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半干旱黄土区土壤水分垂直分布规律的研究——以甘肃省兰州市孙家岔流域为例

Vertical variability of soil moisture content in semiarid Loess Region—A case study of Sunjiacha Basin of Lanzhou in Gansu Province

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中文摘要:

　　以甘肃省兰州市孙家岔流域为研究对象，使用1981—1983年、2011年实测土壤水分资料，利用地统计法分析了该流域土壤水分的垂向变异特征。结果表明，球状模型对丰水年不同土地利用（梯田、荒坡、坡耕地、乔木林地）土壤水分的垂向分布拟合为极显著。在平水年球状模型仅对梯田、乔木林地的实验变异函数拟合较好，而对坡面地区的坡耕地和荒坡的拟合并不显著。枯水年梯田和林地的空间变异对模型仍然有一定的吻合，而坡耕地和荒坡土壤水分空间分布变异中有较大的随机性，即使在雨季时空间自相关也很弱。不同水文年下不同土地利用的土壤水分垂向变化表现出明显的季节变化趋势，变程为1.687～3.404 m，在该自相似范围内测得土壤特性的变异程度基本一致。

Abstract:

　　The Sunjiacha Basin of Lanzhou, Gasu Province was cited as a case for study. Geostatistic analysis was done of the data of soil moisture measured in that region during 1982, 1983 and 2011 for vertical variability of the soil moisture. Results show that the sphe model fits very well the vertical distribution of soil moisture in all the lands different in land-use (terrace field, waste slope, slope farml and woodland) in wet years, quite well only in terrace field and woodland and not in slope farmland and waste slope in normal years, a still to some extent in terrace field and woodland in dry years. Soil moisture in slope farmland and waste slope varies randomly in distribution, and even if in the rainy season its spatial autocorrelation is also very weak. The vertical variations of soil moisture in all th lands and in all the years demonstrate a significant seasonal trend and go within the range of 1.687 ~ 3.404 m, which tallies basically the extend of variation of the soil properties measured in the range self-similarity.

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