



# Next Generation Beacons

2008 Beacon Manufacturers Workshop  
San Diego, CA

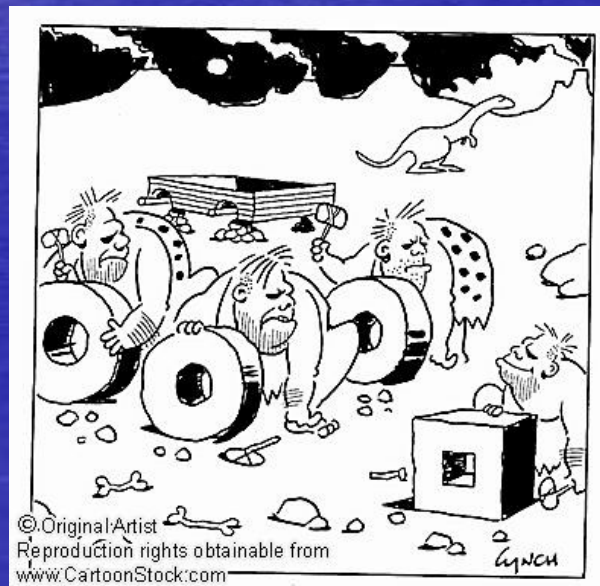
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# Next Generation Beacons – An Introduction



The development of DASS and other Mid-Earth Orbiting Search & Rescue (MEOSAR) systems (i.e. Galileo, GLONASS, Beidou, etc.) – which are all currently in their development stages – provides the SARSAT community a unique opportunity to reinvent the wheel...



