



Mobile Satellite Systems: A Critical Tool For First Responders



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RELIABLE • CRITICAL • LIFELINES

Satellite Communications Are...

- Highly survivable (physical survivability and robustness).
- Independent of terrestrial communications infrastructure.
- Independent of terrestrial energy grid.
- Able to provide the load sharing and surge capacity solution for larger sites.
- Best for redundancy - then add a layer of path diversity and link availability.

Satellites Perform Effectively When...

- Terrestrial infrastructure is damaged, destroyed or overloaded as a result of natural or man-made disasters.
- Interconnecting widely distributed networks.
- Providing interoperability between disparate systems and networks.
- Providing broadcasting services over very wide areas such as a country, region or entire hemisphere.
- Providing connectivity for the “last mile” in cases where fiber networks are not available.
- Providing mobile/transportable wideband and narrowband communications.

“Satellites are the best and most reliable platform for communications in natural and manmade disasters...satellites are instant infrastructure.”
Satellite Industry Association “First Responders Guide to Satellite Communications”

Benefits of Using Satellites ...

- Ubiquitous coverage.
- Instant Infrastructure, available immediately.
- Temporary network solutions.
- Rapid provisioning of services.
- Capabilities:
 - Fixed-to-Fixed
 - Mobile-to-Mobile
 - Fixed-to-Mobile
 - Point-to-Multipoint

Satellites Provide Interoperability...

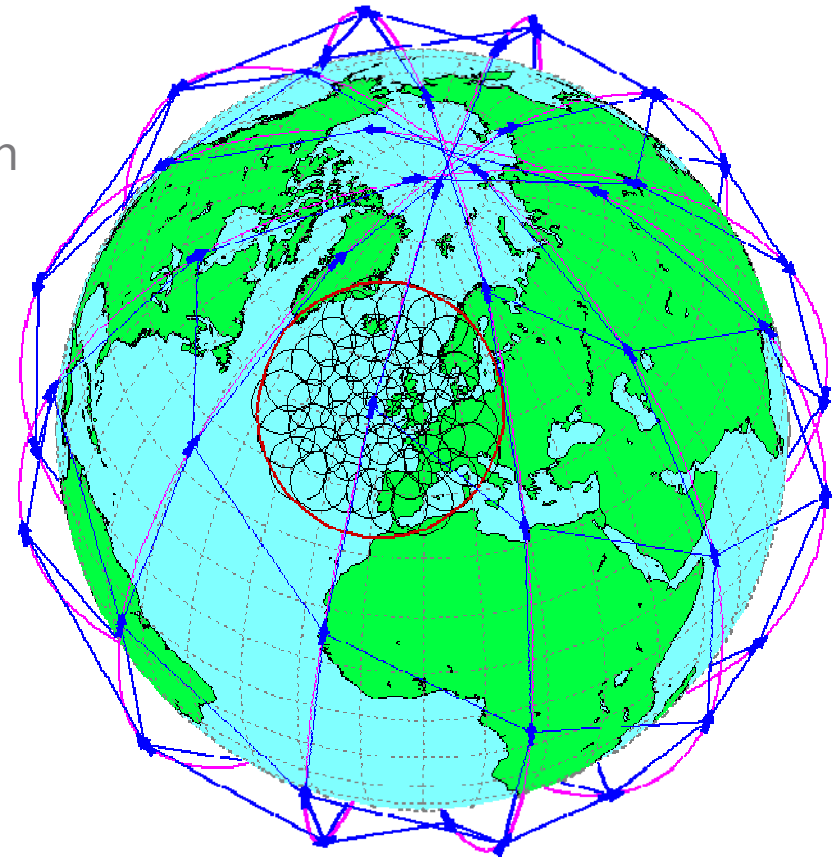
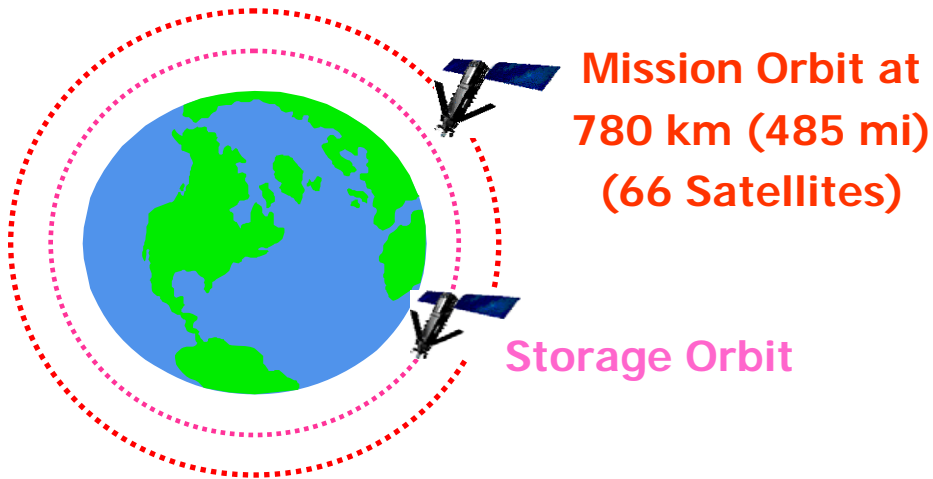
- Can interconnect with any other communications solution.
 - Cell towers
 - Asset tracking
 - Wi-Fi or WiMAX Hot Spots
 - Situational Awareness
 - Generic Crossbanding Equipment
 - 2-Way Radio
 - VOIP Desk Phones
 - Wireless Internet

