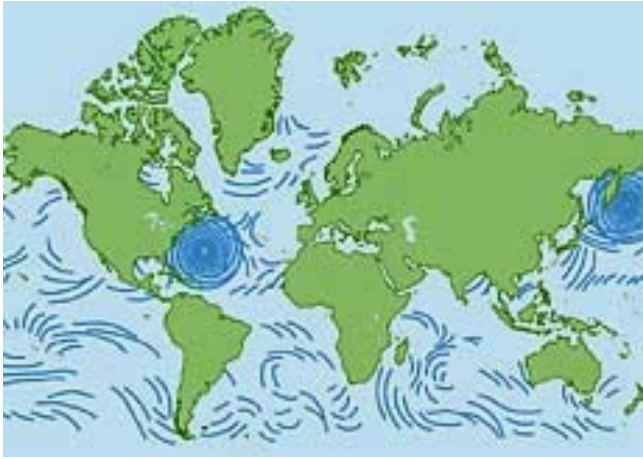




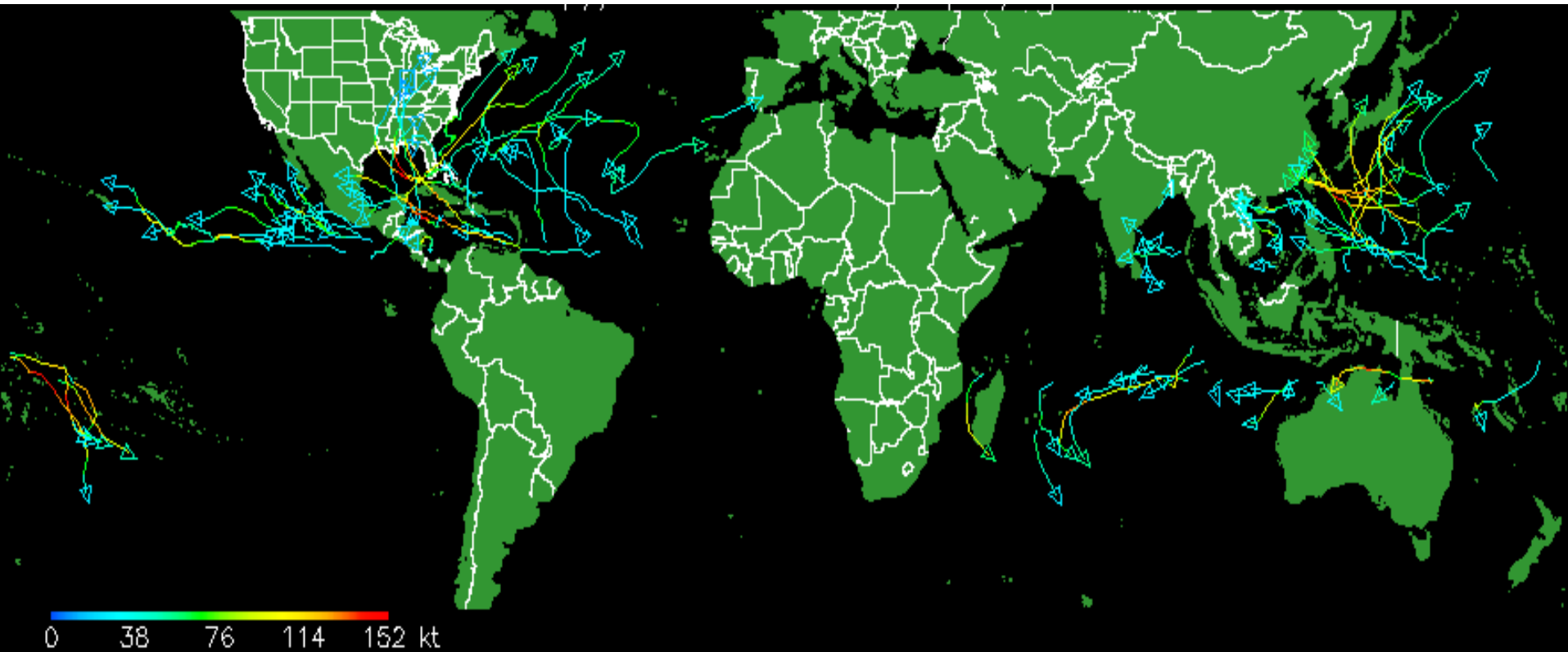


# HURRICANE LOSS MITIGATION

