HEC-MetVue and Storm Transposition

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US Army Corps of Engineers

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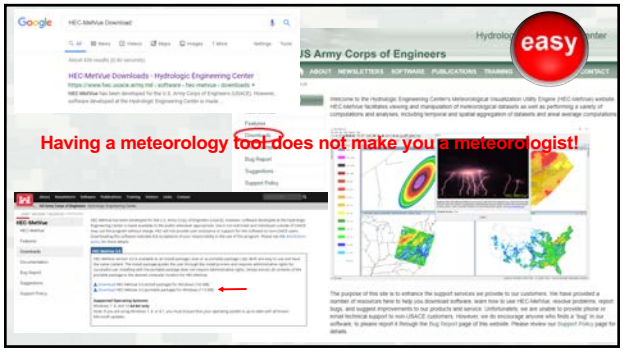
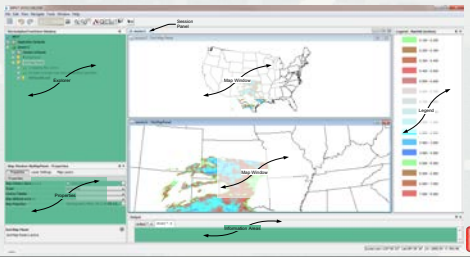
Road Map

- Introducing HEC-MetVue! (Now available to public)
- HEC-MetVue fit within Corps Water Management System
- HEC-MetVue tools
- Storm Transposition in MetVue
- Meteorological Guidelines
- Transposition Examples



What is HEC-MetVue?
Meteorological Visualization Utility Engine



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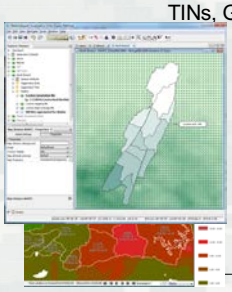
HEC-MetVue
TINs, Grids, and Time Series



- Creates and Manages Meterologic TINs
  - From point sources
  - From grids
- Produces
  - Grids (HRAP, SHG, Ascii, NETCDF, HDF5)
  - Event totals or averages
  - Time series (e.g. MAP hyetographs)

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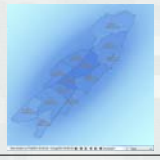
HEC-MetVue in CWMS

Automated Processing

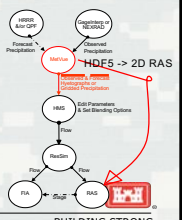
- Data Acquisition & Processing
- Calibration
- Report Generation

Visualization & Interactive Analysis

- Calibration
- Storm Totals
- Animation



Modeling & Forecast Scenarios



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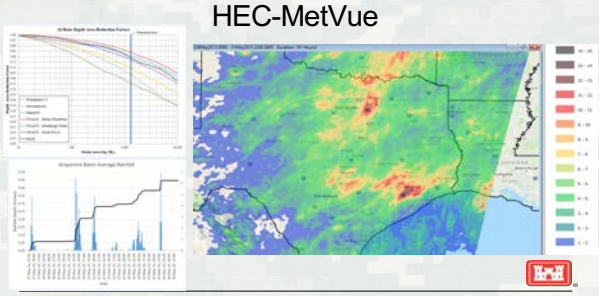
HEC-MetVue



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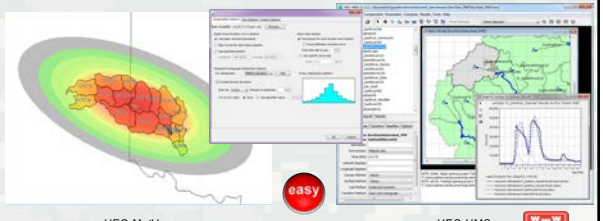
HEC-MetVue
HMR52 Storm Optimization



HEC-MetVue → HEC-HMS

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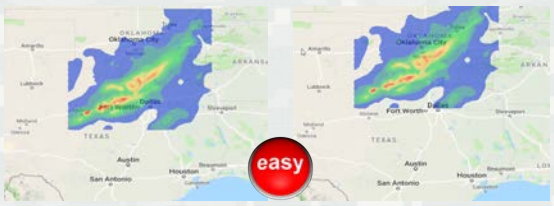
HEC-MetVue Storm Transposition



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Meteorological Guidelines

- Storms should not be transposed more than 1,000 feet in elevation
- Tropical storms should not be transposed away from the Coast without an adjustment
- Storms should never be rotated
- Technical resources – HMR51 section 2.4, HMR 55a section 8, WMO PMP Manual 2009 section 2.5.

