Our Timbers “R” Shiverin’!
Hurricane DR/BC Planning
Two University Plans/Perspectives

2018 EDUCAUSE SPC

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• Irma quick stats
• University fast facts
• University DR/BC Plans
• How the Universities respond to Irma
• Challenges
• Successes
• Q&A
Developed in the Atlantic Ocean on Aug. 30
Two days later, declared a Category 5 storm
- Over 350 miles wide (engulfed majority of Florida)
- Sustained winds as high as 185 miles-per-hour
- Coastal storm surges were 20 feet above normal tide levels.
- Ocean temps of 85 degrees sustained the storm
- Irma held 7 trillion watts of energy 2X the power of the WWII bombs
- Its force was registered on earthquake seismometers

Hurricane Irma makes landfall at Cudjoe Key, Florida September 10, 2017 9:17 PM as a Category 4 hurricane
UM Overview

- Established in 1925
- Three major campuses
- Main campus: 125 buildings, 239 acres
- Doctoral & Level 1 Research Institution
- 11 colleges/schools; 180 majors/programs
- 17,000+ students
- 16,000+ employees
UM Key Campus Information for Hurricane Planning

- **Coral Gables Campus**
  - 4,500 residential students
  - Evac zone for cat 3 storms
  - 60 hours for evacuation

- **Medical Campus**
  - 560 in-patient bed hospital
  - S. Florida largest public hospital
  - Vulnerable to storm surge

- **Marine Campus**
  - Located on a barrier island
  - Single road in/out
  - Major vulnerability to storm surge
FIU Overview

- Established in 1972
- Miami’s First Public Research University
- Three major campuses, 9 satellite locations
- Aquarius Reef Base: World’s only undersea research laboratory
- Main campus: Modesto A. Maidique Campus 342-acre city block with 118 buildings
- 10 colleges/schools; 268 degrees
- Designated Carnegie Very High Research Institution
- 54,000+ students
- 14,000+ employees
Key Campus Information for Hurricane Planning

- **Modesto Maidique Campus**
  - Monroe County Special Needs Shelter
  - Shelter for students

- **Biscayne Bay Campus**
  - North Miami Beach
  - Evacuation Zone
  - Vulnerable to storm surge
  - Hosts Miami Dade Count Public School MAST-FIU

- **Royal Caribbean Cruises Ltd. Rehearsal facility**

- **Engineering Campus**
  - 3,200 housing students
  - 3 Museums
  - Several of our satellite locations are located in evacuation zones.
Storm surge is the abnormal rise in seawater level during a storm, measured as the height of the water above the normal predicted astronomical tide. The surge is caused primarily by a storm’s winds pushing water onshore. The amplitude of the storm surge at any given location depends on the orientation of the coast line with the storm track; the intensity, size, and speed of the storm; and the local bathymetry.

Bathymetry: is the measurement of the depth of water in oceans, rivers, or lakes.
# Timeline of Events: Pre and During Storm

<table>
<thead>
<tr>
<th>Date</th>
<th>UM Action</th>
<th>FIU Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/30/17</td>
<td>Tropical Storm Irma Forms/First Internal Situation Report</td>
<td></td>
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<tr>
<td>9/4/17</td>
<td>University Crisis Decision Team (CDT) initial conference call</td>
<td>Hurricane Irma Update #1 Communications sent. Monitoring the storm. University remains open.</td>
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<tr>
<td>9/4/17</td>
<td>First advisory issued to University community</td>
<td>EOC Activates Hurricane Irma Update #2: Classes cancelled as of 11PM</td>
</tr>
<tr>
<td>9/5/17</td>
<td>President cancels all classes /declares a state of emergency/activates Emergency Call Center (EOC)</td>
<td>EOC Meets for the first time for this event. Hurricane Irma Update #3: University is closed. Parking garages made available to park cars to the University Community.</td>
</tr>
<tr>
<td>9/6/17</td>
<td>University EOC partially activated (Level II) Coral Gables campus evacuation begins</td>
<td></td>
</tr>
<tr>
<td>9/7/17</td>
<td></td>
<td>Monroe County Special Needs people begin to arrive. Later that evening Monroe County general population begin to arrive.</td>
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<tr>
<td>9/8/17</td>
<td>Off-campus hurricane evacuation center activated/Remaining students relocated to evacuation center</td>
<td>Hurricane Irma Update #4: The campus is closed at least through Monday. Sheltering 700 students, 139 Monroe Special Needs and over 500 Monroe General population</td>
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<tr>
<td>9/10/17</td>
<td>Impacts begin (Irma begins her destruction)</td>
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## Timeline of Events: Post Storm

