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# Applying Seasonal Climate Forecasts to Project Streamflows and Water Storage of Reservoirs

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Abstract
It is important to estimate available water in advance for water resources management. The purpose of this study is to apply seasonal climate forecasts to project streamflows and the storage of reservoirs with the lead time of three months, which can further be used to analyzes drought risk and even to develop drought early warning system (DEWS). The Central Weather Bureau of Taiwan has developed a two-tier dynamical climate forecast system (CWB-2tier-GFS-T42L18), which combines two atmospheric general circulation models with two global sea surface temperature forecasts. The CWB system can be used to forecast temperature and precipitation with the lead time of three months. The climatic conditions are classified into three categories (Below Normal, Normal, and Above Normal). This research generates weather data based on the projected seasonal climate to input a hydrological model to estimate streamflows. The hydrological component of GWLF model is used to simulate streamflows. Furthermore, the simulated streamflows are used to calculate the inflow and storage of Baoshan Reservoir and Baoshan Second Reservoir. The reliability of using seasonal climate forecast to project streamflows and available water of reservoirs will be verified.

Keywords: Seasonal Climate, Water Resources, Hydrology, Reservoir, Drought