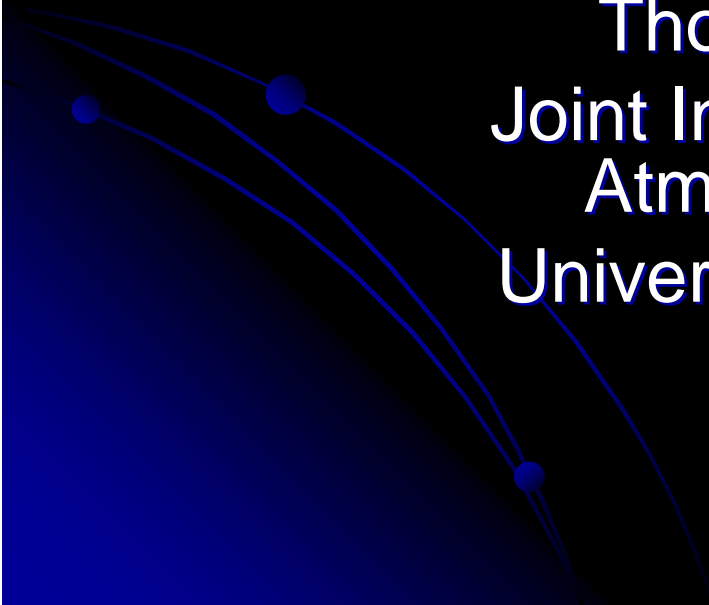


Hurricane Risk - Hawaii

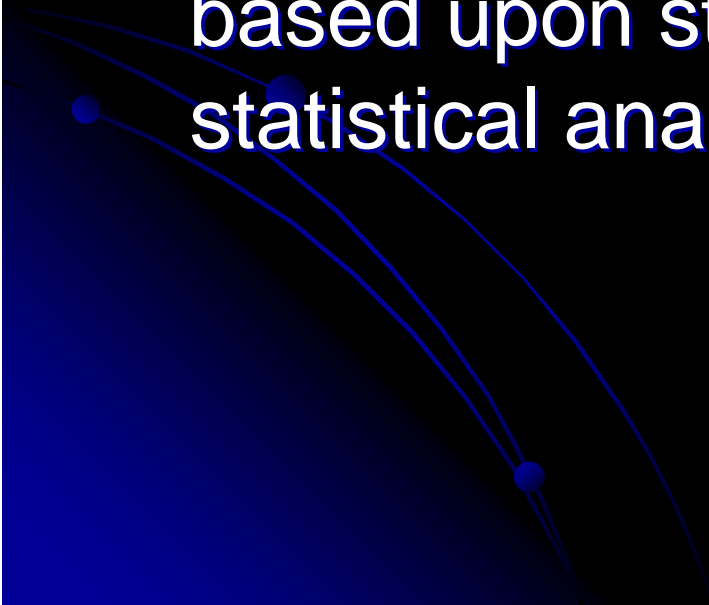
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Getting past Denial

- The historical record is limited....but
- 1959 Dot Kauai
- 1982 Iwa Kauai and Oahu
- 1992 Iniki Kauai and Oahu
- But also
- 1871 Hawaii, Maui and Molokai
- 1938 Oahu (tropical storm intensity)

However

- These are extremely rare events
 - Recurrence intervals for Iniki winds estimated on the order of century or two based upon standard engineering statistical analyses
- 

However (squared)

- In about three hours Iniki wiped out total historical profits of homeowners insurance industry
 - Insurance crises (among other factors) are driving societal responses on scales beyond the control of our small state
- 

The scenario hurricane Iniki class storm hits Oahu

- Not that unrealistic (minor twist in actual track)
- Eyewall over Oahu 130 mph gusts to 165 mph (official NWS--- Strong CAT 3)
- Iniki overwash peak 29 ft, best guess tsunami inundation maps which failed on Kauai for Iwa and Iniki !!!

Consequences

- Lifelines

- Electric - 90 % distribution lines, 50% transmission lines down
- Water - no power , no pump
- Sewerage – see water
- Communications – depends upon poles, antennae, microwave dishes, cellular
- Commercial broadcasting : probable widespread failure

- Lifelines (cont)

- Roads – start with poles and trees
- Airports- out several days. Military resupply essential
- Harbors – hopefully no ships left in port
- Emergency Supplies- warehouses will be trash

Housing/ Tourist Accomadations

- Projected from Kauai 80% single family dwellings damaged 10 % destroyed, 38 % major, 52 % minor
- Hotels, hi-rise condos- still standing, breached envelopes (esp windows), water damage substantial. Recovery on order of years. Most of Waikiki – OUT OF BUSINESS

Other Consequences

- Shelters inadequate .. What do we do with the people??
- Unemployment : instantaneously 25% and at least for a year
- Social consequences
- Rebuilding “boom” maybe??

BEST GUESS COSTS

- Start at \$100 B for openers
- Not just insured property