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<tr>
<td>9/10/17</td>
<td>Message for the President to the University Community. Post-Hurricane Irma Update #1. Assessments begin.</td>
<td></td>
</tr>
<tr>
<td>9/11/17</td>
<td>Irma’s winds cease</td>
<td>Post-Hurricane Irma Update #2. Message from the Provost to Faculty, Staff and Students.</td>
</tr>
<tr>
<td>9/12/17</td>
<td>Preliminary damage assessment &amp; debris clearance starts/ EOC fully activated to Level 1</td>
<td>Post-Hurricane Irma Update #3: Green Library at MMC campus reopen, call center available for assistance. Post-Hurricane Irma Update #4: University open to faculty and Staff, classes remain cancelled.</td>
</tr>
<tr>
<td>9/13/17</td>
<td>Health system resumes normal operations</td>
<td>Post-Hurricane Irma Update #5: Faculty and Staff are able to report to work on Thursday 9/14 and Friday 9/15. Classes to resume 9/18/17, information on donations and shelters</td>
</tr>
<tr>
<td>9/14/17</td>
<td></td>
<td>Post-Hurricane Irma Update #6: Changes to academic calendar, Panthers make a difference, FEMA registry information</td>
</tr>
<tr>
<td>9/15/17</td>
<td>University EOC deactivated</td>
<td>Post-Hurricane Irma Update #7: Bayview housing remains closed</td>
</tr>
<tr>
<td>9/17/17</td>
<td></td>
<td>University EOC deactivated.</td>
</tr>
<tr>
<td>9/18/17</td>
<td>Marine campus students, faculty and staff return</td>
<td>Classes resume</td>
</tr>
<tr>
<td>9/18/17</td>
<td>Medical campus classes resume/Gables campus essential personnel return</td>
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</table>
Primary Goal: Safety and the physical and mental well-being for and of the students, faculty and staff

Responsible for creation, development, implementation and promulgation of policies and procedures for disaster recovery and business continuity
KEY MESSAGE: SAFETY IS THE NUMBER ONE PRIORITY!

- Start early, send often
  - Advisories & Critical Notifications (!)
    - https://news.fiu.edu/2017/09/hurricane-irma-updates1/115044#1
  - Informational & educational
    - www.prepare.miami.edu/
    - https://dem.fiu.edu/emergencies/hurricanes/before/
  - Inspirational
    - https://news.fiu.edu/2017/12/irmas-heroes/117688
  - Methods
    - Email; web; social media, video, articles; in-person meeting; departmental and team communications – text, email, phone; Call Center; Media Outlets
Initial Monitoring

September 1, 2017: Email to FIU EOC team

September 6, 2017: Email to UM Leadership team
Evacuation Triggers

Triggers & Timeline

- Hurricane Harvey (Texas) + Hurricane Irma’s Path + Fear + Demand = Call for Early Action
Progressively suspended campus operations

- University EOC partially activated (Level II)
- Activation: Off-campus Hurricane Evacuation Center
- Activate: Temporary Staging and Evacuation Center on Medical Campus, Gables
  - Cancel classes
  - Initiate evacuation procedures for students (bus transportation to airport) 9/6/17, 7 AM
  - Advise faculty and staff to personally prepare for the hurricane
  - Implement facility protective measures

U Health
- Medical campus suspension of non-essential services including clinics and research centers
- Activate essential and critical care services emergency staff plan
- Implement facility protective measures

