

Flood Management Task Force

TDIS WORKSHOP

August 21, 2026

Conference Room Safety Reminders



**North Central Texas
Council of Governments**

**Welcome to the Vandergriff
Conference Center, 1st Floor
CenterPoint II.**

Agenda

Welcome and Introductions/Attendance

Meeting Summary

September 3rd: Floodplain Seminar for Elected Officials & Steering Committee Meeting

FY 2027 Work Plan

L0273 Managing Floodplain Development Through the NFIP Course and CFM Exam

Stormwater Integrated Flood Forecasting Tool (SWIFFT) Presentation

Texas Disaster Information System (TDIS) Workshop

Open Discussion/Other Business

Next Meeting (August 21st)

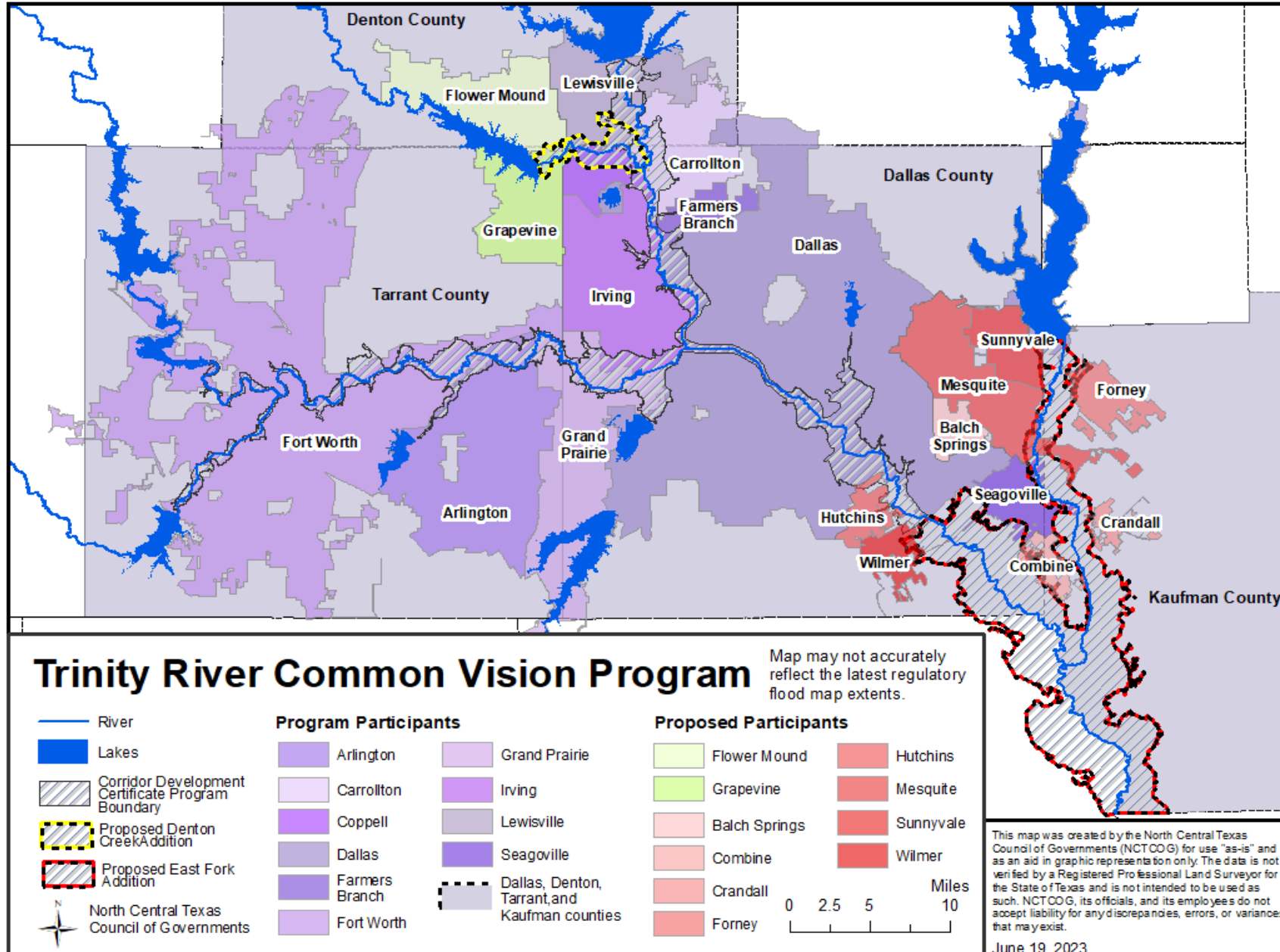
Adjournment

1. Welcome and Introductions

- ▶ Please help yourself to the refreshments at the back of the room
- ▶ For the TDIS Workshop:
 - ▶ Please have your personal laptop/device ready to follow-along with the demonstrations.
 - ▶ The Wi-Fi is—

Network:	NCTCOG Guest Secured
Password:	rangers!

1. Attendance



- Arlington
- Carrollton
- Coppell
- Dallas
- Farmers Branch
- Fort Worth
- Grand Prairie
- Irving
- Lewisville
- Seagoville
- Dallas County
- Denton County
- Kaufman County
- Tarrant County
- TRWD
- TRA

INFORMATION & ACTION ITEMS

2. Meeting Summary Approval

- ➡ The [May 2026 meeting summary](#) is available on the NCTCOG website
- ➡ Call for a motion for approval

3. Combined Floodplain Seminar for Elected Officials & Trinity River COMMON VISION Steering Committee Meeting

- FY 2027 Work Plan Approval

3. Combined Floodplain Seminar for Elected Officials & Trinity River COMMON VISION Steering Committee Meeting

- ➡ Will be held on September 3rd from 1 PM- 3 PM in person at NCTCOG (William Pitstick Conference Room)
- ➡ Presentations from Texas Water Development Board; Halff; and Dewberry
- ➡ Presentations of local programs
- ➡ Voting items for Steering Committee
 - ➡ FY25 Meeting Summary
 - ➡ FY27 Work Plan and Budget

3. Trinity River Common Vision Steering Committee

City of Arlington	Jim Ross, Mayor
City of Carrollton	Steve Babick, Mayor
City of Coppell	Wes Mays, Mayor
City of Dallas	Laura Cadena, Councilmember; Jesse Moreno, Councilmember
City of Farmers Branch	Terry Lynne, Mayor
City of Fort Worth	Deborah Peoples, Councilmember
City of Grand Prairie	Cheryl De Leon, Dep. City Manager; Megan Mahan, Dep. City Manager
City of Irving	Al Zapanta, Mayor
City of Lewisville	TJ Gilmore, Mayor
City of Seagoville	Dennis K. Childress, Mayor
Dallas County	John Wiley Price, County Commissioner
Denton County	Bobbie Mitchell, County Commissioner
Kaufman County	Tommy Moore, County Commissioner
Tarrant County	Tim O'Hare, County Judge
Tarrant Regional Water District	Johnathan Killebrew, Board Member
Trinity River Authority	Cole C. Camp, Board Member

3. FY 2027 Trinity River COMMON VISION Work Program Discussion

[Click here for draft of the FY27 Work Program.](#)

Continued I. Ongoing Support Activities:

B. Ongoing CDC Process and mapping support – adjusted

C. Continued sponsorship of FEMA NFIP training courses – condensed

~~**H. Maintenance of the CDC Application and Tracking Website – moved (I.B.)**~~

3. FY 2027 Trinity River COMMON VISION Work Program Discussion

[Click here for draft of the FY27 Work Program.](#)

Continued II. Additional Technical Activities for FY 2027:

~~A. Participation in the Model Consolidation Committee – removed; task completed~~

B. Update the CDC Manual to the 5th Edition – **adjusted**

C. Online Mapping Tool Maintenance – **new, added***

D. Expand the CDC Program within the TSI Study Area – **new, added***

E. Update Communities' Acreage in Floodplain (FIRM) – **adjusted**

G. Annual Summary Report – new, **added***

***No change anticipated in cost shares.**

3. Voting Item: FY 2027 Work Plan Recommendation

- ➡ Motion to recommend FY 27 Work Plan and Budget to COMMON VISION Steering Committee?

4. L0273 Course and CFM Exam

Managing Floodplain Development Through the NFIP



- **September 21st – 24th** at the NCTCOG offices in Arlington
 - At capacity, currently identifying back-ups
- TFMA will be proctoring CFM Exam on **September 25th**
 - At capacity, registration has been closed

PRESENTATIONS

5. Stormwater Integrated Flood Forecasting Tool (SWIFFT)

Claire Pollard, CFM

Dewberry



SWIFFT

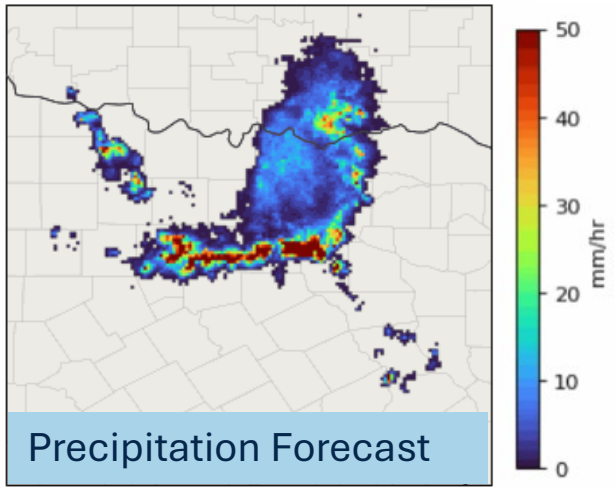
Turning Forecasts into Safer Roads: SWIFFT Flood Prediction in North Texas

NCTCOG Flood Management Task Force | August 21, 2026



How can local **agencies** gain actionable flood intelligence before roads are underwater?

val 20250804 +10 min (valid 10:10Z)
Dewberry Model



6 AM



Location Forecasted to Flood in next 4 Hours

7:15 AM





SWIFFT

Stormwater Integrated Flood Forecasting Tool

The Vision



Creates a new preemptive warning system for potential flooded roads in the DFW Metroplex



Integrates observed and forecast data to predict where and when flooding may impact roads

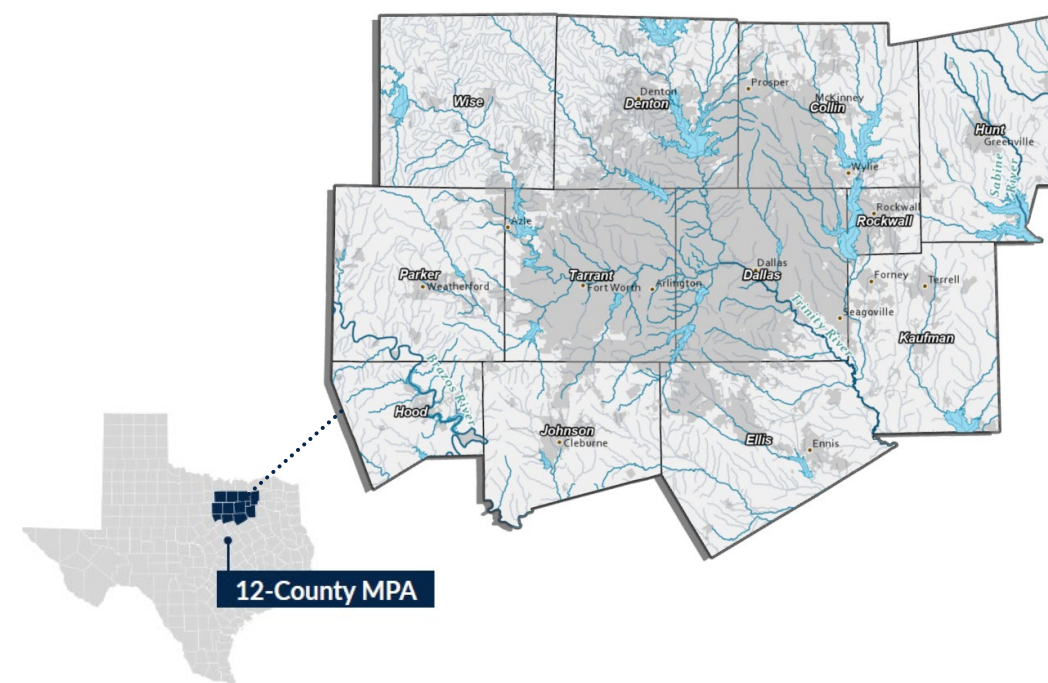


Reroutes traffic through existing navigational systems



Informs emergency responders

Project Area



Floodplain Management Benefit

Tool Capability

- Real-time stream monitoring
- Forecast inundation mapping
- Rainfall intelligence
- Flood Alerts
- Historical data



