农业资源研究中心_水文循环和地下水环境_岗位应聘申请表

<table>
<tr><td>姓 名</td><td>刘丙霞</td><td>性 别</td><td>女</td><td>党 派</td><td>中共党员</td><td rowspan="5"></td></tr>
<tr><td>出生日期</td><td>1986/12/10</td><td colspan="2">参加工作时间</td><td colspan="2">无</td></tr>
<tr><td rowspan="2">毕业院校</td><td rowspan="2">中国科学院教育部水土保持与生态环境中心</td><td colspan="2">毕业时间</td><td colspan="2">2015 年 07 月</td></tr>
<tr><td colspan="2">出站时间</td><td colspan="2">年 月</td></tr>
<tr><td>学 历</td><td>博士</td><td>学 位</td><td>农学博士</td><td>所学专业</td><td>土壤学</td></tr>
<tr><td colspan="2">现工作/博士后单位</td><td colspan="5">无</td></tr>
<tr><td>现职务/职称</td><td>无</td><td colspan="2">任职时间</td><td colspan="3">无</td></tr>
<tr><td>外语语种和水平</td><td colspan="3">英语六级</td><td colspan="2">与本所有无亲属关系</td><td>无</td></tr>
<tr><td rowspan="2">配偶情况</td><td>姓 名</td><td>无</td><td>工作地点</td><td colspan="3"></td></tr>
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<tr><td rowspan="2">户口所在地</td><td colspan="3">正式户口所在地</td><td colspan="3">山东新泰市汶南镇</td></tr>
<tr><td colspan="3">非正式户口所在地（学生或博士后）</td><td colspan="3">山东新泰市汶南镇</td></tr>
<tr><td>应聘岗位</td><td colspan="6">水文循环和地下水环境课题组 工作人员</td></tr>
</table>

一、学习进修经历（大学填起，研究生阶段注明指导教师）

2006.09-2010.07 山东农业大学，林学院，水土保持与荒漠化防治专业，学士；

本科期间各科成绩优异，具有扎实的专业基础，不仅掌握了水土保持与荒漠化及水保方案编制的相关理论知识，还参加多次野外调查实习，掌握了一定的林学、土壤和水利工程基础知识。组织参加学校的“暑期三下乡社会实践活动”并获得“校优秀实践队”荣誉称号；

2010.09 至今 中国科学院教育部水土保持与生态环境中心，土壤学专业，博士(硕博连读)；

导师：邵明安 研究员。

2010.09-2011.6 在中国科学院大学玉泉路校区，学习土壤，生态，水文等相关理论知识，同时聆听了多位院士的学术报告。

2011.07-2014.11 依托水土保持研究所，神木侵蚀与环境实验站进行了长期的野外研究工作，独立完成博士的研究工作，培养了野外的吃苦耐劳及团队协作精神，积累了丰富的野外实验经历；在熟练掌握并完成自己研究方向的实验之余，还向其他研究方向的科研工作者进行交流学习，辨识了很多黄土高原植被种类，拓展水保，水利，农水等方面的知识。

二、工作经历（含工作时间、单位名称及任职情况等）

无

三、代表性研究工作或学位论文工作介绍（含参加/承担项目、研究基础、取得成果等）

1. 协助导师参与完成课题：

（1）国家自然科学基金“黄土高原小流域土壤水分植被承载力模拟研究”；

（2）中国科学院创新团队国际合作伙伴计划项目“流域水土过程模拟”；

（3）国家自然科学基金重大项目“黄土高原生态系统与水文相互作用机理研究”下的子课题；

2. 博士论文主要内容

论文题目：

黄土区小流域典型灌草植被下土壤水资源及其植被承载力研究

1)、小流域不同植被恢复下土壤水分分布特征

2)、时间稳定性方法预测典型土地利用下土壤储水量

3)、不同植被年限及不同密度下典型植被的土壤水分动态

4)、典型植被的多年平均土壤水分植被承载力研究

5)、不同年限柠条和苜蓿水分动态及其最优生长年限模拟

6)、混合植被配置下的土壤水分消耗及其干燥化

四、获得的科技/荣誉奖励及研究成果情况（代表性研究论文、专利、获奖等，标注排名）

1. 代表性论文：

（1）Liu, Bingxia, Shao, Ming'an. Estimation of soil water storage using temporal stability in four land uses over 10 years on the Loess Plateau, China. Journal of Hydrology 517 (2014): 974-984.（IF=2.693）

（2）刘丙霞，邵明安．黄土区退耕草地小尺度土壤水分空间异质性[J]．中国水土保持科学, 2012, 10(4): 60-65.

