



Emergency Communications in Times of Crisis WS CP103

Satcoms: A Critical Tool For First Responders

Ted O'Brien

VP and General Manager, Americas, Iridium



RELIABLE • CRITICAL • LIFELINES

Emergency Communications: Sequence of Events

Multiple solutions required due to shifting needs



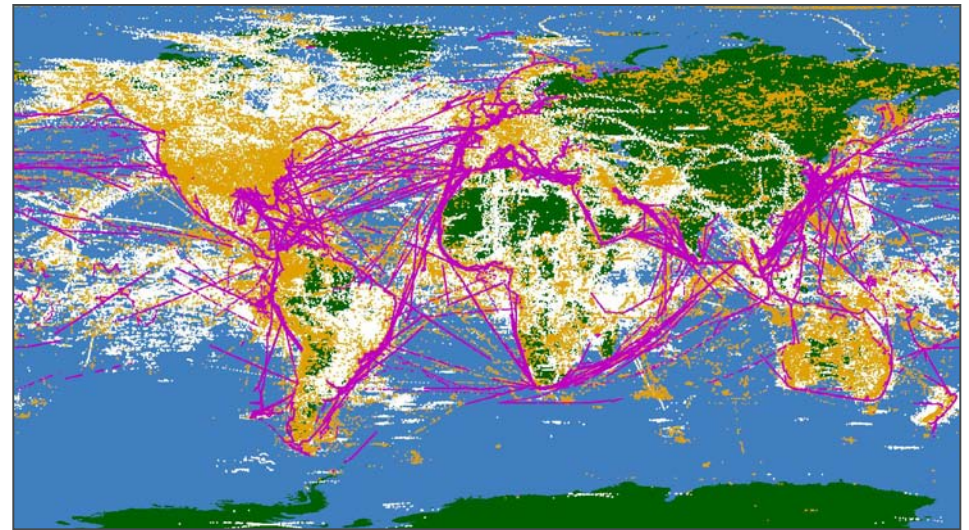
Global Satellite Communications

- Disaster ready - evacuations, search and rescue, cleanup and rebuilding
- Available from the moment first responders arrive
- Provides infrastructure when terrestrial is damaged, destroyed or overloaded
- Interoperable between disparate systems and networks
 - GETS compatible
- Broadcasts services over very wide areas (country, region or entire hemisphere)
- Connects “last mile” where fiber networks not available
- Provides mobile/transportable wideband and narrowband communications
- Optional antenna for indoor use

Iridium: Global Network. Unique Capabilities

World's largest and most sophisticated commercial satellite network

- 66 satellite polar orbiting constellation
- A single subscriber device works worldwide
- Ubiquitous mobile coverage
 - All oceans & land masses including polar routes
 - Any terrain
 - Where terrestrial infrastructure is unavailable or undesirable
- Low time latency worldwide
- Satellite-to-satellite links create mesh network in space

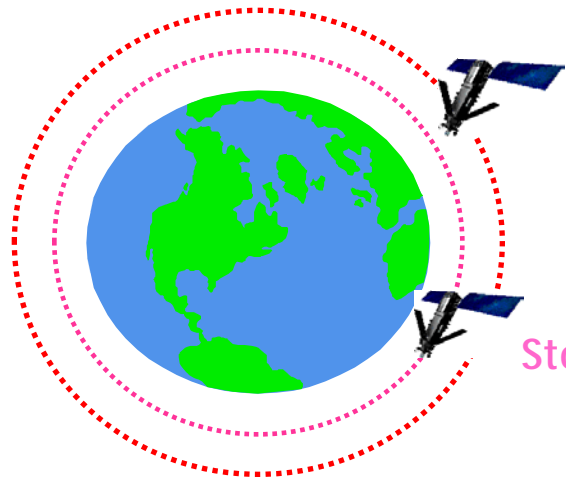


○ M2M (SBD) Data Transmission ● Voice Call ● OpenPort Session

Plot of SBD Session, Voice Call, & OpenPort Session Origination Points
(Week of 4/4/10 - 4/10/10)

