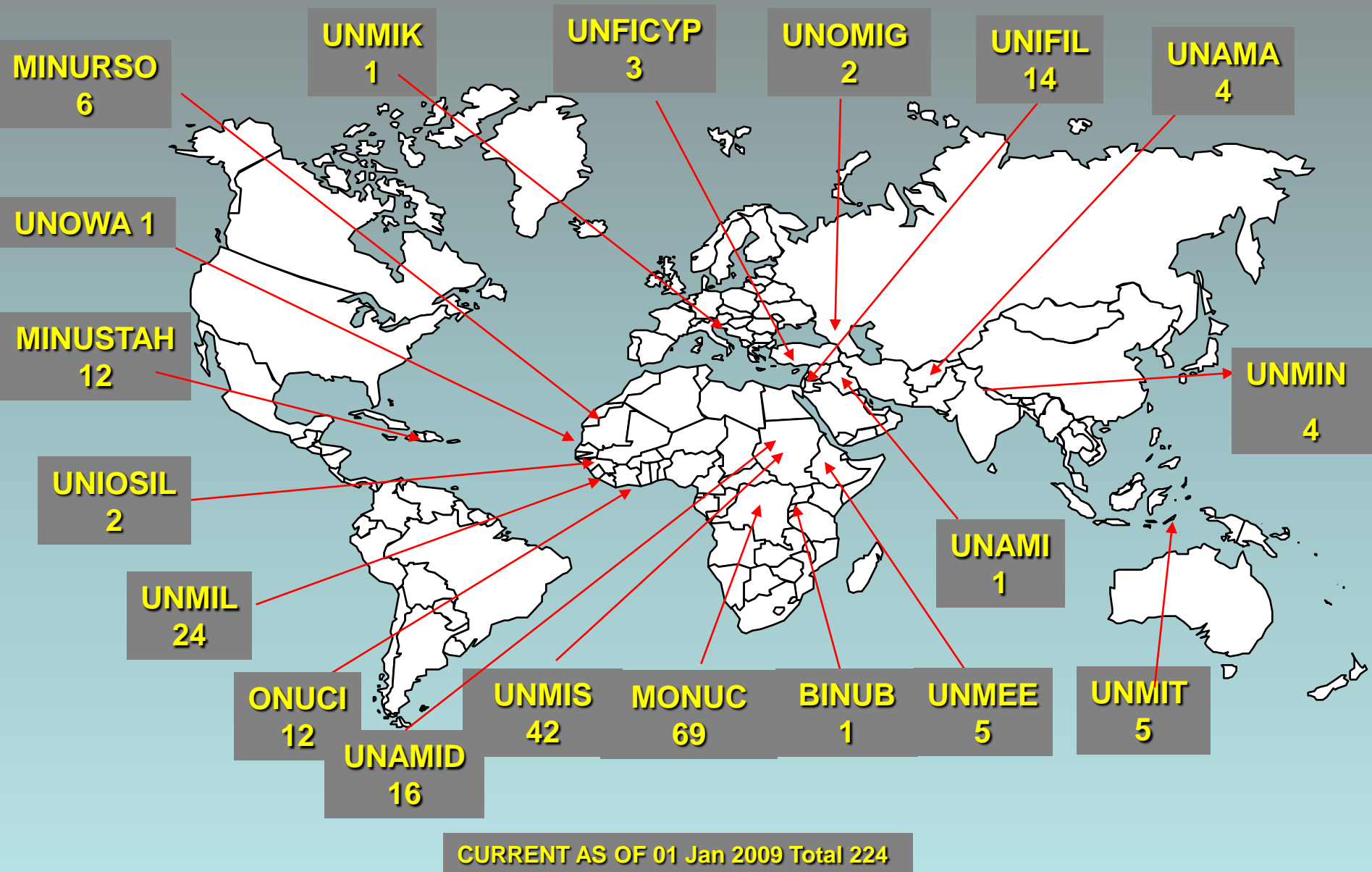




**Hiran Ferrera, CMAOC: [ferrera@un.org](mailto:ferrera@un.org)**  
**Ernie Manzano, SAR**

# Fleet Distribution Per Mission



# MINUSTAH

- AVERAGE HITS: 52/MONTH
- AVERAGE RESPONSE TIME 2 HRS
  
- 2007:
- 2 SAR : CARAVAN DOWN RESCUED ALL PASSANGERS
  
- 2008
- TABLE TOP EXERCISE
- 20 SAR Missions
- 1 A/C DOWN IN CARACOL, DRUG SMUGGLER
- MASS CASUATLTY SAR EX.

