Executive Update

FEMA Risk MAP Technical Analysis

Board of County Commissioners Joint Meeting with Sarasota County

April 17, 2015

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Introduction

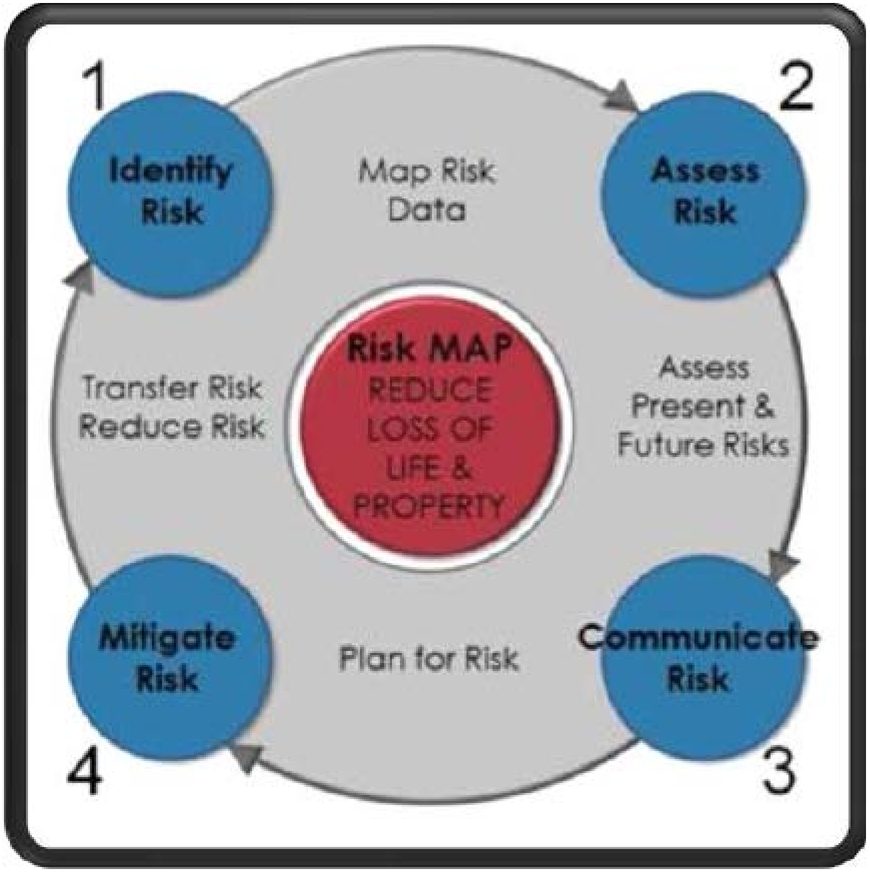
The Team…

Claire Jubb, CFM
County PM

Randy Cole, City of Punta Gorda

Risk MAP Program Overview

- **Risk MAP**
  - Mapping – Flood hazard and risk identification
  - Assessment – Risk assessment tools
  - Planning – Hazard mitigation planning
- **Risk MAP Vision**
  - Deliver quality data
  - Increase public awareness of flood risk
  - Encourage local/regional actions that reduce risk



Source: FEMA Technical Outreach Presentation to Charlotte County, 9/24/2014

Project Work Schedule

- **Planning & Budgeting:** 3 months (Complete)
- **Discovery:** 2~4 months (Commenced)
- **Data Development & Sharing:** 9~15 months (Commenced)
  - Complete surge modeling – early 2016
  - Complete wave modeling – mid 2016
  - Risk MAP products – late 2016
- **Risk Awareness & Mitigation Outreach:** 1~3 months
- **Proposed NFIP Map Changes & Impacts:** 1~3 months
- **Preliminary NFIP Map Release & Mitigation Plan Path Forward:** 1~3 months
- **Due Process & Path Forward:** 9~15 months