Floodplain Management Benefit

- Situational awareness
- Risk identification
- Event monitoring
- Earlier coordination
- Mitigation Planning

Advisory Council

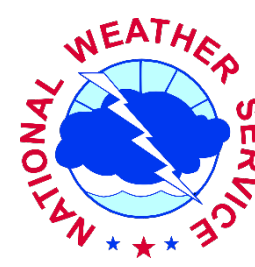
Local

- **Emergency Managers & Floodplain Administrators** (from small and large communities)
- **NCTCOG** Emergency Managers, Director of Environment and Development, Transportation Planners
- Tarrant Regional Water District (**TRWD**) - Engineer



State

- Texas Division of Emergency Management (**TDEM**) – Regional Preparedness Coordinator
- Texas Department of Transportation (**TxDOT**)– State Hydraulic Engineer



National

- **NOAA** National Weather Service (**NWS**) – Senior Service Hydrologist
- **NOAA** West Gulf River Forecast Center (**RFC**) – Hydrologist in Charge
- **USGS** – Branch Chief, Hydrology



Development Framework

Phase 1: Exploration

Understanding stakeholder needs and decision workflows.

Phase 2: Co-Design

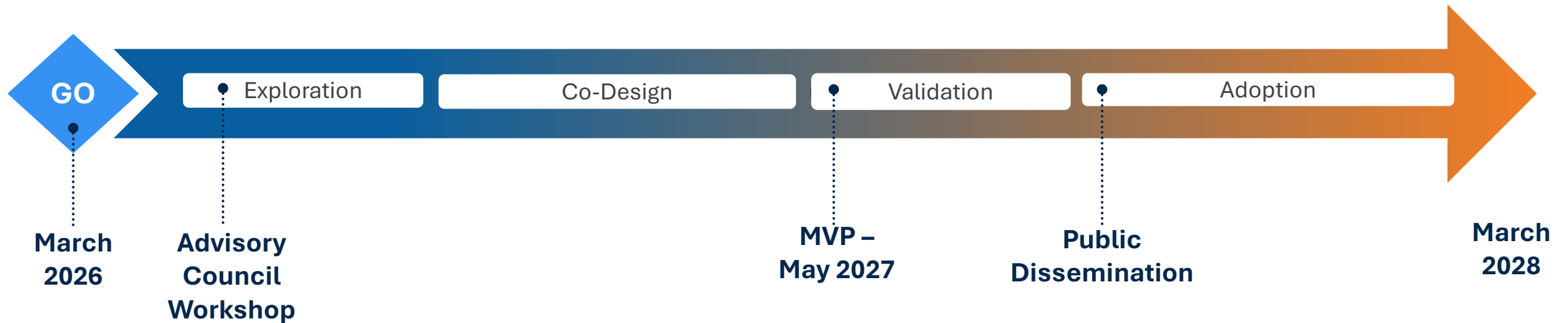
Collaborating with stakeholders via Advisory Council to refine messaging and system outputs.

Phase 3: Validation

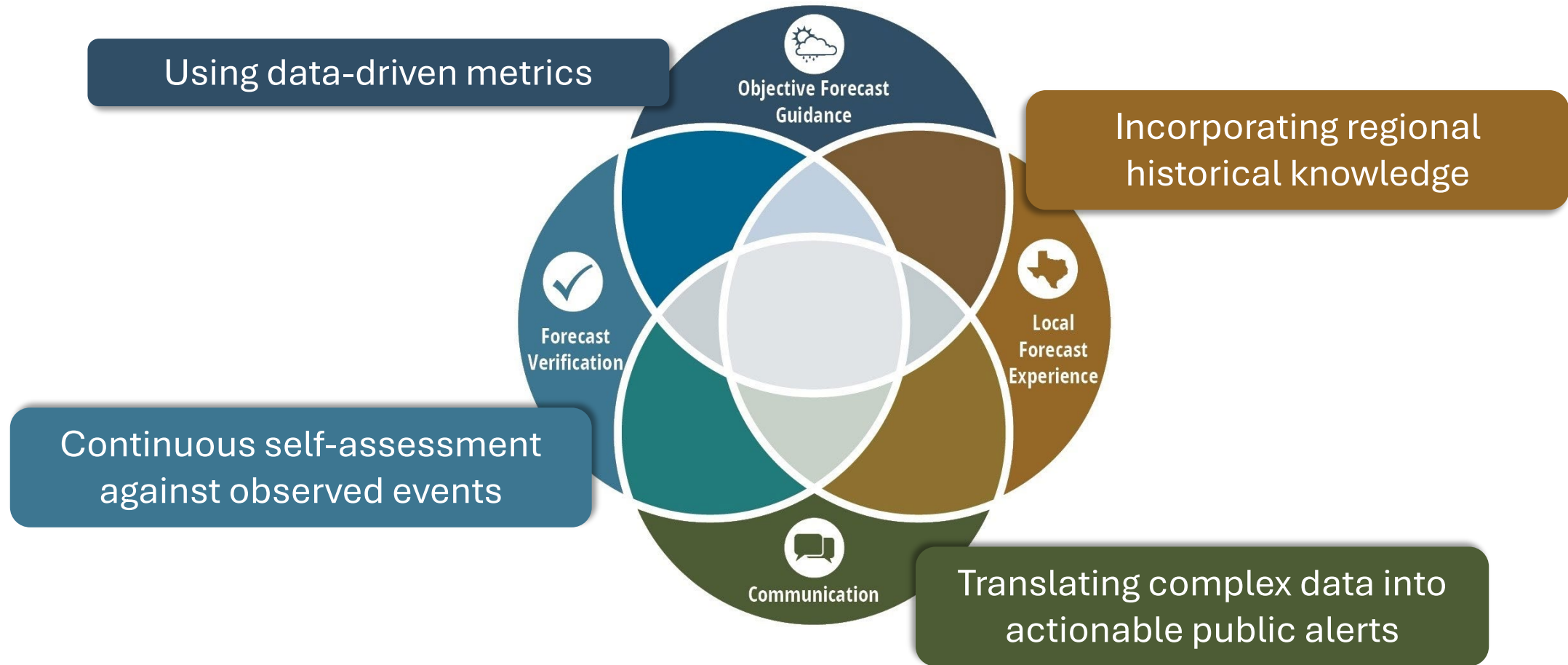
Testing the system and gathering user feedback.

Phase 4: Adoption

Training users and supporting implementation.



Forecasting Philosophy



System Design Principles

Building to the Future

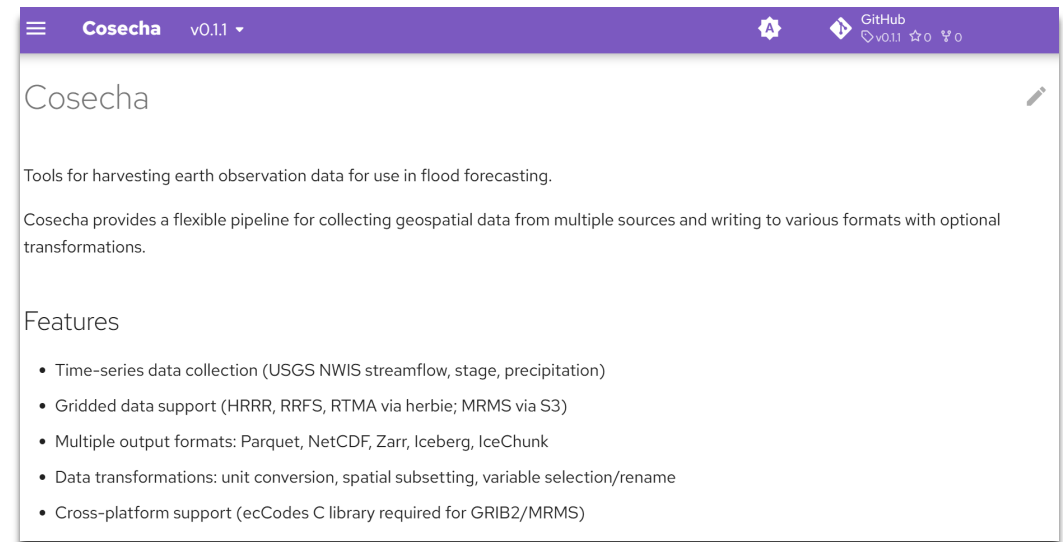
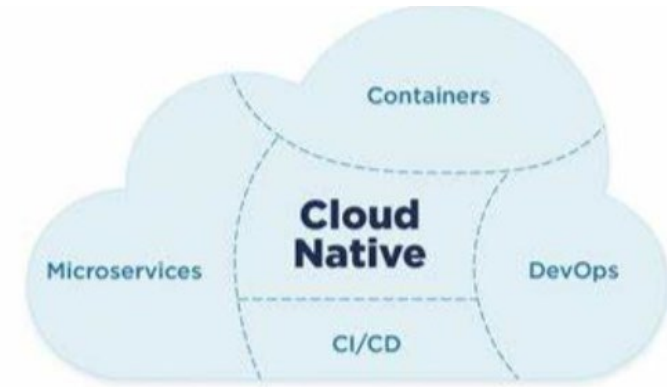
- Data Ingestion Interfaces
- Model Agnostic