UNITED NATIONS

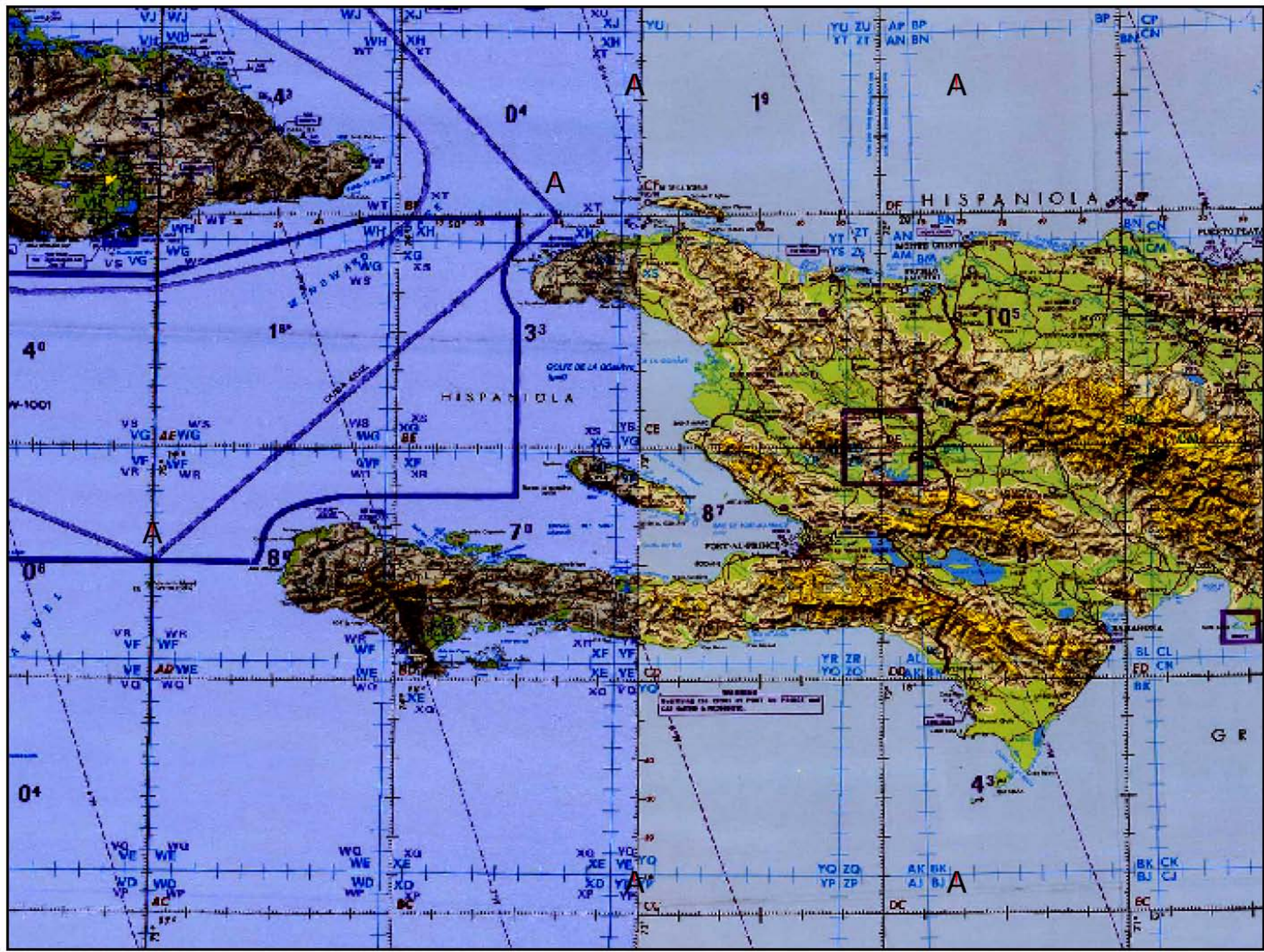


NATIONS UNIES

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SOP 5-2	Risk Management.

# AIR OPERATIONS STANDARD OPERATING PROCEDURES' (SOPs)

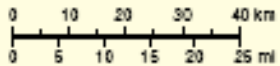


CUBA

# SAR-SAT HITS

## HAITI

- International boundary
- Departmental boundary
- ⊙ National capital
- ⊙ Departmental seat
- Town, village
- Main road
- Secondary road
- ✈ Airport



The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

**MINUSTAH Air Operations SOP Part 3: SEARCH AND RESCUE OPERATIONS DRAFT  
NOT FOR DISTRIBUTION SOP 3-8 Search and Rescue Rev2-2007 1 November 20,  
2007 UNITED NATIONS NATIONS UNIES  
SOP 3-8 SEARCH AND RESCUE (SAR)**

## **1 Purpose.**

The purpose of this Search and Rescue SOP is to establish procedures for searching a missing aircraft, locating its position, providing aid, assistance and protection to crew and passengers within the MINUSTAH mission area.

## **2 Authority.**

In 1998, two agencies of the United Nations devoted to aeronautical and maritime transportation safety, the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) respectively, came up with the International Aeronautical and Maritime Search and Rescue Manual (IAMSAR Manual). “The primary purpose of the three volumes of the IAMSAR manual is to assist States in meeting their own Search And Rescue (SAR) needs, and the obligations they accepted under the Convention on International Civil Aviation, the International Convention on Maritime Search and Rescue and the International Convention for the Safety of Life at Sea (SOLAS)”-

The search and rescue procedures contained in this document are in accordance with Annex 12 to the Chicago Convention on International Civil Aviation Organization and the Regional Supplementary Procedures on Search and Rescue as contained in ICAO DOC 7030.

# Mass Casualty Exercise

29 May 2008

- **1. GENERAL 1.1 Type of exercise**

- This is training for Search & Rescue (SAR), Mass Casualty (MC). An Incident Commander (IC) and Search and rescue staff will be present for command and control purposes at Log Base, PAP, mission base staff and aircrews will be trained in safe and effective SAR/MC operations in MINUSTAH. This exercise will have a simulated scenario, and is primarily for exercising all Aviation Section's command and control capabilities with qualified individuals. This training is in direct support of our actual search and rescue, disaster relief, humanitarian services and Joint Operation Center.