Uniquely Appropriate for First Responder Applications

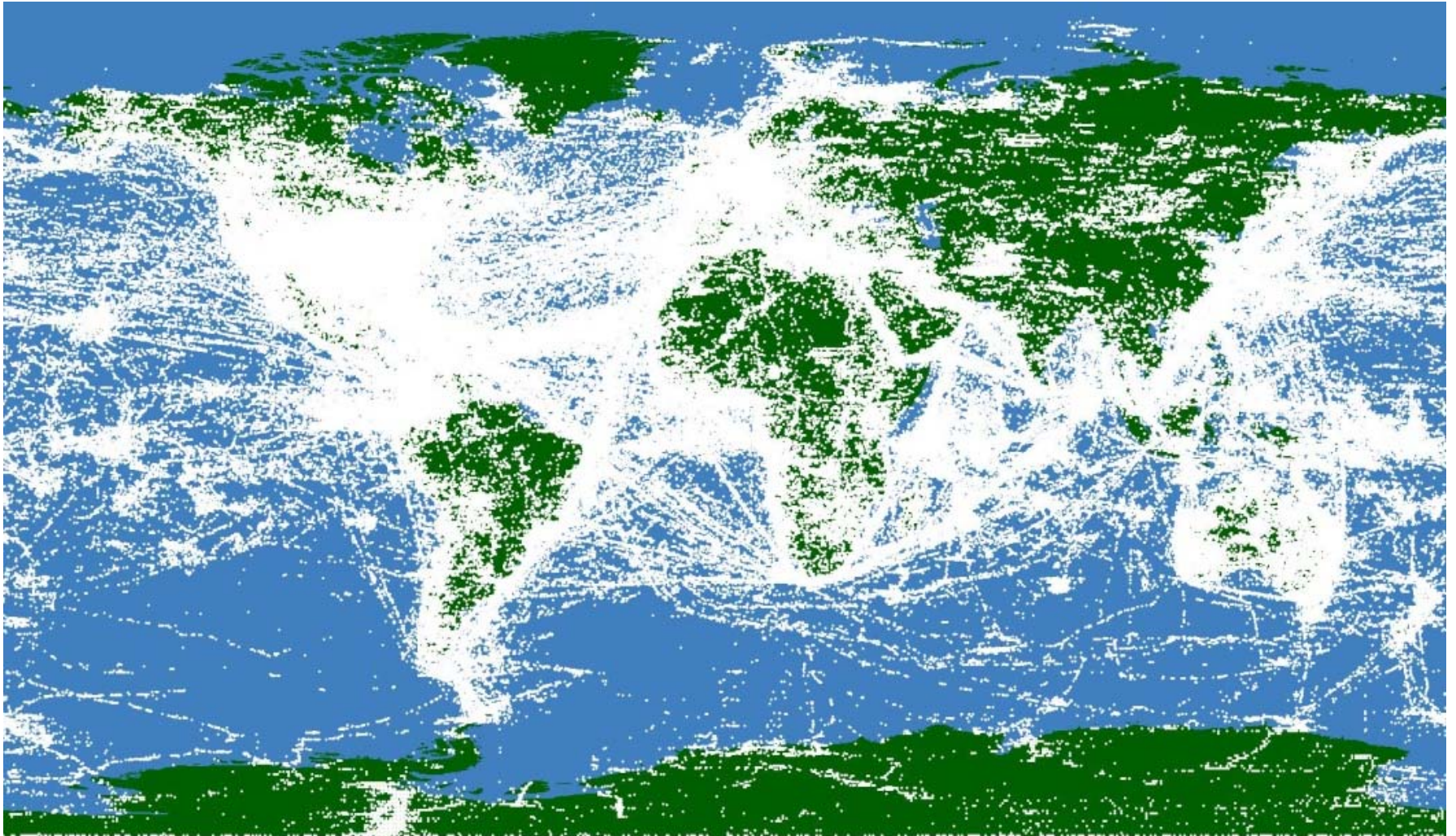
- Search and rescue.
- Damage assessment reporting.
 - Mobility required.
- Relief supply logistics support.
 - Ordering relief supplies.
 - Supply movement tracking and redirection.
- Coordination of rescue efforts.
 - Injury/death reporting.
 - Request for medical team support.
 - Coordination of evacuations.
- Facilitating communications between survivors and family members.

