



中国科学院大气物理研究所  
东亚区域气候-环境重点实验室



# 全球变化区域研究创新论坛

## 学术报告

报告题目: **Global Water Resource Assessments:  
Comparison of Models to GRACE  
Satellites**

报告人: **Dr. Bridget R. Scanlon**

单位: **Jackson School of Geosciences,  
University of Texas at Austin**

时间: **2018年6月15日上午10:00~11:00**

地点: **大气所40号楼319会议室**

**欢迎大家踊跃参加并讨论!**



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## Abstract

Increasing interest in global hydrology based on modeling and remote sensing underscores the need to compare results from these two approaches. Here we compare simulated land Total Water Storage anomalies (TWSA) from global hydrologic models (WGHM and PRC-GLOBWB) and land surface models (NOAH, MOSAIC, VIC, CLM, CLSM) to TWSA from newly released Gravity Recovery and Climate Experiment (GRACE) mascons solutions from Univ. of Texas Center for Space Research (CSR) and NASA Jet Propulsion Lab and from traditional spherical harmonic solutions. There is generally good agreement between modeled and GRACE-derived trends in TWSA in the midrange (within  $\pm 0.5 \text{ km}^3/\text{yr}$ ) but models underestimate large declining and rising trends outside this range. Even global hydrologic models with human water use (PCR-GLOBWB and WGHM) show large differences in magnitude and direction of TWSA trends for many basins. There is much better agreement in seasonal amplitudes in TWSA between models and GRACE. Modeling human water use is important for long-term trends in many basins but not for seasonal amplitudes. This work will advance GRACE data processing and future model development that should provide improved understanding of global water resources.



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## Short Bio.

Bridget Scanlon is a Senior Research Scientist at the Bureau of Economic Geology, Jackson School of Geosciences, University of Texas at Austin. Her degrees are in Geology with a focus on hydrogeology with a B.A. Mod. from Trinity College, Dublin (1980); M.Sc. from the Univ. of Alabama (1983), and Ph.D. from the Univ. of Kentucky (1985). She has worked at the Univ. of Texas since 1987. Her current research focuses on various aspects of water resources, including global assessments using satellites and modeling, management related to climate extremes, and water energy interdependence. She serves as an Associate Editor for *Water Resources Research* and *Environmental Research Letters* and has authored or co-authored 100 publications. Dr. Scanlon is a Fellow of the American Geophysical Union and the Geological Society of America and a member of the National Academy of Engineering.

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