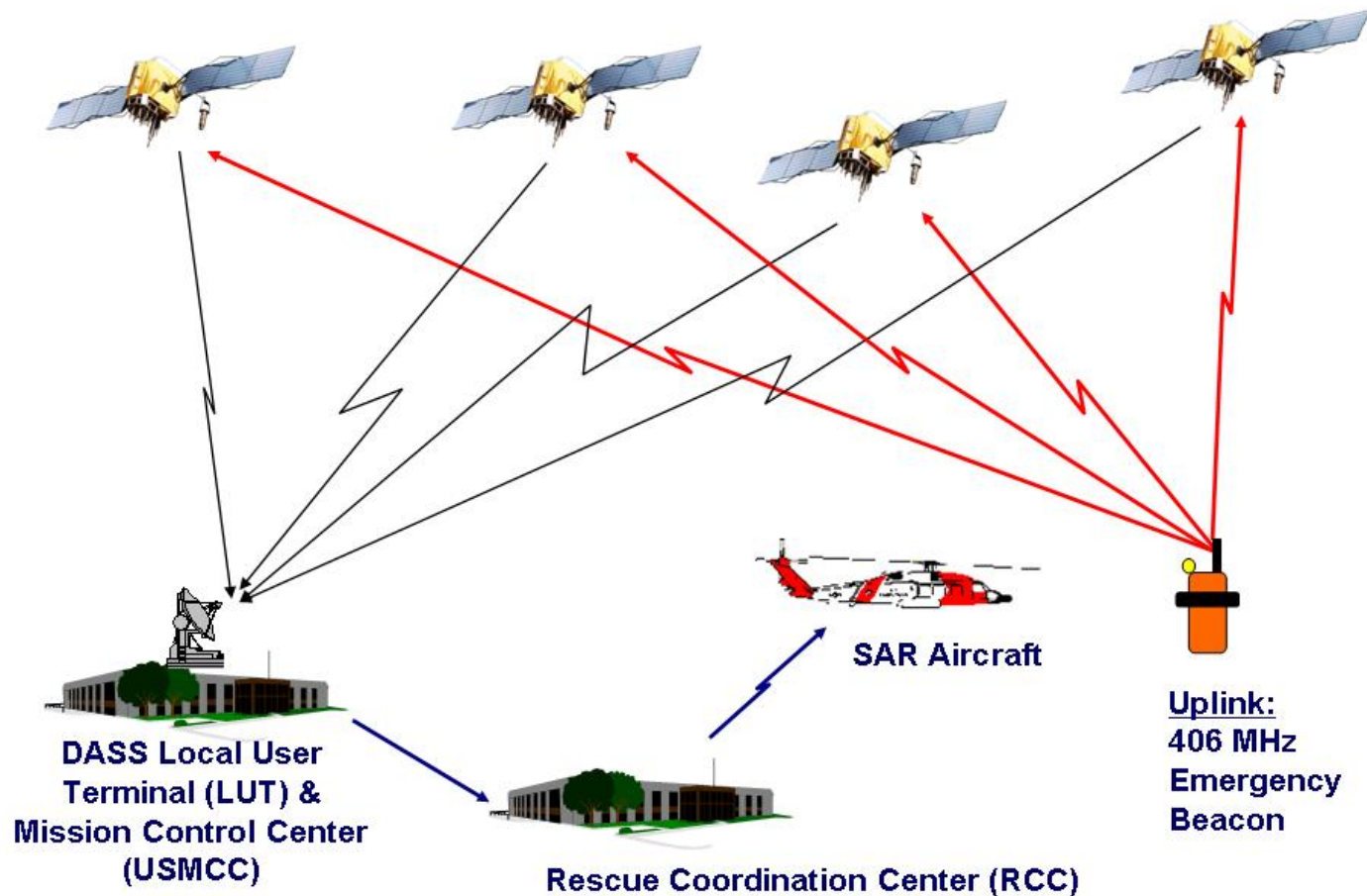


# Next Generation Beacons – An Introduction



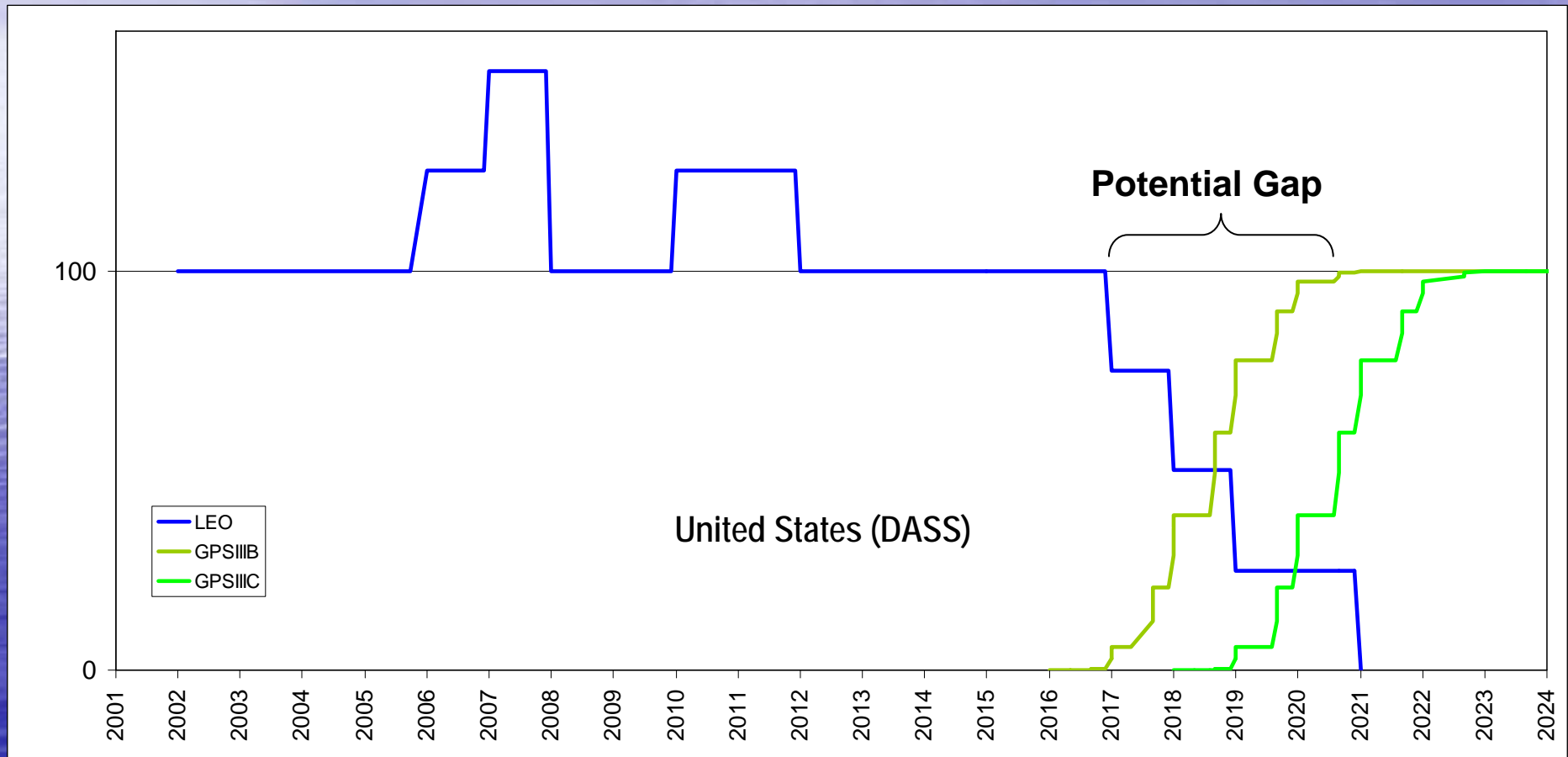
## DASS System Overview

GPS Constellation (DASS-equipped satellites)





# Next Generation Beacons – An Introduction





## Next Generation Beacons – An Introduction



- With over 25 years of experience as our guide, what should the future 406 MHz beacon segment look like?
- How can/should we improve upon current generation 406 MHz beacons?
- What do SAR responders need out of a distress beacon?
- Where are current 406 MHz beacons deficient?
- Have requirements changed?



