Earth & Environmental Systems Modeling

C. Coastal

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Biggest three challenges/opportunities for EESM coastal research

ontinue to improve flood modeling

a. Large-scale drivers and dynamics
b. Need high resolution and large ensembles
c. Uncertainty characterization
d. Impacts and adaptive responses
e. Data availability especially for AI/ML
f. Etc.

Move beyond flood risk

a. Biogeochemistry and water quality
b. Coastal ecosystems
c. Marsh dynamics
d. Land use and land cover change
e. Ecosystem services
f. Health and well-being impacts
g. Etc.

3. Align with stakeholder needs
    a. Metrics (e.g., time-dependent resilience, AI?)
    b. Making model output more accessible/relevant
    c. Improve two-way information exchange
    d. Communicating uncertainties
    e. Prioritizing model development/application
    f. Etc.
4. Develop technical capabilities
    a. Strategy for AI/ML in coastal modeling
    b. Cross-program data and tool integration
    c. Limits of regional refinement
    d. Human system modeling
    e. Coupling strategies and tools
    f. Resolving regional influences at global scales
    g. Etc.