

研究报告

# 南方红壤丘陵区油桐人工林土壤水分动态

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**摘要** 利用时域反射仪(TDR)定位监测方法,研究了南方红壤丘陵区油桐人工林土壤水分动态规律.结果表明:不同月份间土壤蓄水量差异达极显著水平,研究时段内土壤水分动态变化可划分为土壤水分积累期、土壤水分消耗期和土壤水分稳定期3个时期;油桐人工林土壤水分垂直变化显著,且不同季节的变化规律各异;土壤蓄水量与大气相对湿度(RH)、大气温度(t)、饱和水汽压差(VPD)、降雨量(R)等气象因子显著相关(P<0.05);次降雨后,土壤水分损失率与干旱天数呈显著的双曲函数关系,土壤蓄水量与雨后干旱天数呈显著的线性负相关(P<0.05);在次降雨后的持续干旱条件下,土壤水分损失随着土层深度的增加逐渐趋于平缓.

**关键词** [红壤丘陵区](#) [油桐人工林](#) [垂直变化](#) [土壤水分](#) [土壤蓄水量](#)

分类号

## Dynamics of soil water under *Vernicia fordii* plantation in hilly red soil region of Southern China

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### Abstract

By using time domain reflectometry (TDR), a fixed-position monitoring was made on the dynamic characteristics of soil water under *Vernicia fordii* plantation in the hilly red soil region of Southern China. The results showed that there was a significant difference in the soil water storage among different months, and the dynamics of soil water could be described as the phases of accumulation, depletion, and stabilization. Soil water had a significant variation in its vertical distribution, and the variation pattern differed in different seasons. Significant correlations existed between soil water storage and meteorological factors such as relative humidity (RH), air temperature (t), vapor pressure deficit (VPD) and rainfall (R) (P<0.05). After rain, soil water loss had a significant hyperbolic correlation with drought duration, while soil water storage had a significant linear negative correlation with this duration (P<0.05). With the extension of drought duration after rain, soil water loss tended to vary gently with increasing soil depth.

**Key words** [hilly red soil region](#) [Vernicia fordii plantation](#) [vertical change](#) [soil water](#) [soil water storage](#)

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