

SPAC系统中质能传输力学问题的新课题

Simulation Investigations on Mass/Energy Transports in SPAC System and Their Applications in China

投稿时间: 1992-10-20

稿件编号: 19930404

中文关键词: 土壤—植物—大气系统; 水热; 溶质; 传输过程

英文关键词: SPAC system Water Heat Solute Transport processes

基金项目:

作者	单位
雷廷武	北京农业工程大学
张森文	北京农业工程大学

摘要点击次数: 6

全文下载次数: 20

中文摘要:

综述了国内外对SPAC(土壤—植物—大气统一体)系统质能传输过程从事的理论研究进展;介绍了一些新的研究课题,以及国内近年来在SPAC系统研究中理论和实验研究方面所取得的一些重要成果,即调控亏水度灌溉技术,“脉冲”灌溉技术的研究及应用、用土壤水的定量管理改良盐碱地的措施等;提出了一些在SPAC系统研究中需要解决的研究难题,包括建立适当的模型、确定合理的边界条件、参数等问题。

英文摘要:

Plants make use of mass and energy which are transported in the Soil-Plant-Atmosphere continuum, known as SPAC system. Previous quantitative investigations on the mass/energy transports in the SPAC system and their governing equations are dealt with in this paper as: water, solutes and heat (or temperature) transports. Some new concerns, such as heat-water coupled transport, simultaneous water-solute transport and coupled water-heat-solute transport, of research in China are given. The advances in experimental and theoretical studies of SPAC system in China are as: successful application of Regulated Deficit Irrigation; solving salinity problem with better, quantitative soil water management; dynamical estimate of water extraction by plants; application of SPAC system simulation to irrigation timing. Several difficult aspects concerning SPAC system research are listed as: appropriate models for the descriptions of transport processes; determination of reasonable boundary conditions; measurement techniques for physical parameters of soils; treatments of soil variations; effective methods for the solution of different processes; combination of computational and experimental, both indoor and in the field, methods.

[查看全文](#)

[关闭](#)

[下载PDF阅读器](#)

您是第606957位访问者

主办单位: 中国农业工程学会 单位地址: 北京朝阳区麦子店街41号

服务热线: 010-65929451 传真: 010-65929451 邮编: 100026 Email: tcsae@tcsae.org

本系统由北京勤云科技发展有限公司设计