Geophysical Research Abstracts
Vol. 14, EGU2012-14163, 2012
EGU General Assembly 2012

Integrated groundwater quality management in urban areas

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Traditionally, groundwater assessments and remediations are approached at the scale of individual groundwater plumes. In urban areas, however, this management of individual groundwater plumes is often problematic for technical, practical or financial reasons, since the groundwater quality is often affected by a combination of sources, including (former) industrial activities, spills and leachate from uncontrolled landfills and building materials. As a result, often a whole series of intermingling contamination plumes is found in large volumes of groundwater. In several countries in the world, this led to stagnation of groundwater remediation in urban areas. Therefore, in the Netherlands there is a tendency managing groundwater in urban areas from an integrated perspective and on a larger scale. This so-called integrated groundwater quality management is often more efficient and hence, cheaper, since the organisation of the management of a cluster of groundwater plumes is much easier than it would be if all individual groundwater plumes were managed at different points in time. Integrated groundwater quality management should follow a tailor-made approach. However, to facilitate practical guidance was developed. This guidance relates to the delineation of the domain, the management of sources for groundwater contamination, procedures for monitoring, and (risk-based) assessment of the groundwater quality. Function-specific risk-based groundwater quality criteria were derived to support the assessment of the groundwater quality.