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Agentic AI for Translating Climate Science into Actionable Hazard Decision-Making

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11-12 PM (MT) FL2-1022 or Virtual | [Watch Live](#)

Recent advances in large language models (LLMs) have created new opportunities to bridge the persistent gap between climate and weather science and actionable hazard decision-making. This talk presents an agentic AI framework in which LLM-driven agents autonomously operate domain-specific tools spanning flood modeling, drought management, climate data exploration, and risk communication. Unlike traditional chatbots or static dashboards, these agents reason about user queries, select and execute appropriate tools, chain multi-step workflows, and synthesize results into decision-ready outputs for practitioners, policymakers, and communities.

Through demonstrations using real data from Louisiana, we show how a unified architectural pattern supports diverse climate hazard applications, including: (1) automated HEC-RAS flood modeling for scenario-based analysis and result extraction, (2) building-level flood insurance premium estimation under FEMA's Risk Rating 2.0, (3) AI-assisted communication of FEMA's Community Rating System for community engagement, (4) climate data exploration through the Louisiana Office of State Climatology (LOSC) Climate Explorer, and (5) DIRT AI, an agentic system for drought monitoring and irrigation decision support for agricultural producers.

We discuss practical lessons from deploying these systems and highlight the potential for agentic AI to serve as a scalable communication and decision-support layer between climate science and the communities it aims to protect. [Event Website](#)