Source: FEMA Technical Outreach Presentation to Charlotte County, 9/24/2014

Risk Map and Coastal Studies

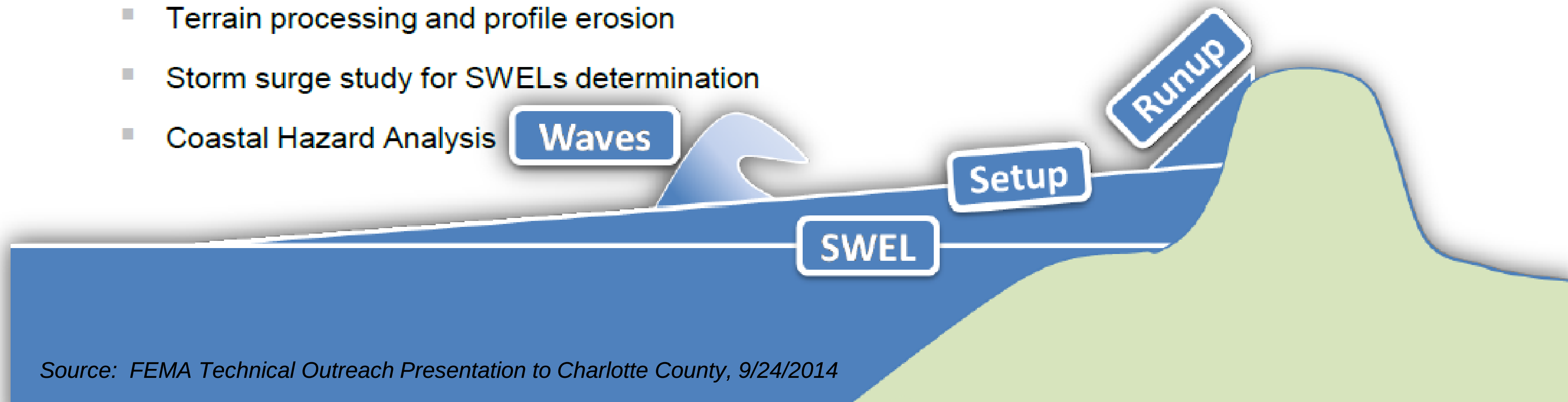
Coastal Storm Surge

- Base Flood Elevation (BFE) on a FIRM includes 4 components:
  - Storm surge stillwater elevation (SWEL)
  - Wave setup
  - Wave height above total stillwater elevation
  - Wave runup above storm surge elevation (where present)

  All applied to an eroded beach profile (when applicable)

Why Review Risk MAP Now??

- The above components are computed through
  - Terrain processing and profile erosion
  - Storm surge study for SWELs determination
  - Coastal Hazard Analysis



