LMRFC Mississippi River Forecast Operations and Modeling

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Overview

• The Greater Mississippi River Basin Partners
• Model Inputs
• Model Configuration and Setup
• Coastal Forcings
Inter-Agency Coordination

- NWS – 4 Upstream RFCs / 3 WFOs
- USACE - 3 Divisions and 7 Districts
- TVA - Tennessee River
- USGS – 12 District Offices
- USCG – 1 District and 9 Sectors
- FEMA - 3 Regions
- State Ems
- Navigation
- HAZMAT
- More
Coordinated Mississippi River Inputs/Outputs

Missouri River at Hermann, MO
Mississippi River at Chester, IL
Ohio River at Smithland, IL
Arkansas River at Pine Bluff, AR
Red River at Fulton, AR
Old River Control
Morganza Division
Bonnet Carre Spillway
Coastal Inputs
Barkley & Kentucky Reservoirs
HEC-RAS Model Overview

- 1-D HEC-RAS Unsteady Flow Model derived from USACE Flowline study.
- Common tributary inputs shared with the USACE.
- 22 dynamic tributaries and lateral inflows/outflows.
- Rules for Olmsted L&D.
- Birds Point/New Madrid Floodway
- Diversions treated as negative outflows.
- Coastal Inputs at the downstream boundary.
Major Flow Boundary Coordination
Building a Weather-Ready Nation

HEC-RAS Models in CHPS

- CHPS - Lower Mississippi River Forecast Center (Operator Client)
- Models, forecast, river flow, HEC-RAS, CHPS, Mississippi, forecast, parameters, WLMS, ALMS, DISA, Regional HEC, ALMS, CHPS, ALMS, DISA, Regional HEC.
Forecaster Displays and Model Interaction

Building a Weather-Ready Nation
Coastal Boundary Data

- National Ocean Service Tide
- National Hurricane Center PSURGE (10/20/30/40 Pct Exceedances)
- National Weather Service P-ETSS (10/30/50 Pct)
- National Ocean Service ESTOFS
- Louisiana State University ADCIRC
- Local library 1,500 Hypothetical storms (SLOSH)
  - (RMW, intensity, forward speed, direction, track offset relative to New Orleans)
Selection of Coastal Boundary Condition
Building a Weather-Ready Nation

Mississippi River Products and Services

- Daily 28 Day Forecast with 2 Day QPF
- Daily 28 Day Forecast with 16 Day NAEFS QPF
- Weekly 90 Day Extended Streamflow Prediction (ESP)
- Hydrologic Ensemble Forecast System – 60 day (GEFSv12 based ensemble forecast tbd)
- Daily Exports to Shef, PIXML, HEC-DSS (Q & Stg)
- Routine coordination calls with USACE, USGS, NOAA, USCG and Navigation Groups
Questions about LMRFC Overview