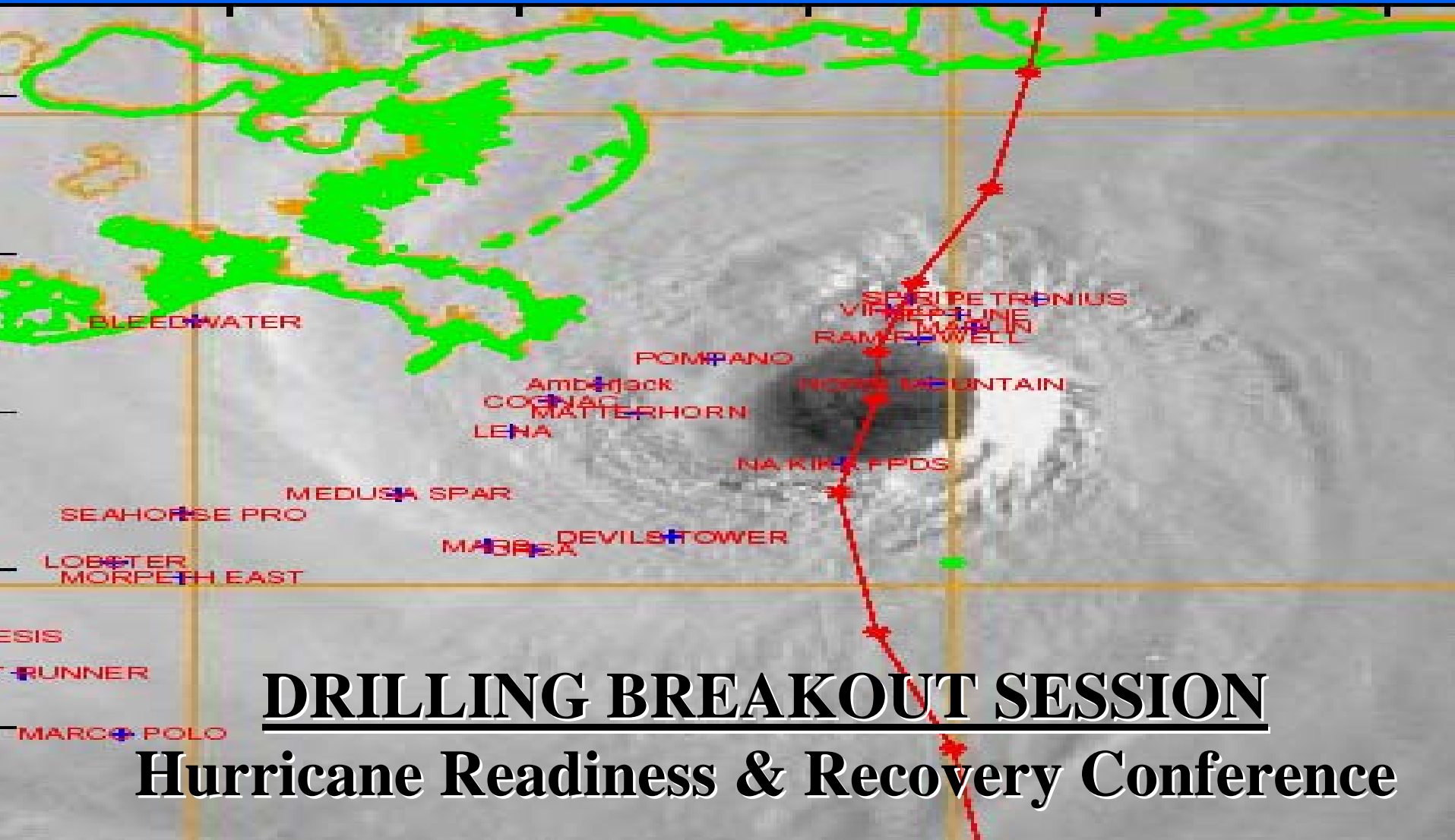
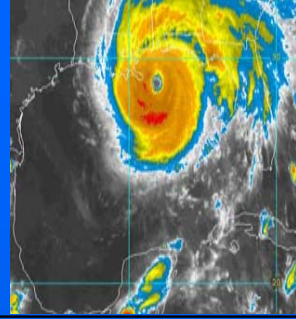


