

HEC-MetVue and Storm Transposition

Simeon Benson P.E.
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

Having a meteorology **tool** does not make you a meteorologist!

What is HEC-MetVue? Meteorological Visualization Utility Engine

HEC-MetVue is a Meteorological Visualization Utility Engine. The screenshot shows a software window with a map of the United States, a legend on the right, and various toolbars and panels on the left. The legend includes color-coded categories for precipitation and other meteorological data. The HEC logo and 'BUILDING STRONG' tagline are visible at the bottom right.

HEC-MetVue TINs, Grids, and Time Series

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

The screenshot shows a 3D terrain model (TIN) with a grid overlay. The HEC logo and 'BUILDING STRONG' tagline are visible at the bottom right.

HEC-MetVue in CWMS

Automated Processing

- Data Acquisition & Processing
- Calibration
- Report Generation

Visualization & Interactive Analysis

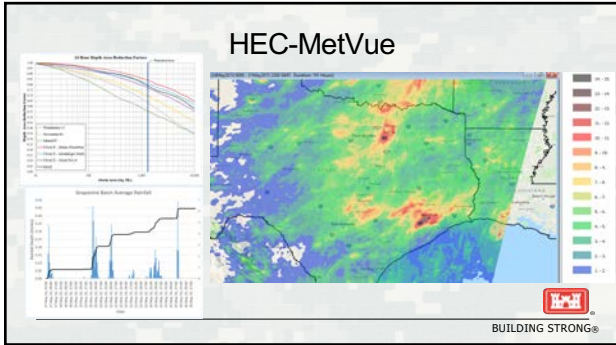
- Calibration
- Storm Totals
- Animation

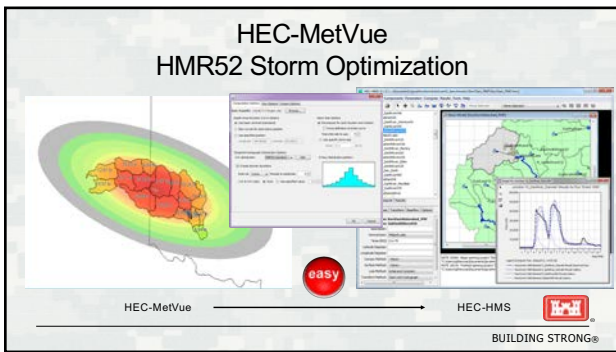
Modeling & Forecast Scenarios

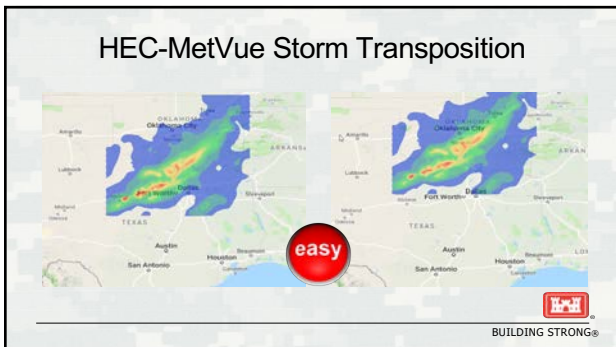
```

            graph TD
            A[Observed Precipitation] --> B[HEC-MetVue]
            B --> C[HEC-HMS]
            C --> D[RAS]
            D --> E[2D RAS]
            F[HEC-MetVue] --> E
            
```

The diagram illustrates the workflow from data acquisition to modeling and forecasting. It shows how HEC-MetVue processes precipitation data and integrates it with HEC-HMS and RAS for hydrologic modeling and forecasting. The HEC logo and 'BUILDING STRONG' tagline are visible at the bottom right.







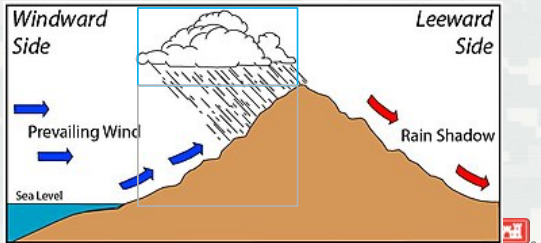
Meteorological Guidelines

- 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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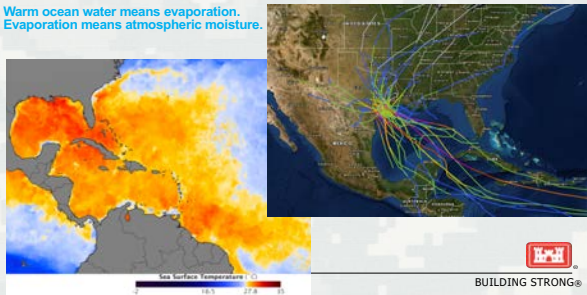
Precipitable Water Column