- **1.2 Exercise location**

- The incident command post (ICP) will be located at Aviation Section in MINUSTAH Log Base. Aviation Section will be the host Section. There will be staging areas at the PAP MINUSTAH RAMP

- **1.3 Exercise Dates & Times**

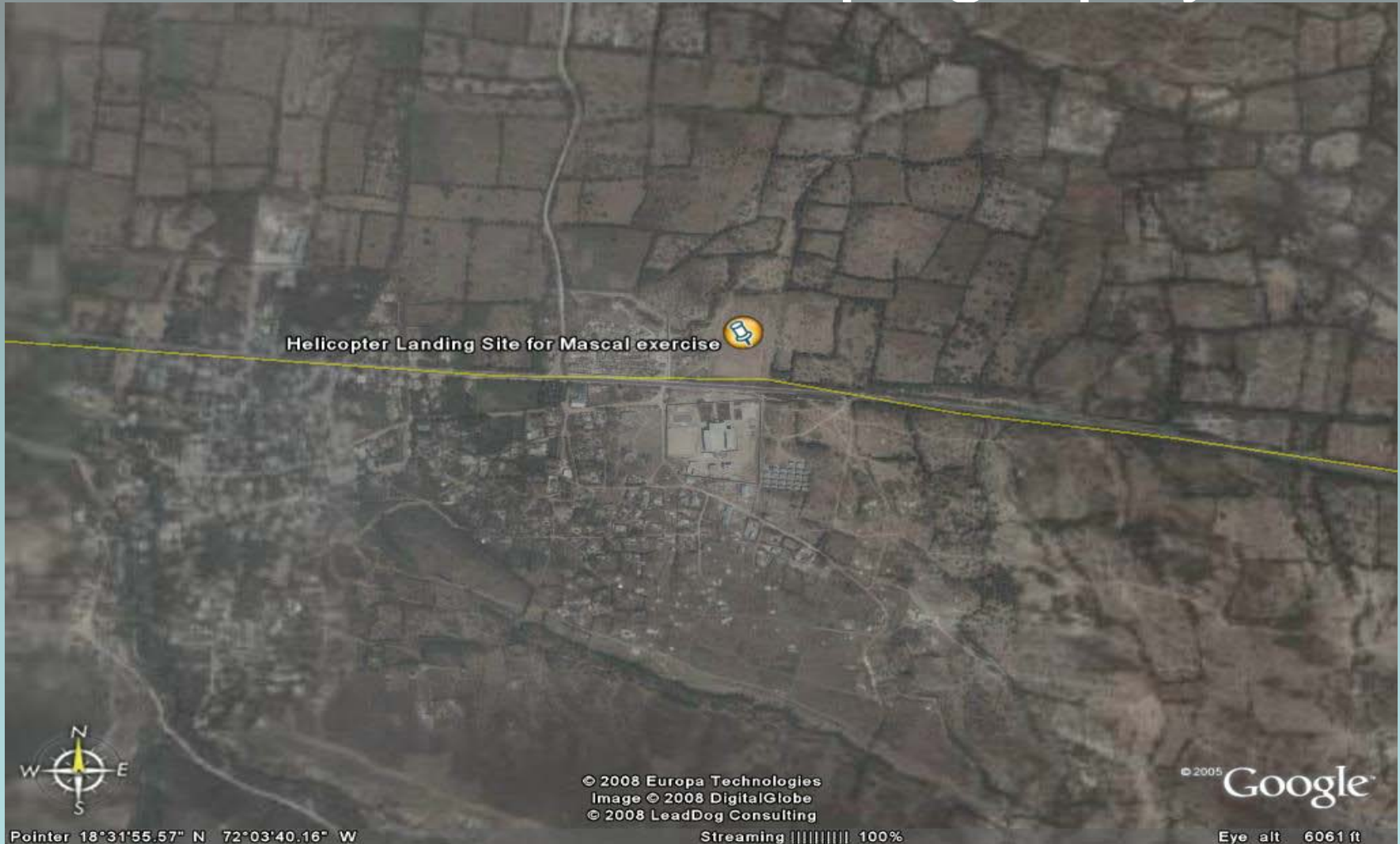
- Table Top: 19 May, 2008
- Last Revision: 28 May, 2008
- Primary Mission Date (live SAREX): 29 May, 2008

