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EMEA SATELLITE OPERATORS ASSOCIATION

GVF Satellite. Solutions. The World.

Improving Disaster Resiliency

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@ESOA_SAT  @globalvsatforum

Use of satellite based early warning systems

Solar based cell tower with GSM backhaul in DRC

Source: Intelsat

- **Collecting data from Tsunami warning buoys**: analyzing and forwarding results to affected countries
- **Monitoring and analyzing weather data such as rainfalls of dry spots:** tracking malaria mosquito movements; predicting areas impacted by expected flooding
- **Monitoring and analyzing disaster prone events via constant earth observation**: spotting hot spots in forests; tracking locust swarms
- **Increasing public security:** Satellite based GSM backhaul at remote villages connected to security network

Key factors for an improved disaster resiliency

Satcom relief during 2015
Nepal earthquake

Source: American Red Cross

- Ensure early warning based results are forwarded and disseminated completely and in time to affected areas
- Existence of a National Disaster Communication network
- Have a network backup system in place connecting the key authorities and stakeholders engaged in disaster relief
- Latter could be a repurposed communication system during a disaster

Key factors for an improved disaster resiliency

Sat phone use in Dominica during Hurricane Maria 2017

Source: American Red Cross

- **Execute regular training and exercise the National Disaster Communication Plan and its allocated communication equipment**
- **Plan and test re-tasking existing networks such as ATMs**
- **Easing regulatory blocks-** as outlined in the Tampere Convention
- **Implementation of fast track procedures for Import/ re-export**

Improving disaster resiliency

Field hospital with telemedicine application due to VSAT installation during Nepal 2015 earthquake

Source:
Japanese Red Cross

What is the impact of preparedness?

- Numerous studies demonstrate that the ROI for preparedness starts with 4:1 and can be as high as 30:1. In other words, investing 1 $ in preparedness will save at least 4 $ in the cost of responding to the disaster

Are there existing examples in preparedness?

- Yes, the Crisis Connectivity Charter of the satellite industry

Could that be replicated on a country by country or regional basis?

- Absolutely, either by a pre-installed or repurposed backup system or at a minimum by available readily deployable satellite communication infrastructure

Charter Objectives

➜ Pre-Planned solutions - Triggered by the ETC redundant, Hybrid, predictable & scalable end-to-end satellite-based solutions. Scaled to 9 Disasters per year.

➜ End-to-end solutions - Ensuring full operational satellite network up to Ethernet port of modem; ETC takes over for the LAN network distribution.

➜ Comms for everybody – Communications for up to 1000 humanitarian workers and the affected population.

➜ Immediate implementation – Solutions to be deployed within 24 hours with a mixture of MSS & FSS.

➜ Dedicated bandwidth - Supplied free for 3 months.

Charter Objectives

➜ One point of contact per signatory & ETC - For each signatory to facilitate the coordination of solutions with a single contact point for the ETC.

➜ Training & capacity building – Signatories to capacity build in the humanitarian community, local experts, governments, & response communities

The signatories have agreed to for fill all of the objectives at no cost to ETC.

World Food Program -

Full ETC logistical support – Equipment stored in Dubai at the Humanitarian Response Depot or Brindisi/Italy ready for transport to disaster areas, transport within disaster areas, importation & licensing.