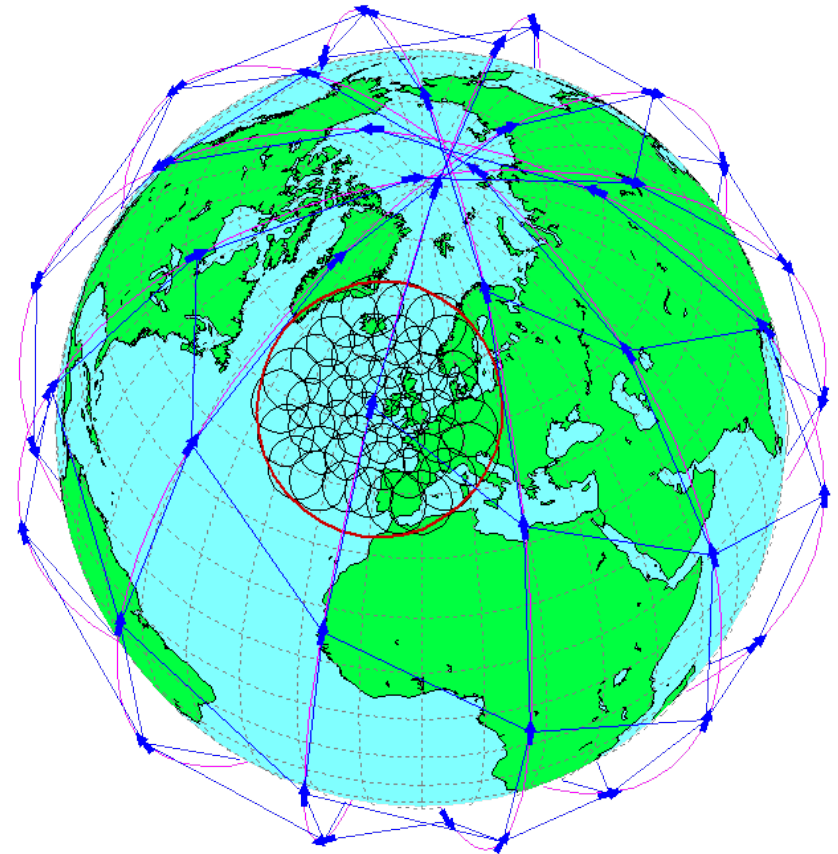
Disaster Recovery Ready

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



Mission Orbit at
780 km (485 mi)
(66 Satellites)

Storage Orbit



Call Routing Above & Around Effected Area



Iridium's call path is highly disaster proof. Calls seamlessly transit inter-satellite links, never relying on ground transport. Iridium-to-Iridium calls go directly from satellite to phone.



Iridium Handset



Iridium Gateway
Tempe, Arizona

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

First Responder Tools & Solutions

Iridium Manufactured
Devices

Integrated Products
(GPS, dual mode GPRS, etc.)

