

01 | HESS, 06 Mar 2009: Uncertainty analysis of hydrological ensemble forecasts in a distributed model utilising short-range rainfall prediction

02 | HESSD, 06 Mar 2009: EAGLE 2006 – multi-purpose, multi-angle and multi-sensor in-situ, airborne and space borne campaigns over grassland and forest

03 | HESSD, 06 Mar 2009: Evaluation of a probabilistic hydrometeorological forecast system