Source: FEMA Technical Outreach Presentation to Charlotte County, 9/24/2014

Tasks To Date

A. Discovery Report Review

B. Interim Data Submittal #1 Review

C. Subtasks – Elevation comparisons

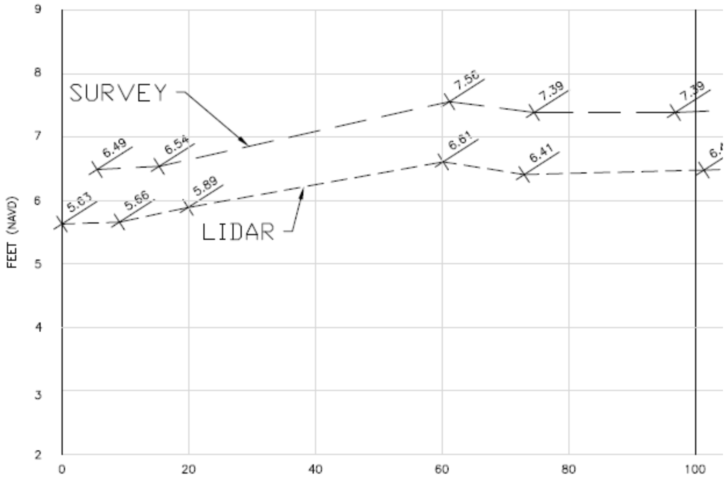
Findings and Comments

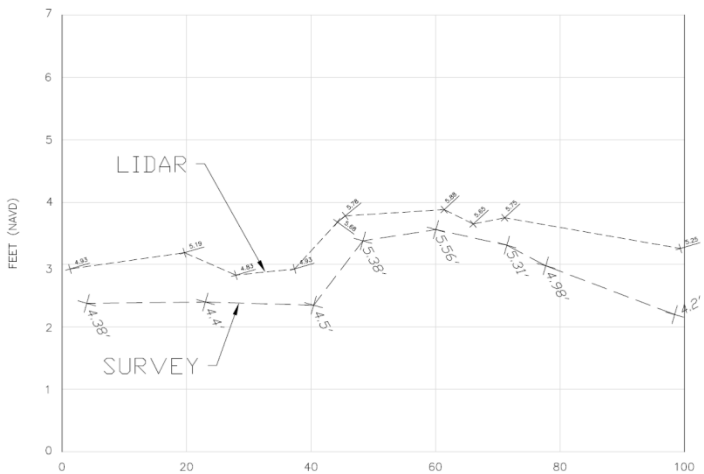
A. Discovery Report Review

B. Interim Data Submittal #1 Review

C. Subtasks – Elevation comparisons
- Related to Discovery/Data Model Development

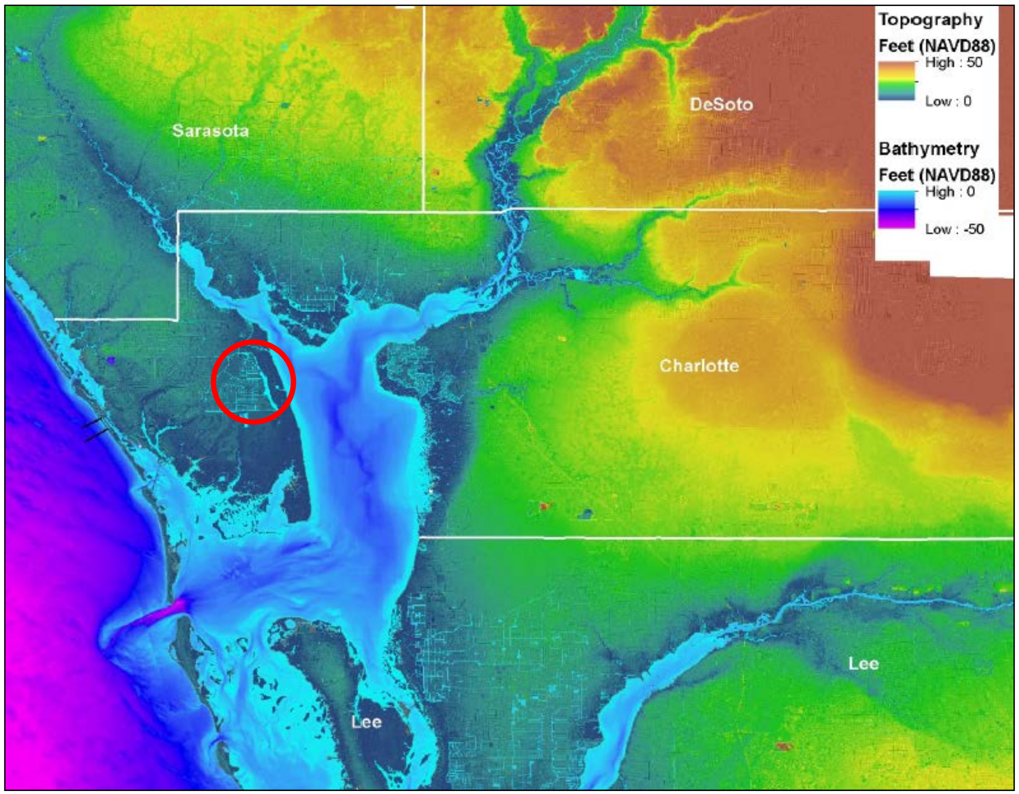
Discovery Comments





- Risk MAP Digital Elevation Model is based on 2007 LiDAR
- 2007 LiDAR data does not include Major Infrastructure Projects by County, City, FDOT, others
- LiDAR Survey compared to Traditional Survey Elevations
- Requested Risk MAP topo/bathy mesh data for review, add'l info to evaluate ADCIRC SWAN assumptions

IDS #1 Findings/Comments



- Inconsistency in Shoreline Model

- Requested Topo/Bathy Mesh for review

Source: FEMA IDS #1 Report to Charlotte County, 2/10/2015

WEC excellence in engineering tce

IDS #1 Findings/Comments

- **IDS#1 Document was intended to address storm climatology.**

Although IDS#1 Report presents storm climatology, the All Hands Meeting excluded any mention of it.