WELCOME



DRILLING BREAKOUT SESSION

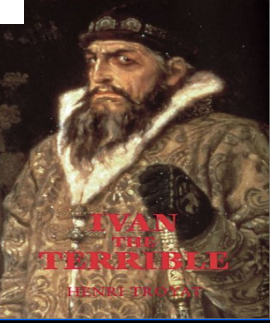
Hurricane Readiness & Recovery Conference



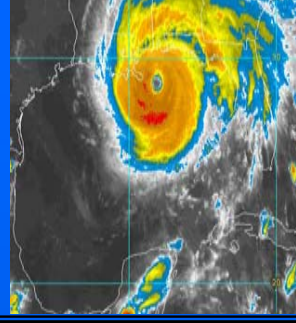
CONTINENTAL UNITED STATES LANDFALLING HURRICANES 1950-2003



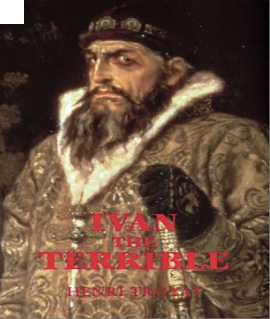
NOAA'S NATIONAL CLIMATIC DATA CENTER, ASHEVILLE, NORTH CAROLINA
PROTECTING THE PAST... REVEALING THE FUTURE



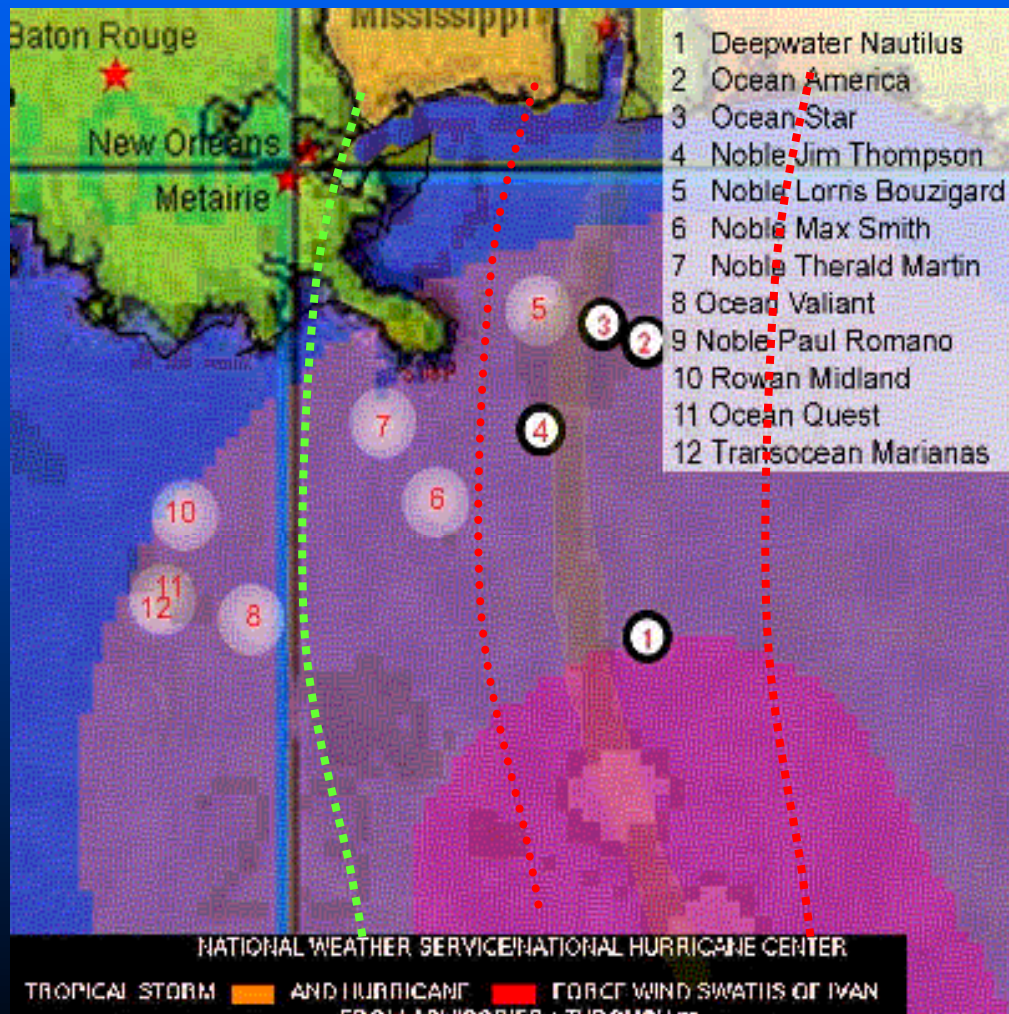
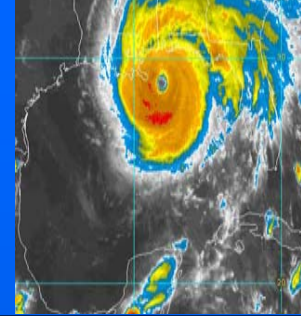
Ivan Facts