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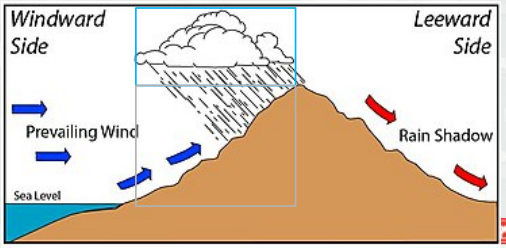
Precipitable Water Column



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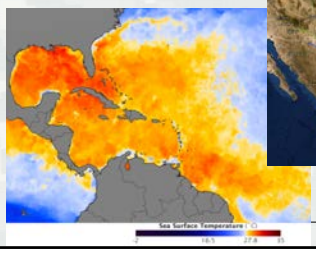
Gulf of Mexico

Warm ocean water means evaporation.
Evaporation means atmospheric moisture.



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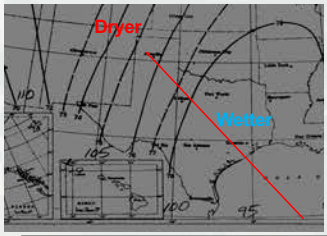
Texas Dewpoint Temperatures



NOAA 14 Precipitation

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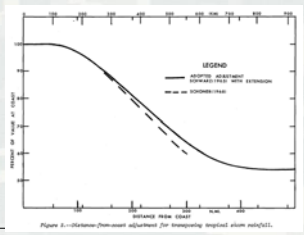
Tropical Storm Energy Reduction



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Do not rotate a storm!

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Storm Transposition Examples

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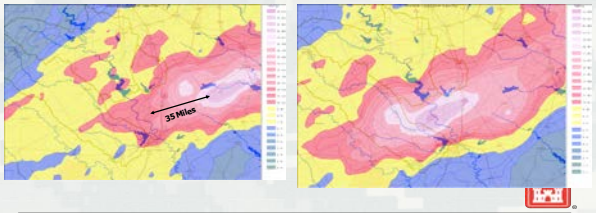
October 2015 Hurricane Patricia (24 inches)

Observed Storm

Transposed Storm



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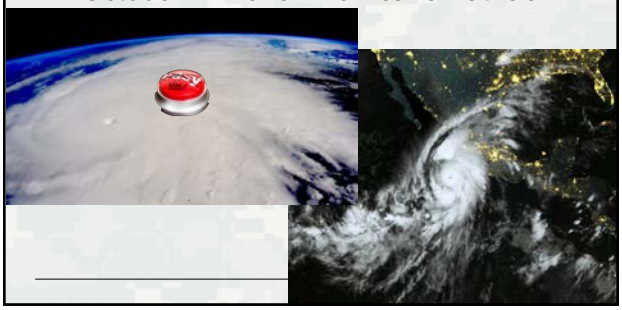
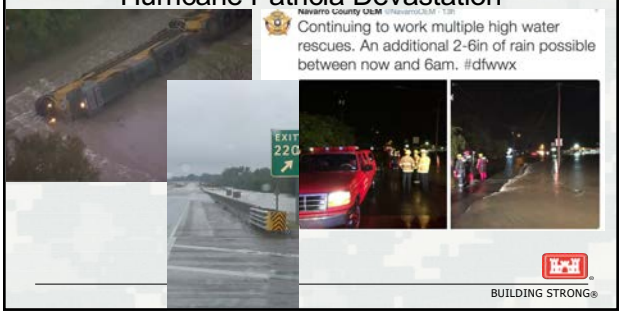
October 24 2015 - Hurricane Patricia



Hurricane Patricia Devastation



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Hurricane Patricia

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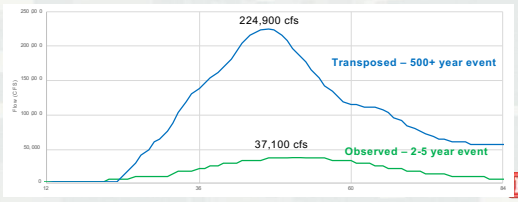
Transposed Hydrograph

- Flow at un-named Gage during Hurricane Patricia



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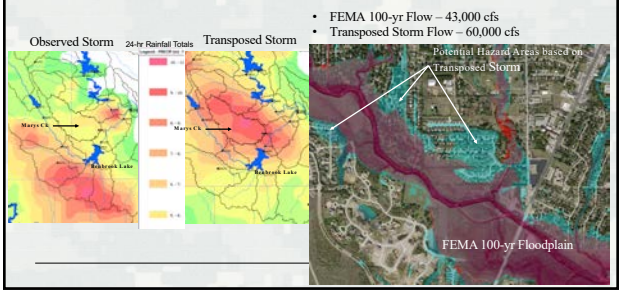
Mary's Creek - Transposed Storm

- FEMA 100-yr Flow – 43,000 cfs
- Transposed Storm Flow – 60,000 cfs



Summary

- You really want to download HEC-MetVue for all your precipitation data needs.
- Don't move a storm too far from the coast or over a large increase in elevation. Don't rotate a storm.
- Storm transposition is a valuable tool to assess risk and perform what if analysis. Especially in communities that have not experienced large storm events.

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Questions?

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