Satellite Services: Communications for Disasters and Emergency Response

Presented by:
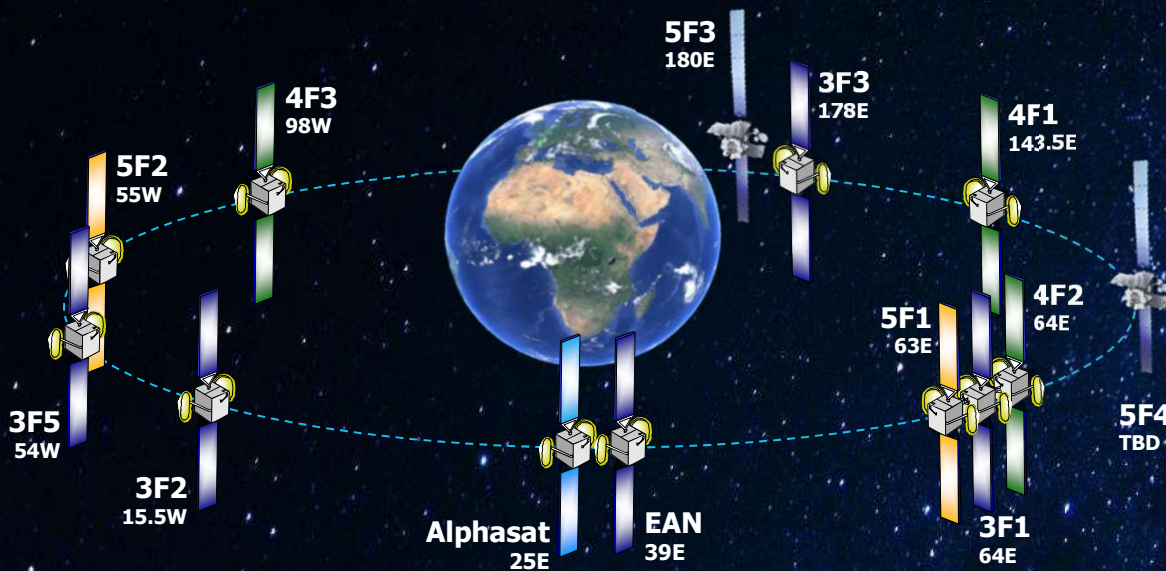
M. Ethan Lucarelli
Director, Regulatory and Public Policy
Inmarsat

Special Session on Expanding ITU's work on emergency telecommunication deployments
16 September 2019, ITU Headquarters