Implementation - Time of Disaster

Step 1

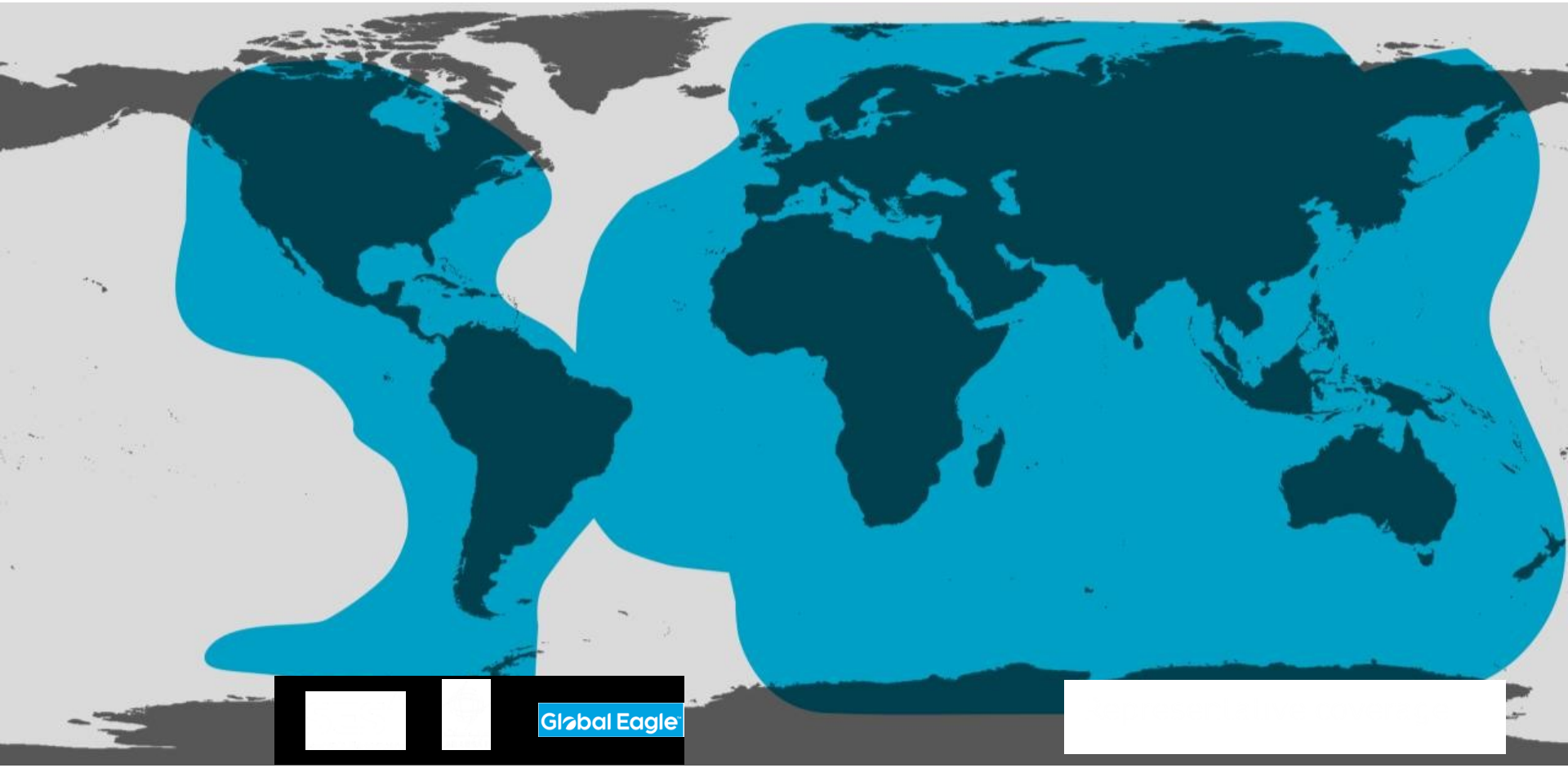
- ETC maintains database of donated equipment and services, including coverage area as provided by each signatory
- ETC triggers charter within 12 hours and determines coverage, number of locations, and speeds required
- ETC consults database and narrows down viable offers based upon mission need

