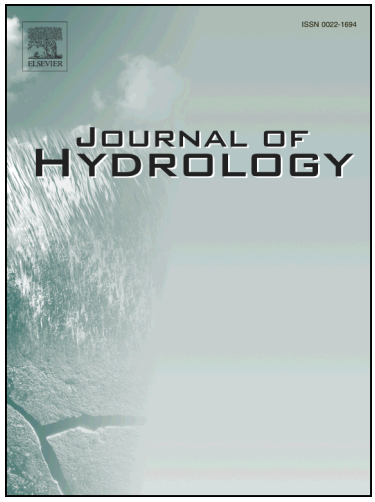

Research papers

Mapping the spatial distribution of chloride deposition across Australia

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Mapping the spatial distribution of chloride deposition across Australia

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Abstract

The high solubility and conservative behaviour of chloride make it ideal for use as an environmental tracer of water and salt movement through the hydrologic cycle. For such use the spatial distribution of chloride deposition in rainfall at a suitable scale must be known. A number of authors have used point data acquired from field studies of chloride deposition around Australia to construct relationships to characterise chloride deposition as a function of distance from the coast; these relationships have allowed chloride deposition to be interpolated in different regions around Australia. In this paper we took this a step further and developed a chloride deposition map for all of Australia which includes a quantification of uncertainty. A previously developed four parameter model of chloride deposition as a function of distance from the coast for Australia was used as the basis for producing a continental scale chloride deposition map. Each of the four model parameters were made spatially variable by creating parameter surfaces that were interpolated using a pilot point regularisation approach within a parameter estimation software. The observations of chloride deposition were drawn from a literature review that identified 291 point measurements of