- **Wave loads exceeded Design Criteria.**
 - 10 Yr Return Period Criteria Exceeded; (Hs ~26 ft)
 - » ~100 Miles West (90.25°W)
 - » ~150 Miles East (84.5°W)
 - 100 Yr Return Period Criteria Exceeded; (Hs ~40 ft)
 - » ~30 Miles West (88.8°W)
 - » ~110 Miles East (86°W)
- **5 MODUs Incurred Damage to Moorings**
 - 4 MODU Moorings Failed & Rigs Drifted.
 - » All failures due to overload
 - » 100 Yr Storm Event exceeded in all cases.
 - » 0.86 mile to 70 mile excursions reported.
- **2 MODUs survived > 10 Yr Return Period Event.**
 - Both rigs on West Side of Storm.

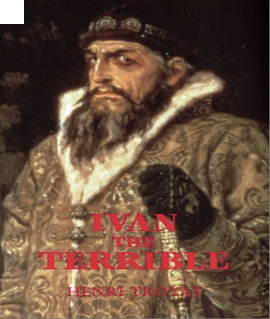


Close Proximity Needed

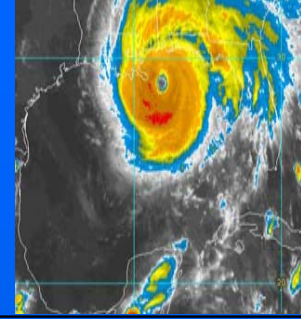


- 7 MODUs in Direct Path of Ivan
- Two undamaged.
- One damaged.
 - Still held in place.
- Four failures and free to drift.
 - ≥ 100 Yr Wave & Wind.

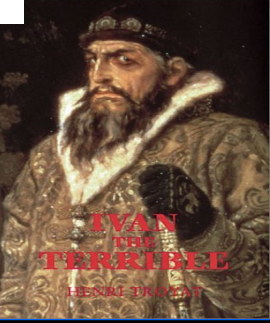
..... Boundary > 10 Yr RP Wave Event
 Boundary > 100 Yr RP Wave Event



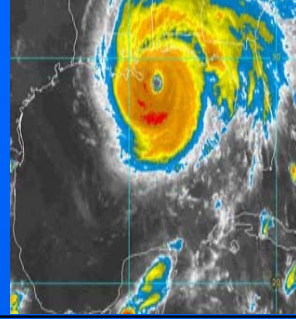
Summary of Moored Rig Incidents Transocean & Diamond