- **1.5 Mission Symbol & Number**

- Aviation Section Section: SAR336 = SAR/Casevac Training



# SITUATION- Topography



## General Information

1.1 INSPECTION DATE AND NAME OF SURVEYOR 24 March 2008

Armin Steubelmuller

1.2 NAME OF LZ Ganthier

1.3 GEOGRAPHICAL COORDINATES N 18 32' 01"  
W 072 03' 38"

1.4 GRID REFERENCE

1.5 ELEVATION (Feet-Meter) 450'

1.6 PURPOSE FOR USE DAY/NIGHT Day

1.7 OPERATIONAL TASK

TACTICAL/REGULAR SCHEDULE

EXTERNAL LOADS Tactical



# Evacuation Chain – Detail 1

**ICP** – Incident Command Post

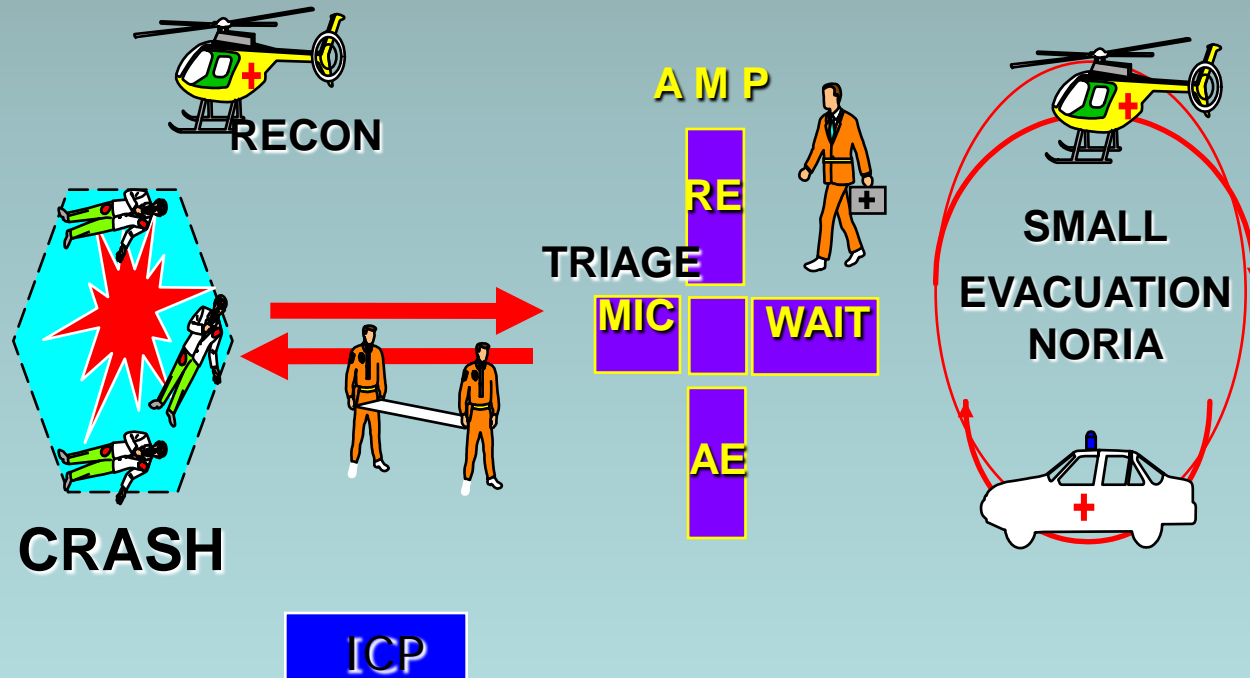
**MIC** – Minimum Initial Care

**AE** – Absolute Emergency

**AMP** – Advanced Medical Post

**RE** – Relative Emergency

**Noria** – The “wagon wheel” – help coming & casualties leaving.

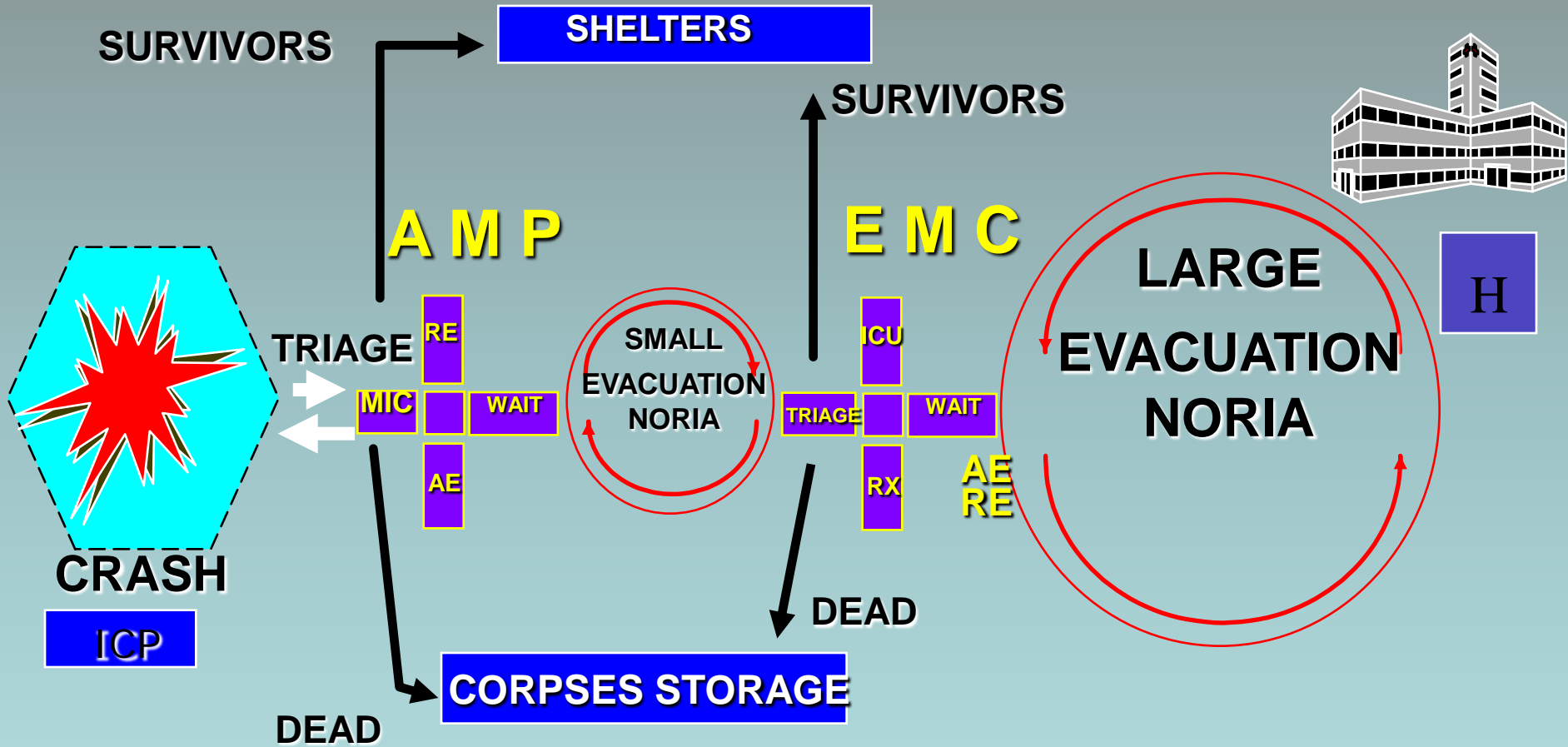


# FLIGHT AND AIRCRAFT OPERATIONS

## CASEVAC/MEDEVAC





# The Evacuation Chain







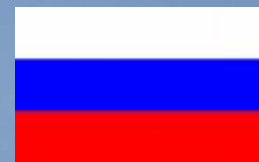
# ASSETS

						
<b>AIRCRAFT</b>	<b>BELL 212</b>	<b>UH -1H</b>	<b>MI – 8MTV</b>	<b>MI – 8 MTV</b>	<b>CASA212</b>	<b>DASH - 7</b>
<b>CONTRACTOR</b>	<b>ARGENTINA AIR FORCE</b>	<b>CHILE AIR FORCE</b>	<b>Ukraine Helicopters</b>	<b>VOSTOK (RUSSIA)</b>	<b>URUGUAY AIRFORCE</b>	<b>TRANS CAPITAL (CANADA)</b>
<b>QUANTITY</b>	<b>-2- UNO 136 UNO 137</b>	<b>-4- UNO 129 UNO 130 UNO 131 UNO 132</b>	<b>-2- UNO 140 UNO 141</b>	<b>-2- UNO 121 UNO 122</b>	<b>-1- UNO 146</b>	<b>-1- UNO 145</b>