Marine Campus
- Evacuation of UM Marine Campus
- Implement facility protective measures
EOC Operations

• Purpose: To provide for coordination of decision making information and resources before during and after the storm

• Remained in activation 10 days
  • Pre-storm – 20 staff
  • During storm’s impact – 15 staff
  • Post storm – 30 staff

• WebEOC board set provide by Miami-Dade county

• EOC moved three times due to adverse conditions

• Personal vs. University needs (protection of family, home and belongings)

• Web EOC Board Set: A crisis information management system used to assign, track, and manage all missions and resource requests during a disaster. This includes public information, press releases, incident action plans, reports, request for resources such as fuel, etc.
FIU Emergency Operations Center

- Activated for 12 Days
- 14 conference calls
- 50 + FIU Essential Staff
- FIU- FAST (Florida Advanced Surgical Transport) Team Deployed
- Evacuation shelter for Monroe County
- Constant communication updates to the FIU community
Preparing the U – Facility Protective Measures

“Safety before, during, and after the storm remains our number one priority,”
~UM President Julio Frenk

• 36-48 hour process
• Shutter and sandbag buildings
• Shut down, secure all buildings
• Facilities management and contract labor
• Risk of employee injury
• Supply shortages
UM Evacuation Center

- Local high school
- 150 occupants (students & staff)
- 96 hours of operation
- Involved
  - Student Affairs
  - UM Police
  - Emergency Management
  - Student Health Services
  - Counseling Center
  - Dining services
  - Parking and Transportation
FIU Evacuation Center

• Sheltered 500+ FIU students plus 20 students from a local University.
• 50+ FIU Essential Staff
• 5000+ parked cars - Opened our garages for FIU and community to park their cars during the storm.
• Staffed by: Housing staff, RAs, FIUPD
• Aramark Dinning Services provide all meals.
FIU Evacuation Center

- Run by the Red Cross
- 500 Monroe County general population
- 139 Monroe County special needs population
- 52 Medical Staff USPHS + 20 Treasury security agents
- 90 Dialysis patients from US Virgin Islands
- FIU music students provided entertainment
Impact from Irma
Category 5 Team Response

• Alpha-Bravo Team strategy
• Debris clearance/removal
• Preliminary damage assessment
• Oversight of contractors
• Temporary housing for students in the evacuation center
• Establishing a timeline for the reconstitution of services
UM Information Technology’s Response

- Cloud first strategy – all critical applications/services moved to third-party vendors
- Teams A & B
  - Key designated helpdesk, network services and server management & support personnel
  - All have had DR/BC training via table top exercises, training sessions and the “real thing”
- Responsible for keeping the network and services up for the EOC and Medical
- Communicated through scheduled coordinated meetings
Staffing and responsibilities for Desktop Support and Help Desk

TEAM A
Gables Campus:
• 1 Desktop Support Technician onsite stationed at the command center to assist EOC staff
• 3 Service Desk Technicians and 2 Computer Operators stationed at Ungar with backup phones
• Medical Campus:
• 1 Desktop Support Supervisor and 2 Desktop Support Technicians assisted users with technical issues

TEAM B
• Remaining staff from Desktop and Service Desk classified as Team B
  • Prepared to drive to campus immediately following the storm
  • At Gables, Desktop Support team B performed walkthroughs with Facilities to ensure everything was functional so buildings could return to full operations
  • Service Desk team B relieved team A allowing for consistent coverage
Staffing and responsibilities for Systems Infrastructure Team

Medical Campus - a Director and two staff members
Coral Gables campus - one staff member in Centrex (telecom building)
NAP of the Americas colocation facility - one staff member

Data centers – Facilities departments on all campuses (Medical, Coral Gables and RSMAS) performed full load tests before Irma and then proactively transferred each data center to generator power before the storm arrived to avoid transfer issues during the storm.

Backups - the medical IT backups were copied to tape, picked up and securely stored by vendor; UMIT replicated medical chart data from the primary data center to the disaster recovery servers on the medical campus & sent backups to tape in a separate building. Cloud based archive storage replicated between at least two regions in the continental US.