Open Standards

- Cloud Native Formats

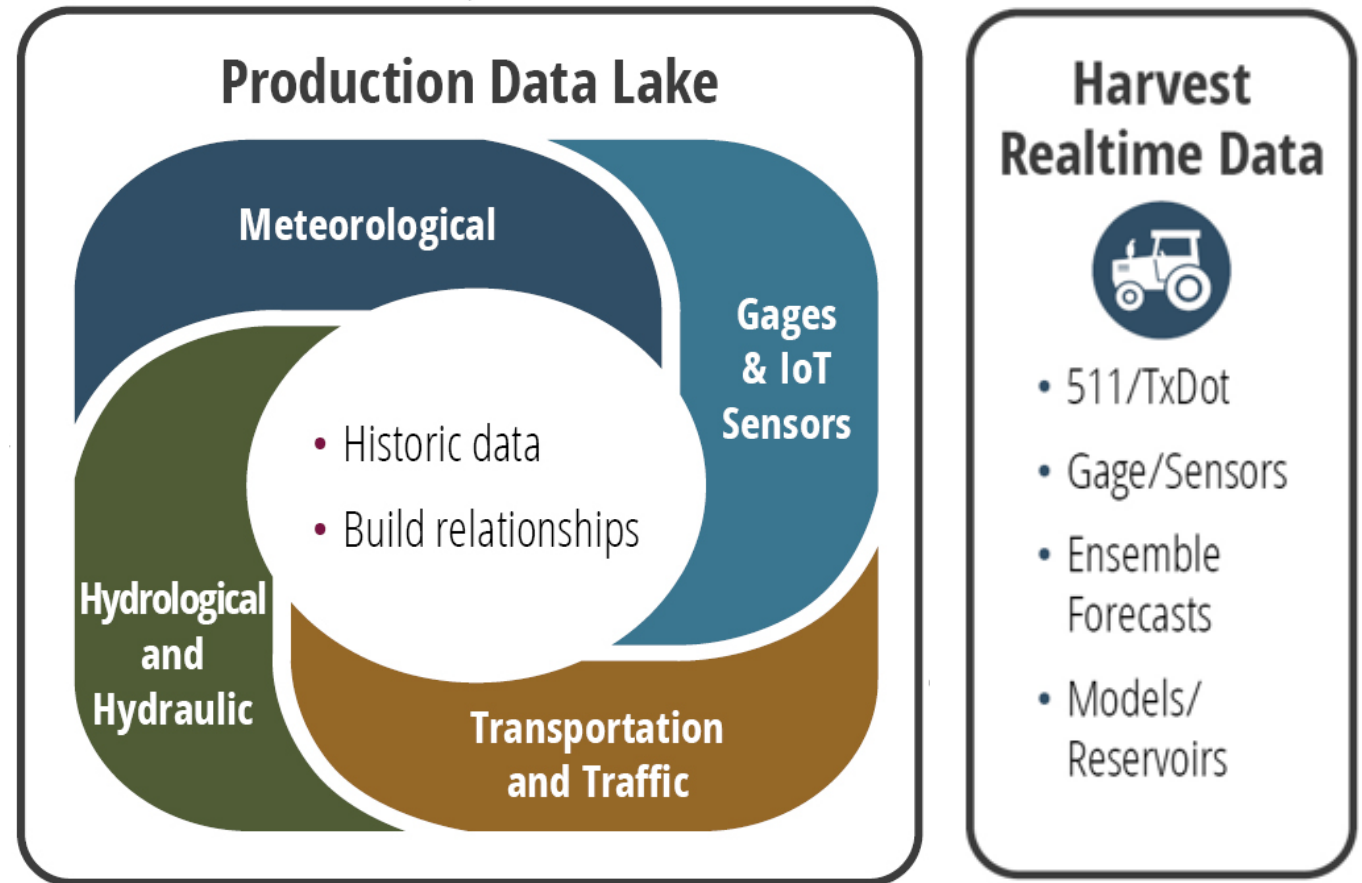
Open Source Software

- No Vendor Lock
- Extensibility



Data Engineering

- Data Lake
- Harvesting
- Critical Datasets
 - Bridge/roadway elevations
 - Local gage/sensor networks outside of USGS
 - NOAA/USGS Hydrofabric



Foundational Data

Roadway Elevations



THE UNIVERSITY OF TEXAS AT AUSTIN
CENTER FOR TRANSPORTATION RESEARCH

TECHNICAL REPORT 0-7095-1
TxDOT PROJECT NUMBER 0-7095

Flood Assessment System for TxDOT

University of Texas at Austin: David Maidment, Paola Passalacqua, Matt Bartos, Sujana Timilsina, Jeil Oh, Andy Carter, Tim Whiteaker, Harry Evans, Christine Thies, Larry Jantzen; KISTERS: Matt Ables, Attila Bibok; Aqua Strategies: Barney Austin, Tim Osting.

US Geological Survey: Scott Grzyb, Jody Avant, Jon Thomas, Michael Nyman, Kristine Blickenstaff

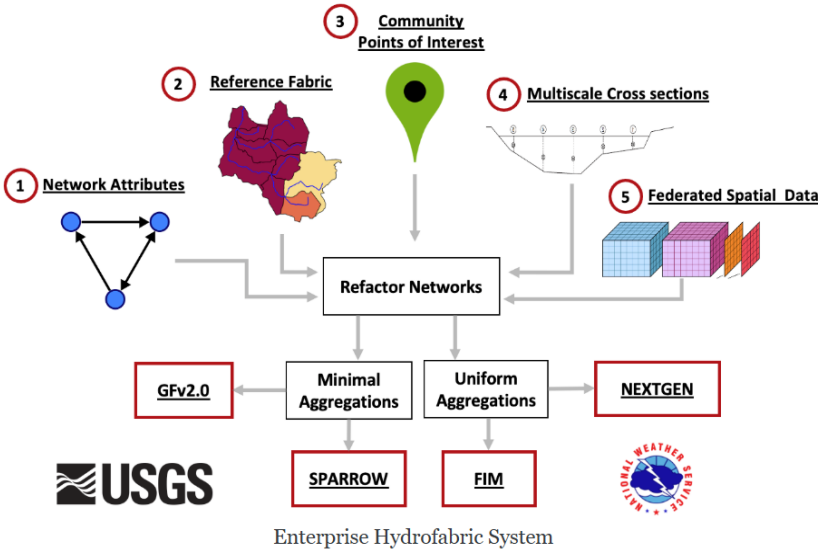
December 2024
Published May 2025

Stream Network

hydrofabric 0.1.0 Reference Articles

Background

The NextGen artifacts are a *model application* dataset built to meet the aims of [NextGen](#). By design, these artifacts are derived from a set of general authoritative data products outlined in figure 1 that have been built in close collaboration with the USGS.



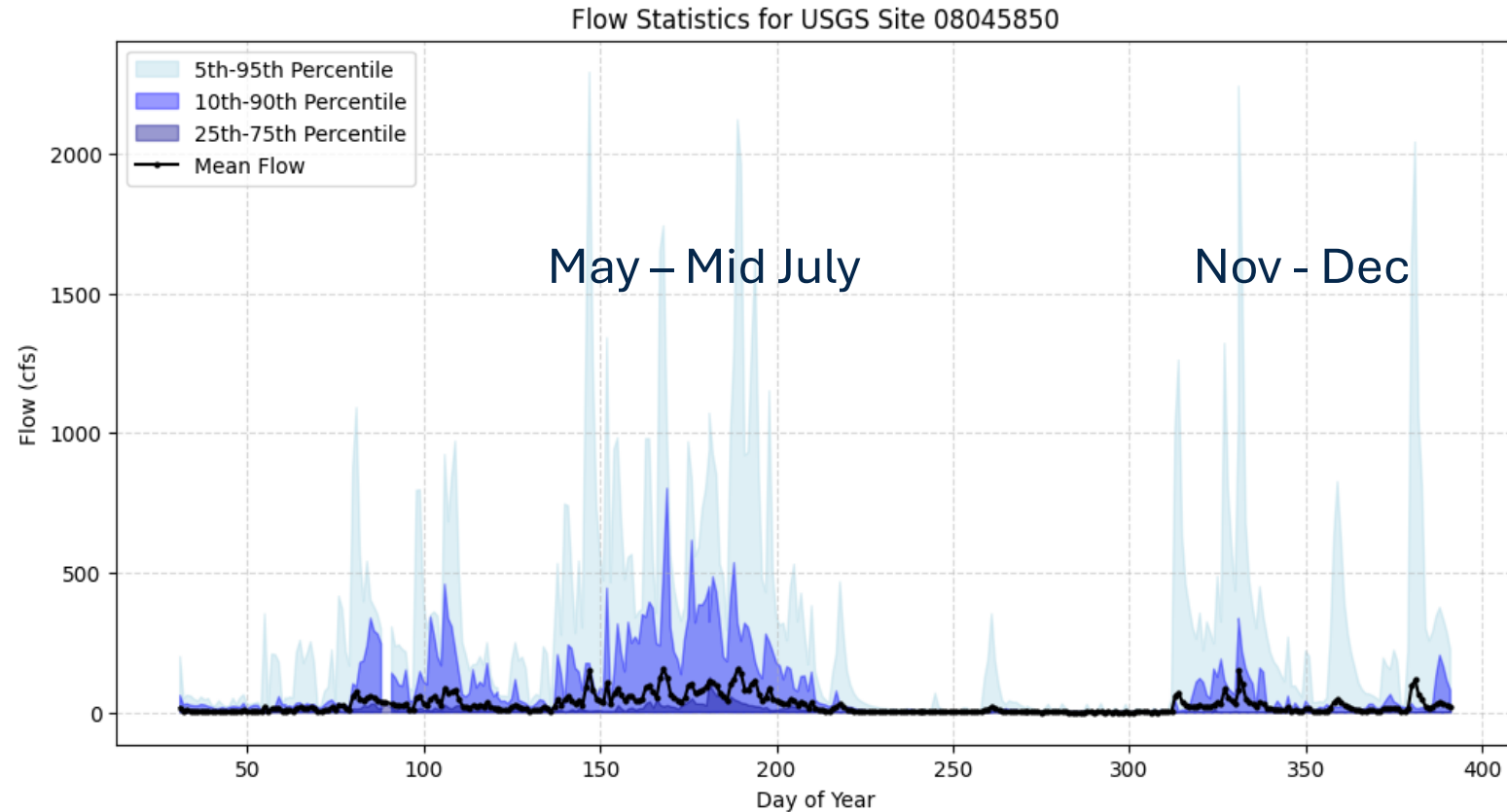
Hazard Data

Observations

- Precipitation
- Streamflow
- Lake Levels
- Crowd sourced Data

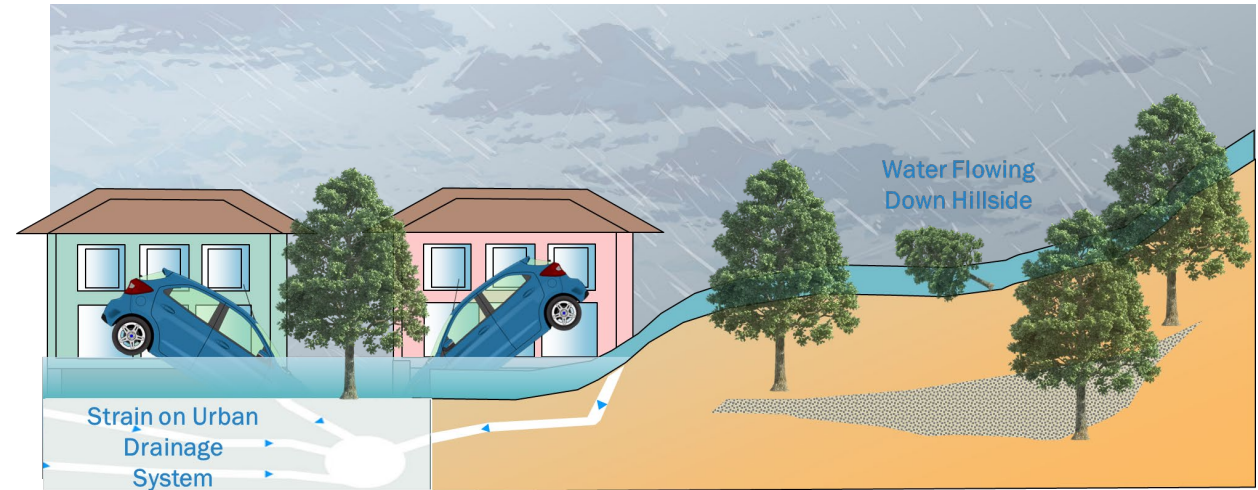
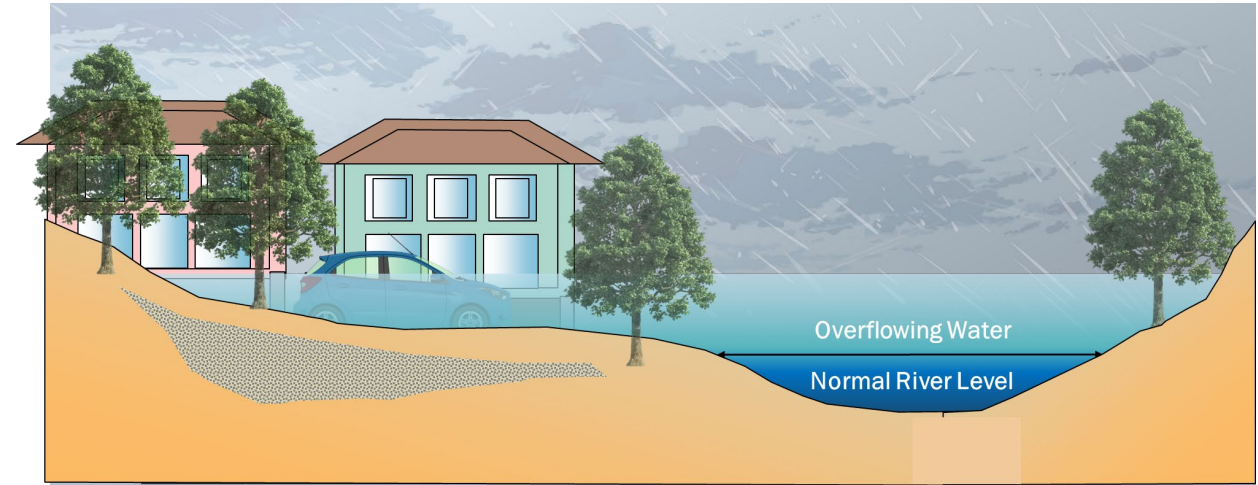
Forecasts

