



# STAYING CONNECTED

Communications for the  
Offshore Sailor  
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And  
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VHF MARINE IC-M502



WATERPROOF

**DISTRESS**

DSC/ENT  
POS

SCAN  
TAG

CH/WX  
DW U/I/C

16 9

HI/LO

LO/DX  
IC SCR

SQL

# What We Will Discuss Today

- **Types of Communications**

- **Safety**

- **National Distress Response System (NDRS)**
- **Global Maritime Distress and Safety System (GMDSS)**

- **Personal**

- **Voice (Cellular/VHF/SSB/Satellite)**
- **Data (Cellular/SSB/Satellite)**
- **Internet (Satellite)**

- **What Types of Communications to Use Where**

- **Near Shore (up to 30 miles)**
- **Offshore (over 30 miles)**

- **How to Build Your Communications Requirements List**

# [ Each boat's idiosyncrasy ]



# Safety Communications

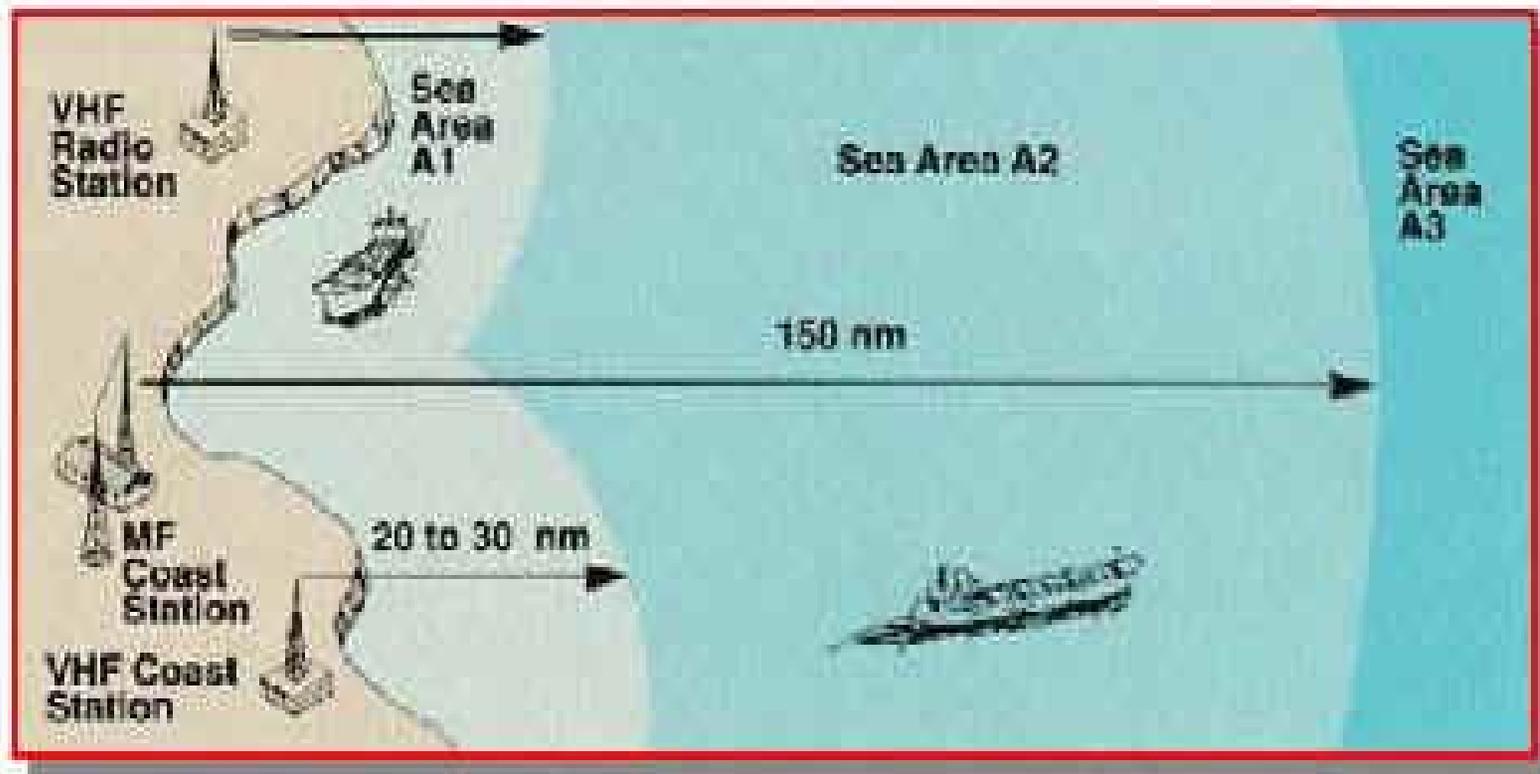
- National Distress Response System (NDRS)
  - VHF based system covering entire US coast out to 30 miles
  - Channel 70 (DSC) and channel 16 VHF access
  - Replaces earlier system that is outdated
  - Direction finding capability on channel 70 – LOB from multiple stations and by GPS integration into channel 70 along with identification of calling station
  - Six simultaneous emergency communications channels (70 and 16)
  - Automated broadcasts (marine information)