Team A staff remained onsite until the all clear was given; after which, they inspected each data center.

B-team staff remotely monitored all systems unless they lost power during the storm. After the storm, select B-team members were onsite to periodically inspect the data centers and systems until the campuses were officially reopened.
UM Challenges

- 100+ dorm rooms experience water intrusion
- Delays in power restoration create humidity and temperature issues
- Information tracking & gathering
- Vendors failing to fulfill obligations
- Individuals attempting to shelter in on campus buildings
- NIMAA – lack of time to administratively coordinate activation, reimbursement process
- No dedicated EOC
- Key response staff evacuating
- Focusing resources on identified objectives vs. fulfilling smaller requests considered critical

NIMAA (National Intercollegiate Mutual Aid Agreement: A source for providing and/or receiving assistance. Participating in multiple agreements provides institutes of higher education with flexibility when evaluating the most effective and efficient means of obtaining resources.
UM Successes

- Safety of personnel, students & patients before, during and after
- Clear, consistent & unified communications
- Decisiveness before, during and after the hurricane
- Support from critical vendors
- Activation of NIMAA
- Network resiliency
- Coming together as one “U”
Challenges
Restricted or no access to certain buildings.
• UMPD wanted to close Ungar.
• Technicians were inside the building and not allowed to leave.
•Approvals were required in order to remain through the final hours.
Team A located at medical did not have a place to rest/sleep. Their desks = beds.

Successes
• Network stayed up and running
• Phone service was consistent
• Well-trained staff
• Alpha-Bravo Team
• Pre-Storm
  • Cloud First
  • Backups
  • Verified that Generators were topped off
  • Failed critical systems to our DR site
  • Shutdown redundant and non critical systems
  • Scheduled calls for updates
• During-Storm
  • 16 IT Essential Staff on site
  • Monitor Storm
  • Monitor Network Infrastructure
• Post-Storm
  • Assessments
  • Restoring Services
  • Scheduled calls for updates
• Provide Support and maintain the network infrastructure operational
  • EOC
  • Housing student shelter
  • Special Needs and General population Monroe Shelter/US Virgin Islands
  • Setup Information Hotline

• Challenges
  • Fiber cut to one of our links as the storm was approaching
  • Main Data Center is on the top floor.
  • Departments need to understand supporting systems for their applications.
  • Work with departments to expand and test their systems at our DR site.
  • Access to buildings for IT Assessments after the storm.
  • Communication with team members which didn’t have power or cell phone coverage.
Successes

- Network remained operational
- No systems were lost during the storm
- Failover to DR site or Cloud and back
- Communication amongst the team members.
- Great Teamwork
FIU Information Technology

• Preparing is Key
  • We perform 2 DR tests each year
  • Test Generator and transfer switch throughout the year.
  • Maintain our DR site updated and current. Most systems are "hot"
  • Work with departments to have a DR plan
  • Backups on tape as well as nightly backups transferred to the cloud and our DR site.
  • Establish internal communication tools
• Not every scenario is exactly the same…
• Working with other Florida State Universities on Mutual Aid Agreements and Disaster Response
• 2018 Hurricane Season is less than 2 months away.
• Duration – 2.5 weeks
• 98.5% students self-evacuated
• 75% of roads/pathways obstructed by debris
• Debris cleared: 12,000 cubic yards (4 million lbs.) = 5100 Ford F-150 pickup trucks
• 8 days before power fully restored
• 10 days – length of time EOC activated
• 2 weeks – response and recovery time
Special thanks to

- Matthew Sphiner, Director, Emergency Management
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- Angel Rios, Executive Director, IT
- Brad Rohrer, Deputy CIO, Network & Infrastructure

- Amy B. Aiken, Director, FIU Department of Emergency Management
- Robert Grillo, Vice President and CIO, Division of Information Technology
- Jesus Arias, DoIT Business Continuity/Disaster Recovery Manager
Questions?

Thank you!

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