- Models
- Partners



Flood Hazards

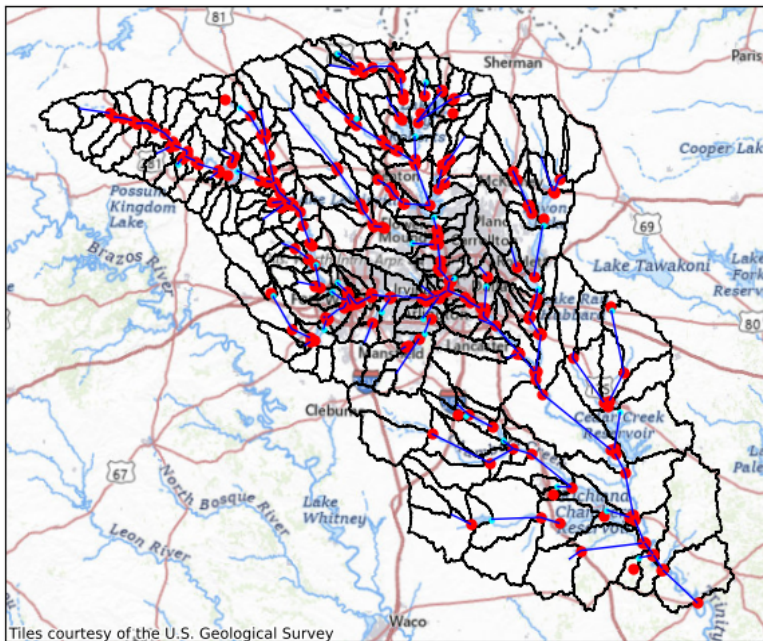
- **Fluvial** (Riverine): Streamflow coming up and over the riverbanks onto roadways and into communities.
- **Pluvial** (Rainfall): Precipitation falling so rapidly stormwater infrastructure is overwhelmed, flooding roads and communities.



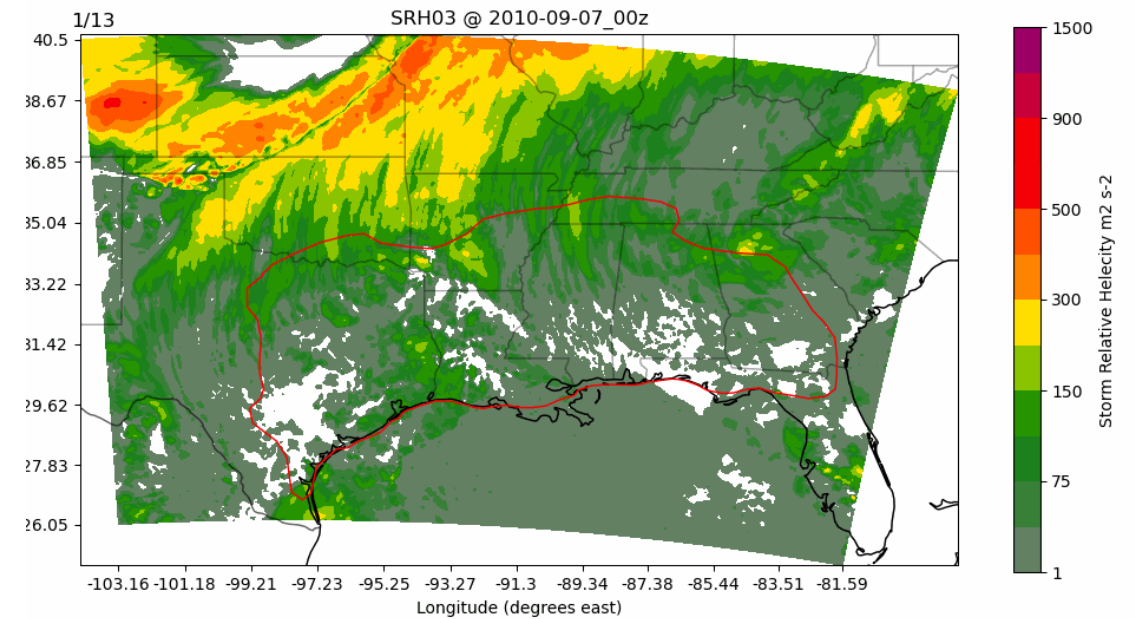
Hydro-Met Models

(Flood Drivers: How much water and when)

- **Fluvial:** HEC-HMS & National Water Model



- **Pluvial:** Quantitative Precipitation Forecasts & Estimates



Meteorological Forecasts

(The largest driver of uncertainty and latency)

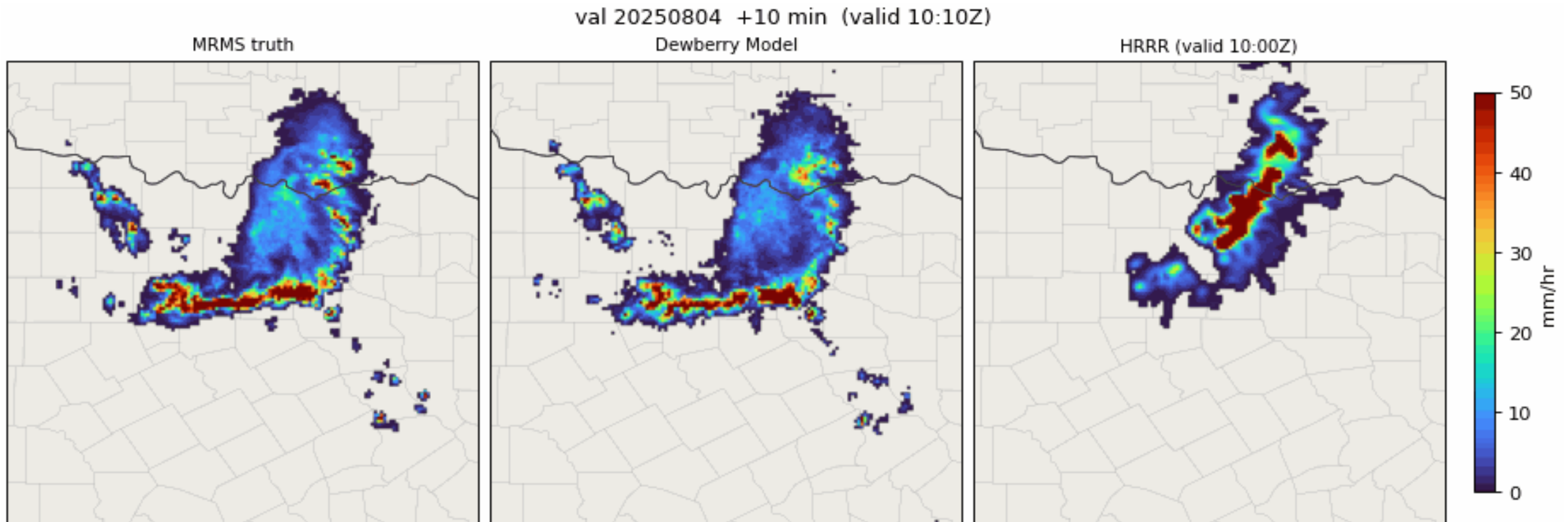
Traditional NWP Models

Vs.

Regional AI Models

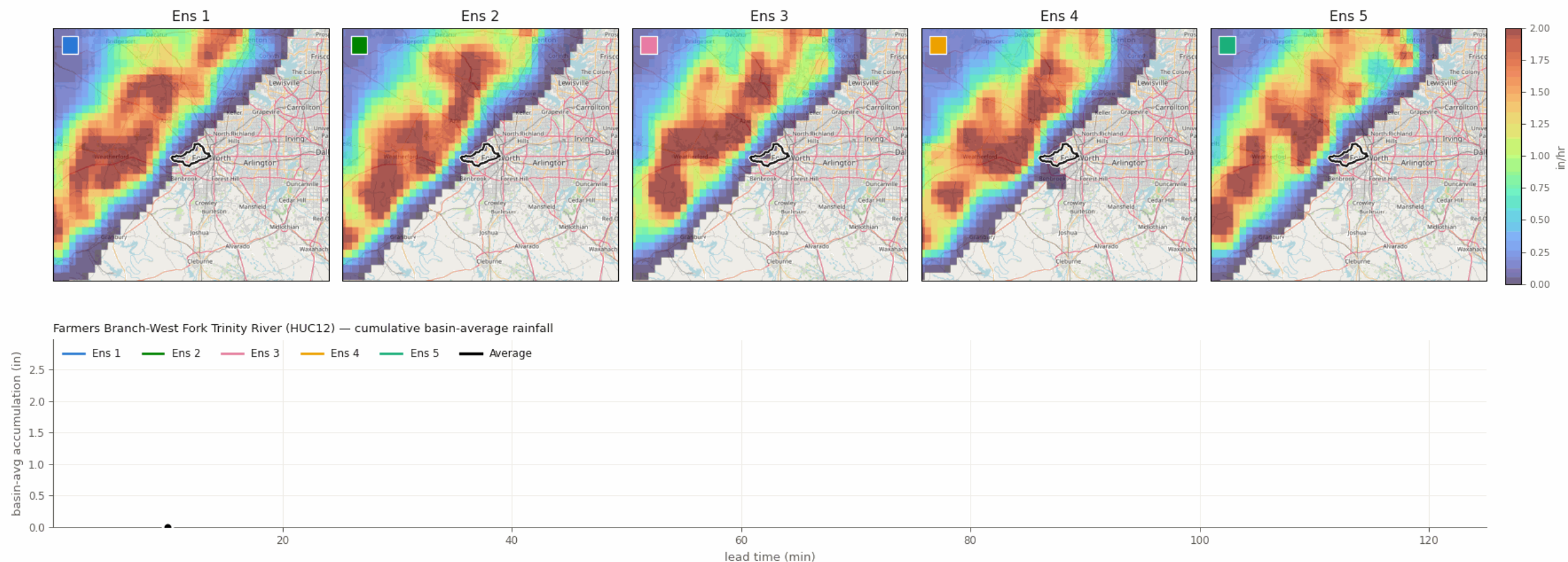
- | | | |
|---|---|---|
| • Strong at 4–18-hour forecasts | → | • Optimized for 0–3-hour nowcasting |
| • Forecast generation can take over an hour | → | • Forecasts generated in minutes |
| • Sensitive to imperfect initial conditions | → | • Initialized from real radar observations |
| • Storms can be misplaced or missed | → | • Improved storm placement and intensity tracking |
| • Limited ensemble runs due to computational cost | → | • Fast, low-cost ensemble forecasting |
| • Spin-up can reduce reliability in earliest forecast hours | → | • Designed to fill the short-term forecasting gap |

