More than just a passing fad: Looking at patterns of growth in artificial neural network streamflow-related publications up to 2010

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To provide a quantitative description of the growth in popularity and current status of artificial neural network applications for streamflow modelling and forecasting, a systematic analysis of published papers was performed. The Scopus abstract and citation database of 'research literature and web sources' was searched (http://info.scopus.com/). This database, containing 40 million records, was chosen in preference to the ISI Web of Knowledge research platform, since it indexes a greater number of journals, as well as more international sources and open access material.

A Boolean 'advanced search' was implemented - one specifically tailored to discover papers related to the modelling of surface runoff, discharge or stage/water level, including continuous simulations, and extreme events. The search procedure involved using a set of keywords – stratified by progressive filtering. Individual identifiers were selected through extensive trial-and-error to ensure that the most relevant papers were captured.

The querying process was expanded to include citation counts as well as the number of papers involved. This exercise allowed us to (i) identify annual volumes and (ii) plot temporal trajectories; and, by means of pivot table reorganisation, to (iii) compare and contrast the number of papers per annum published in specific hydrological journals over a fifteen year period.