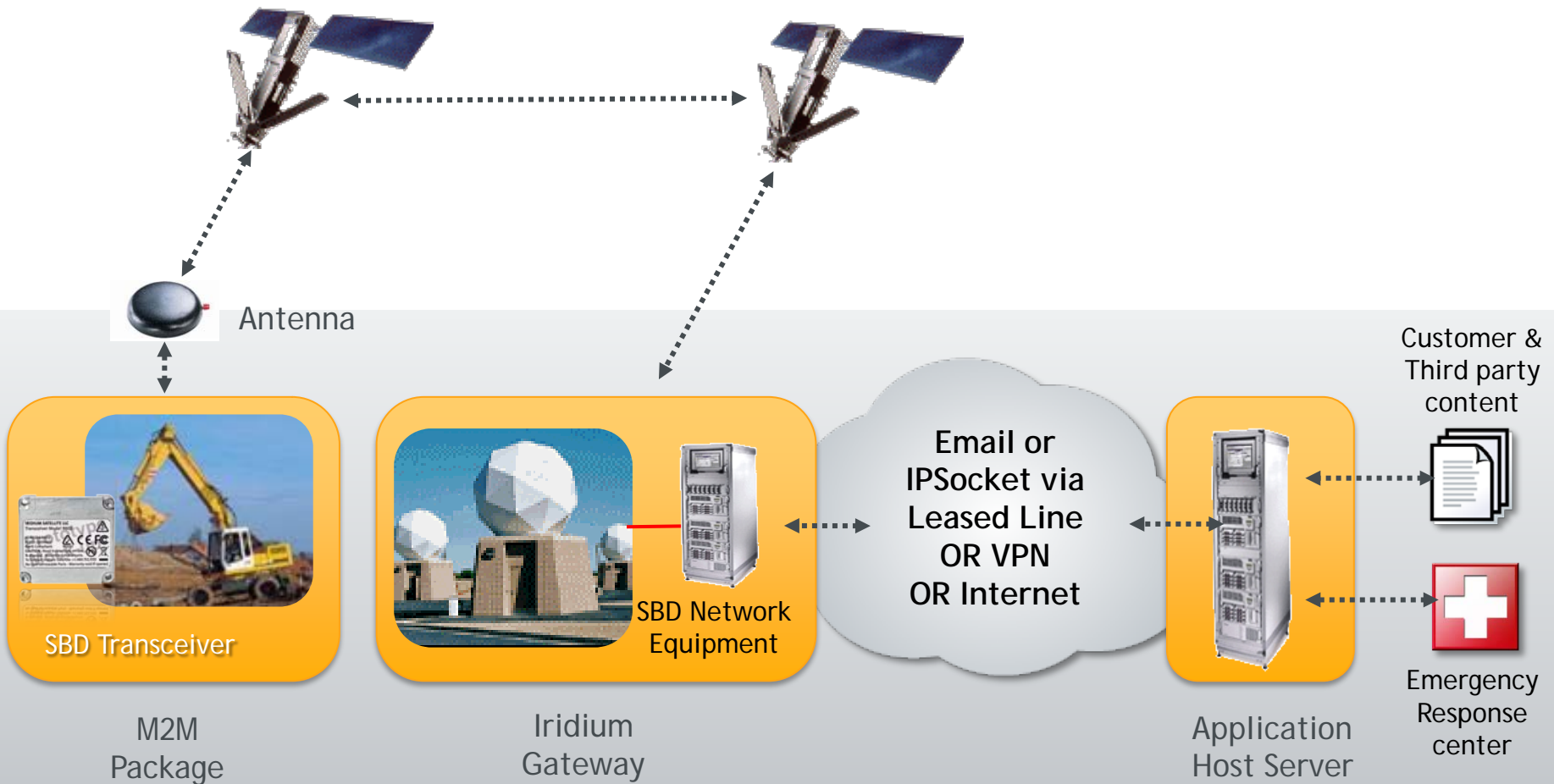
Specialized Customer
Solutions



A strong network of Iridium partners
providing solutions for first responders