# Safety Communications

- Global Maritime Distress and Safety System (GMDSS)
  - Mandatory for all vessels of 300 GRT as of 2/1/99
  - Recreational vessels can participate
  - World's oceans divided into four (4) regions
    - A1 – up to 30 miles offshore
    - A2 – 30 to 150 miles offshore
    - A3 – Inmarsat satellite coverage areas
    - A4 – Polar regions
  - Uses both terrestrial and satellite communications systems for rescue coordination

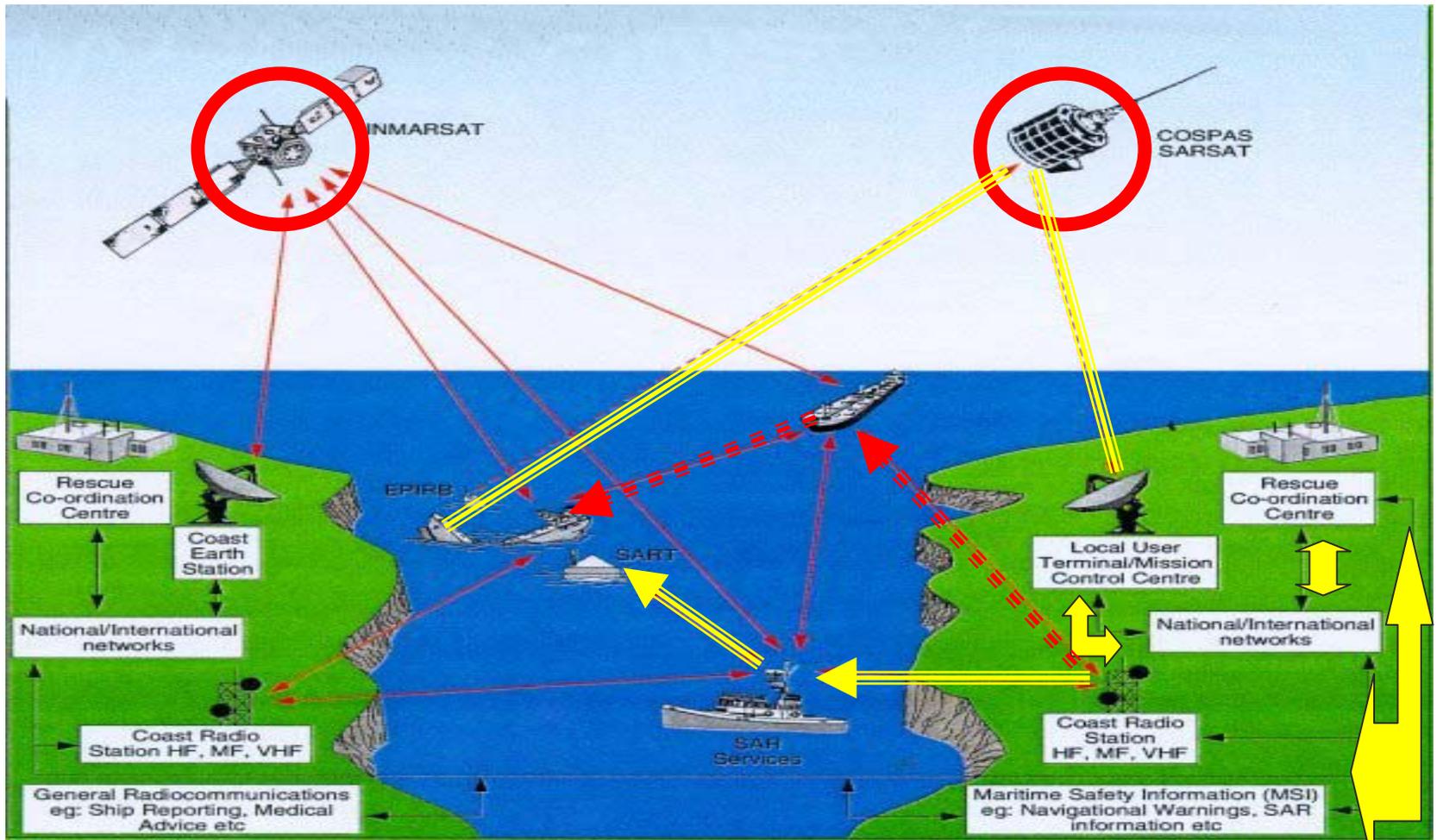
# Safety Communications



# Safety Communications

- GMDSS Communications Systems
  - Area A1 – VHF (DSC)
  - Area A2 – MF voice and VHF (DSC)
  - Areas A3/A4 – HF voice or satellite voice/data and VHF (DSC)
- Complying with Area A3/A4 requirements will provide compliance with all areas
- In many areas of the world, A3 compliance is required up to the coastline – No VHF (DSC) service available
- Complying with Area A3 requirements will provide the recreational vessel with global search and rescue services