Built-in Disaster Recovery

- Constellation of 66 Low Earth Orbit (LEO) satellites
- 6 planes of 11 satellites
- Polar orbits at 780 km altitude
- 100% global coverage - regardless of terrain
- Inter-satellite links are key differentiator
- Multiple spares in orbit

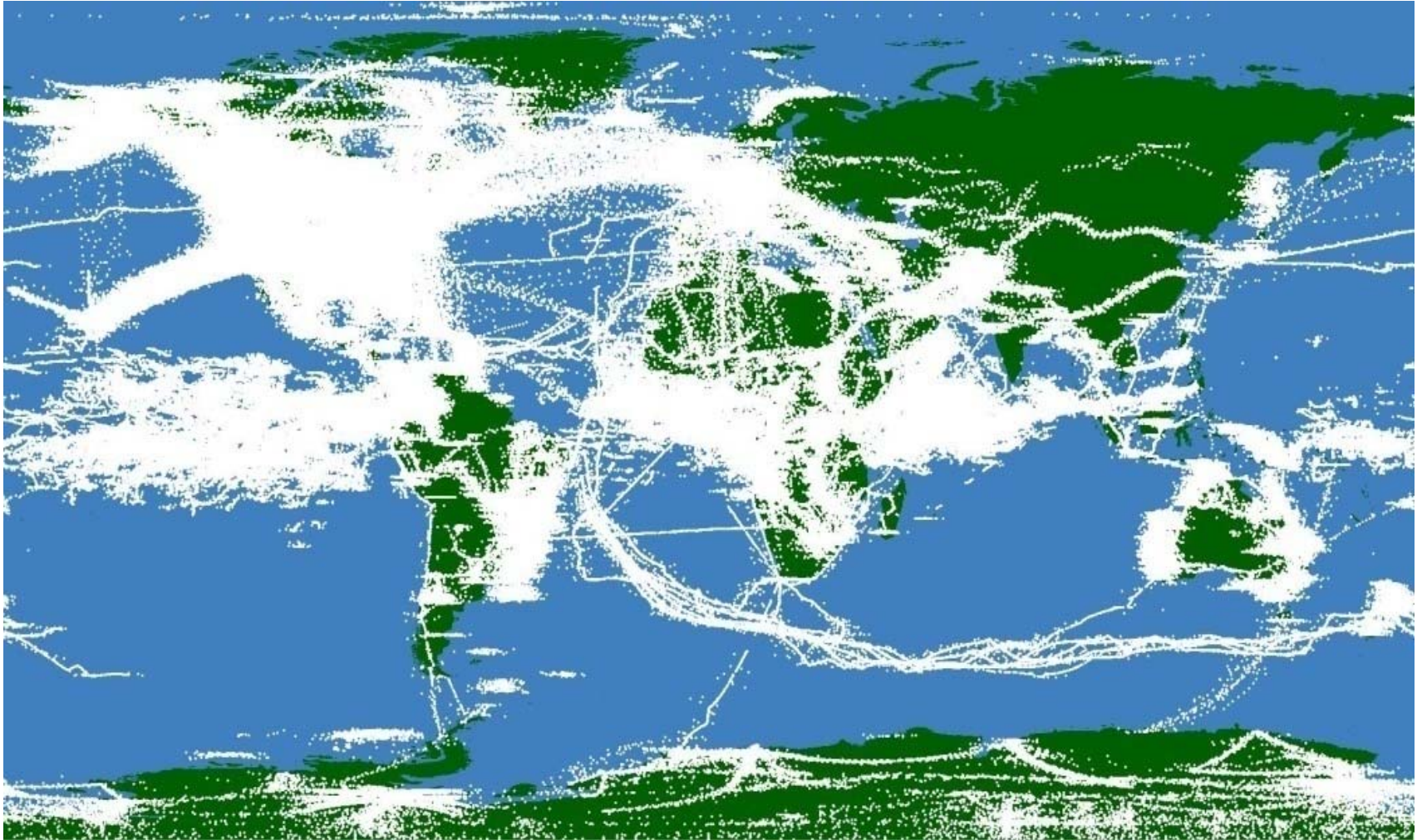


Iridium. Everywhere: VOICE



Commercial Voice Telephony Traffic – 1 month...

Iridium. Everywhere: DATA



Commercial Short-Burst Data Traffic – 1 month...