Short Burst Data Service



Equipment Configurations



Multi-Channel Fixed Service



Handheld



Vehicular Mount and Docking Stations

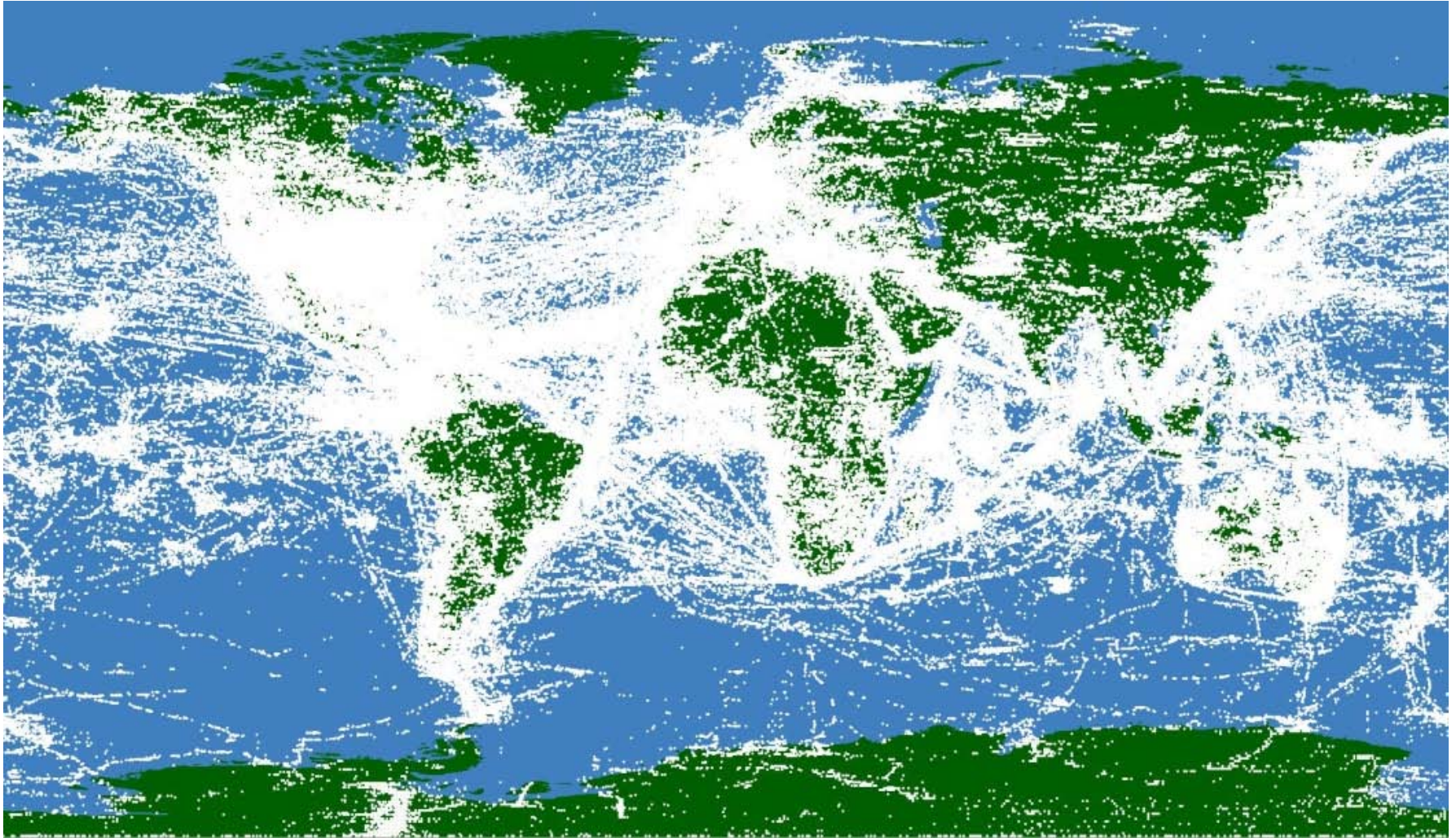