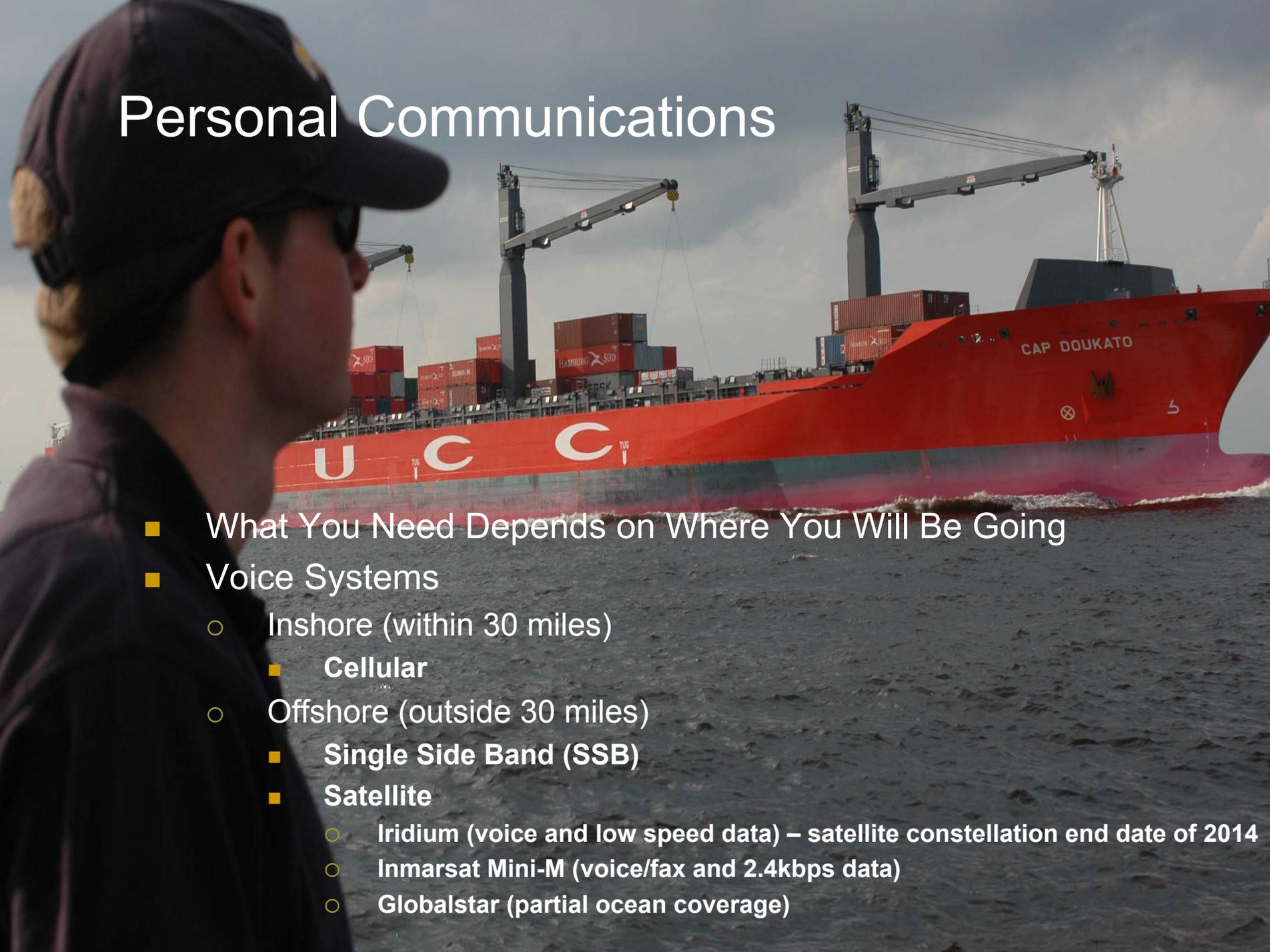
# Safety Communications



# Safety Communications

- GMDSS Communications System Requirements
  - VHF (DSC) with channels 70, 16, 13, and 6
  - One search and rescue transmitter (SART)
  - Portable VHF radio (DSC)
  - Inmarsat C ship earth station (satellite data) or Iridium (satellite voice)
  - 406 MHz EPIRB
- Having these systems would provide the recreational vessel with full GMDSS communications capability

# Personal Communications

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- What You Need Depends on Where You Will Be Going
  - Voice Systems
    - Inshore (within 30 miles)
      - Cellular
    - Offshore (outside 30 miles)
      - Single Side Band (SSB)
      - Satellite
        - Iridium (voice and low speed data) – satellite constellation end date of 2014
        - Inmarsat Mini-M (voice/fax and 2.4kbps data)
        - Globalstar (partial ocean coverage)



# Personal Communications

- **Expected Costs of Equipment and Service**
  - **Satellite**
    - Equipment - \$1,000 - \$5,000 (Iridium and Inmarsat Mini-M)
    - Service - \$1.50 - \$2.50 per minute for voice (no extra for email)
    - Service contracts are available that allow the user to tailor a monthly plan that will minimize costs
  - **Single Side Band**
    - Equipment - \$1,000 - \$2,000
    - Service – Varies with connection charges and where call is to be placed (comparable to satellite)
    - Email service very economical – Winlink or Sailmail
    - Amateur ham radio license is required
  - **VHF**
    - Equipment - \$500
    - Service – Cost of call plus a completion charge for using the marine operator (where available)