<b>MAXIMUM PASSENGER</b>	<b>9</b>	<b>9</b>	<b>21</b>	<b>22</b>	<b>10</b>	<b>40</b>
	<b>KEVLAR</b>	<b>KEVLAR FLIR NVG</b>				





**Mi – 8MTV  
UKRAINE HELICOPTERS  
VOSTOK**



**MAXIMUM INTERNAL LOAD  
MAXIMUM EXTERNAL LOAD  
MAXIMUM PASSENGERS  
CRUISE SPEED  
ENDURANCE**

**3500 KGS  
3000 KGS  
22  
110 KNOTS  
2.5 HOURS**



# BELL - 212 ARGENTINA AVIATION

III.- Air Assets / Tasks



<b>MAXIMUM INTERNAL LOAD</b>	<b>735 KGS</b>
<b>MAXIMUM EXTERNAL LOAD</b>	<b>635 KGS</b>
<b>MAXIMUM PASSENGERS</b>	<b>9</b>
<b>CRUISE SPEED</b>	<b>90 KNOTS</b>
<b>ENDURANCE</b>	<b>2.0 HOURS</b>
<b>ARMAMENT</b>	<b>(2) 7.62mm x 750 KEVLAR</b>



# BELL – UH 1 H CHILE AVIATION UNIT



**MAXIMUM INTERNAL LOAD**  
**MAXIMUM EXTERNAL LOAD**  
**MAXIMUM PASSENGERS**  
**CRUISE SPEED**  
**ENDURANCE**  
**ARMAMENT**  
**FLIR CAMERA**  
**NIGHT VISION GOGGLES**  
**KEVLAR**

**600 KGS**  
**600 KGS**  
**9**  
**90 KNOTS**  
**1.9 HOURS**  
**(2) 7.62 mm x 750**





**DHC – 7  
TRANS CAPITAL (CANADA)**



**MAXIMUM INTERNAL LOAD  
MAXIMUM PASSENGERS  
CRUISE SPEED  
ENDURANCE**

**5000 KGS  
40  
200 KNOTS  
5.0 HOURS**



# CASA212 URUGUAY AIRFORCE



**MAXIMUM INTERNAL LOAD**  
**MAXIMUM PASSENGERS**  
**CRUISE SPEED**  
**ENDURANCE**

**2500 KGS**  
**10**  
**180 KNOTS**  
**4.5 HOURS**

# RESTRICTED AREAS

## PAP AIRPORT

N18°34' 40", W 072°16' 22"