A variety of fixed antenna options



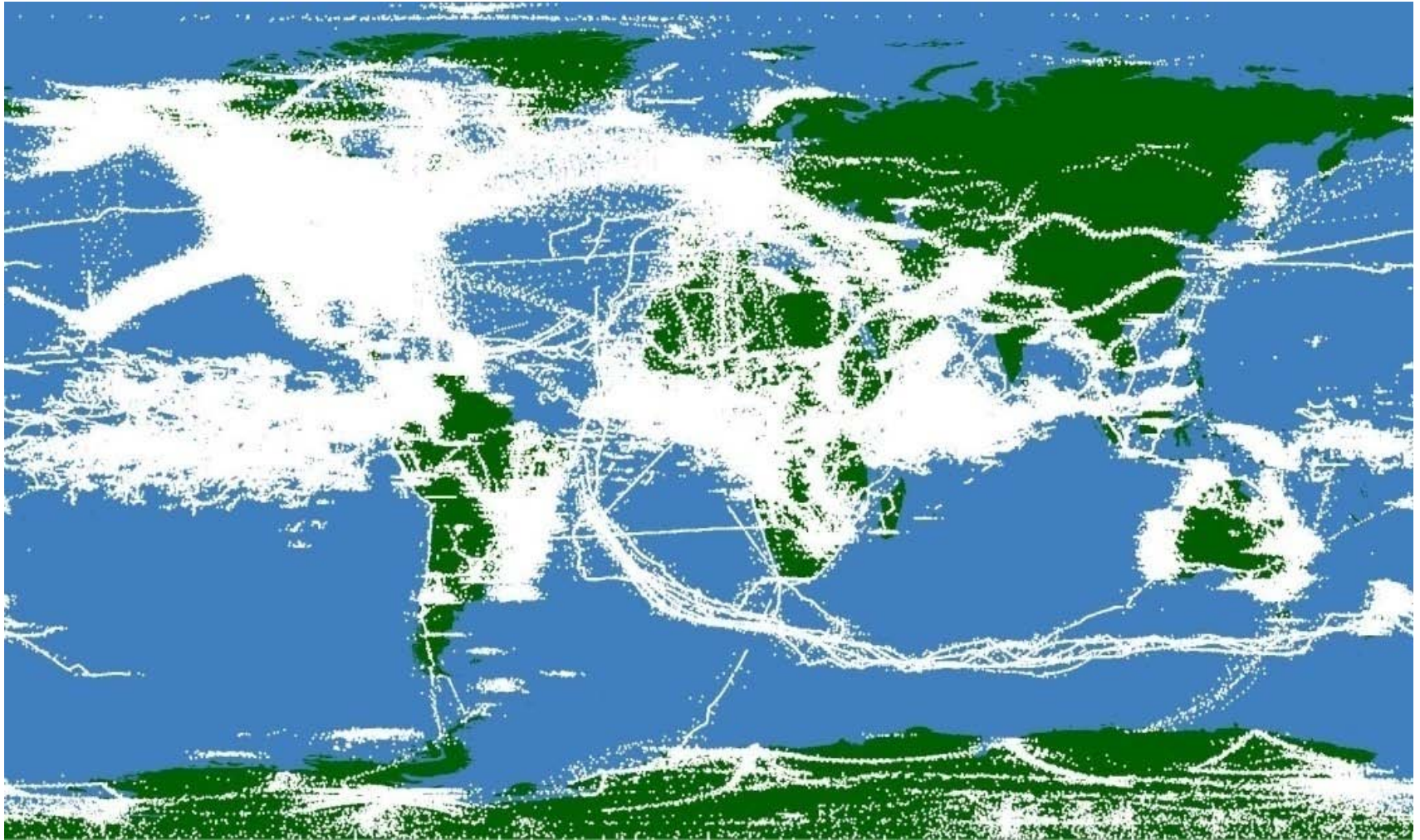
Solar Chargers

Iridium. Everywhere: VOICE



Commercial Voice Telephony Traffic – 1 month...

