

GIS to the  
RESCUE

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ROK Technologies

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Overview

- **ROK Tech**
- **Emergency Management**
  - Mitigation
  - Planning
  - Response
  - Recovery
- **GIS Solutions** for Emergency Management
  - Mobile Applications
  - Cloud Infrastructure
    - Enterprise GIS - Virtualization - Security

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ROK Technologies



- Based in **Charleston, SC**
- **Esri Business Partner** since **1997**
  - **ArcGIS®** for **Server Hosting**
  - Custom GIS **Applications, Support, and Cloud Infrastructure**
  - Experience & Expertise
    - In **Public** & Private sectors
    - Across **Land Records, Health, & Environmental** Industries
- [www.roktech.net](http://www.roktech.net)

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## Emergency Management Stages

- **Planning & Mitigation:** Operations that **evaluate** the potential types of **disasters** and develop plans for reducing impact on life & resources
- **Preparedness:** Operations undertaken when mitigation cannot prevent a disaster from taking place
- **Response:** Operations that intend to **identify** and assist **victims** and stabilize the disaster situation
- **Recovery:** Operations that **aim to restore** human and environmental systems

[https://www.e-education.psu.edu/geog580/1\\_03.html](https://www.e-education.psu.edu/geog580/1_03.html)

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## GIS - Mobile Applications

- Increased **Mobile Data** Collection **Accuracy**
  - streamlined process **reduces** transcription **errors** associated w/ data-entry
- **Live data**
  - available for **instant** & wider **collaboration**
- **Cloud Storage**
  - **secure** & **redundant** data
- **Flexible** and **Innovative** Processes
  - **device-agnostic** technologies → **custom** workflows



<http://www.esri.com/~media/Files/Pdfs/library/basestudies/edgecombo.pdf>

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## GIS - Enterprise Geodatabases

- **Centralized management**
  - Redundant data back-ups
- **Real-time updates**
- **Wider Collaboration**
  - Seamless sharing of data
- **Custom Security**
  - managed users; data redundancy



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## GIS - Virtualized Software

- **Mobility**

- Freeeeeeedom!
- Hardware management
- Software updates
- Device Used
- Location Access




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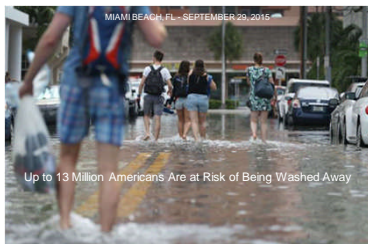
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## Real Life Emergency Management




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## Real Life Emergency Management in SC

45005	Allendale	45031	Darlington	45089	Williamsburg
45013	Beaufort	45033	Dillon	45095	Kershaw
45015	Berkeley	45035	Dorchester	45097	Lancaster
45019	Charleston	45041	Florence	45061	Lee
45025	Chesterfield	45043	Georgetown	45067	Marion
45027	Clarendon	45049	Hampton	45069	Marlboro
45029	Colleton	45051	Horry	45085	Sumter
		45053	Jasper		

22 Coastal Counties in South Carolina

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## Real Life Emergency Management News

### Post & Courier

- Oct 18: *Charleston steps up to challenge of flooding, sea level rise*
- Dec 23: *Charleston reveals plan to combat rising sea levels*
- Dec 27: *Addressing sea level rise*
- Jan 10: *Charleston will rise to sea level challenge*

### Charleston City Paper

- Dec 01: *Sea level rise is already changing our lives*

### New York Times

- Feb 22: *Seas Are Rising at Fastest Rate in Last 28 Centuries*

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## Real Life Emergency Management



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## GIS Cloud Solutions for Emergency Management

### • Custom Applications

- Asset & Resource Management
    - Preparedness
    - Recovery
  - Volunteer Data collection
    - Mitigation
    - Response
  - Live Mapping & Analysis
    - Mitigation
    - Response
  - Web Application Demo
- Planning & Mitigation: evaluate disasters
  - Preparedness: position assets strategically
  - Response: identify victims
  - Recovery: restore systems

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## GIS Cloud Solutions for Emergency Management

- **Infrastructure**
  - ArcGIS via Citrix Demo
  - Hands-off hardware management
  - Remote access
  - Easy collaboration
  - Redundant data storage
  - Robust security



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## GIS - Security

### Application Strategies:

- Use **application code** to require log-in credentials before allowing access
- Use **application code** to prevent sql injection attacks, etc.
- Use **ArcGIS for Server** to lockdown map service & require tokens to access GIS data
- Use **ArcGIS Online** to restrict WebMap and/or WebApp access

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## GIS - Security

### Infrastructure Strategies:

- **Physically safeguard servers** (datacenter & biometric security, etc.)
- Implement **N+1 failovers**
  - [https://en.wikipedia.org/wiki/N%2B1\\_redundancy](https://en.wikipedia.org/wiki/N%2B1_redundancy)
- Run **Data backups** (file and machine image redundancy)
- Strategize via **Geo-redundant datacenters**

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**GIS - Security**

**Infrastructure Strategy @ ROK:**

- Geographically Diverse Tier 1 providers

**Network Providers**

- Charter Business
- Time Warner Cable
- Spirit Communications
- EBC
- FBC
- DukeNet
- Level 3
- SW telecom
- AT&T
- PalmettoNet
- SC Gov
- FSNB
- SCANA

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**GIS - Security**

**Infrastructure Strategy @ ROK:**

- Redundant, uninterruptible power & network
  - Diesel generator systems; fiber-optic connectivity; Cisco routing & switching
- Hardened facilities
  - FM-200 fire suppression; monitored, heating/cooling/ventilation; raised floors
- SOC 2 Type II Compliant

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**GIS Cloud Solutions Summary**

- Mobile Applications powered by Enterprise Geodatabase Platform
- GIS Software Virtualization
- Benefits to Emergency Management & Other Departments
  - Easy data collection/management (gateway to analysis)
  - Reduced costs (time & money)
  - Robust security
  - Increased mobility, efficiency, collaboration (for citizens/administration)

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**ROK.**  Thanks!  
Questions?

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