Emergency Communications: Sequence of Events

Multiple solutions required due to shifting needs



Preparing for Natural Disasters and Emergencies

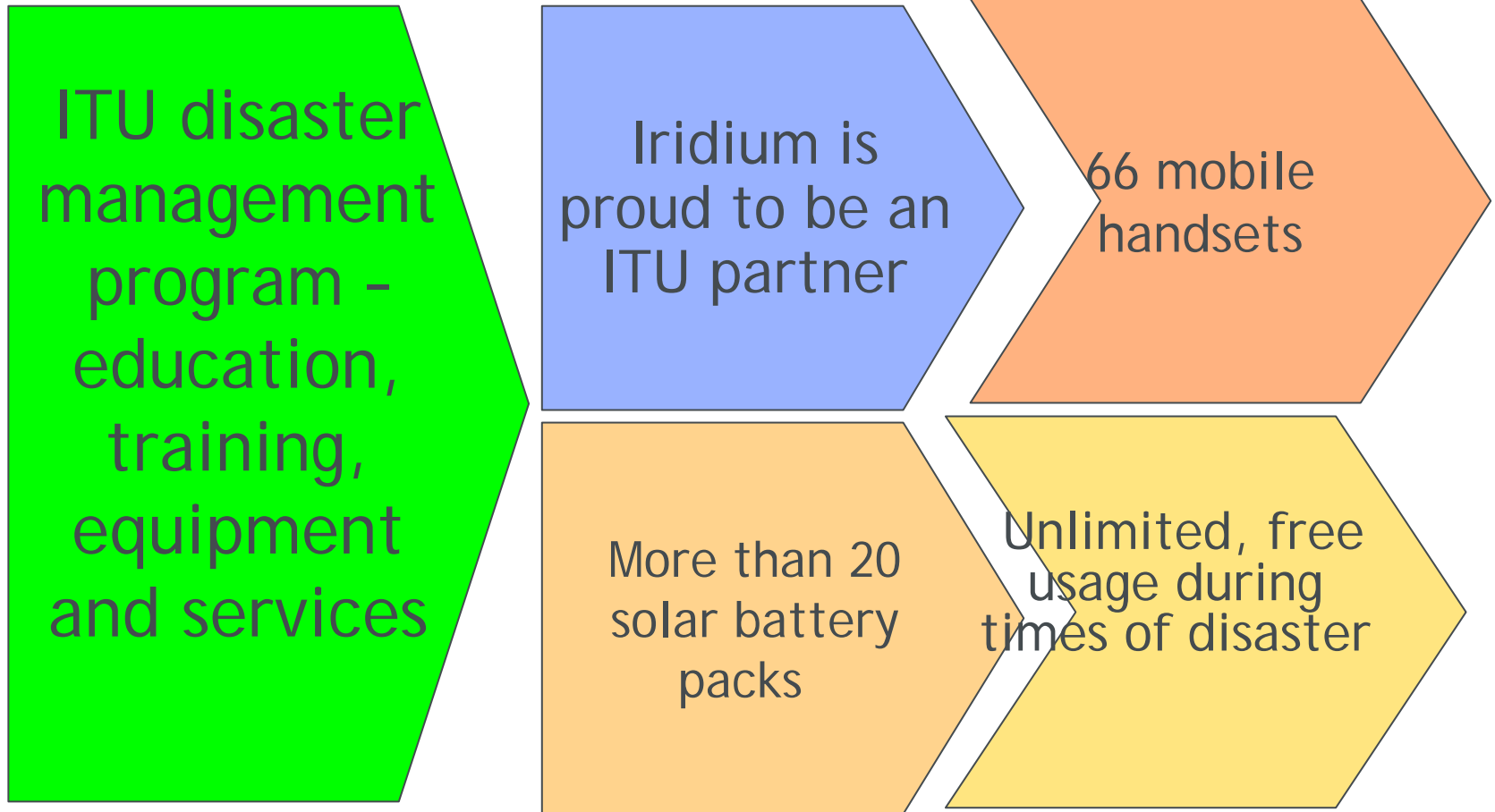
What hinders use of satellite systems?

- Lack of type approval
- Lack of licenses
- Absence of coordination between different parts of the government (e.g., customs and the regulatory authority)