IDS #1 Findings/Comments

- **Joint Probability Method (JPM) is based on storm statistics.**

Ultimate still water flood elevations are very sensitive to parameters and associated probabilities.

Accordingly, OWI's development of JPM inputs should be opened for discussion before moving to the IDS#2 work.

For example, the landfall storms are derived from both east and west coast occurrences. These central pressures, radii, and other defining parameters are not statistically independent

IDS #1 Findings/Comments

- **What methods of quality control and data outlier rejections to historical verification data?**

OWI should present uncertainty range in Central Pressure – Maximum Wind Speed relationship.

OWI should consider landfall definition due to the specific characteristics of SW Florida storms to avoid bias toward more intense.

IDS #1 Findings/Comments

- **Tropical Analyst's Workstation (TAWS) reconstruction of historic storms.**

For example, the landfall storms are derived from both east and west coast occurrences. These central pressures, radii, an other defining parameters are not statistically independent.

IDS #1 Findings/Comments

Geographic Domain

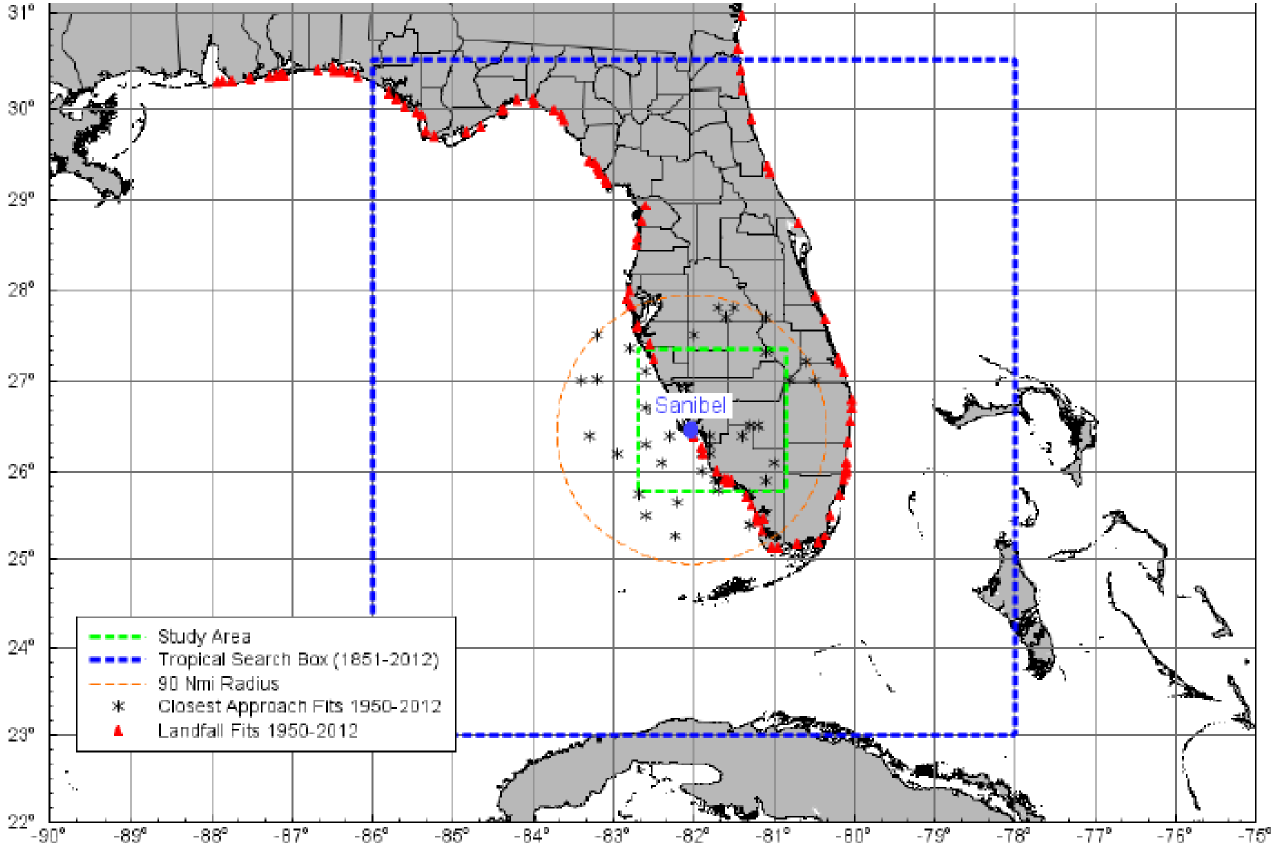


Figure 5-3: Geographic search domain for HURDAT track/intensity data (blue), landfall fits (red), and fits at closest approach to Sanibel, FL (black)