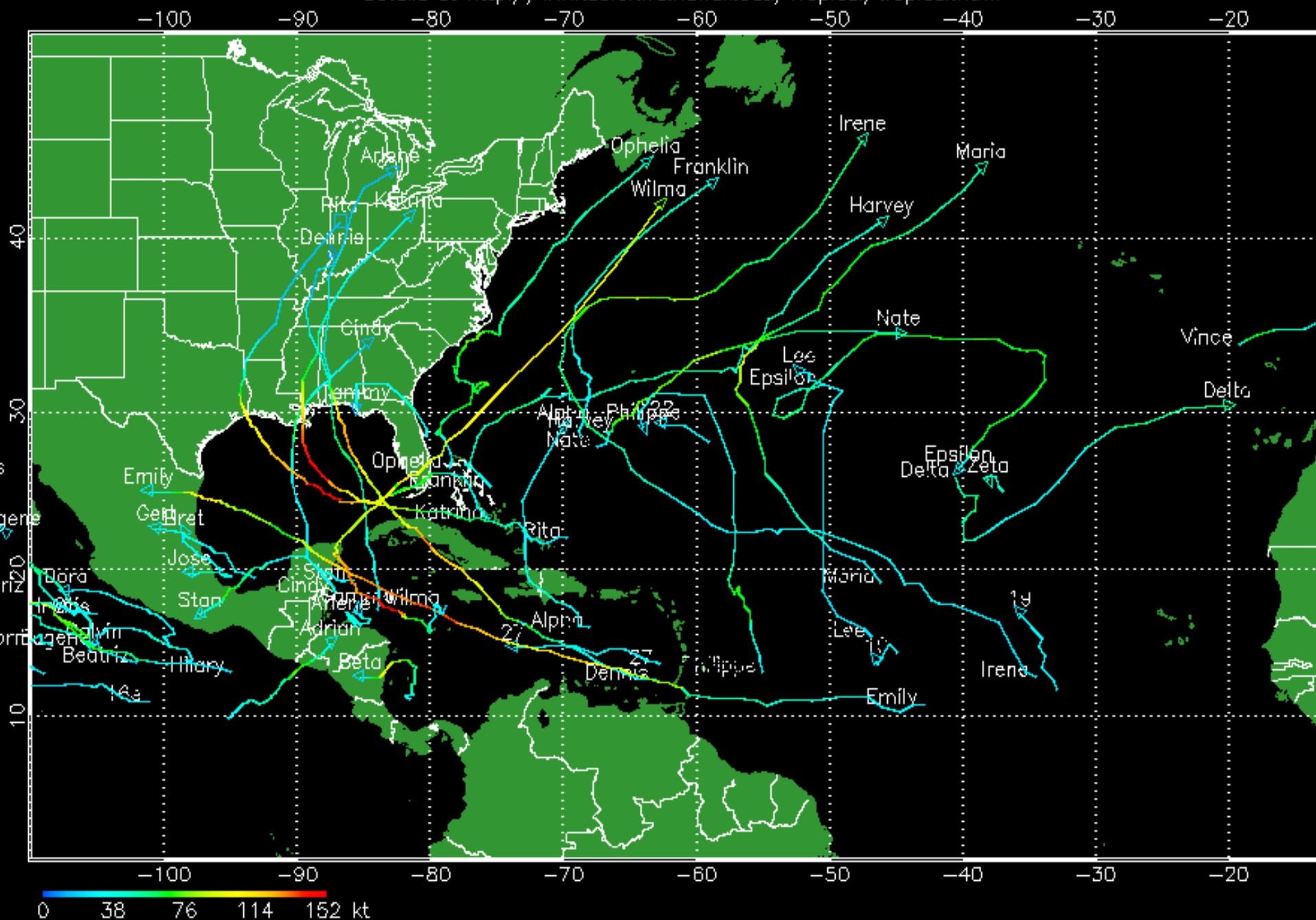
KEVIN E JARMAN  
MatthewsDaniel



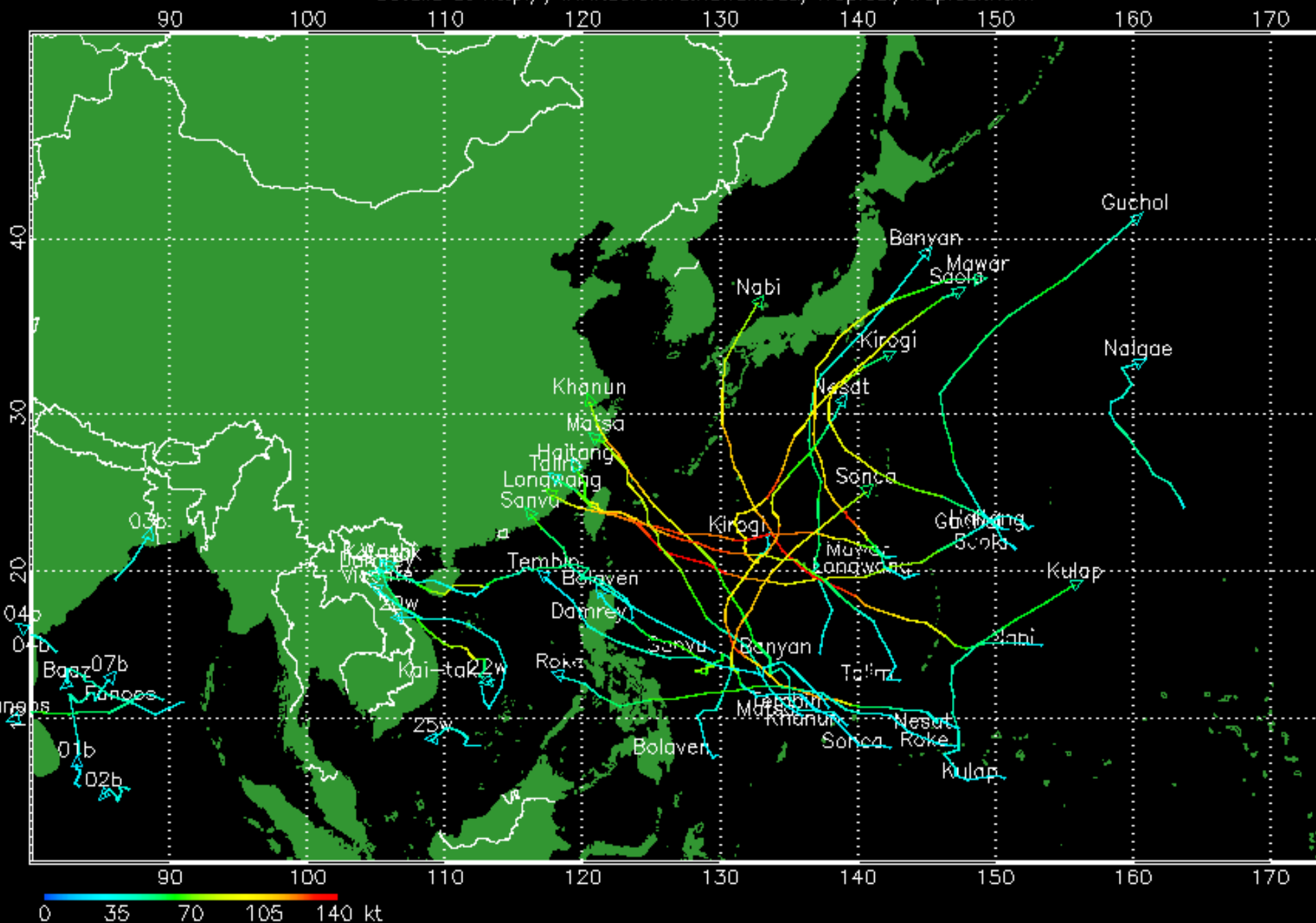
# GLOBAL WINDSTORM INTENSITY 2005



