



The recent US-Southeast drought observed with GRACE & GPS

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The southeast continental US has experienced severe drought conditions over the last several years, resulting in water shortages and user restrictions for the agricultural and private sector. GRACE measurements provide a unique measurement of total terrestrial water storage anomalies, and with 7 years of data, long-term trends can be reliably assessed and compared with GPS, hydrological models and standard indices of drought monitoring. However, one difficulty in the interpretation of GRACE data in particular over land is the integral character of the measurement: from GRACE alone, one cannot distinguish between the sources of anomalies, so additional data needs to be considered. Our analysis of recent changes over the southeast US indicates that GRACE observes a significantly stronger water loss over this region than hydrological models simulate. This may be related to reductions in groundwater, which is not adequately captured in hydrological model simulations. We also discuss the consistency of the observed GRACE signal with observed precipitation variations, and potential implications for the region's water resources.