inmarsat
The mobile satellite company™

Introduction to Inmarsat

The leaders in global mobile broadband connectivity

5F3 180E
4F3 98W
5F2 55W
3F3 178E
4F1 143.5E
3F5 54W
4F2 64E
5F1 63E
5F4 TBD
3F2 15.5W
Alphasat 25E
EAN 39E
3F1 64E

History
- 40 years
- Started as IGO
- 13 satellites in 5 generations

Global Focus
- 190+ nations served
- 70 nationalities in 42 offices

Breadth
- Global mobility
- Diversified across land, sea & air

Networks
- Ka-Band
- L-band
- EAN hybrid
- LPWAN & IoT

Fully-funded
- FTSE250
- £2.5B mkt cap
- Low leverage
- Profitable

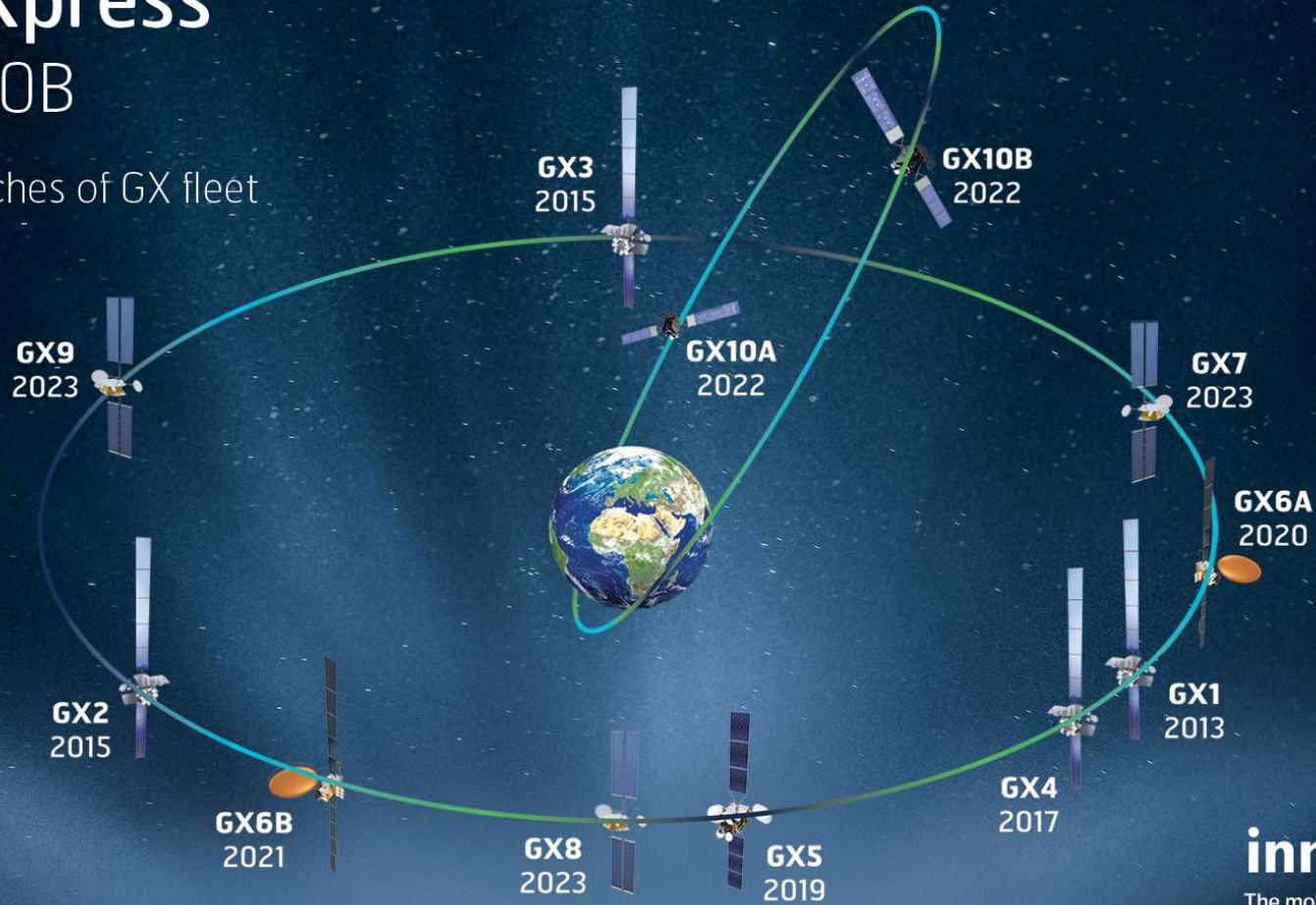**Innovative**
- R&D $600m pa
- VHT Satellites
- Products
- Digital agenda

From 300 MB/sec to voice – all on the move globally… and more to come!

Why Are Satellite Communications Essential for Emergency Response?

Flexible	• Ideal for rapid deployment • Instant set-up on site as soon as a disaster happens • Can control and restrict access to services
Portable	• Compact terminals ideal for anyone travelling alone and moving from site to site
Easy to use	• Simple training can provide technical expertise required to set up and use most satellite devices
Global coverage	• Remote site connectivity • Extended team coverage
Simultaneous voice & broadband data	• Send status reports while joining conference calls • Accessing GIS (geographic information system) data for situational awareness • High Throughput Satellite (HTS) systems providing great capacity
Reliable	• Maximum reliability for critical data • Independent of the terrestrial infrastructure
Provides essential connectivity	• Provides backhaul for terrestrial infrastructure • Offers broadband connectivity at a cost that is not dependent on density of deployment

