Predicting flux partitioning in river delta networks using SWOT to produce global delta products and quantify the response of deltas to climate and human induced change

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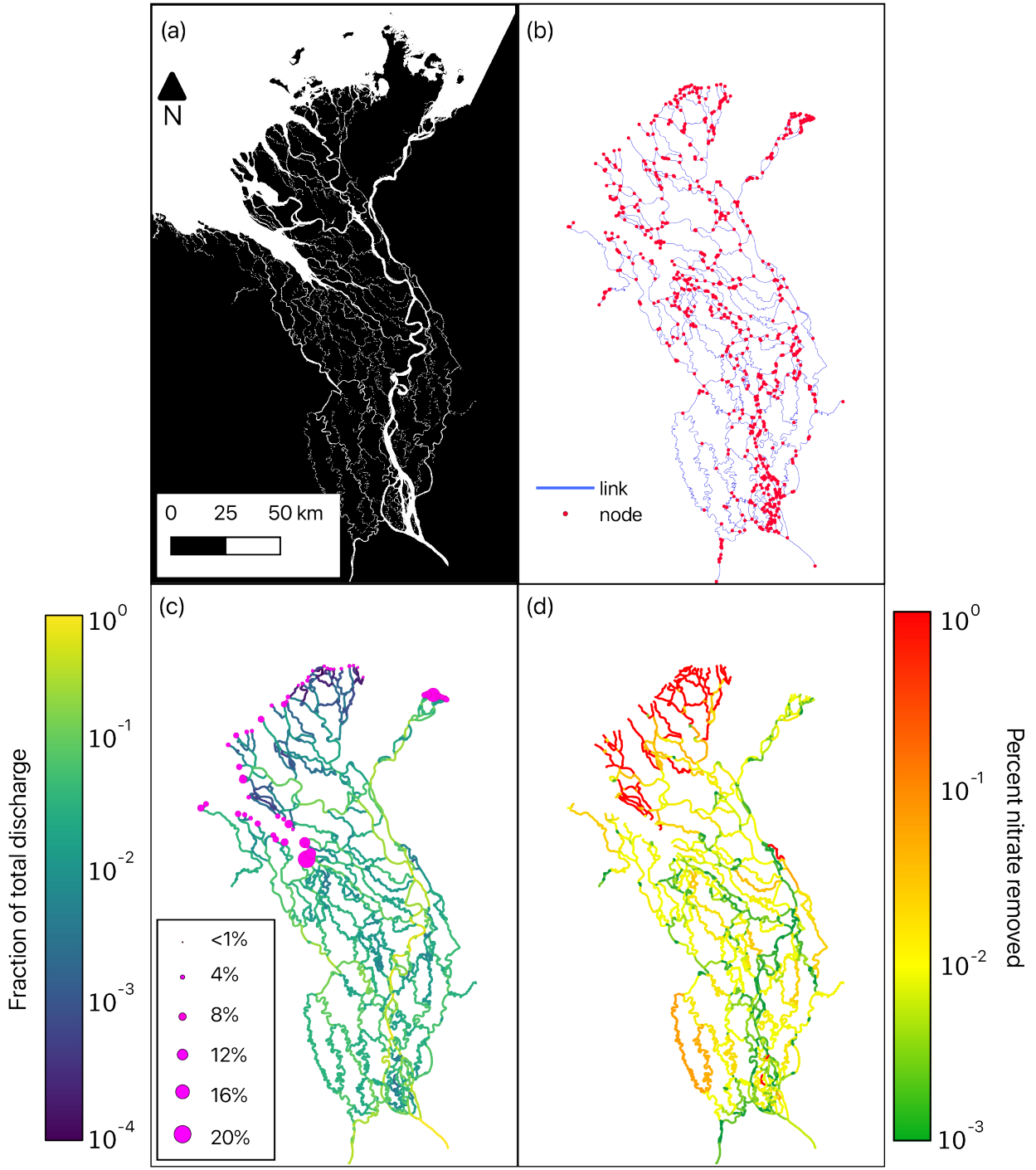
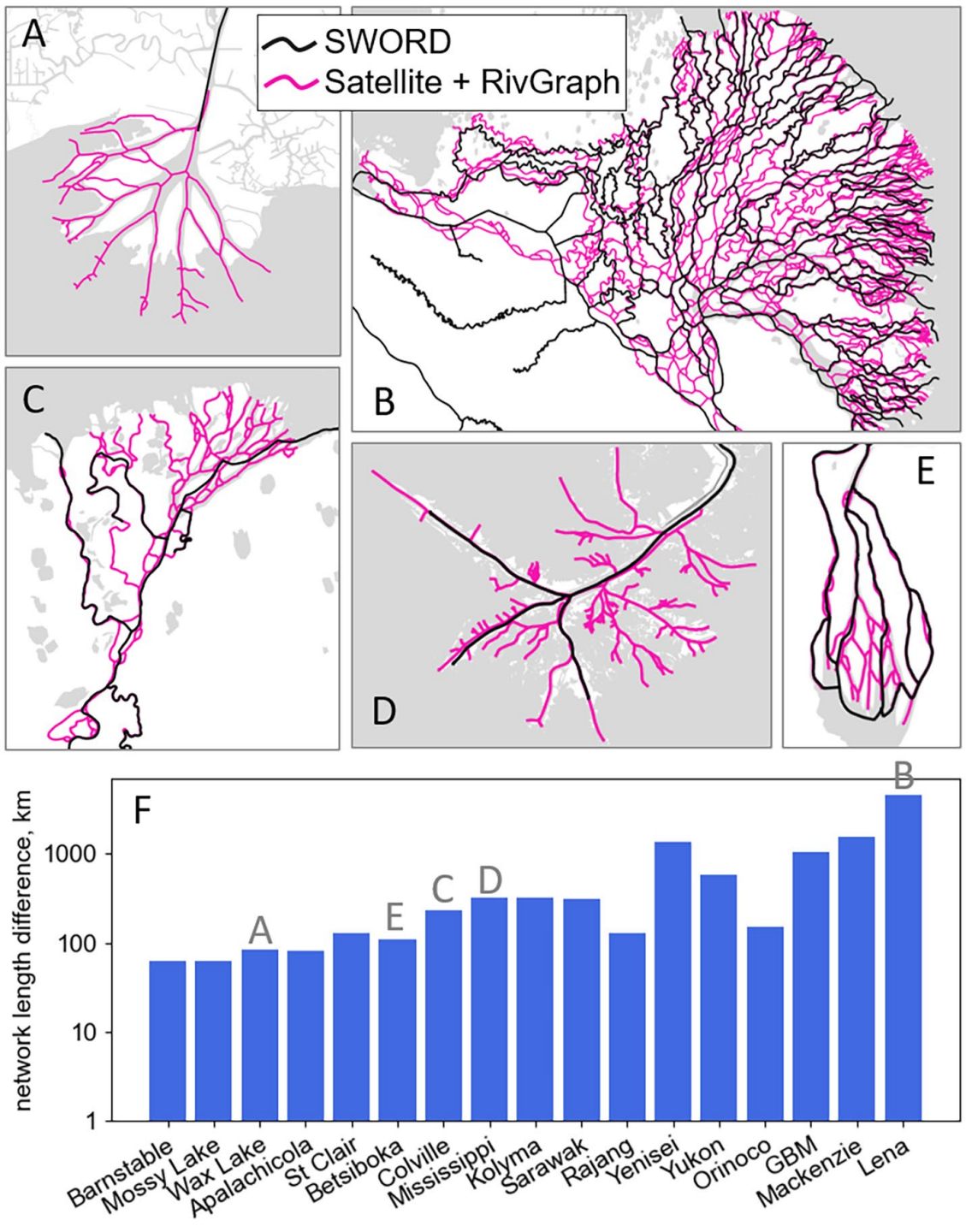
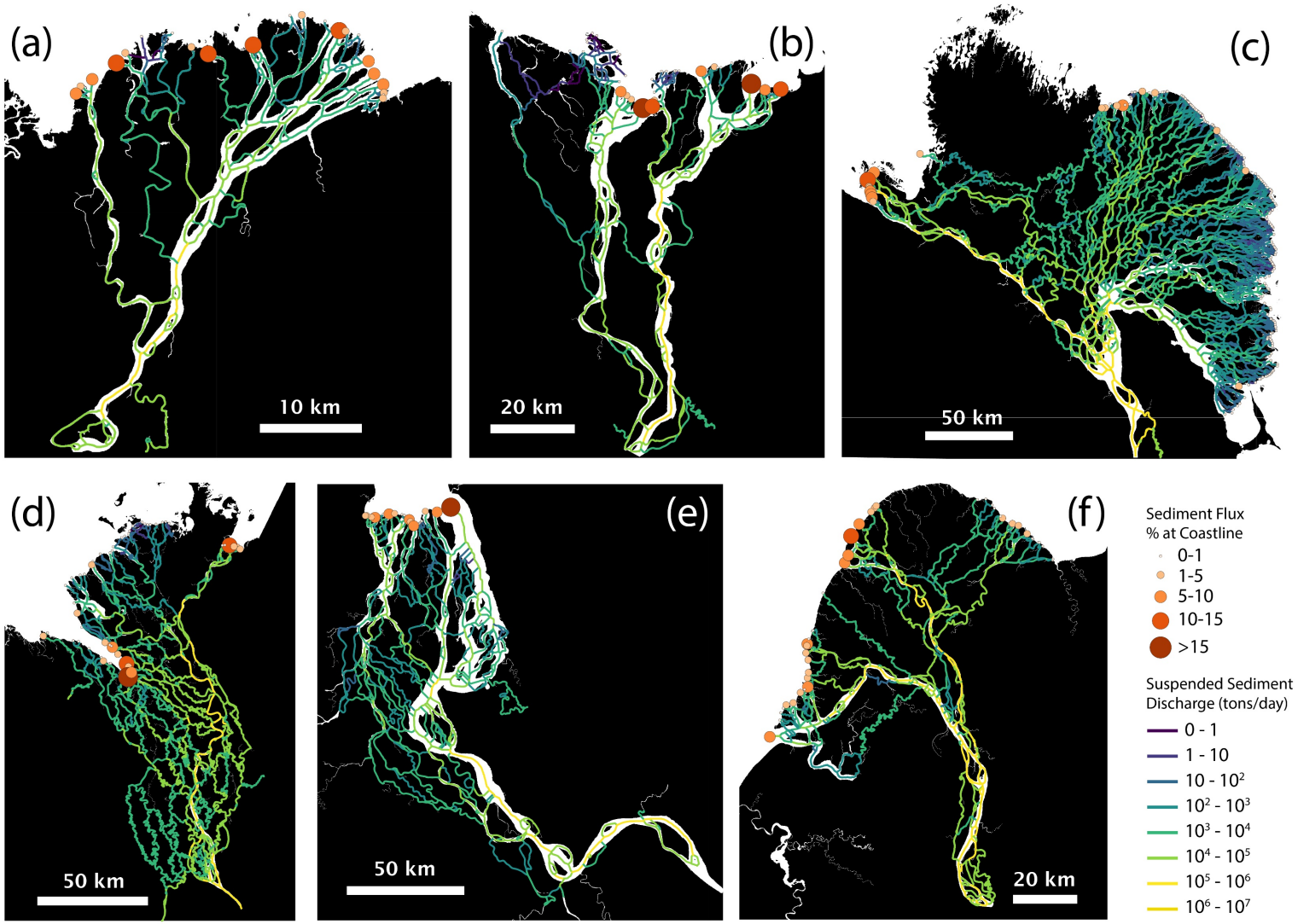




Goal 1: Structure of delta networks through time

Extend the SWORD dataset by extracting water masks and distributary networks of global river deltas leveraging our existing tools based on deep learning and graph theory. We will develop a workflow to extract delta networks through time and quantify their topology by computing graph metrics.

Goal 2: Steady partitioning of water, solutes, and solids



Estimate the partitioning of water, solutes, and solids along distributary networks by leveraging our existing graph theory tools and SWOT-based river discharge as upstream conditions. We will compute the partitioning for mean annual discharge conditions.

Goal 3: Network dynamics

Analyze the networks through time to detect hot spots of change and hot moments (timescales) and estimate partitioning of water, solutes, and solids under low and high discharge conditions. We will leverage SWOT data to estimate river-wetland connectivity and modify the graph-based approach to account for leakiness along distributary networks.