Meteorological Forecasts: AI



Meteorological Forecasts: Ensembles

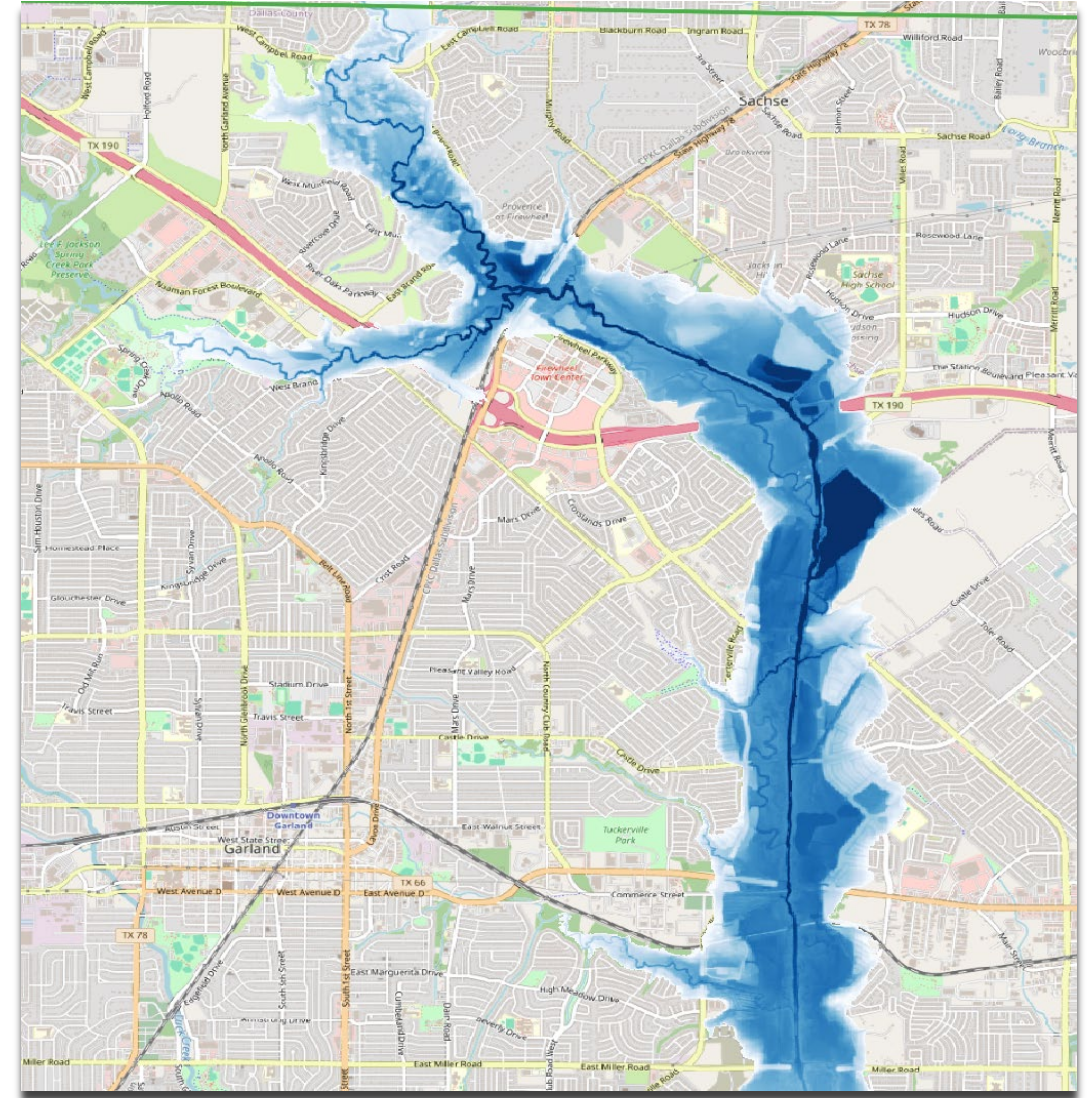
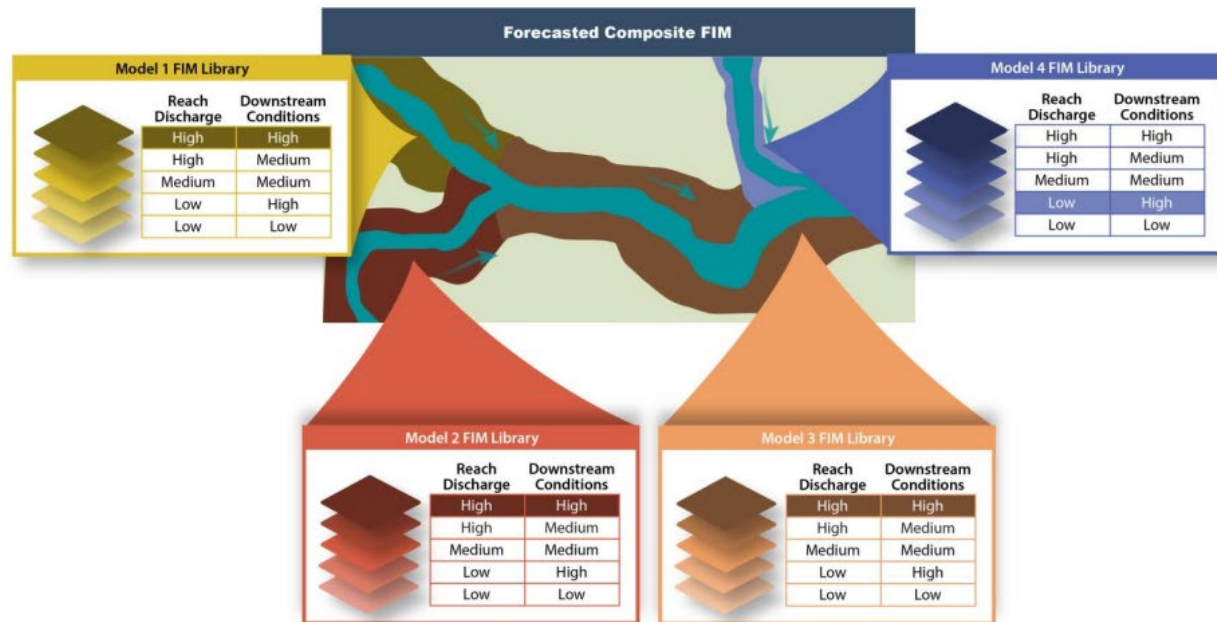
Dewberry Model — 5-member ensemble rain rate — 2024-04-28 init 07:30Z +10 min (valid 07:40Z)



Hydraulic Models

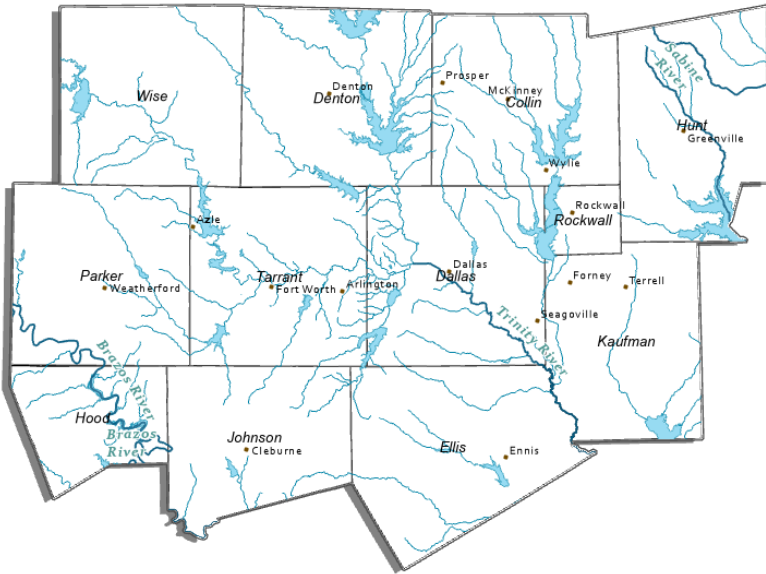
(Impact: How high and where)

Flood Inundation Maps (FIMS)



Operational Realities & Challenges

Reservoirs



Flash Flooding



Forecasting Error

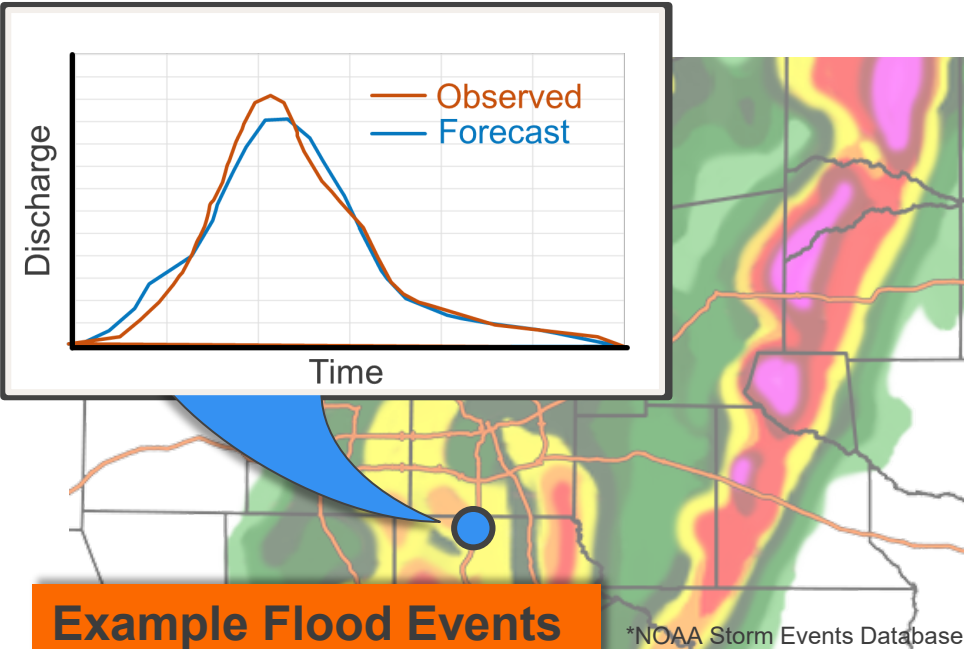
Type 1 (False Positive)

- Messaging fatigue

Type 2 (False Negative)

- Incidents and casualties

Retrospective Analysis



Example Flood Events

Year	Flood Event	Flood Type	Duration	Key Impacts
2022	Aug 21 Dallas Flash Flood	Flash Flood	Short - Medium	Deep water on major arterials
2023	Jun 15–16 North TX Flooding	Flash Flood	Medium	Vehicle-related incidents
2024	May 28–30 Trinity Basin Flood	Flood	Long	Reservoir releases, prolonged closures

Short-Medium (3-12 hr):

- High-intensity flash floods
- Greatest vehicle and rescue risk

Medium (12-24 hr):

- Mesoscale convective-driven rainfall
- Urban + small basin response

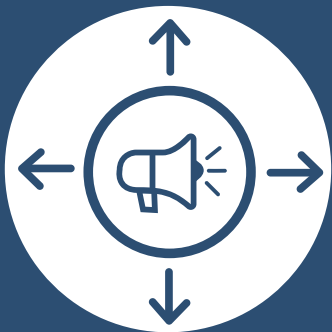
Long (≥24 hr):

- Basin-scale river flooding
- Reservoir operations and prolonged disruption

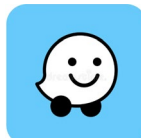


Continuous stress-testing by running the model against past events to evaluate spatial and temporal accuracy.

