

IMPACTS OF CLIMATE CHANGE AND SEA LEVEL RISE ON SOUTHEAST FLORIDA'S GROUNDWATER RESOURCES

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Sea level rise is one of the most impacting consequences of climate change, especially to low-lying coastal areas such as southeastern Florida. Climate change alone can affect groundwater resources with the increased intensity and frequency of extreme weather events, including storms and drought. Besides, excessive groundwater extraction can accelerate saltwater intrusion processes. This study investigated how projected changes in climate, sea level, and groundwater intake can individually and collectively impact groundwater resources in southeastern Florida in the future to provide information necessary when developing water management plans and policies for improved sustainability. A three-dimensional numerical groundwater model was used to represent the aquifer system and its interaction with seawater along the coastal lines. Future climate, sea level, and groundwater pumping scenarios were projected and incorporated into the groundwater model. The modeling experiment showed that groundwater levels would be sensitive to the projected changes, and the impacts would vary depending on seasons and locations. Such findings suggested a holistic approach for water resource management in southeastern Florida and highlighted water systems' dynamic nature. This study demonstrated how changes in weather patterns and resulting increases in seawater levels could directly affect local water resources.

PRESENTER BIO: Young Gu Her is an assistant professor of hydrology and agricultural engineering at the Tropical Research and Education Center, IFAS/UF. He has extensive experience with hydrological modeling and monitoring, and his research focuses on evaluating and developing management practices under changing environments for improved sustainability.