（3）Liu, Bingxia, Shao, Ming'an. Modelling soil-water dynamic and soil water-carrying capacity for planted vegetation in the Loess Plateau, China. Agricultural Water Management (under review)

（4）Liu, Bingxia, Shao, Ming'an. Response of soil water distribution and budget under different land uses to extreme annual precipitation on the Northern Loess Plateau, China. Plos One (under review)

2. 获得奖励

1）2014-2015学 年 获得研究生国家奖学奖(博士阶段)；

2）2012-2013学 年 获得研究生国家奖学奖 (硕士阶段)；

3）2011-2012学年被评为中国科学院大学“三好学生”；

4）2010年被评为山东省省级优秀毕业生；

5）2010年被评为山东农业大学优秀毕业生；

6）2007—2008学年获得国家励志奖学金；

7）2007—2008学年被评为山东农业大学“三好学生”；

8）多次获得专业一等奖、二等奖及其他单项奖；

五、提供两或三位同行具有高级职称推荐人的联系方式（姓名、职务、电话和邮箱地址）

1.邵明安 研究员 13572556861 shaoma@igsnrr.ac.cn

2. 张兴昌 研究员 中科院教育部水土保持与生态环境研究中心副所长 13709229398 zhangxc@ms.iswc.ac.cn

3. 黄明斌 研究员 13572556865 hmbd@nwsuaf.edu.cn

六、应聘岗位陈述（对岗位的认识、研究兴趣、应聘理由及优势、工作设想和其它说明）：

对岗位的认识：从事科研工作，首先科研态度端正，诚实守信，团结协作；其次，要认真负责，务实创新；要做好人，再做好事，进而才能做好科研。

研究兴趣： 生态水文循环

工作设想：结合土壤学、土壤水文和水土保持方面的专业背景，综合考虑大气、植被、包气带和饱水带间的水分运动问题为核心，主要开展多要素、多尺度的土壤-植被-水文过程耦合研究，探讨其不同尺度上的相互作用机理，分析其尺度特征和尺度效应，研究尺度转化的方法。

应聘理由及优势：具有土壤学、水文与水资源、水土保持与荒漠化防治等多学科专业背景，吃苦耐劳，科研态度端正，硕博期间长期在野外台站开展野外监测实验，具有独立开展科学研究的能力和良好的团队合作精神。

七、附件：证明能力的：论文、证书影印件、其它材料等（PDF）

本人承诺以上情况真实无误，如有虚假，本人愿意承担一切后果。

申请人签名：刘丙霞　　　　填表日期：2015年 1 月 6 日

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Estimation of soil water storage using temporal stability in four land uses over 10 years on the Loess Plateau, China

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SUMMARY

An understanding of the temporal stability of soil water storage (SWS) in deep soil profiles is critical to optimize monitoring strategies and to predict the status of soil water on the Loess Plateau. This study tested and validated the feasibility of estimating mean SWS over multiple years by the SWSs at selected locations. The SWSs in 0–1, 1–2, 2–3, and 3–4 m layers were collected using neutron probes at 11 sites in each of four land-use types: cropland (CL), grassland (GL), fallow land (FL), and shrubland (SL). The most time-stable locations (MTSLs) for the various layers and the location at mid-slope for each land use were selected on 20 sampling occasions during a calibration period from July 2004 to December 2005. A validation data sets from January 2006 to October 2013 was used to test the length of time the estimates of mean SWS remained valid. The SWSs in SL and GL decreased with plant growth, and the temporal variations were larger in SL and GL than in FL and CL. The temporal stability of the SWSs was high for all soil layers in four land uses, with the rank correlations over the threshold of significance ($\alpha = 0.05$) over 10 years. The degree of temporal stability of SWSs was ranked as CL > FL > GL > SL, and the temporal stability of SWSs in SL and GL decreased with increasing lengths of observation period, as indicated by lower mean Spearman's correlations for all soil layers. The MTSLs selected from the calibration period could accurately estimate mean SWSs for diverse layers under four land uses with estimation errors less than 10% over eight years. The study verified that a single location at mid-slope of each land use could be sampled in order to reduce the required number of samples and save time and labor while maintaining a high accuracy of prediction over multiple years.

