

WAVES模型在黄土区农田尺度水循环模拟中的应用

Application of WAVES to Modeling Hydrologic Processes in Agricultural Scale of Loess Plateau

投稿时间: 1999-9-2 最后修改时间: 2000-10-10

稿件编号: 20000708

中文关键词: WAVES模型; 农业生态系统; 水文过程

英文关键词: WAVES model; agricultural scale; hydrologic processes

基金项目: 中科院重大项目(KZ951-B1-211)、国家自然科学基金重大项目(49890330)和中科院“西部之光”项目资助

作者	单位
黄明斌	中科院、水利部水土保持研究所
邵明安	中科院、水利部水土保持研究所
李玉山	中科院、水利部水土保持研究所

摘要点击次数: 13

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中文摘要:

利用黄土高原长武农业生态试验站冬小麦农田水分循环的长期定位试验资料对澳大利亚科工组水土研究所开发的WAVES模型进行了验证, 模拟结果和实测值的比较证实WAVES模型可用于模拟黄土高原农田生态系统水文循环过程, 对短时段(1年)和长时段(10年)的模拟都有较高精度, 模型对土壤肥力指数反映敏感。文中还讨论了模型为适应黄土高原这一特定水文生态系统需要改进的方面。

英文摘要:

During the period of Sep. 1, 1984 to Jul. 2, 1994, field experiments were conducted at Changwu Agricultural Ecosystem Station in Loess Plateau to measure water and energy balance components, crop growth and yield of winter wheat. A process-based model (WAVES which was developed by the CSIRO, Land and Water Division of Australia) was tested using the measurements. Comparison of the measured data during one year and ten years with the predicted results is agreeable. These data including LAI of winter wheat and its dynamic change, water content in soil profile and its variation with time. So WAVES can be used to model hydrologic processes of agricultural ecosystem in Loess Plateau and to evaluate effects improving water use efficiency by fertilization and mulching. At last we also point out the shortcoming of WAVES and revising fields needed.

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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

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