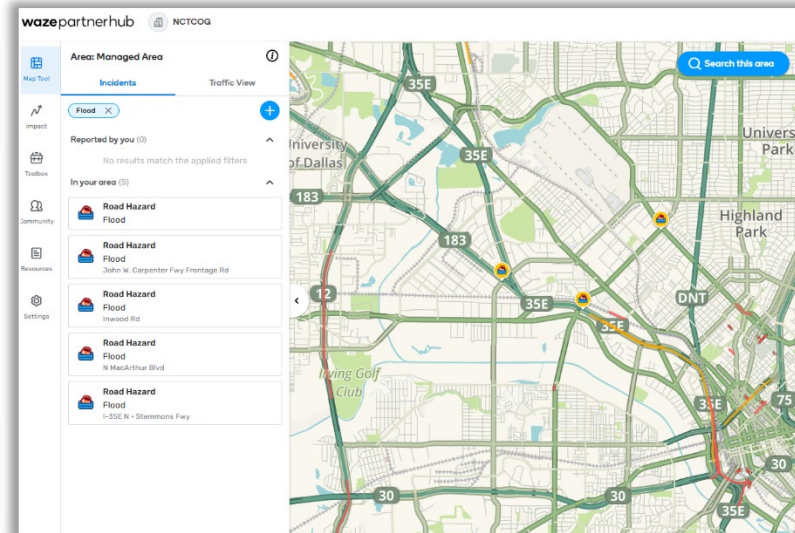
Dissemination



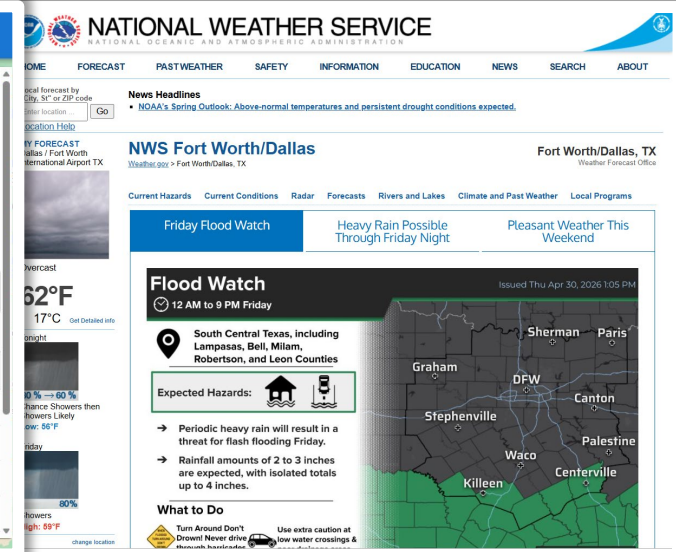
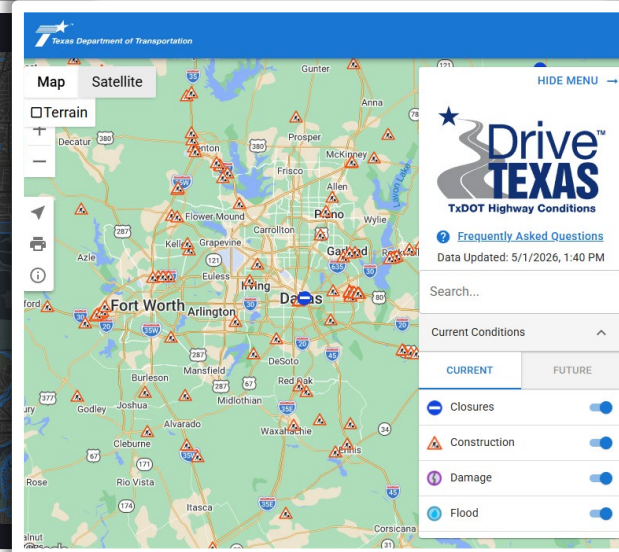
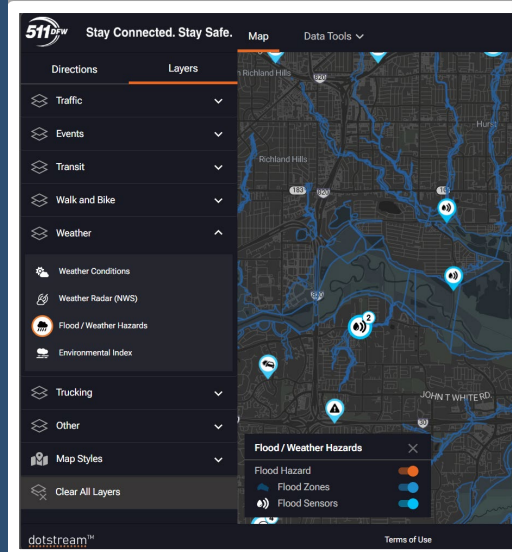
Public Navigation
Apps



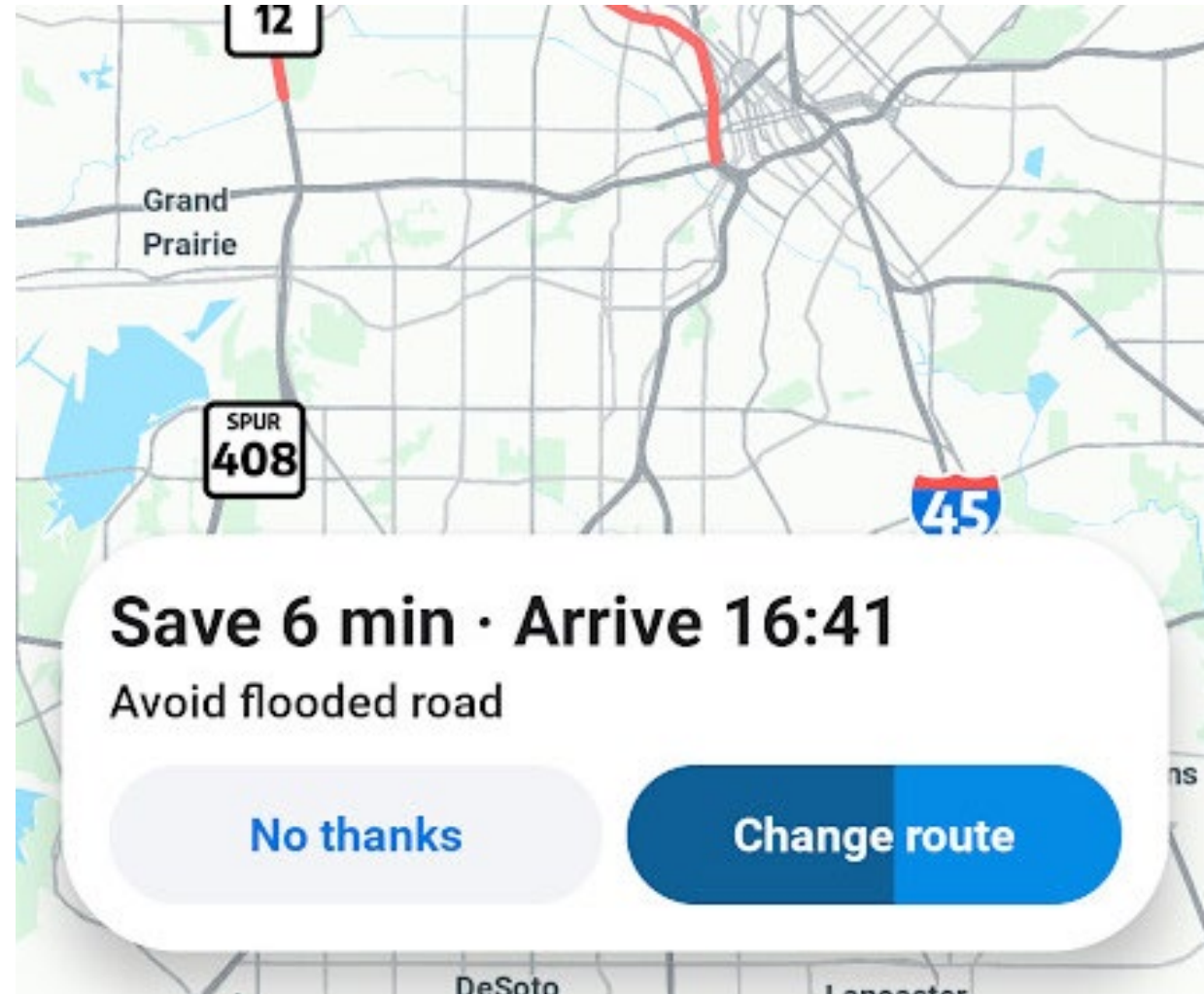
Partners



Publish flood
warning outputs to
public platforms and
service providers.



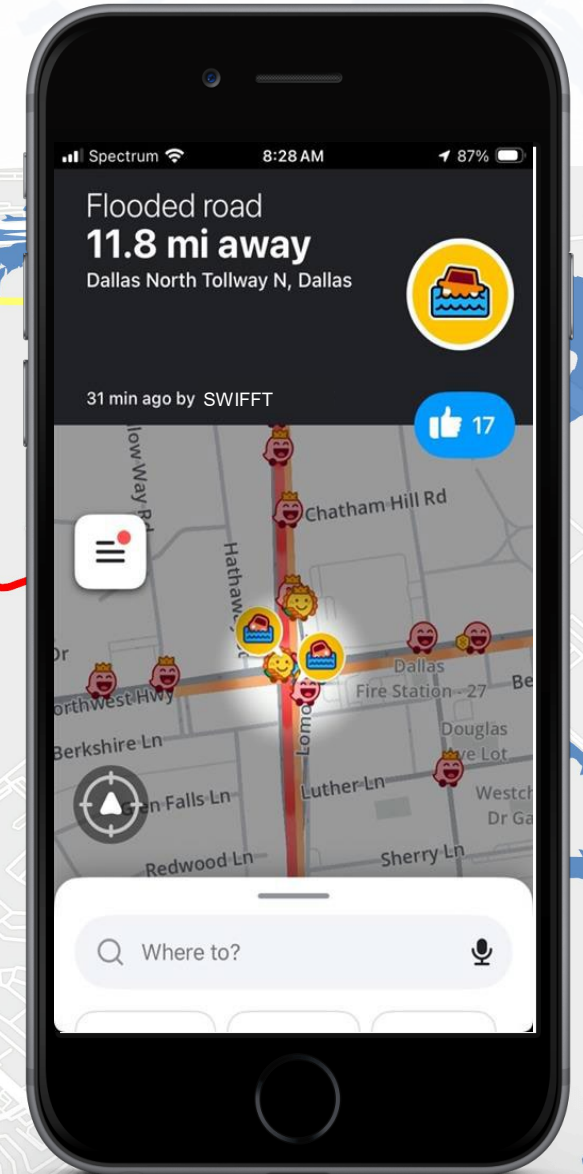
Navigation Apps “Close” the Road



Waze Flood Validation



SWIFFT forecasted flooded road hazards will be validated in real-time using Waze's published feed service.