# Defining the Requirements

- Identify the interested parties for the future system
  - Beacon owners & user groups (for ELTs, EPIRBs, PLBs, etc.)
  - System operators (MCCs & LUTs)
  - Beacon manufacturers
  - System users (SAR responders, IMO/ICAO, etc.)
- Solicit input from these interested parties
  - Identify the limitations of the current system & beacon technology
  - Document the desired features of the future system
  - Participate in national & int'l Work Groups
- Identify assumptions & constraints
  - MEOSAR ground system by 2011 with space segment by 2017(ish)
  - Will next generation beacons need to work with GOES?
  - Will the system need to follow the current C-S Frequency Mgmt Plan?
  - What are/will be the international (i.e. C-S) and national (i.e. RTCM/RTCA) requirements...



# Defining the Requirements



**Step 1: Gather a captive audience of industry professionals...**





# Defining the Requirements



## The real Step 1: Let's outline current problems & limitations (*from YOUR perspective*):

- Reliability: Are 406 MHz beacons failing or under-performing out in the field? Consider maritime and aviation scenarios and their operating environments...
- Accuracy: are 406MHz beacons accurate enough?
- Timeliness: is information provided quick enough?
- Beacon identification: do beacons provide enough info?
- False alerts: a no-brainer?
- Ancillary features (e.g. return-link): are these useful?
- What else???





# Defining the Requirements



## Step 2: Let's outline the requirements:

- Reliability: do we need beacons to be 100% reliable, 100% of the time? If so, consider the implications...
- Accuracy: How accurate do we need beacons to be?
- Timeliness: How quickly do SAR responders need positional information?
- Beacon identification: Should more info be programmed into a beacon instead of relying upon owner/user-provided data? Can/should we expand data beyond current bit limit?
- False alerts: What is the false-alert threshold? None!?! Is this realistic? What about training & testing??



# Defining the Requirements



## Step 2: Let's outline the SAR requirements:

- Operational & technical requirements: are current operational and technical requirements sufficient? If not, what are the SAR requirements??
- Ancillary-features:
  - 121.5 homer: is this necessary esp. once MEOSAR is operational?
  - What about other types of homers: AIS-SART, etc.
  - Return-link
  - Other comms features
  - Should other features like SVDR-EPIRBs continue?
- What else???



## The Way Ahead...

- Your inputs will be documented and carried forward...
  - *Internationally*
    - SARSAT will collect input from all user-communities
    - A Task Group will be established:
      - Will focus on what is possible with the future MEOSAR system
      - Address what impacts will be on the current system
    - Will be reported back thru IMO/ICAO/ITU
    - Presumably, RTCM and RTCA requirements will have to updated
    - Need to ensure that new requirements and new technology is understood by user-communities

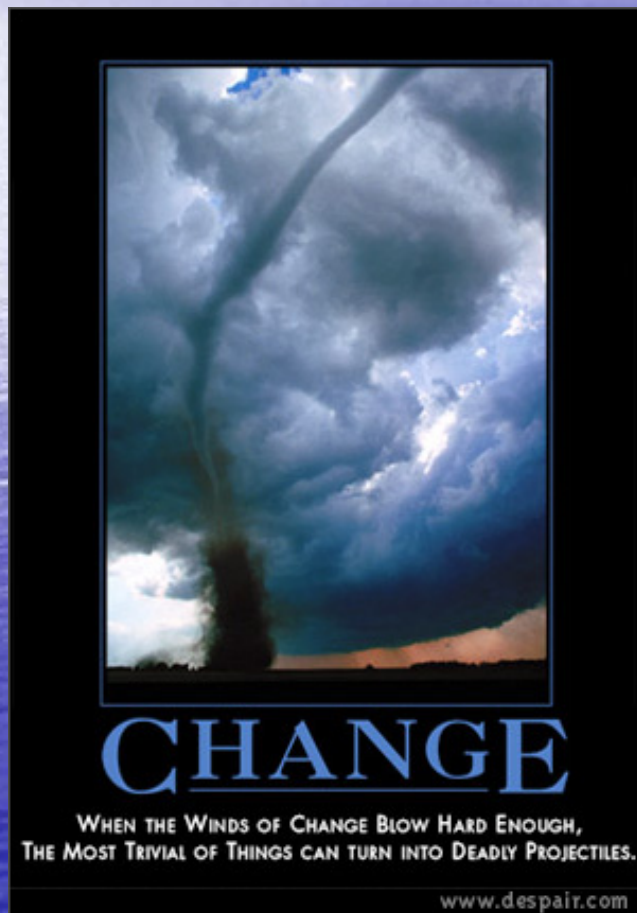


## The Way Ahead...

- Initial draft requirements should be submitted by Oct. 2008 (C-S Open Council)
- Cospas-Sarsat should commence developing Next Generation Beacon requirements in 2009-2010.
- Cospas-Sarsat should commence testing during DASS D&E Phase (2011-2013)
- Cospas-Sarsat should begin endorsing and integrating NGBs into C-S standards by 2013-2014(ish) to enable Type-Approval and Production to begin by 2015-2016(ish) timeframe with units in the market and in the field by 2017.
- DASS should (God-willing) begin flying in 2017.



# Thank You!



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