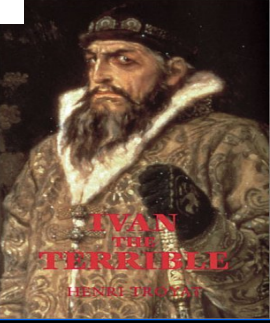
<u>Rig</u>	<u>Mooring Type</u>
Transocean Nautilus RB8-8M	Taut Mooring System – Synthetic Rope 9.55' x 70' SP Anchor 3,500' 3-3/4" HS Wire 500' 3-3/4" HS Wire
Lorris Bouzigard Pentagone 85	10 pt Conventional Mooring System. 2.75" IWRC EEEIPS Wire & 3" QRC Chain 9 & 12 MT Stevipris Anchors
Jim Thompson EVA – 4000	Semi-Taut System 9 Point 30 – 60 Deg Suction Pile & Wire



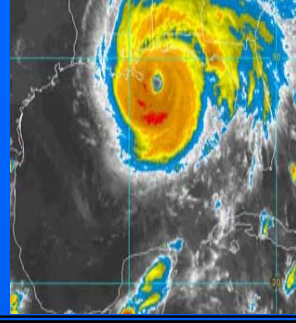
Summary of Moored Rig Incidents Noble Drilling



Rig	Mooring Type
Ocean America Odyssey Class	Conventional 8 Pt – 45° 10MT Bruce MK-4 Anchors 3-1/4” Chain & 3-1/2” Wire
Ocean Star Enhanced Victory Class	Conventional 8 Pt – 45° 10MT Bruce Anchors 3-1/4” Chain & 3-1/2” Wire



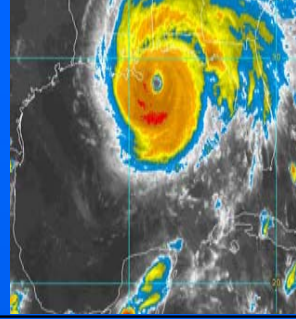
PURPOSE OF SESSION



- Provide insight into mooring incidents.
- Disseminate knowledge across Industry.
 - Equipment & Methods.
 - Industry initiatives.
 - Risk management.
- Discuss
 - Additional industry needs & path forward.
 - New Technology & Applications.



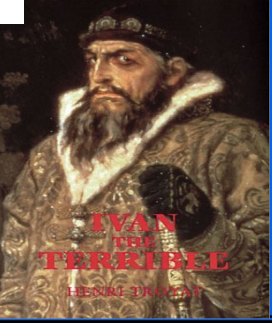
Morning Agenda



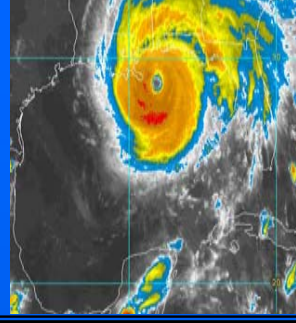
- API RP2SK Standards Review & Update
- Deepwater Nautilus Mooring Incident
- Jim Thompson Mooring Incident
- Facilitated Panel Discussion

BREAK

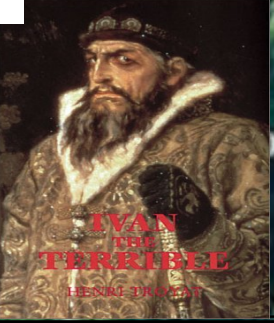
- Proposed JIP on Reliability and Risk Assessment.
- Riser Management in Severe Environments
- Designs & Installation to Improve Reliability & Reduce Risk.
- Station Keeping Capabilities of the Development Driller



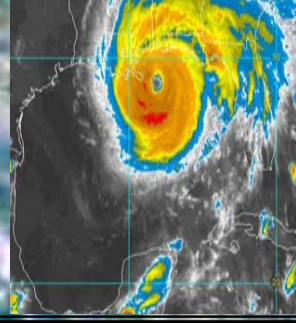
Afternoon Agenda



- Facilitated Panel Discussion & Open Forum
- Summarize Breakout Session
 - Panel Members
- Plenary Session
 - Reconvene All Breakout Sessions for Recap



IVAN PERSPECTIVE



- “Despite the fury of Ivan, there were no reports of injury, fatalities or significant pollution associated with offshore facilities – a significant tribute to the programs in place for safeguarding life, property and the environment.”