Frequency of Storm Events

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Presentation Goals

- What does storm frequency mean?
- If you get a 10-year frequency rainfall, does that equate to a 10-year frequency flood?
- Is regulating floodplains using the 100-year frequency flood event the whole story?
What Does Storm Frequency Mean?

- Basic – Probability of being equaled or exceeded in an area in any given year.

  100-year frequency = 1 percent chance of exceedance

  25-year frequency = 4 percent chance of exceedance

  10-year frequency = ?? Percent chance of exceedance
What Does Storm Frequency Mean?

- Basic – Probability of being equaled or exceeded in an area in any given year.

  100-year frequency = 1 percent chance of exceedance

  25-year frequency = 4 percent chance of exceedance

  10-year frequency = 10 percent chance of exceedance

  $\frac{100}{Y\text{-year frequency}} = X\text{ percent exceedance}$
If you get a 10-year frequency rainfall, does that equate to a 10-year frequency flood?

- How can a 10-year rainfall = 50-year flood?

**Hydrologic Variables**

- Season
- Vegetation (cover)
- Ground condition (moisture)
- Conveyance condition
- Precipitation depth / duration
- Storm area of coverage
If you get a 10-year frequency rainfall, does that equate to a 10-year frequency flood?

- How can a 10-year rainfall = 50-year flood?

Hydrologic Variables

- Season
- Vegetation (cover)
- Ground condition (moisture)
- Conveyance condition

- Matching historic flood events with H and H models
Matching historic flood events with H and H models

- Make record of Variables
  - Season
  - Vegetation (cover)
  - Ground condition (moisture)
  - Conveyance condition

- High water marks
Is regulating floodplains using the 100-year frequency flood event the whole story?

- Actual Example

- Floodplain Ordinances

- What kind of things do you find in floodplains in IN?

- Frequency of Damage
Backwater Analysis Example
Backwater Analysis Example
Backwater Analysis Example

3 structures significantly impacted and 1 foot of surcharge in 25-Year event
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