

西北内陆张掖盆地地下水温度变化特征及其指示意义

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中文摘要:通过西北内陆张掖盆地地下水温度变化特征研究表明:最近20年(1990—2009)研究区内潜水和承压水温度分别下降了0.78℃和1.17℃,与气温升高导致山区冰雪融水和降水增加有关;同时,人类开采地下水强度增大使得研究区内潜水和承压水温度变化趋势近同。盆地平原区地下水温度变化与山区气温和降水量变化成反比关系,即山区气温升高、降水量增加,盆地地下水温度降低;山区气温降低、降水量减少,盆地地下水温度升高。由于盆地平原区地下水补给水源的70%~90%来自上游祁连山区降水和冰雪融水出山地表径流,水低,因此,盆地平原区地下水温度变化程度反映着其获取有效补给水量多少,具有一定的指示意义。

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Groundwater Temperature Variation in the Zhangye Inland Basin of Northwest China and Its Indications

Abstract:A study of groundwater temperature variation in Zhangye inland basin shows that the shallow groundwater and the confined groundwater decreased by 0.78℃ and 1.17℃ respectively in the study area from 1990 to 2009. This phenomenon was related to the increasing of melt water and precipitation caused by the air temperature rising mountain areas. Meanwhile, the increase of groundwater exploitation led to the nearly same development trends of the temperature of the shallow groundwater and that of the confined groundwater in the study area. The groundwater temperature of the basin plain was in inverse proportion to the air temperature and precipitation in the mountain areas. This means that, when the mountain temperature and precipitation increase the basin groundwater temperature decreases, and when the mountain temperature and precipitation decrease the basin groundwater temperature increases. 70%-90% of the basin plain groundwater recharge which is at low temperature comes from the upstream of Qilian Mountains, and therefore the variation degree of basin plain groundwater temperature indicates the quantity of the effective recharge that the groundwater obtains, and has indicative significance to certain extent.