Study on the Evolution Characteristics of Ground Water Chemistry Environment in the Shiyang River, Gansu,P.R.China

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Shiyang river basin is located in the Hexi Corridor, Gansu Province of the northwest China, with typical arid to semi-arid climate features.Based on the systematic study on the water chemistry types and their evolution trend, the authors have discussed the evolutional mechanism of groumdwater chemical environment in the study area by the Saturation Index(SI)obtained from chemistry simulation.It can be seen that: 1)groundwater chemistry types of the river basin shoe the complete zonation,i.e.,biocarbonate zone,which is largely distributed in the mountainous fissure water in the upper reach and mountain front gravel area;sulfate zone in the mountain front alluvial and fluvial plain in the middle reach;and chloride zone in the desert and salt seg in the lower reach.2) In April (dry period), the calcite and dolomite are oversaturated both in the upper and lower reach,but in August,the SI of calcite and dolomite decrease clearly in the upper reach while the lower reach has an obviously increasing trend and both calcite and dolomite reach oversaturation,implying that groundwater chemistry environment is mainly controlled by the evaporation. 3)Overdraft has resukted in chemistry type of the ground water changed from bicarbonate to sulfate and even chloride in the lower reach, especially in the margin area of desert,showing the increasing trend of mineralization and worse water quality.