# Suggested Comm Outfits

- Coastal Waters (out to 30 miles)
  - Safety Communications
    - VHF (DSC) – Provides channel 70 (DSC), 16 and 13 communications for emergency (NDRS), bridge to bridge and rescue coordination communications
    - 406 EPIRB (121.5 EPIRB service is being cancelled)
    - Handheld VHF (DSC) – For use in life raft or small boat
  - Personal Communications
    - Cellular – Provides voice and data communications plus short messaging service and small emails
    - VHF (DSC) – Provides voice service for telephone calls through the marine operator (where available)

# [ Offshore and Inshore overlap ]



# Suggested Comm Outfits

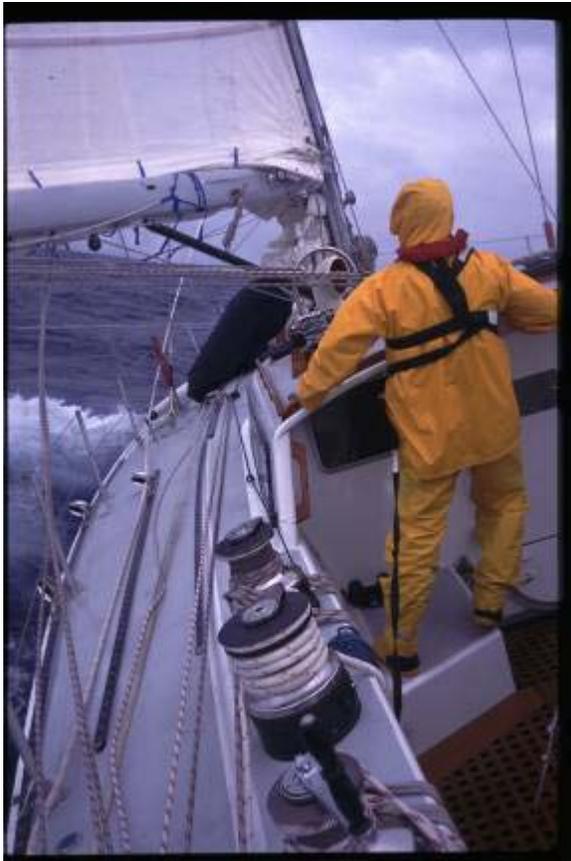
- Offshore (over 30 miles)
  - Safety Communications
    - **VHF (DSC) – Provides channel 70 (DSC), 16 and 13 communications for emergency (NDRS), bridge to bridge and rescue coordination communications**
    - **406 EPIRB**
    - **Handheld VHF (DSC) – For use in life raft or small boat**
    - **Handheld aviation VHF- “**
    - **Inmarsat C, Iridium or SSB**

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# Suggested Comm Outfits

- Personal Communications
  - VHF (DSC) – Provides voice service for telephone calls through the marine operator (where available)
  - Satellite communications
    - **Inmarsat C – Provides email and data messaging (plus GMDSS)**  
or
    - **Iridium or Inmarsat Mini-M – Provides voice and low rate data services (email) and fax (Mini-M)**  
or
    - **Single Side Band (SSB) – Provides very economical voice and low rate data services (email)**

# [ Equipment installation ]



# Your Communications Requirements

- Comply with safety communications requirements
  - Prepare an emergency communications plan and make sure all crew members know how to use the equipment to make emergency calls
- Determine what you want to do for personal communications
  - Voice?
  - Data (Email)?
  - Internet?
  - Fax?
- Where are you going to go?
  - Coastal cruising only (within 30+ miles)
  - Offshore sailing (over 30 miles offshore)
- How much do you want to spend?

# How to Start

- Some Useful Websites
  - [www.iridium.com](http://www.iridium.com) (Iridium equipment and service)
  - [www.stratosglobal.com](http://www.stratosglobal.com) (Iridium and Inmarsat equipment and service)
  - [www.telenorsatellite.com](http://www.telenorsatellite.com) (Iridium and Inmarsat equipment and service)
  - [www.winlink.org](http://www.winlink.org) (SSB email service)
  - [www.Sailmail.com](http://www.Sailmail.com) (SSB email service)
- These websites will provide you with information on equipment and service