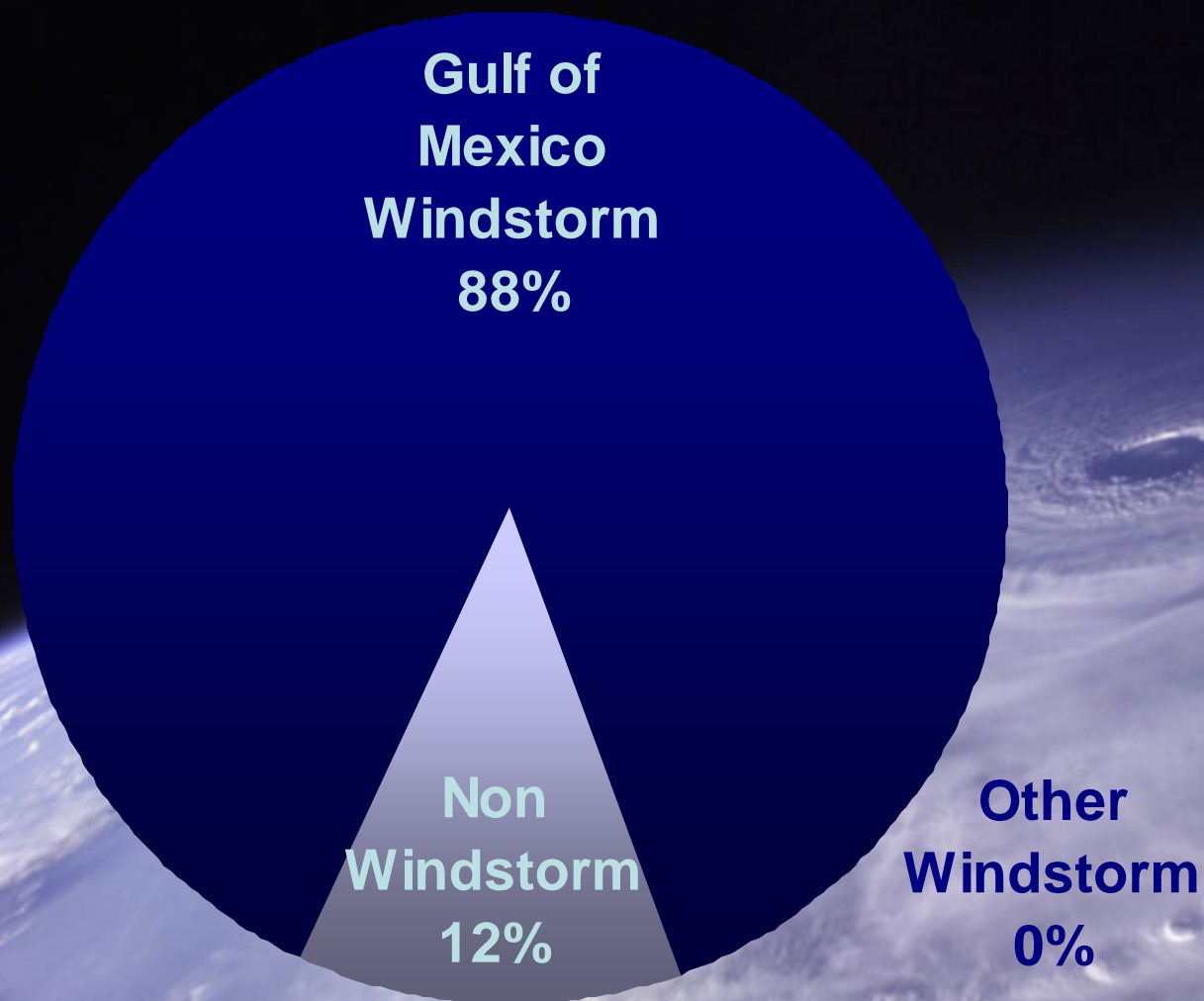
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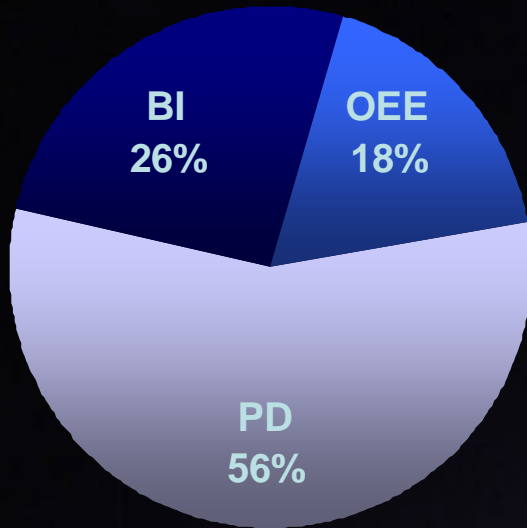
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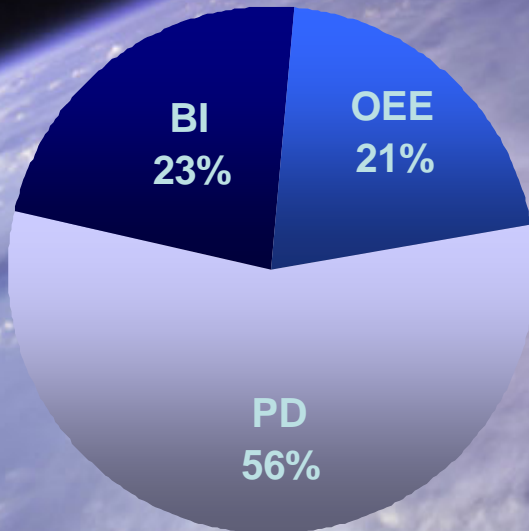
# OFFSHORE LOSSES 2005 by value







