

(b) Spatial Variation of Rainfall

O. Lennard, Howard Humphries

Synopsis:

A recent project undertaken in South Wales illustrated the spatial variation in rainfall that can be observed even within catchment areas of limited areal extent and change in catchment elevation. The paper illustrated the use of cumulative rainfall analysis to investigate the spatial variation in rainfall and to derive an average rainfall hyetograph whilst preserving the true peak rainfall intensity. The effect of the variation on flows in the model was demonstrated.

Discussion:

C. Stoneham, London Borough of Newham

What was the size of error in the first estimation of the run-off.

O. Lennard

Very variable depending on the particular area. Errors were very small at the top of the catchment. The largest errors were for areas which were nominally separate though not so in practice.

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P. Barker, Havant B.C.

The catchment had been broken down, but for comparison had it ever been run in its entirety with the average rainfall being input.

O. Lennard

This did not seem a necessary exercise as the splitting method was successful and rainfall would have had to be weighted to the relevant areas.

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D. Wright, Applied Research and Project Management Services

What rainfall was used for design purposes.

O. Lennard

The design storms in WASSP (50% Summer profile) together with time series rainfall for assessing spills from SSO's.

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S. Cook, Nottingham C.C.

When splitting the catchment did you use the input hydrograph method.

O. Lennard

Yes.

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J. Dickinson, Welsh Water Authority

Why was the spatially variable rainfall package not used.

O. Lennard

Breaking the catchment down and using input hydrographs gave good results, meant smaller runs and was thus easier to use.

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S. Mathary, Slough Borough Council

Will recorded rainfall be used in design.

O. Lennard

Not rainfall recorded in the flow survey, however Time Series Rainfall will be used to assess SSO performance.

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N. Simmonds, Flowtechnics

Supports the need for an adequate number of monitors and raingauges. There had been a previous flow survey which had been worthless due to insufficient monitoring.

O. Lennard

It is essential to build and run the model before choosing monitoring locations.

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D. Williams, WRC

When averaging rainfall, storms rarely have good correlation of profiles and thus averaging does not work for peak flows only for volume.

O. Lennard

Appreciate the implications, however a catchment in Bromsgrove showed variations in time of peak yet still gave reasonable results from averaging.