Bottom Line:



You are Important to SWIFFT's Success

- Local knowledge !
- Where are your problem assets?
- Flash flooding: where does it always flood?
- Do you operate a Ready-Set-Go model?



Take the SWIFFT Survey!

Questions



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Seth Lawler

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6. Texas Disaster Information System (TDIS) Workshop

Federico Antolini, PhD

IDRT – Texas A&M University

Flood-related products from the Texas Disaster Information System

Flood Management Task Force
Meeting
August 21st, 2026

Presented By:
Federico Antolini



OUTLINE

- 01 IDRT (2 min)
- 02 TDIS (8 min)
- 03 DMQT (15 min)
- 04 RAMP (20-25 min)
- 05 Flood Risk Explorer (20-25 min)
- 06 Explore TDIS (rest of time)

Institute for a Disaster Resilient Texas (IDRT)



Created after 2017 Hurricane Harvey, IDRT is a research center with the mission of bridging the gap between research and decision-making

<https://idrt.tamug.edu>

- Deliver research on disaster risk reduction
- Promote evidence-based solutions for disaster resilience
- Support decision makers with data analytics, training, and policy tools
- Share information and knowledge on natural hazards
- Observe and learn from other States and countries

Texas Disaster Information System (TDIS)



TDIS is an initiative of the Institute for a Disaster Resilient Texas (IDRT) funded by the Texas General Land Office (GLO)

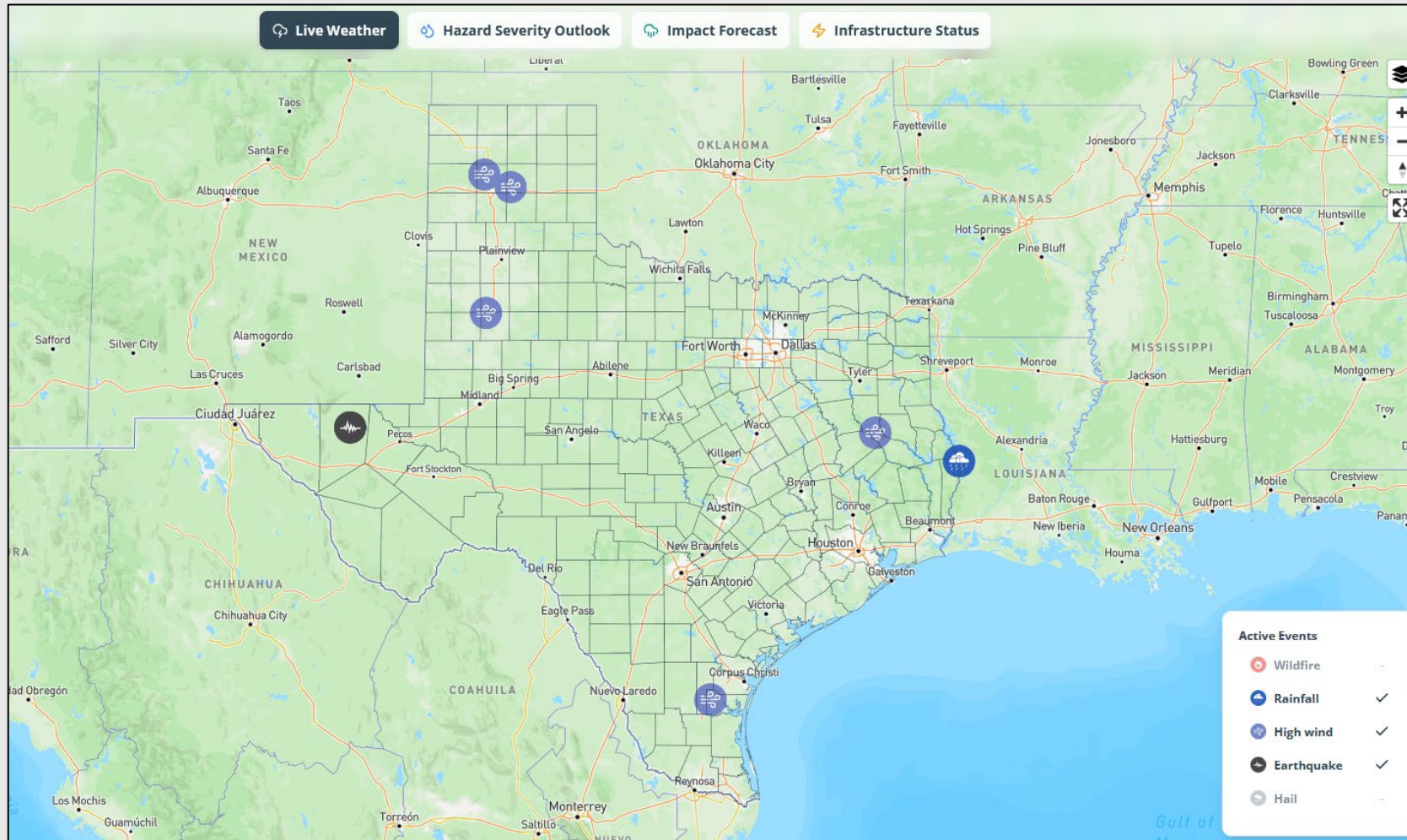
<https://portal.cloud.tdis.io>

- Comprehensive data platform for natural disaster management in Texas
- Data, models, visualizations
- Facilitate access to historical data produced by multiple sources
- Provide access to real-time data and information
- Visualize and understand exposure to different hazards
- Support preparedness, response, recovery to and mitigation of natural disasters

Real-time features



<https://portal.cloud.tdis.io>



- Hazard-related weather
- Precipitation and gauge forecasts
- Forecast of flash-flood impact
- Grid network status

Data & Models Query Tool (DMQT)

DMQT stores hydrologic and hydraulic models developed in Texas, including model input data (hydrography, terrain, land use, etc.), results, and reports.

<https://dmqt.cloud.tdis.io>

- Store and share existing models
- Search, discover, consult and reuse models and their data
- Document metadata (time, software version, resolution, scope, etc.)
- Search on map; by typing location, watershed, event name; with AI
- Will expand to natural hazard models beyond flooding

Risk Assessment Mapping Portal (RAMP)



RAMP is an interactive platform hosting resources at the county scale to support the creation and update of hazard mitigation plans.

<https://ramp.cloud.tdis.io>

- Visualize natural hazard data at the county and city scale
- Provide maps and charts that comply with State Hazard Mitigation Plan (SHMP) guidelines
- Aggregate data and statistics
- Download data for more refined analysis

RAMP enables planners to create maps, charts, and download data for local hazard mitigation planning

Flood

Leaflet | © OpenStreetMap contributors © CARTO

Risk Assessment Mapping Portal (RAMP)



Work in group of 2-3:

- Select a city or county you are familiar with
 - Select hazard
 - Explore data
 - Identify what parts of a Hazard Mitigation Plan could be improved using RAMP data
-
- What do you like most about RAMP?
 - What parts of RAMP can become part of your workflow?
 - What other questions could you answer with RAMP?

BREAK
(10 minutes)

**Flood-related products from the
Texas Disaster Information System**

Federico Antolini

Findings from TFMA workshop and interviews

Two primary types of needs: data tools for FPA job & communication tools to share with varied audiences

- Communication is a central challenge
 - especially less-technical audiences
- Existing tools can be complex and not accessible
- Preferences for visual tools (photos and maps)
- Need real-time, local data integration
- Extreme differences in tools used depending on resources available



Flood Risk Explorer

GIS-
based
web tool

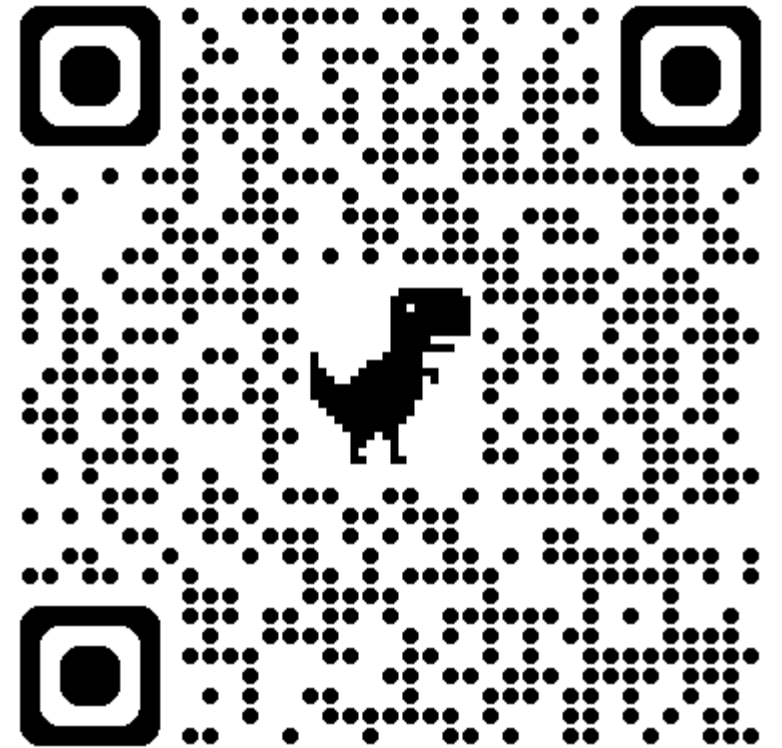
Flood
risk
analysis

Data
from
multiple
agencies

Local
scale

Ongoing
updates

Not for
public
use



<https://m3fr-flood-risk-explorer.dev.cloud.tdis.io/>

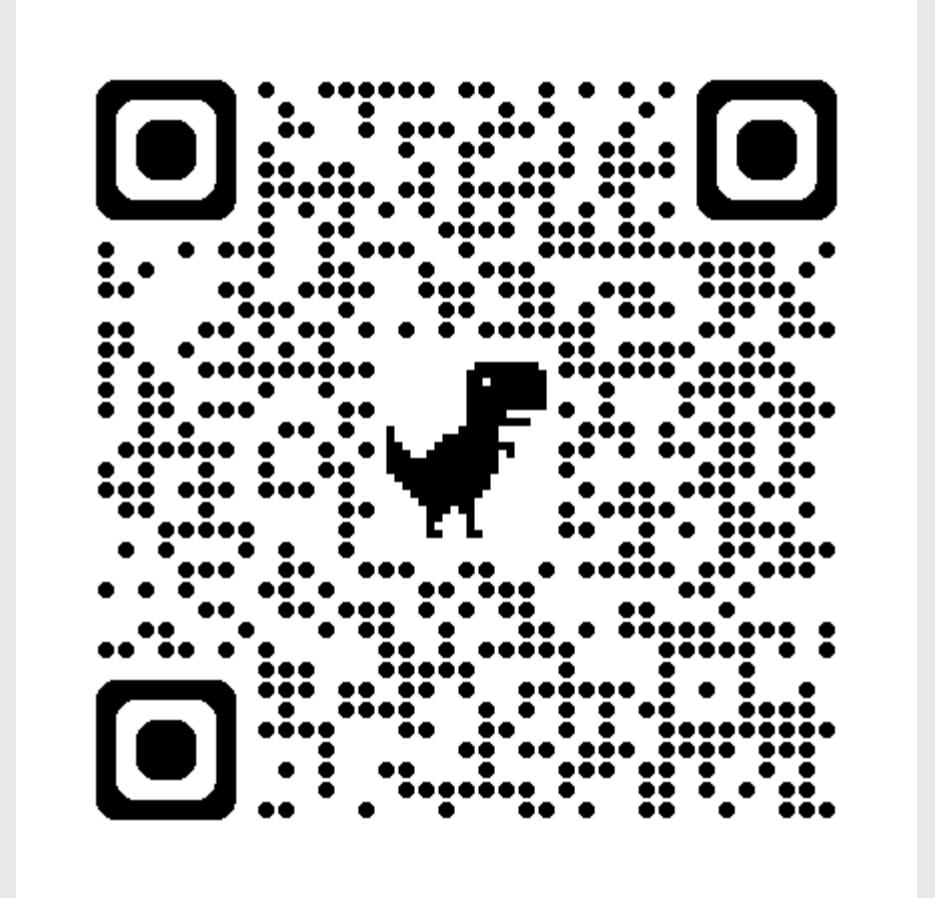
Flood Risk Explorer

Current version is a pilot

Wise County (inland)