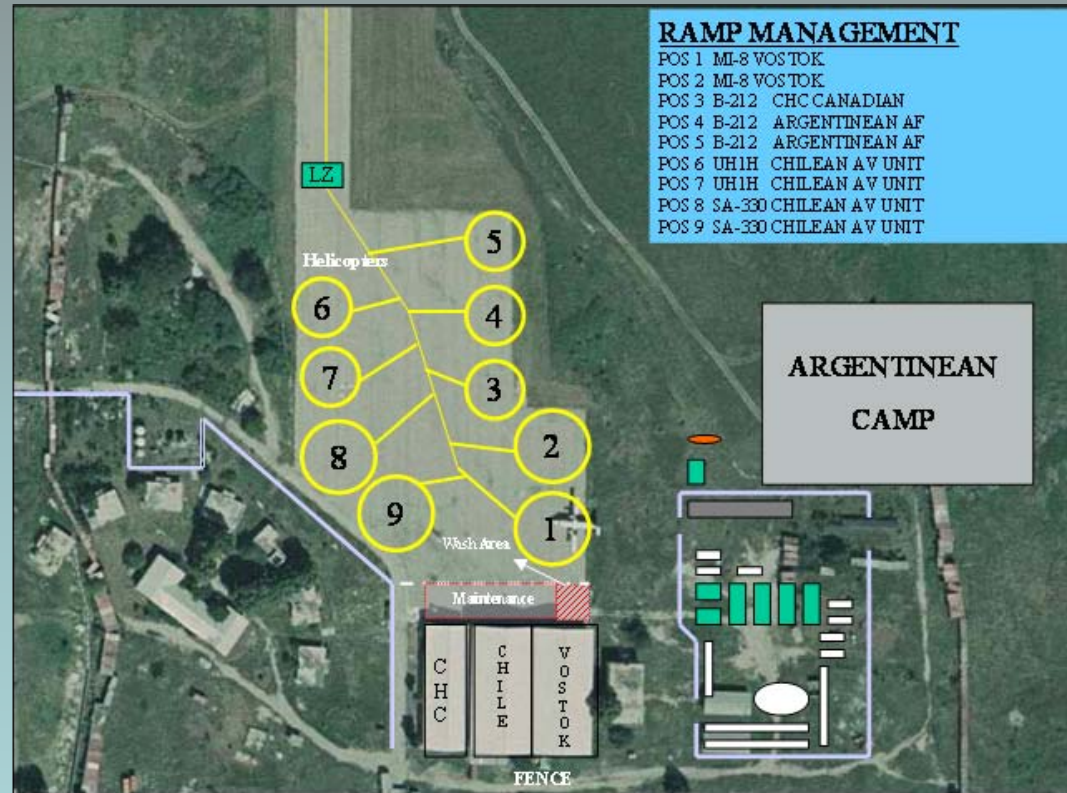
N18°34' 40", W 072°16' 50"

N18°34' 36", W 072°16' 22"

N18°34' 36", W 072°16' 50"

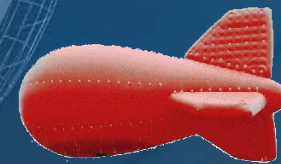
Altitude:

From ground level up to 2000  
feet AGL



# UN SAR Challenges

- **Must have manned air assets in the air**
- **Environments: Topography & Weather**
- **No real time Information**
- **Centralize approach**
- **Crew fatigue**
- **No synergy strategy approach**
- **121.5 MHZ Issues**



