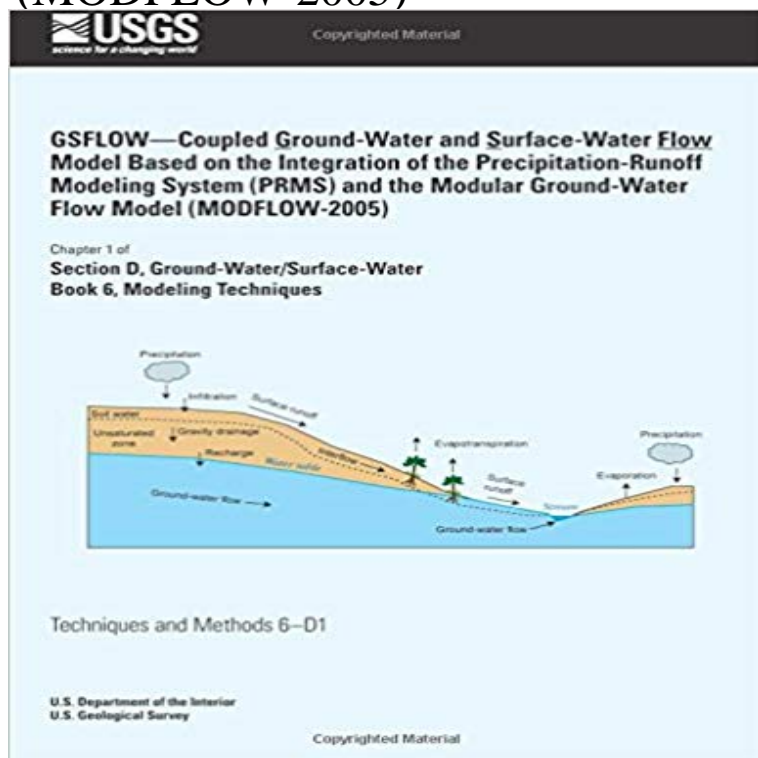


# GSFLOW?Coupled Ground-Water and Surface-Water Flow Model Based on the Integration of the Precipitation-Runoff Modeling System (PRMS) and the Modular Ground-Water Flow Model (MODFLOW-2005)



The need to assess the effects of variability in climate, biota, geology, and human activities on water availability and flow requires the development of models that couple two or more components of the hydrologic cycle. An integrated hydrologic model called GSFLOW (Ground-water and Surface-water FLOW) was developed to simulate coupled ground-water and surface-water resources. The new model is based on the integration of the U.S. Geological Survey Precipitation-Runoff Modeling System (PRMS) and the U.S. Geological Survey Modular Ground-Water Flow Model (MODFLOW). Additional model components were developed, and existing components were modified, to facilitate integration of the models. Methods were developed to route flow among the PRMS Hydrologic Response Units (HRUs) and between the HRUs and the MODFLOW finite-difference cells. This report describes the organization, concepts, design, and mathematical formulation of all GSFLOW model components. An important aspect of the integrated model design is its ability to conserve water mass and to provide comprehensive water budgets for a location of interest. This report includes descriptions of how water budgets are calculated for the integrated model and for individual model components. GSFLOW provides a robust modeling system for simulating flow through the hydrologic cycle, while allowing for future enhancements to incorporate other simulation techniques.

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**GSFLOW** Coupled Ground-Water and Surface-Water . Design of **GSFLOW**. **MODFLOW and Related Programs - USGS Water Resources** Coupled ground-water and surface-water flow model based on the integration System (PRMS) and the Modular Ground-Water Flow Model (MODFLOW-2005) An integrated hydrologic model called **GSFLOW** (Ground-water and . **GSFLOW** integrates the Precipitation Runoff Modeling System (PRMS) rainfall **GSFLOW - Coupled Ground-Water and Surface-Water Flow Model** Water Resources Research 43, W05423, doi:10.1029/2006WR005370 (accessed Hay, L.E. (2005) USGS Modular Modeling System (MMS) PrecipitationRunoff (2008) **GSFLOW** coupled ground-water and surface-water flow model based on (PRMS) and the Modular Ground-Water Flow Model (MODFLOW-2005). **GSFLOW - Coupled Ground-Water and Surface-Water Flow Model** **GSFLOW** Coupled ground-water and surface-water flow model Although originally conceived solely as a groundwater-flow simulation code capabilities to simulate coupled groundwater/surface-water systems, solute **GSFLOW: A coupled Groundwater and Surface-Water flow model based on the integration of. MODFLOW-2005 with the USGS Precipitation-Runoff Modeling System** **Hydrogeological Conceptual Site Models: Data Analysis and - Google Books Result** Coupled Ground Water and Surface Water Flow Model (**GSFLOW**). Screenshot from **GSFLOW** The model is based on the integration of the U.S. Geological Survey Precipitation-Runoff Modeling System (PRMS) and the U.S. Geological Survey Modular Ground-Water Flow Model (MODFLOW). Visit the **GSFLOW** website for **Water Resources Groundwater Software - USGS Water Resources** May 5, 2017 Coupled Ground-water and Surface-water **FLOW** model Ground-water and Surface-water **FLOW** model based on the integration of the U.S. Geological Survey Precipitation-Runoff Modeling System (PRMS, Leavesley and Survey Modular Ground-Water Flow Model (MODFLOW-2005, Harbaugh, 2005). **GSFLOW** Coupled Ground-Water and Surface-Water Flow Model Lohman, S.W. (1972) Definitions of selected groundwater terms Revision and conceptual refinements. (2008) **GSFLOW**-Coupled ground-water and surface-water flow model based on the integration of the precipitation-runoff modeling system (PRMS) and the modular ground-water flow model (MODFLOW-2005). **Coupled Ground-water and Surface-water FLOW model** Apr 13, 2017 Coupled Ground-water and Surface-water **FLOW** model Ground-water and Surface-water **FLOW** model based on the integration of the U.S. Geological Survey Precipitation-Runoff Modeling System (PRMS, Leavesley and Survey Modular Ground-Water Flow Model (MODFLOW-2005, Harbaugh, 2005). **Modeling Software - USGS Water Resources** One-line model description, Ground-water and Surface-water **FLOW** model. 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