What efforts have been made to date?

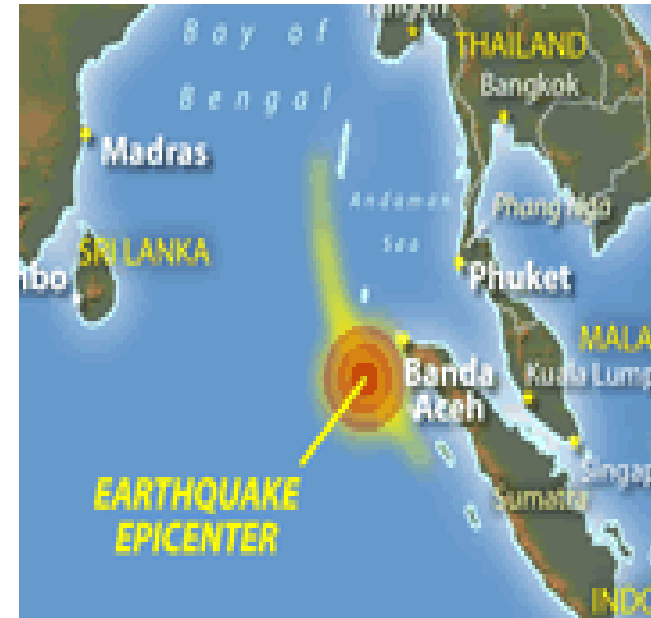
- Negotiation of Tampere Convention
 - Facilitate provision of prompt communications assistance
 - Covers both installation and operation of communications systems
 - Addresses regulatory barriers in advance
 - Licensing
 - Use of frequencies
 - Import of equipment
 - Movement of personnel

