**The Dynamics of Water Storage over Lake Eyre, Australia Observed by Satellite Data**

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This study investigated the dynamics of water storage over Lake Eyre, Australia using Polarization Ratio Variation Index (PRVI) values from The Advanced Microwave Scanning Radiometer (AMSR-E) and precipitation rate from the Tropical Rainfall Measuring Mission (TRMM). Lake Eyre, the largest lake in Australia and 18th largest in the world is an ephemeral lake that fills up on rare occasions. Satellite microwave data such as PRVI values from AMSR-E are sensitive to surface change which helps to monitor soil surface wetness from space to detect inundation, hence, in this study the PRVI values were used to observe the water storage variation in Lake Eyre. We examined monthly satellite precipitation rate from TRMM and PRVI from AMSR-E for the time frame of three years (2008-2010) to analyze the links between rainfall rate and water storage dynamics in the Lake. Overall results show that high rain rate in the Lake’s watershed is followed by high values of PRVI indicating water storage in the Lake. High values of PRVI are observed from April to November 2009 that is consistent with recorded rise of the Lake’s level by about 1.5 m during the same period. Currently, we are analyzing water storage variation against dust rise.