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Development and application of an analytical method to determine trace elements in water using ICP–MS

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The fast development of inductively coupled plasma mass spectrometry (ICP–MS) as a routine method to determine trace elements has greatly impacted water analysis. The present work describes an analytical method to determine simultaneously 10 trace elements (Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, V and Zn) in water by ICP–MS. The instrument used was a *Thermo Jarrel Ash* model *Quadrion*. Quality control of the results has been established in terms of precision and accuracy with a control solution of contaminants from the US Environmental Protection Agency. The precision of the method was estimated by the relative standard deviation and was better than 10. An estimate of the accuracy was obtained by determining the Stegel-Sutarno Test value that was less than 1 for all the analysed elements. Evaluation of the results indicates good reliability of this technique.

Management of groundwater supply and water quality in the Los Angeles Basin, California

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Water use and water needs in the coastal Los Angeles Basin in California have been very closely tied to the development of the region during the last 150 years. The first water wells were drilled in the mid-1800s. Currently about 40% of the water supply (9.4 $m^3 s^{-1}$) in the region is provided by groundwater. Other sources of water supply include reclaimed water and surface water imported from Owens Valley, the Colorado River, and northern California. Increasing groundwater use in the basin led to over-abstraction and seawater intrusion. Because of this, an important component of water management in the area has been the artificial recharge of local, imported, and reclaimed water which is spread in ponds and injected in wells to recharge the aquifer system and control seawater intrusion. The US Geological Survey (USGS) is working co-operatively with the Water Replenishment District of Southern California to evaluate the hydraulic and water-quality effects of these recharge operations and to assess the potential impacts of alternative water-management strategies, including changes in pumping and increases in the use of reclaimed water. As part of this work,