Galveston County (coastal)

DEMO



<https://m3fr-flood-risk-explorer.dev.cloud.tdis.io/>

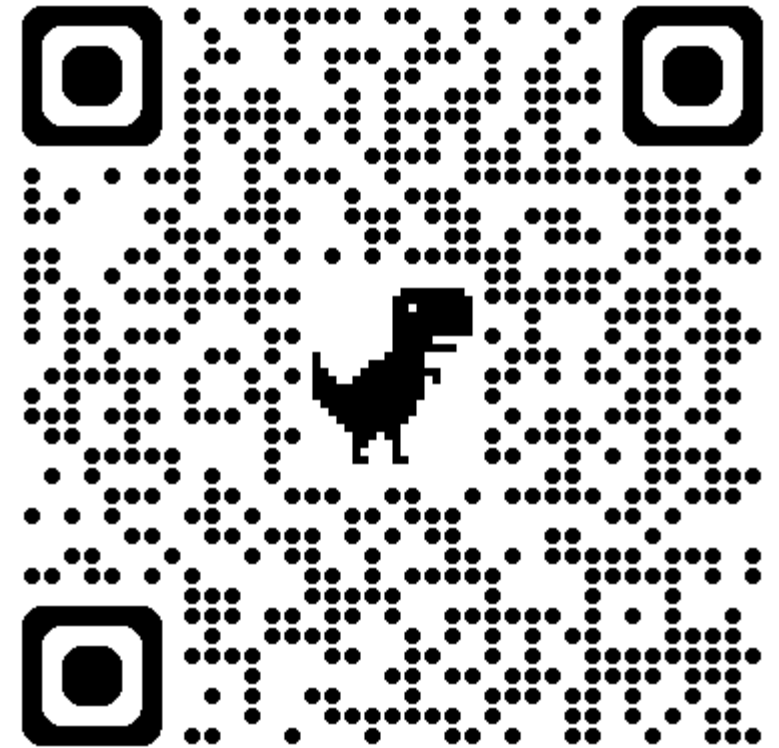
Flood Risk Explorer

Work in group of 2-3 :

Determine flood risk at (*choose one*)

- 1) 1502 9th Street, Bridgeport
- 2) 2110 Enchanted Lake Drive, League City

- How would you explain flood risk in that location? What would you recommend?
- What other data might you need for a better assessment?



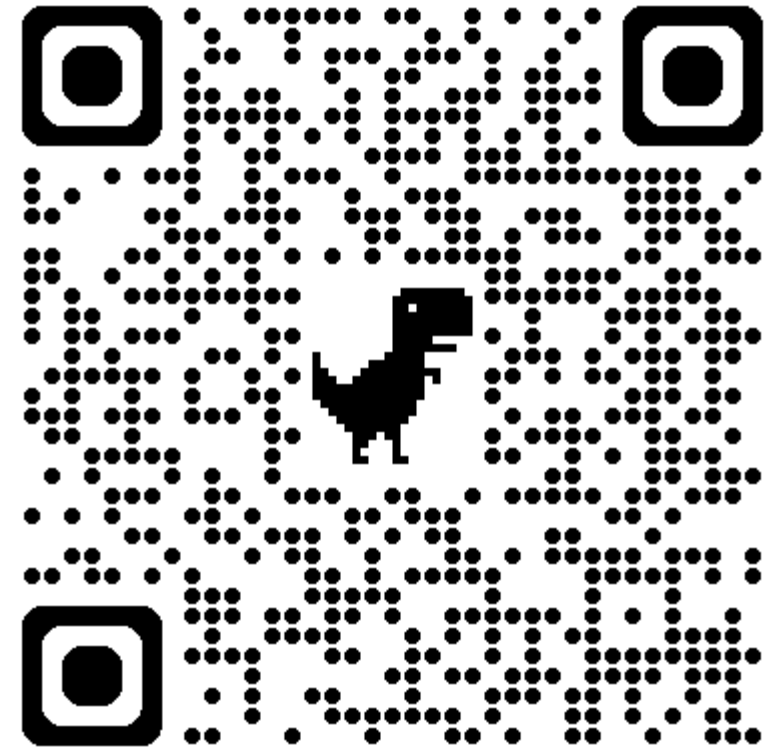
<https://m3fr-flood-risk-explorer.dev.cloud.tdis.io/>

Flood Risk Explorer

Work in group of 2-3 :

New land development is proposed for Chico (north-west) and Rhome (south-east)

- How would flood risk change in these communities?
- How would flood risk change in the county?
- What other areas beyond Wise County might be affected by proposed developments?



<https://m3fr-flood-risk-explorer.dev.cloud.tdis.io/>

Wrap-up

- Are there products, processes, operations currently unsupported, that TDIS might support?
- How can we facilitate communication between natural hazards and your field (land planning, transportation, water management)?
- Feel free to use the rest of the time to explore TDIS

<https://portal.cloud.tdis.io>



TDIS AI (in construction)

Ask questions about Texas hazards, infrastructure risk, weather events, and community vulnerability. Answers are drawn from authoritative datasets and updated in real time.

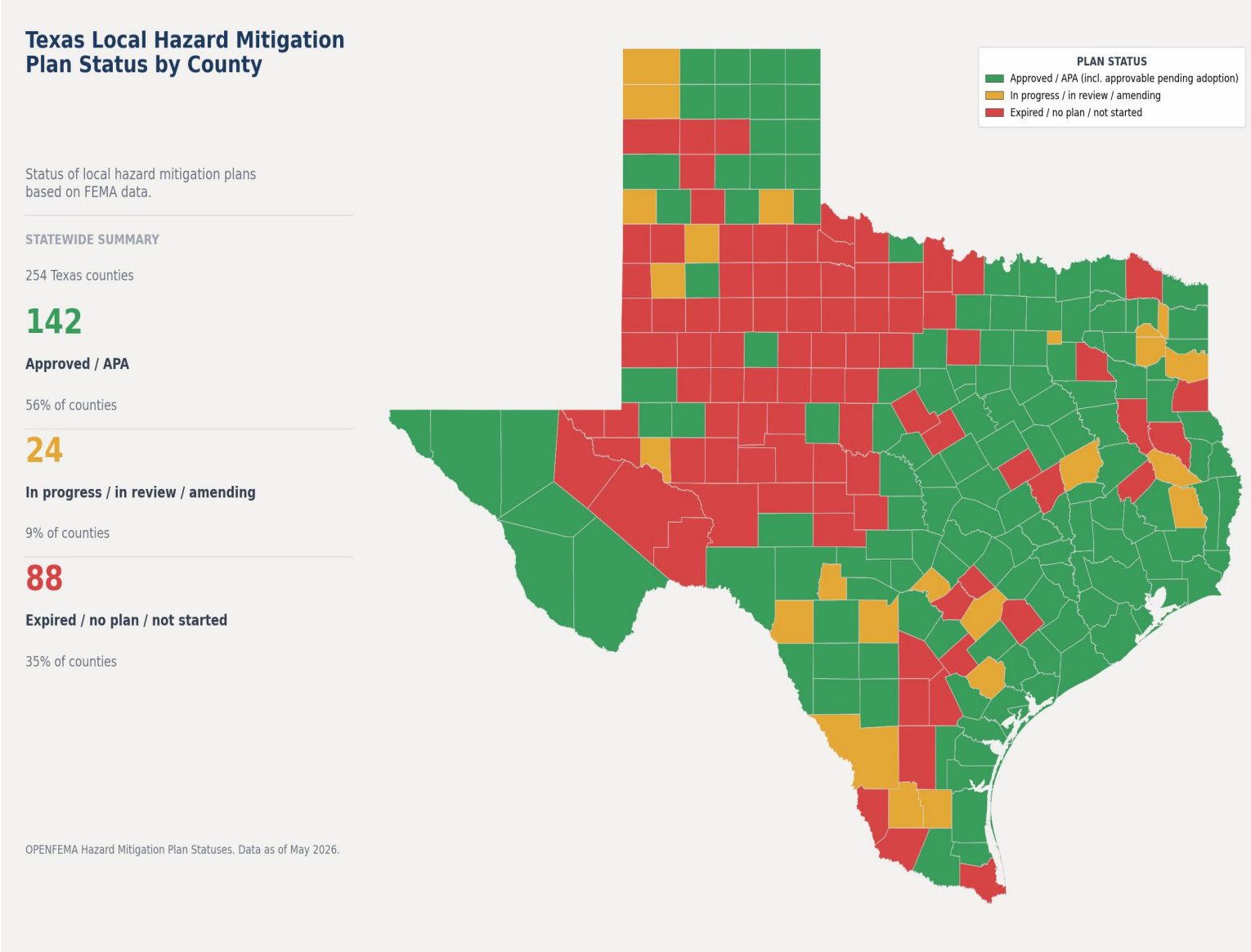
how can I determine flood risk for my home in TDIS?

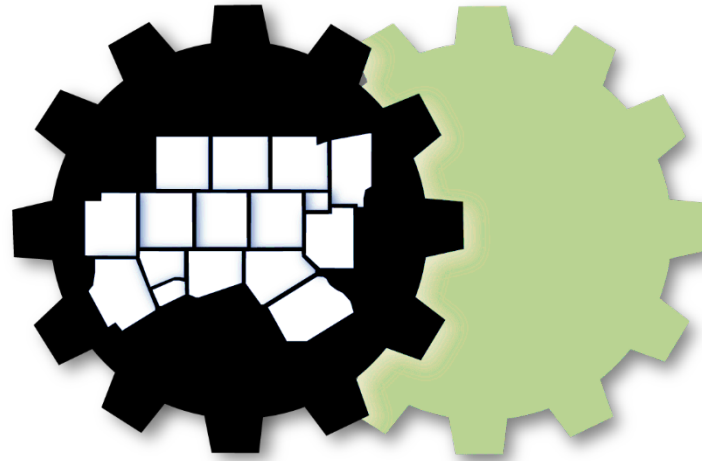
To determine flood risk for your home using the Texas Disaster Information System (TDIS), you can utilize its geospatial tools and data layers:

1. **Flood Zone Mapping:** Check FEMA Flood Insurance Rate Maps (FIRMs) integrated into TDIS to see if your property is in a Special Flood Hazard Area (e.g., 100-year or 500-year floodplain).
2. **Historical Flood Data:** Review past flood event layers to assess vulnerability based on previous incidents.
3. **Risk Assessment Metrics:** Explore Average Annual Loss (AAL) estimates to understand potential financial impacts from flooding.
4. **Interactive Tools:** Use visualization features to analyze factors like elevation, proximity to water bodies, and urban development to get a comprehensive risk profile.
5. **Additional Considerations:** Account for risks from heavy rainfall or flash flooding, and check for updated projections related to climate and land-use changes.

TDIS is a powerful platform for assessing flood risks. If you need help navigating it, let me know!

Risk Assessment Mapping Portal (RAMP)





7. Open Discussion

8. Upcoming Meeting

Friday – November 20, 2026

9:30 AM

Virtual via Microsoft Teams

9. Adjournment

Presentation Contacts

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TDIS

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