1. Introduction

Soil water is a critical variable in studies of hydrological processes and the soil–plant–atmosphere continuum, especially in arid and semi-arid regions. It is the most limiting factor for the production and restoration of vegetation on the Loess Plateau of China (Xia, 2008; Gao et al., 2011; Jia and Shao, 2013a), controlling the patterns of the spatial and temporal distributions of vegetation. Obtaining accurate soil water data at landscape scales economically, however, is difficult due to the strong temporal–spatial variability of soil water (Dobriyal et al., 2012). Soil moisture also varies with soil depth due to the heterogeneity of environmental factors and soil properties (Wang et al., 2013). Conventional monitoring of soil water involves *in situ* point measurements at fine resolution in both space and time, which is expensive, time-consuming and labor-intensive. The accurately estimation of soil water storage (SWS) by monitoring the optimal locations is thus essential for managing water resources efficiently.

Despite the strong spatiotemporal variability of soil water, previous studies have indicated that the spatial patterns of soil water are time-stable, that is, the rank of soil water at sample locations does not change with time, at a high probability (Brocca et al., 2009, 2010; Hu et al., 2010a, b; Joshi et al., 2011). Vachaud et al. (1985) first found that the spatial patterns of soil water changed slightly with time and that field-averaged soil water was persistent over time even though observed at specific locations. Kachanoski and de Jong (1988) defined the stability of soil moisture over time as the temporal stability of the spatial pattern. The temporal stability of soil water has since been extensively applied to identify time-stable sites that represent the field mean soil water conditions (Martínez-Fernández and Ceballos, 2005; De Lannoy et al.,

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黄土区退耕草地小尺度土壤水分空间异质性

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2. 中国科学院研究生院，100039，北京；3. 中国科学院地理科学与资源研究所，100101，北京)

摘要　通过在黄土高原水蚀风蚀交错带选取 3 块不同年限退耕草地，进行高密度、高频度样带采样，研究分析在表层土壤干旱和湿润状况下，小尺度表层土壤含水率的空间异质性，并分析改变采样间距对土壤含水率空间异质性的影响。结果表明：小尺度表层土壤水分空间异质性为 12 a 退耕草地 > 20 a 退耕草地 > 5 a 退耕草地；空间变异强度表现为干旱时为中等变异 > 湿润时为弱变异；表层土壤水分方差与含水率均值呈正相关，土壤水分方差随含水率均值增大而增大；表层土壤水分空间连续性为 12 a 退耕草地 > 20 a 退耕草地 > 5 a 退耕草地，且与表层土壤含水率呈负相关；小尺度下改变采样间距，在土壤干旱和湿润时均不改变 3 块退耕草地表层土壤水分空间变异程度。

关键词　小尺度；退耕草地；土壤含水率；空间异质性；水蚀风蚀交错带

Soil water content heterogeneity at small-scale on degraded grasslands on Loess Plateau

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Abstract　In order to explore the heterogeneity of topsoil water content (SM) of regressed grasslands at small-scale, three regressed grasslands in water-wind erosion crisscross region on Loess Plateau were selected. By using high sampling-density and high frequency sampling methods at three sampling transects, we explored the heterogeneity of topsoil water content when the surface soil was in dry and moist conditions and different sampling spaces at small-scale. Results showed that the heterogeneity of topsoil water content of different regressed grasslands followed a sequence of 12 a > 20 a > 5 a and it presented medium variation when topsoil was dry. Topsoil water content was positively correlated with its variance value, that is the variance of SM increased with SM increase. Spatial continuity of SM followed a sequence of 12 a regressed grassland > 20 a regressed grassland > 5 a regressed grassland and it was negatively correlated with topsoil water content. At different sampling spaces at small-scale, the variation intensity of topsoil water content under different regressed grasslands had no change whenever the topsoil was dry or moist. This information may provide scientific proofs for water reasonable utilization and vegetation restoration on the Loess Plateau.

Key words　small-scale; regressed grassland; soil water content; spatial variability; water-wind erosion crisscross region

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