and hydrologic functioning of the system: a rain-fed wetland perched above a leaky aquitard, losing water to one of the most productive aquifers in North America.

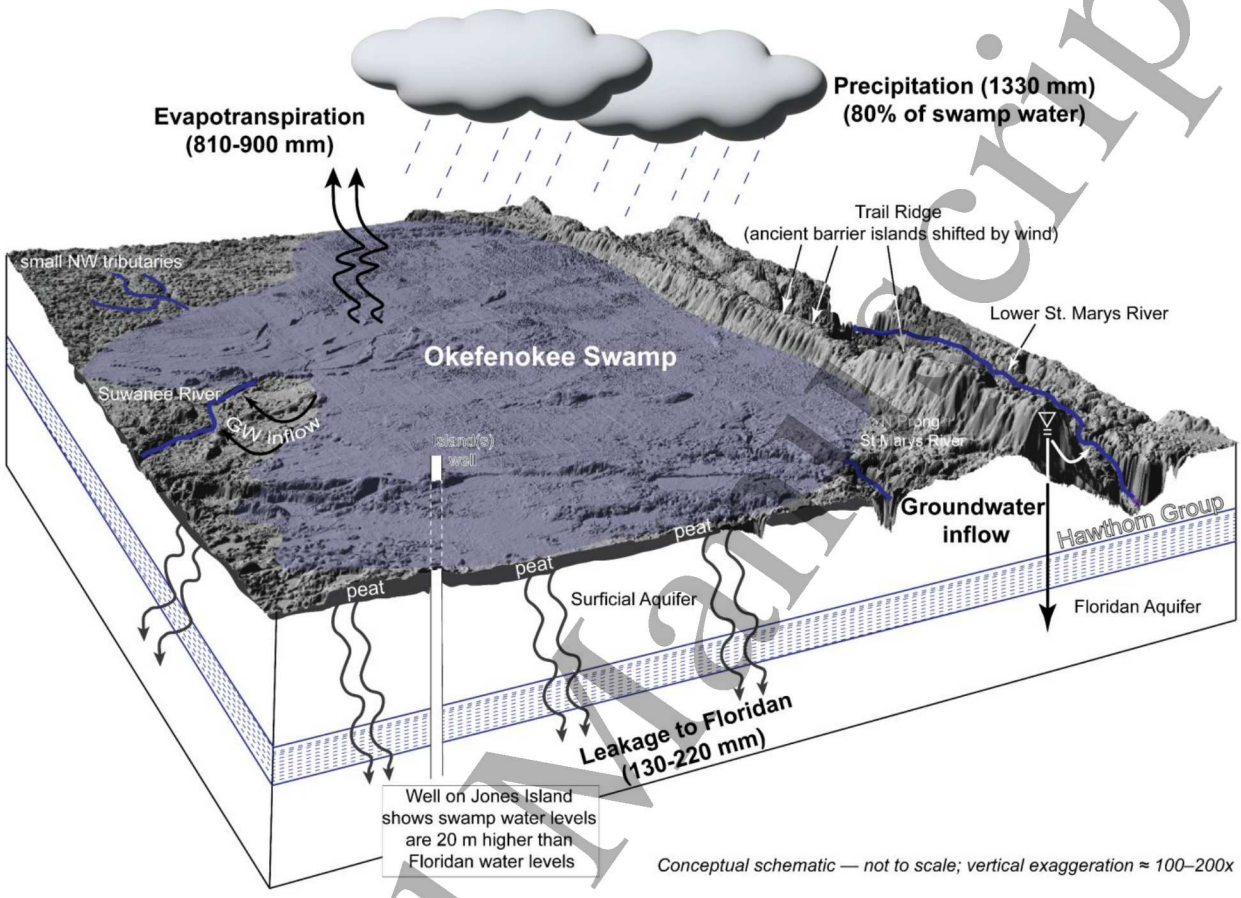

Figure 4. Conceptual 3D block diagram of the Okefenokee Swamp system showing dominant hydrologic fluxes, stratigraphy, and groundwater flow paths. Precipitation (~1330 mm yr^{-1}) sustains the swamp, with most water lost via evapotranspiration (810–900 mm yr^{-1}) and surface discharge to the Suwannee and St. Marys Rivers. Residual water exits primarily as vertical leakage (130–220 mm yr^{-1}) through the Hawthorn Formation into the Upper Floridan Aquifer. Head differences between the swamp and aquifer—up to 21 m—produce a persistent downward gradient. The Hawthorn acts as a semi-confining unit rather than a hydraulic barrier. Regional flow directions, hydrostratigraphic units, and topography are shown schematically. The diagram is not to scale and employs an approximate vertical exaggeration of 100–200x to emphasize relative hydrologic and geomorphic relationships rather than precise spatial dimensions.

4.2 Recontextualizing prior observations and assumptions

Our results resolve longstanding ambiguity in the swamp–aquifer relationship. Earlier tracer studies suggested swamp influence on aquifer chemistry (Plummer 1993, Clark