The Role of Communications in an Emergency Phase I: Before Disaster Strikes

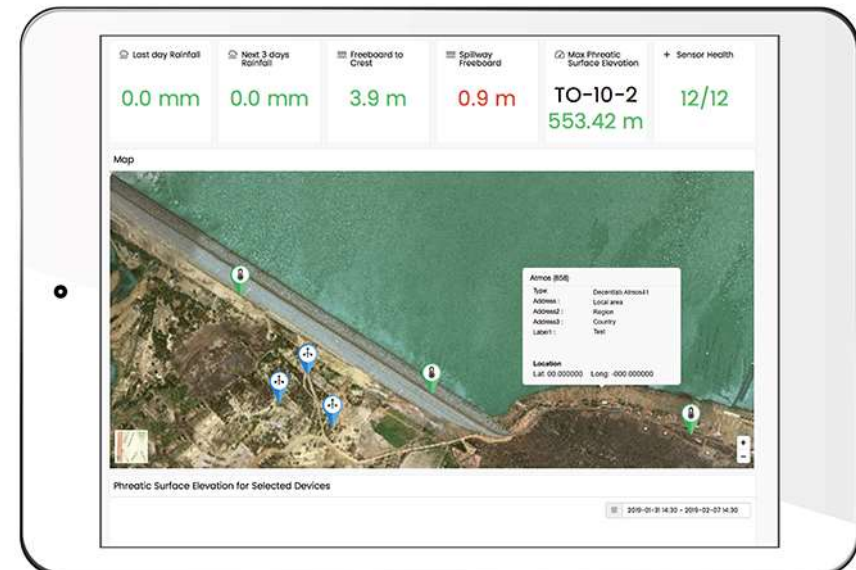## Weeks/Months/Years Before

- Prediction, pre-positioning and disaster preparation
- Monitoring

Immediately Before

- Detection and early warning

Industrial monitoring and early warning systems can help alert to disasters and also prevent/minimize damage when they strike
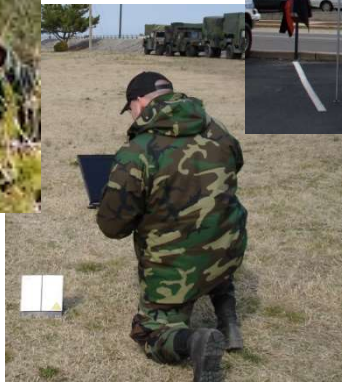
Phase II: During a Disaster

First 0-4 Hours

- Notification and emergency responders

- Social media updates – Twitter feed

- Military and government communications

- Evacuation

Phase III: Immediately After the Disaster

First 4-24 Hours	First 24 -48 Hours	First 5-10 days

Disaster inventory
Rescue
Command and
Control

Humanitarian calling, C2,
Rescue, recovery, news

Restoration
Recovery operations

Increasing bandwidth requirements as response expands over time

Crisis Connectivity Charter

Case Study: Hurricane Matthew Response in Haiti (October 2016)

Cat. 4 hurricane. More than 1000 dead and 1.5 million others in need of relief

- Local mobile network disabled, restoration in many areas took more than a week

Satellite communications were essential to response and recovery efforts

- Pre-positioned emergency comm's kits made available to the humanitarian community in the first hours following the disaster

- Satellite connections installed at Departmental Emergency Operations Centres (COUD) carried nearly 28 GB of data to support recovery in 11 days after the hurricane

- In 9 days before mobile networks were restored, satellite phones helped 2,461 people across 19 communities restore family links

VSAT equipment deployed to COUD to replace local Internet connection stayed in place for months after the event

Case Study: Hurricane Irma Response in Saint Martin (2017)

Télécoms Sans Frontières (TSF) deployed to Guadeloupe 24 hrs after Irma – authorization to enter Saint-Martin and Saint-Barthelemy 3 days later

Satcoms at the island Coordination Centre, Airport, and fire brigade HQ support emergency response efforts with voice and data

- coordinate medical evacuations,

- conveyance of material and human assistance,

- provision of emergency accommodation

Satellite phones provide free telephone calls to enable families to let loved ones know they are safe and to seek assistance

Case Study: Hurricane Maria Response in Dominica (2017)

Installed satellite Internet connection at Roseau stadium to support relief teams

- 72 GB of data transferred in the first week

- distribution coordination,

- provision of relief supplies

- mobilisation of logistics to reach remote areas of the country

Wi-Fi zones

- Portsmouth town center - >1500 devices in first week

- VSAT enabled Wi-Fi bridges in towns enable citizens to access social networks and communications apps

- Ambulant Wi-Fi – bringing access to social media, messaging apps and news sites village to village

Case Study: Disaster relief effort Sulawesi, Indonesia (2018)

Télécoms Sans Frontières (TSF) and Team Rubicon deploy after a 7.5 magnitude earthquake strikes followed by a tsunami caused devastation

- ETC member TSF the first NGO on the scene

- Internet connectivity for humanitarian coordination centre (100 GB exchanged)

- Provision of itinerant Wi-Fi Hotspots

- Mobile equipment used to reach still isolated villages

Case Study: Cyclones Idai & Kenneth Mozambique (2019)

First activation of Crisis Connectivity Charter

- First coordination center established 2 days after impact

- Massive communications needs: over 118 GB of data within 2 days on a single GX terminal

- Several additional coordination centers set up, over 90 organizations suppert, 1320+ devices, and 800 GB of data transmitted

- TSF conducted 26 humanitarian calling operations with 2549 beneficiaries, 89% first calls since the disaster

Lessons Learned from Disasters

- Disaster preparedness planning essential

- The business of disaster response is conducted BEFORE a disaster strike

- Efficient coordination and network sharing by NGOs and other end-users

- Need frameworks for customs clearance

- Well-trained first-in responders and media are key

- Prepared users drive satellite usage

- Social networking and mobility-based applications are revolutionizing disaster response

- Data requirements on-the-ground growing dramatically

- Responders need a mix of connectivity solutions (satellite, terrestrial, hybrid, fixed, mobile) in their daily toolkit

Thank You

M. Ethan Lucarelli

Director, Regulatory and Public Policy
Email: Ethan.Lucarelli@inmarsat.com

Inmarsat

1441 L Street, NW
Suite 610
Washington, DC 20005
Tel: +1 202-248-5150
www.inmarsat.com