Step 2

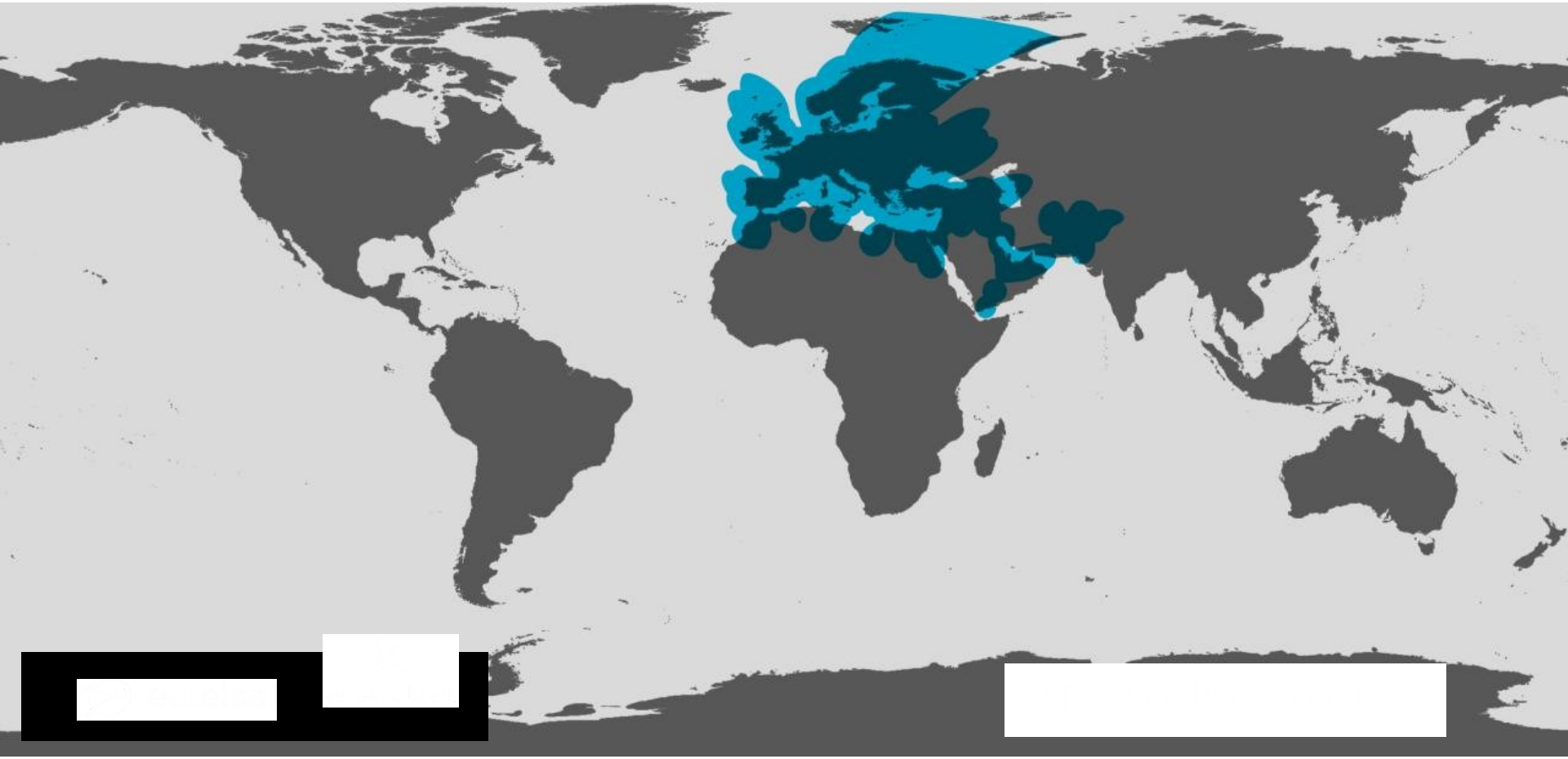
- ETC works with each Charter Signatory to confirm service availability and ETC makes final decision on which solutions to deploy
- ETC and Charter Signatories hold conference call with 48 hrs. to review selection of solutions to be deployed
- Right after ETC transports and installs equipment to affected area, and works with selected Charter Signatories to commission services