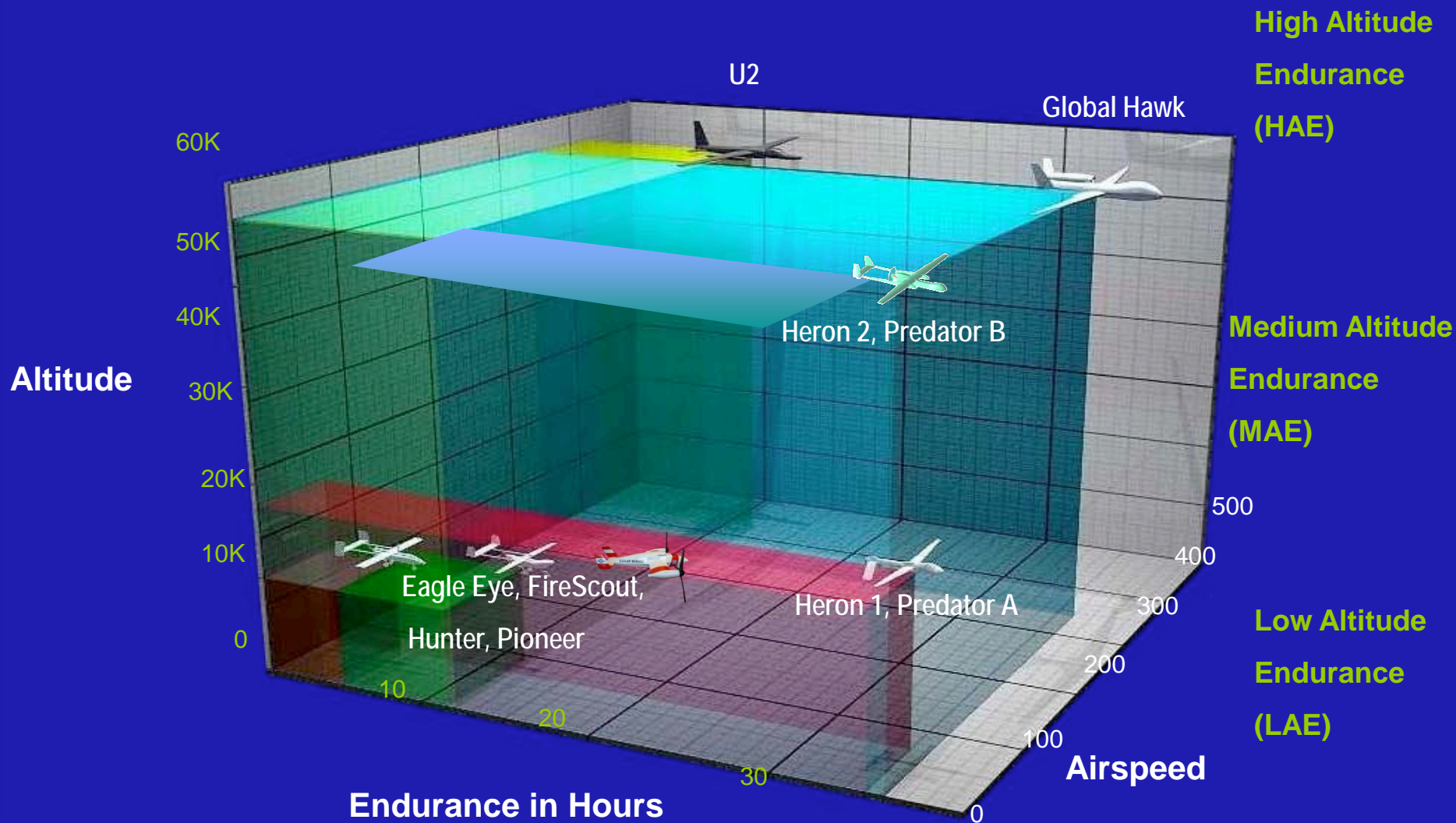
# Unmanned Aerial Vehicles

## UAV

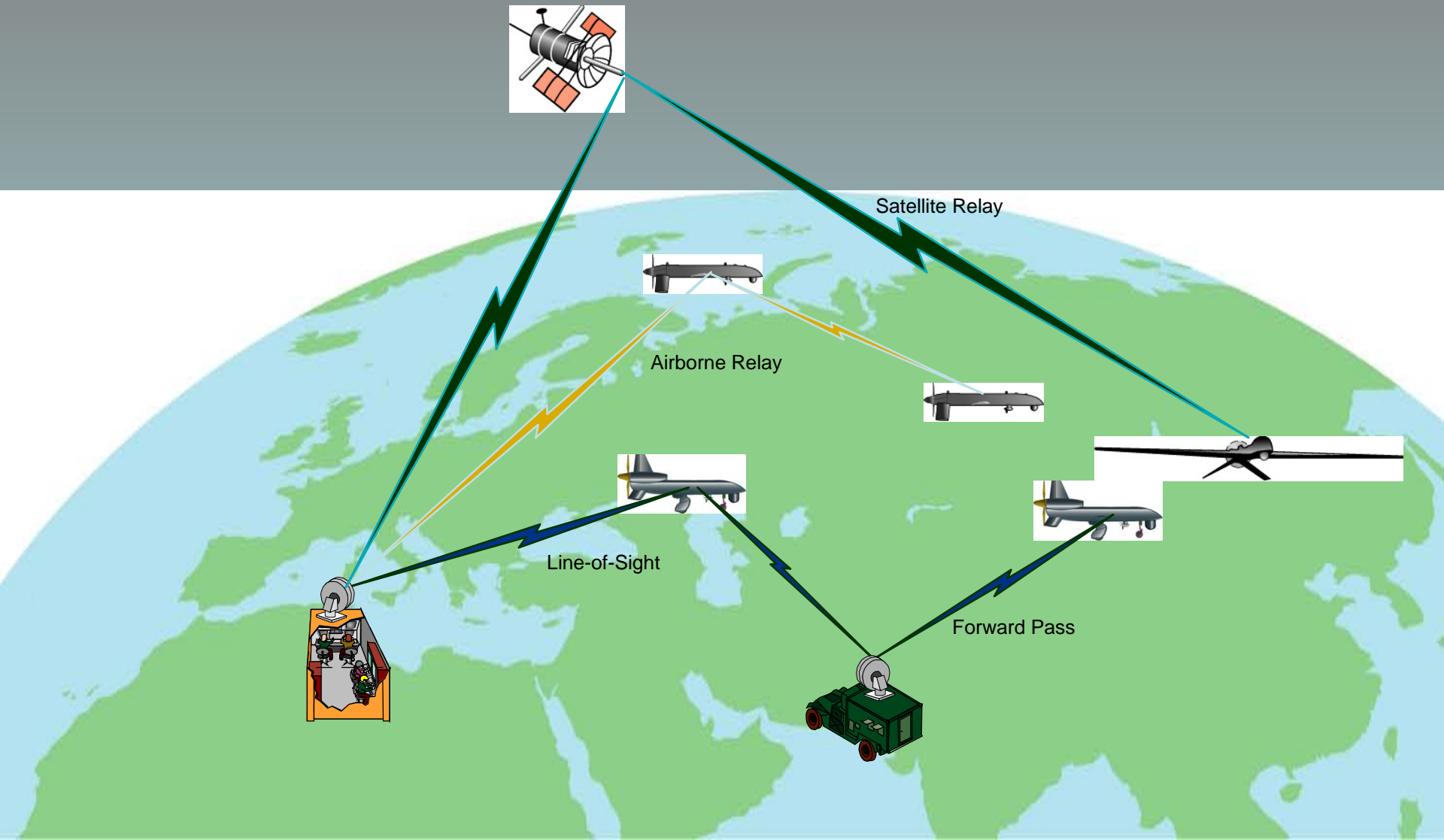


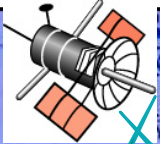


# UAV Altitude Airspeed and Endurance Capabilities



# WORLD WIDE Coverage



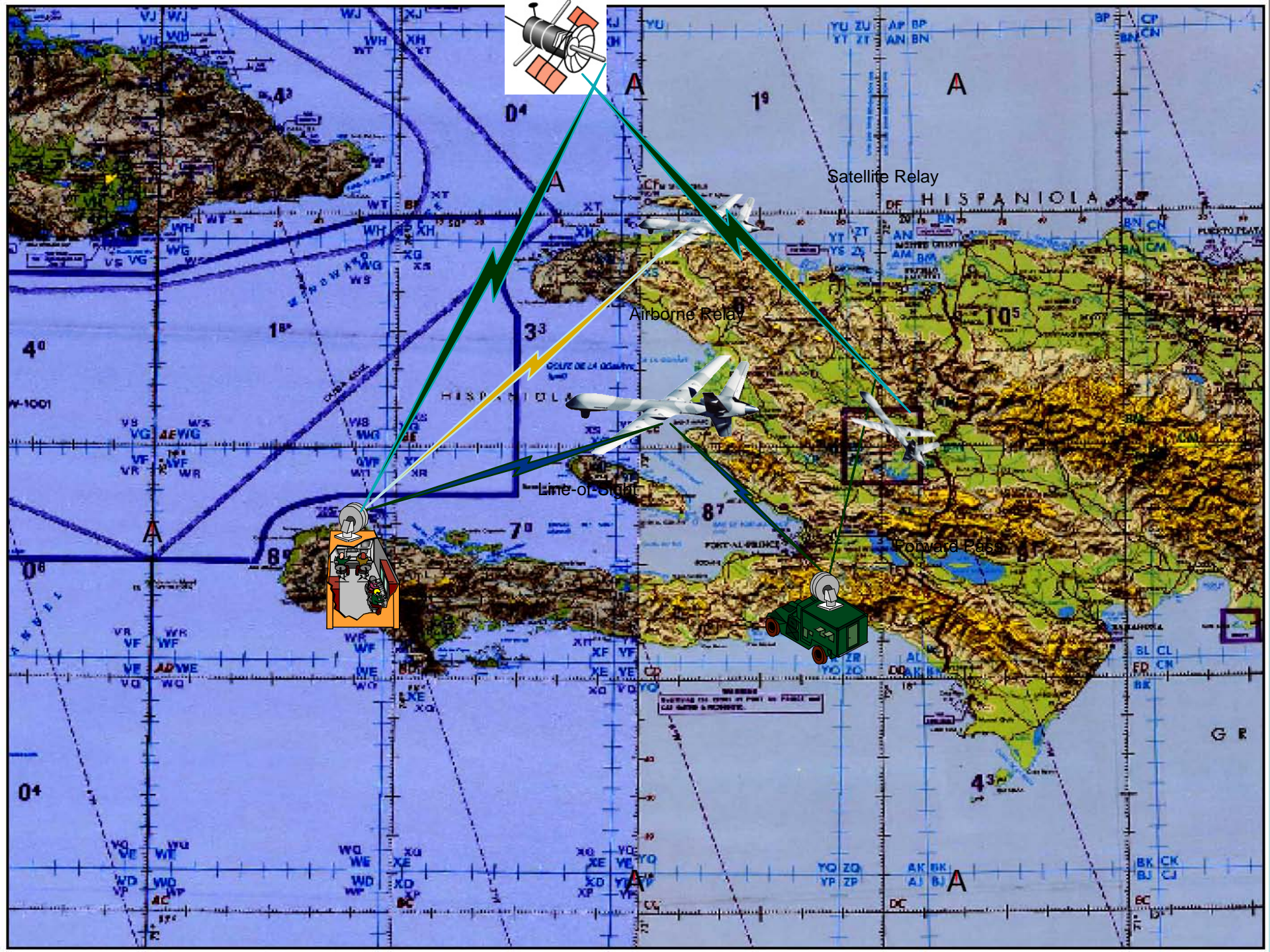


Satellite Relay

Airborne Relay

Line-of-Sight

Forward Pass



# Recommendations

- UAVs can perform all SAR missions (TCC/ Governments/Missions share flight hours)
- Co-locate UAVs to save costs
- Expand UAV analysis to evaluate added value to UN SAR/Disaster relief operations
- UAV operations are real, can be a turn key project controlled by UN: Aerospace Agencies, supporting: Aviation and Movcon.

# **BATTLESPACE**

## **FLIGHT SERVICES, LLC**

### **Summary of BATTLESPACE Flight Services' Technical Expertise in the Area of UAV Maintenance and Operation**

- UAV Operations
- Program Management
- Systems Engineering Analysis
- Mission Support Aerospace Ground Equipment (AGE)
- Systems Design
- Integration Engineering
- Modeling and Prototype Development
- Test and Evaluation
- Integrated Logistic Life-Cycle Engineering Assessments
- System Maintenance
- Quality Assurance and Control
- Logistics



# References and Credits

- MINUSTAH Aviation Section
- CDR Mathew J. Sisson
- LCDR Troy Beshears
- Lt. Henry Irrizary
- UAV Engineering Society
- UAV Daran Aviation
- Battlespace Flight Services

# ANY QUESTIONS?





# BATTLESPACE

FLIGHT SERVICES, LLC