Iridium. Everywhere: DATA



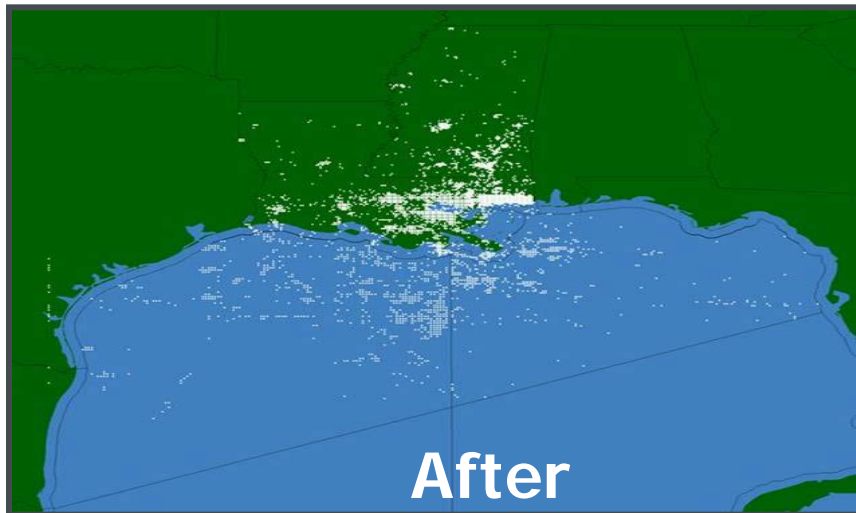
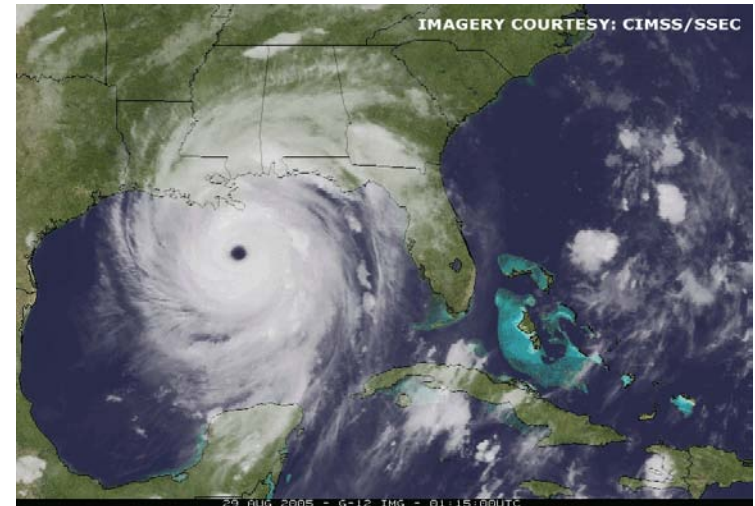
Commercial Short-Burst Data Traffic – 1 month...