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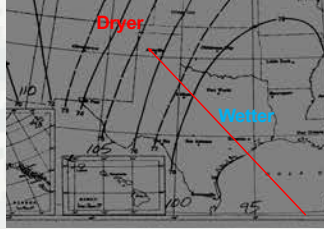
Gulf of Mexico

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

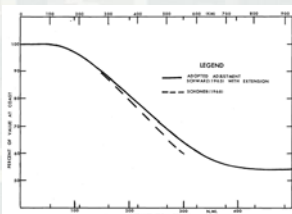
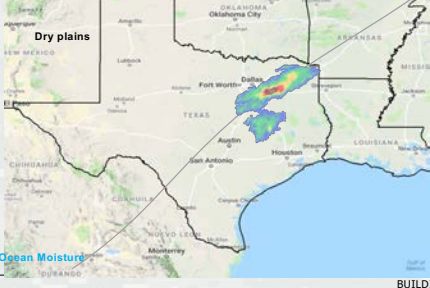


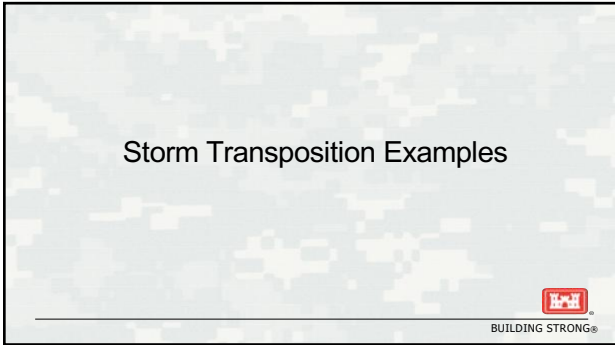
Figure 2 - Distance from coast adjustment for tropical storm windfall.

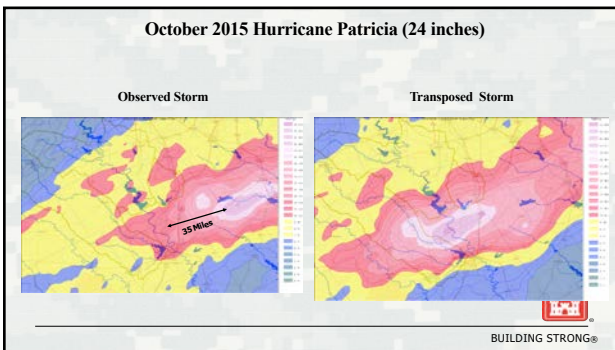
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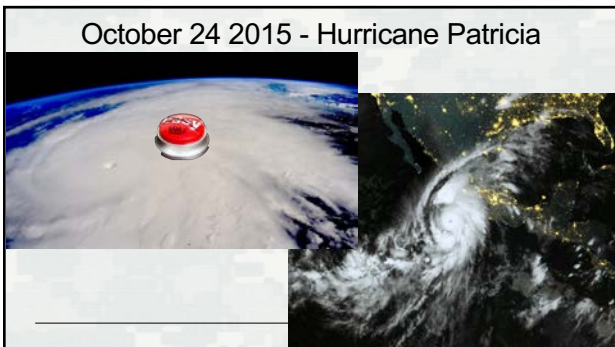
Do not rotate a storm!



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Hurricane Patricia Devastation

Navarro County USEM

Continuing to work multiple high water rescues. An additional 2-6in of rain possible between now and 6am. #dfwvx

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Hurricane Patricia

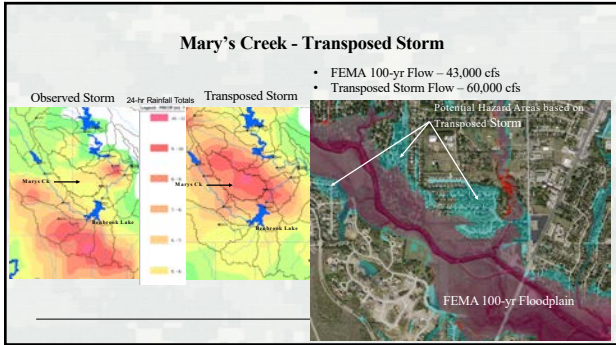
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Transposed Hydrograph

- Flow at un-named Gage during Hurricane Patricia

Event Type	Peak Flow (cfs)
Transposed - 500+ year event	224,900
Observed - 2-5 year event	37,100

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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?

US Army Corps of Engineers

U.S. Army Corps of Engineers
Fort Worth District (SWF)
819 Taylor Street
Fort Worth, TX 76102

Simeon Benson, P.E.
Water Resources

(817) 886-1544 TEL
Simeon.A.Benson@usace.army.mil

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