**KATRINA**



**RITA**

# HURRICANE LOSS MITIGATION

- Pre-Incident
  - Regulatory
  - Elective
    - Long Term Planning
    - Short Term Response
- Post-Incident
  - Emergency Measures
  - Re-instatement Planning
  - Future Planning





2005.10.03































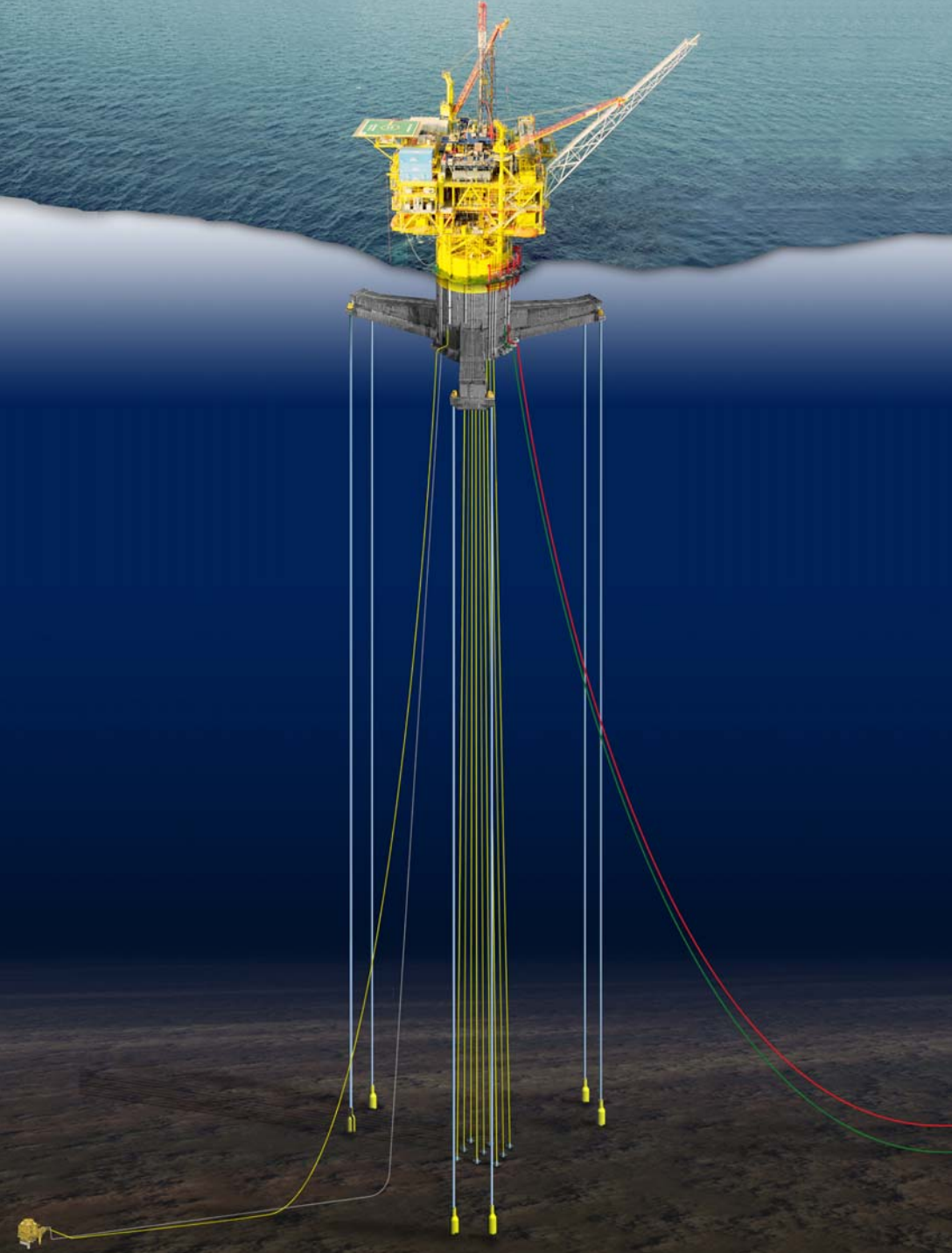
09.08.2005

















26 9:21 AM



16 12:27 PM

# PRE-INCIDENT

- Regulatory
  - Fixed Installations
    - Platforms









# PRE-INCIDENT

- Regulatory
  - Fixed Installations
    - Platforms
    - Wells





09/03/2005





09/10/2005

# PRE-INCIDENT

- Regulatory
  - Fixed Installations
    - Platforms
    - Wells
    - Pipelines

# PRE-INCIDENT

- Regulatory
  - Fixed Installations
    - Platforms
    - Wells
    - Pipelines
  - Mobile Units
    - Classification Society



# PRE-INCIDENT

- Elective
  - Long Term Planning
    - Operator Imposed
      - Design / Modifications
      - Risk Management
        - » Disaster Recovery Plan
        - » Culture and Practice
    - Insurer Imposed
      - Risk Assessment
      - Warranty Surveys
      - Classification
  - Short Term Response
    - Forecasting and Preparation



# POST-INCIDENT

- Emergency Measures
  - Implementation of Disaster Recovery Plan
    - Field Response
    - Inspection
    - Preservation and Stabilisation

# POST-INCIDENT

- Reinstatement Planning
  - Regulatory Compliance



# REGULATORY (STRUCTURES)

- Level I - above-water visual inspection for all platforms exposed to wind speeds greater than 74 mph or if platform is located within prescribed distance of hurricane eye track
- Level II – general underwater visual inspection by divers or remotely operated vehicle (ROV) either when Level I survey indicates that underwater damage may have occurred or if platform has been subjected to severe accidental loading
- Level III – underwater inspection of areas of known or suspected damage when Level II survey detects significant structural damage or if platform has experienced wave loading on deck or if Level II survey prescribes a Level III inspection

