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Integration of spatial datasets to support the review of hydrometric networks and the identification of representative catchments

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Abstract. The rapidly growing demand for river flow data has increased pressure on hydrometric monitoring programmes to match a wide range of application-focused information needs, in particular, the identification of representative catchments. This paper investigates a novel methodology based on a Geographical Information System to support cost-effective hydrometric network management and information delivery. Raster datasets are integrated as matrices describing the relationship between variables within any given area. Matrices are then compared to index how representative catchments are of a specified reference area. Using south-east Scotland as the reference area, four applications illustrate the methodology's potential to address a variety of issues (e.g. network rationalisation, selection of impact catchments, identification of new gauging sites). The method is implemented using elevation and land-use datasets.

Keywords: spatial information, Geographical Information System, hydrometry, network management, network rationalisation, representative catchment, regionalisation

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