Historical Usage of Iridium for Disaster Recovery

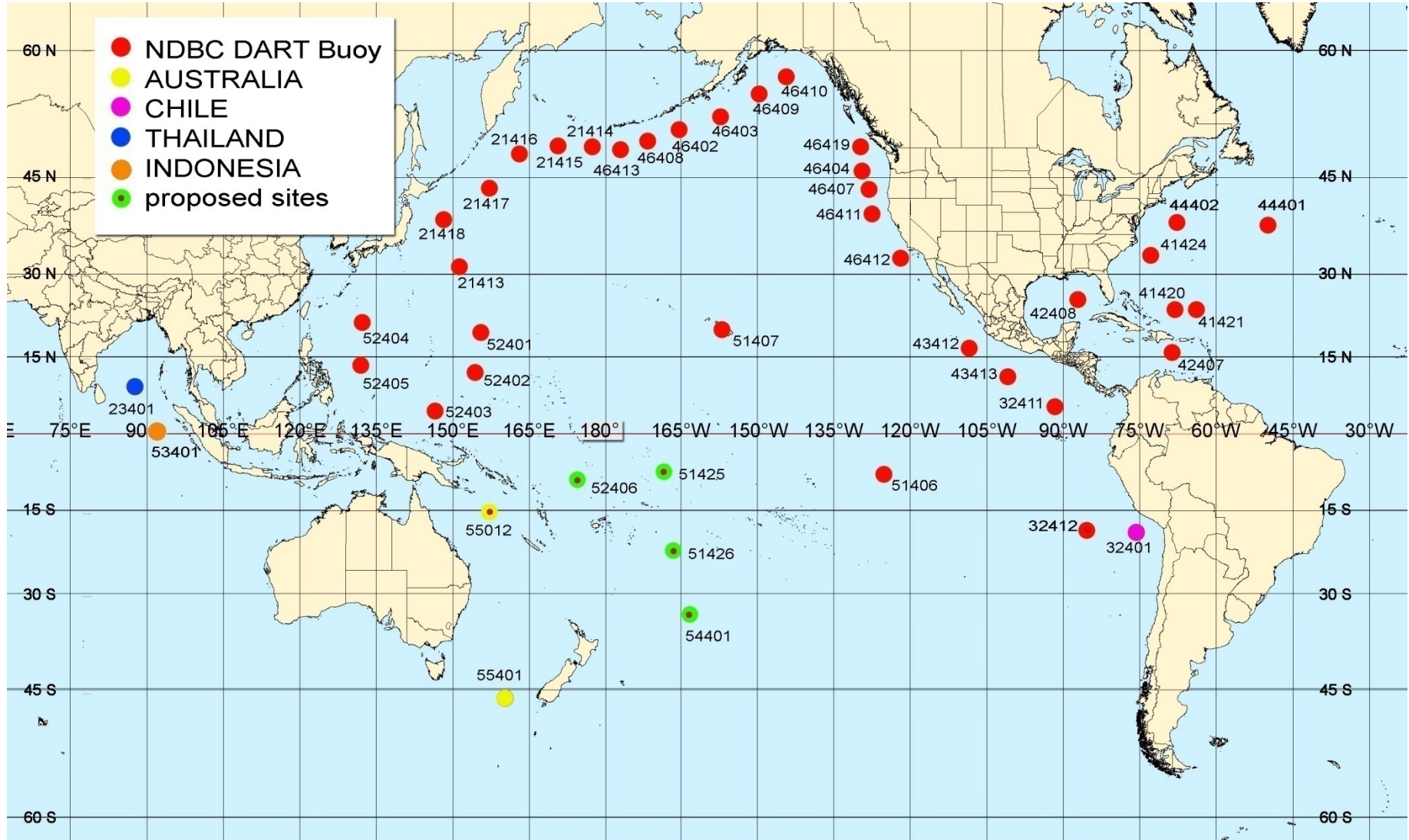
- Taiwan Earthquake (1999)
- South Pole rescue (2001)
- September 11 (2001)
- Asian Tsunami (2004)
- Hurricane Season in US and Caribbean (2005)
- Pakistani Earthquake (2005)
- Hurricanes Gustav, Hanna and Ike (2008)
- Tropical Cyclone Aila (2009)
- Zimbabwe Floods (2009)
- Haiti and Chile Earthquakes (2010)



