Using GIS to Estimate Hurricane Debris

Broward and Palm Beach Counties Experience

Presented By

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Importance of Debris Prediction

- Need reliable means to forecast debris quantities (pre-event)
- Need reliable means to estimate debris (post-event)
- Need method to manage debris removal (post-event)

Why Try to Model Hurricane Generated Debris

- To assist in the completion of adequate Debris Management Plans
- To assist in development and conduct of realistic exercises
- High disaster related debris costs
  - 50% or more of hurricane disaster expences

Approaches to Hurricane Debris Modeling

- United States Army Corps of Engineers Model
  - Dewberry implementation
  - PBS&J implementation
- HAZUS MH approach
- PBS&J GIS model

USACE Formula

- Cubic Yards of Debris = H(C)(V)(B)(S)
  - **H = Number of single family homes**
  - **C = Hurricane category factor**
  - **V = Vegetation density**
  - **B = Commercial density**
  - **S = Precipitation**

HAZUS MH

- Probability Curve
  - Stems per acre

Broward County Model

- Examples
  - Output
  - Data requirements

SWA Palm Beach Model

- Model examples
- Data requirements

2004 Hurricane Season

- Model predictions
- Actual collections

Model prediction comparisons

- Methodology

Comparison

- SWA Model
- Broward Model
- HAZUS MH

Summary

- Importance of enterprise GIS date
- Potential prediction accuracy
  - Law of diminishing returns
- Potential improvements
  - More interaction with built environment data
  - Better vegetative coverage data
  - Tropical storm Predictions

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