ITU Partnerships



Historical Usage of Iridium and Contributions for Disaster Recovery

- South Pole rescue (2001)
- September 11 (2001)
- Asian Tsunami (2004)
- Hurricanes Katrina and Rita (2005)
- Pakistani Earthquake (2005)
- Peru Earthquake (2007)
- Hurricanes Gustav, Hanna and Ike (2008)
- Tropical Cyclone Aila (2009)
- Zimbabwe (2009)
- Association of Public Safety Officials International (2009)

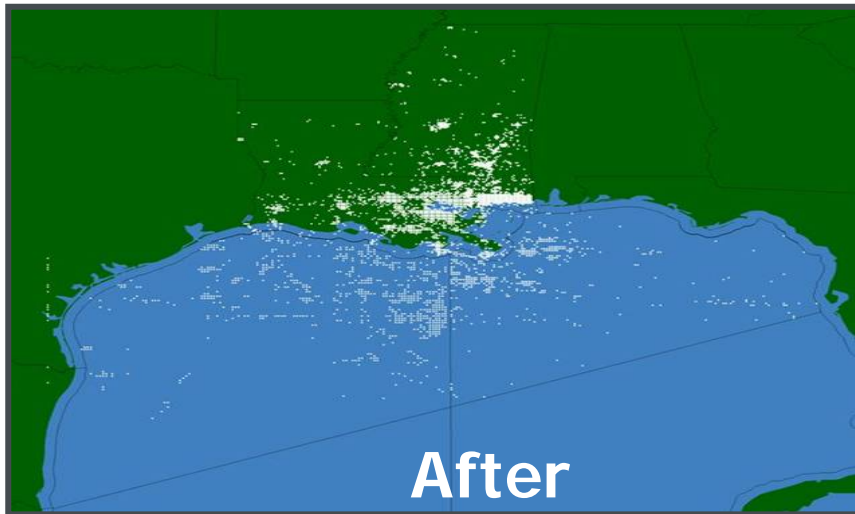
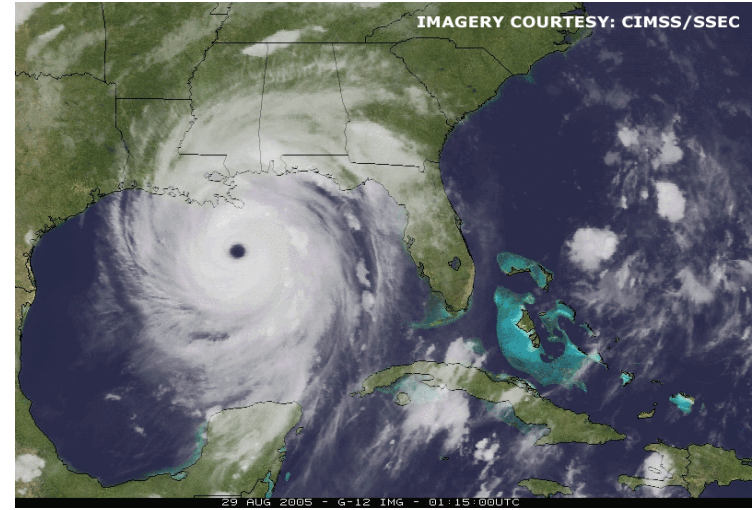