Charter signatories

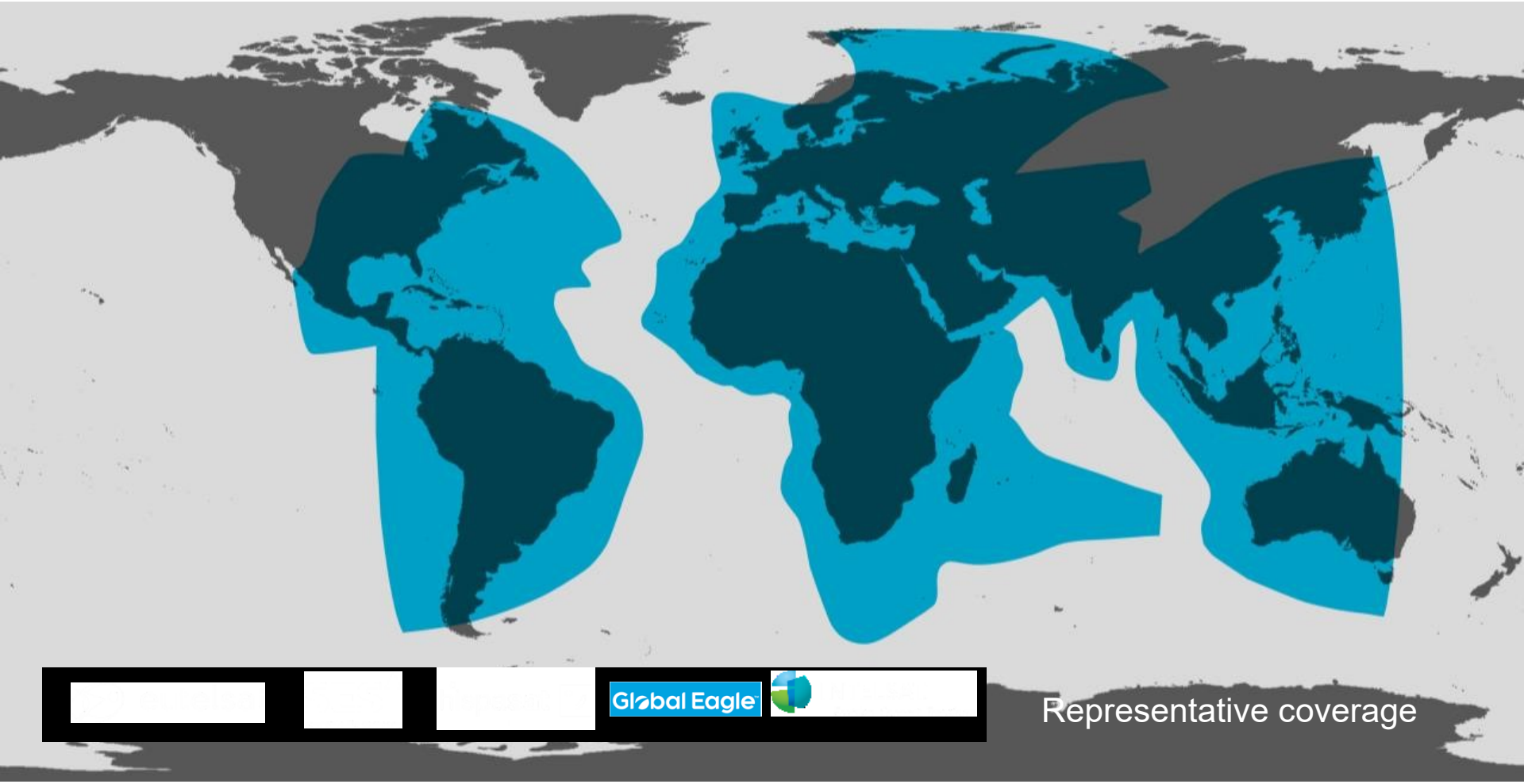
C-Band



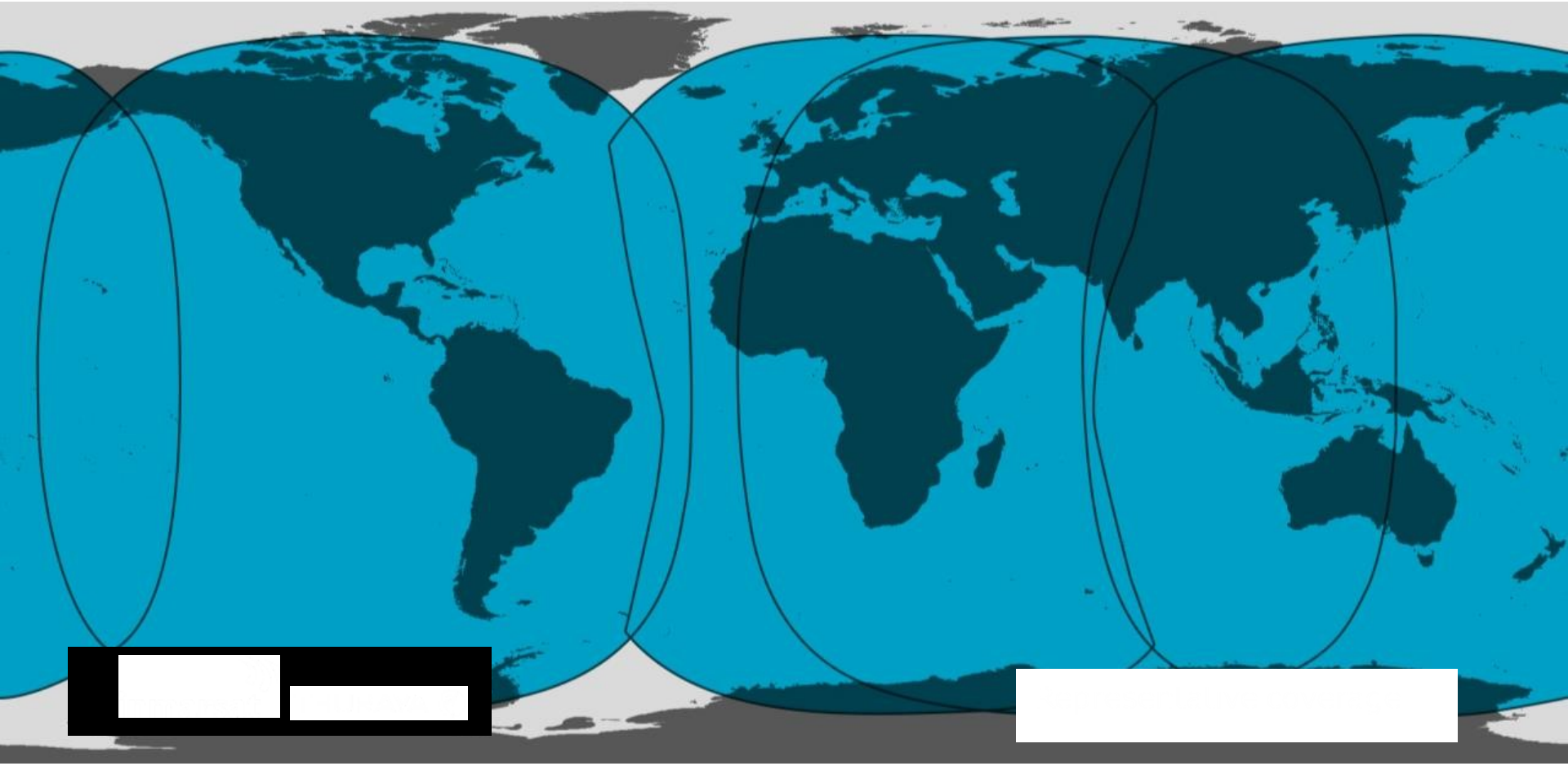
Ka-Band



KU-Band



L-Band



Key aspects why satellite communication is the best suited disaster communication means

- Easy deployable light weight equipment with mostly sub-meter dishes
- Ubiquitous, guaranteed redundant coverage areas with multiple technologies and multiple frequencies
- Proven higher reliability than terrestrial infrastructure
- Very competitive pricing
- High Throughput capacity thanks to HTS satellites

VSATs enabled **hotspots** in **Puerto Rico** following 2017's Hurricane Maria stepped in for broken cellular network.
Source: American Red Cross

Recommendations

- Increase awareness of the Crisis Charter to all ITU member states
- Urge ITU member states to remove regulatory road blocks hindering a fast disaster relief
- Encourage ITU Member States, especially those in high-risk areas, to constantly maintain & regularly test a basis stock of satellite equipment in-country
- Promote the on-site deployment of a resilient and immediately deployable satellite based communication infrastructure to counter disasters

THANK YOU