



Assessment of renewability of groundwater in groundwater depression cones

Dajun Qin

Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, 100029, China. qindj2010@126.com

Groundwater level in the Beijing, China is being decreased, and amount of abstraction of groundwater is a key factor controlling this process. Groundwater depression cones are related to the reduced inflow from surroundings, compared with increased outflow to water supply systems. It is essential to assess the circulation and renewability of groundwater in groundwater depression cones. Systematic chemical and isotopic sampling of groundwater from the biggest groundwater depression cone shows that the groundwater is being fed by deep, old groundwater, instead of previously shallow modern groundwater. The groundwater residence times derived from CFC concentrations increase toward the centre of the depression cones, up to older than 60 years (CFC-free water). The changed flow pattern indicates, to some extent, groundwater overexploitation is occurring.