Iridium Usage: Hurricane Katrina

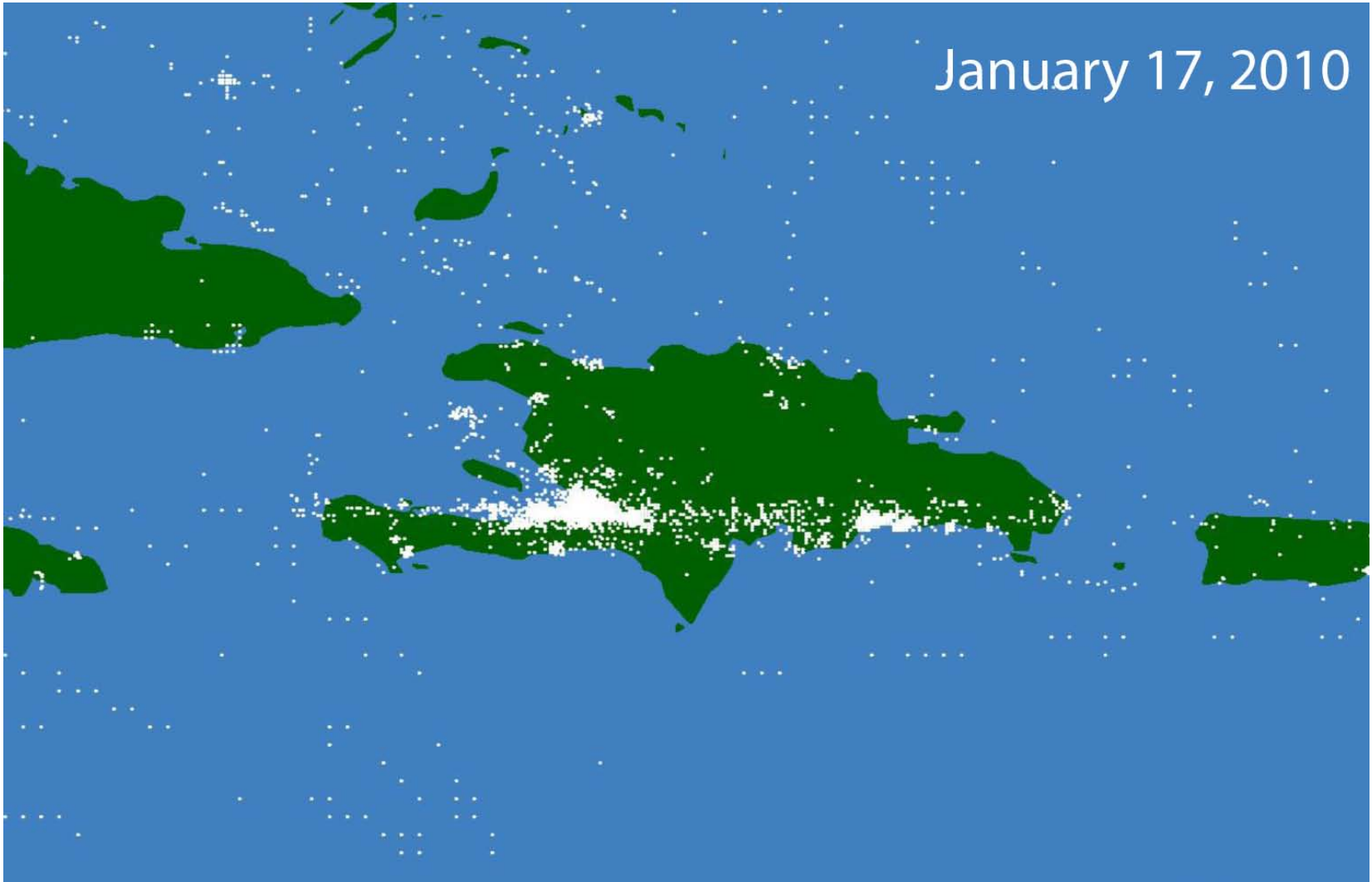


DART II Tsunami Warning System



Haiti Traffic

January 17, 2010



Iridium NEXT

- Maintain 66 cross-linked LEO architecture
- Unmatched global coverage
- Backward compatible
- New service/product platform
- Improved data rates, quality of voice service
- Enhanced IP-based performance and subscriber technology
- Anticipated to begin launching in 2015



Conclusions

- Disasters can occur at any time and anywhere
- Iridium:
 - Only system with service anywhere in the world
 - First line of communications when relief workers first arrive on-site
 - Available on both a mobile and fixed basis throughout recovery period
 - No advance contractual arrangements/reservations necessary
 - Equipment readily available -- rental and purchase
 - Complements longer term, less mobile solutions