Iridium Usage -- 2005 Hurricane Season

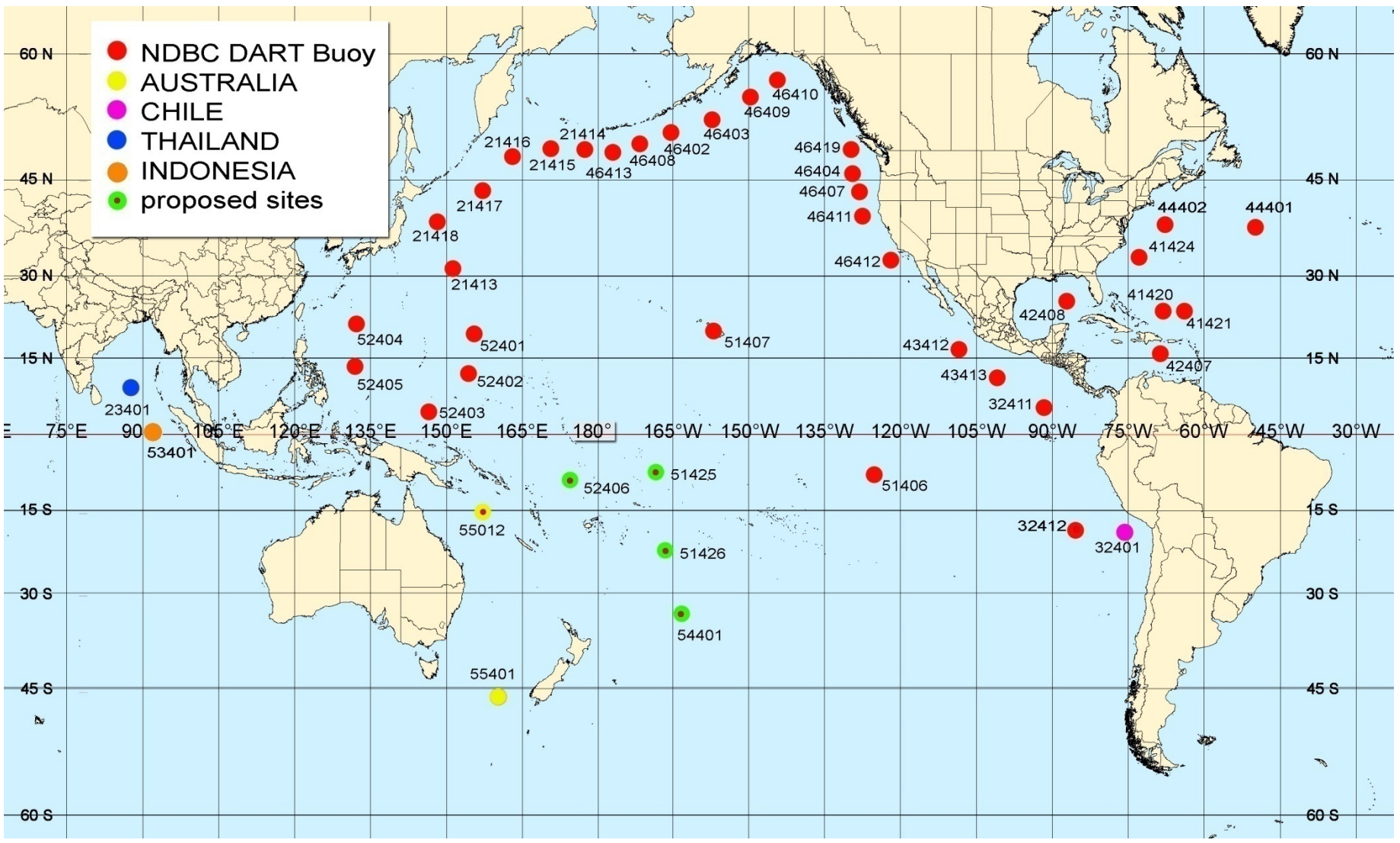
Iridium proved useful to wide variety of users: first responders, journalists, relief workers, government agencies, RBOCs, utility companies, oil and gas companies, and transportation companies.



Iridium Usage: Hurricane Katrina



DART II Tsunami Warning System



Suggestions for Best Practices

- Development of emergency preparedness plans by each national regulatory authority
 - clear procedures for emergency authorization
 - names and contact information so communications companies know who to contact
 - liaison points for providing information to customs officials on authorized equipment
- Advance licensing and type approval
- Review of the Tampere Convention to determine what regulatory changes are needed to prepare for ratification.
- All governments *and* satellite companies should become signatories to the ITU GMPCS MoU