Using NEXRAD Rainfall Data for Model Calibration in DuPage County

A collaborative effort by:

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With generous input from:

DuPage County

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Using NEXRAD Rainfall Data for Model Calibration in DuPage County

• A simple case study of One Storm, One Watershed using NEXRAD rainfall data instead of traditional gages
• This is not an exhaustive study on whether NEXRAD data is applicable for project use in Illinois
• Conducted because we thought it would be “interesting”
Comprised of **159 DOPPLER** high resolution radars operated by the National Weather Service
1,450 ASOS sites Nationwide and
60 ASOS sites in Illinois to ground truth data
What’s NEXRAD? A gridded rainfall product derived from the River Forecast Centers
Example of **RAW NEXRAD** (Stage 1 – 3) directly from the River Forecast Centers
Availability of **Stage 4** NEXRAD data
Coverage within **North Eastern Illinois**
Gages
NOAA
Precipitation and
USGS
Streamflow
Gages
DuPage County Precipitation

West Branch Spring Brook No. 1
September 12-14, 2008
NEXRAD Isohyetals and Gaged Rainfall

Legend
Isohyetal Depth
- 4.5
- 5.0
- 5.5
- 6.0
- 6.5
- 7.0
- 7.5
- 8.0
- 8.5
- 9.0
- 9.5

NEXRAD - MPE
- 4.01 - 4.50
- 4.51 - 5.00
- 5.01 - 5.50
- 5.51 - 6.00
- 6.01 - 6.50
- 6.51 - 7.00
- 7.01 - 7.50
- 7.51 - 8.00
- 8.01 - 8.50
- 8.51 - 9.00
- 9.01 - 9.50
- 9.51 - 10.00

West Branch Spring Brook No. 1
September 12-14, 2008
NEXRAD animation

• Narrow band on the 12th and 13th
• Wide band on the 14th
• Simple but effective way to show storm characteristics
Modeled vs Observed Flow
West Branch Spring Brook at Blackwell Trail Bridge

USGS Recorded
Model (Gauges)
Modeled (NEXRAD)
Modeled vs Observed Stage
West Branch Spring Brook at Blackwell Trail Bridge

- USGS Recorded
- Modeled (Gauges)
- Modeled (NEXRAD)

Stage (ft)

Date (2008)
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- Using NEXRAD rainfall data *produced similar results* and
- Required *less effort* than using traditional gage data

**However...**

- Rainfall was fairly *consistent throughout watershed*
- Only considered *One Storm, One Watershed*
Thanks!

Questions?