Source: FEMA IDS #1 Report to Charlotte County, 2/10/2015

IDS #1 Findings/Comments

Landfall Storm Population

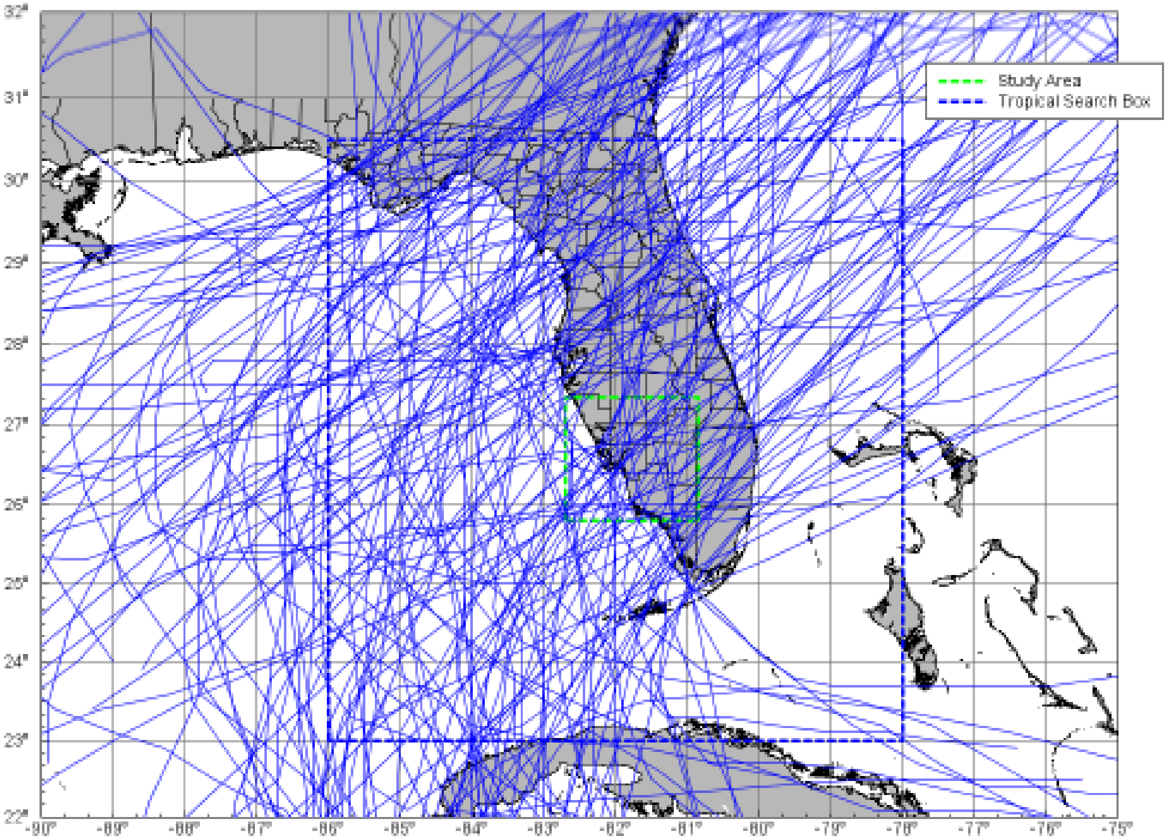


Figure 5-4: LandFall storm population

Source: FEMA IDS #1 Report to Charlotte County, 2/10/2015

IDS #1 Findings/Comments

All Storms by Class

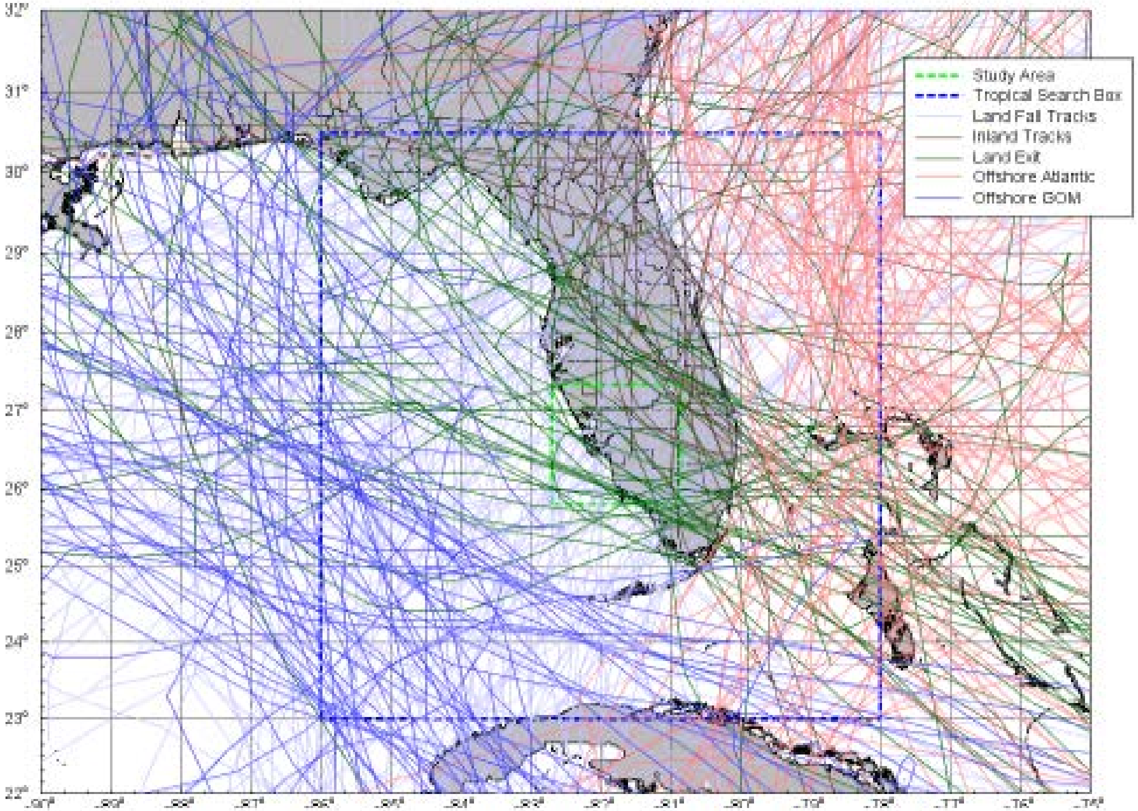


Figure 5-9: Storm tracks within search box by population

Source: FEMA IDS #1 Report to Charlotte County, 2/10/2015

Next Steps

A. FEMA Response to IDS #1 Comments

B. Surge and wave modeling data

- **Active review approach examples**

C. Future IDS Reviews

- **IDS #2 Storm-surge Model, Calibration, Storm Selection**
- **IDS #3 Storm-surge Runs and Flood Frequency Analysis**
- **IDS #4 Nearshore Hydraulics**
- **IDS #5 Draft Flood Hazard Mapping**

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QUESTIONS & COMMENTS

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