# REGULATORY (PIPELINES)

- Tie-ins and Crossings - underwater inspections using divers or ROV, a scanning sonar processor or a side scan sonar in combination with a magnetometer within a prescribed corridor and to prescribed depth. All valves, fittings, protection devices, mats and sandbags to be included.
- Risers - visual inspection of the above-water portion. If damage is found, underwater visual inspection of riser and pipeline.
- Steel Catenary Risers – visual underwater inspection using divers or ROV.

# POST-INCIDENT

- Reinstatement Planning
  - Regulatory Compliance
  - Claim Management Plan

# TYPES OF CLAIM

- Physical Damage
- Sue & Labour
- Removal of Wreck / Debris
- Control of Well / Making Wells Safe / Redrill
- Business Interruption / Contingent Business Interruption
- Liabilities including Pollution



# CONSTRAINTS

- Logistics
- Resources
- Information

# LOGISTICAL CONSTRAINTS

- FEMA
- MMS / USCG restrictions on access / number of personnel
- Military roadblocks/restricted areas



DRUNKS WITH GUNS!  
U LOOT  
WE SHOOT



# LOGISTICAL CONSTRAINTS

- FEMA
- MMS / USCG restrictions on access / number of personnel
- Military roadblocks/restricted areas
- Flooding
- Health concerns
- Lack of hotels and other temporary accommodation
- Lack of transportation
  - Airports closed
  - Hire cars 'sold out'
  - Helicopter availability
    - Demand including requisition
    - Damage
    - Landing facilities
    - Refuelling
- Shortages of supplies
  - Fuel
  - Consumables

# RESOURCE CONSTRAINTS

- Personnel
- Equipment
- Materials

# INFORMATION CONSTRAINTS

- Asset Information
- Interdependencies
- Non-operated Assets

# POST-INCIDENT

- Reinstatement Planning
  - Regulatory Compliance
  - Claim Management Plan
    - Prioritisation
    - Expediting
    - Alternative Solutions



# POST-INCIDENT

- Reinstatement Planning
  - Regulatory Compliance
  - Claim Management Plan
    - Prioritisation
    - Expediting
    - Alternative Solutions
  - Engineering









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# POST-INCIDENT

- Reinstatement Planning
  - Regulatory Compliance
  - Claim Management Plan
    - Prioritisation
    - Expediting
    - Alternative Solutions
  - Engineering
  - Contracts and Incentives

# POST-INCIDENT

- Claim Settlement
- Future Planning (Lessons Learned)
  - Recognition
  - Implementation









