

RESCUE OF 37,000
PERSONS ASSISTED
BY COSPAS-SARSAT

COSPAS-SARSAT SYSTEM OVERVIEW

STEVEN LETT
HEAD OF SECRETARIAT



WHO ARE WE ?

?



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WHO ARE WE ?

WE ARE YOU !



Algeria
Argentina
Australia
Brazil
Canada
Chile
China (P.R.)
Cyprus
Denmark
Finland
France
Germany
Greece
Hong Kong, SAR, China
India
Indonesia
Italy
ITDC, Chinese Taipei
Japan
Korea (R. of)
Madagascar

Netherlands
New Zealand
Nigeria
Norway
Pakistan
Peru
Poland
Russia
Saudi Arabia
Serbia
Singapore
South Africa
Spain
Sweden
Switzerland
Thailand
Tunisia
Turkey
UAE
UK
USA
Vietnam



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WHO ARE WE ?

WHETHER OR NOT YOU ARE A MEMBER, WE DELIVER ALERTS TO
OVER 200 COUNTRIES AND TERRITORIES!



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WHAT COSPAS-SARSAT IS AND IS NOT

Is:

- AN INTERGOVERNMENTAL COOPERATIVE OF 41 COUNTRIES AND 2 AGENCIES
- COORDINATES THE EFFORTS OF THOSE GOVERNMENTS TO DEPLOY THE RESOURCES NECESSARY TO DETECT AND LOCATE 406-MHZ DISTRESS BEACONS AND REPORT THAT INFORMATION TO GOVERNMENTAL SEARCH AND RESCUE (SAR) AUTHORITIES
- DOES THIS BY CREATING AND DOCUMENTING STANDARDS AND PROCEDURES AGREED BY CONSENSUS

Is NOT:

- A REGULATORY BODY – THAT IS THE ROLE OF OTHER INTERNATIONAL ORGANIZATIONS AND NATIONAL ADMINISTRATIONS
- AN OPERATIONAL SAR UNIT – THAT IS THE ROLE OF NATIONAL ADMINISTRATIONS



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WHAT COSPAS-SARSAT IS

- ❑ THE ONLY SYSTEM THAT CAN INDEPENDENTLY LOCATE A BEACON ANYWHERE ON EARTH (WITHOUT THE AIRCRAFT REPORTING ITS POSITION OR USING GLOBAL NAVIGATION SATELLITE SYSTEM DATA, SUCH AS GPS)
- ❑ DELIVERS ALERTS DIRECTLY TO GOVERNMENT SAR AGENCIES, USUALLY BY AUTOMATIC MEANS



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COSPAS-SARSAT ORGANIZATION



**Cospas-Sarsat
Council**

Policy-Setting
“Carry out the relevant
policies and coordinate the
activities of the
Programme.”

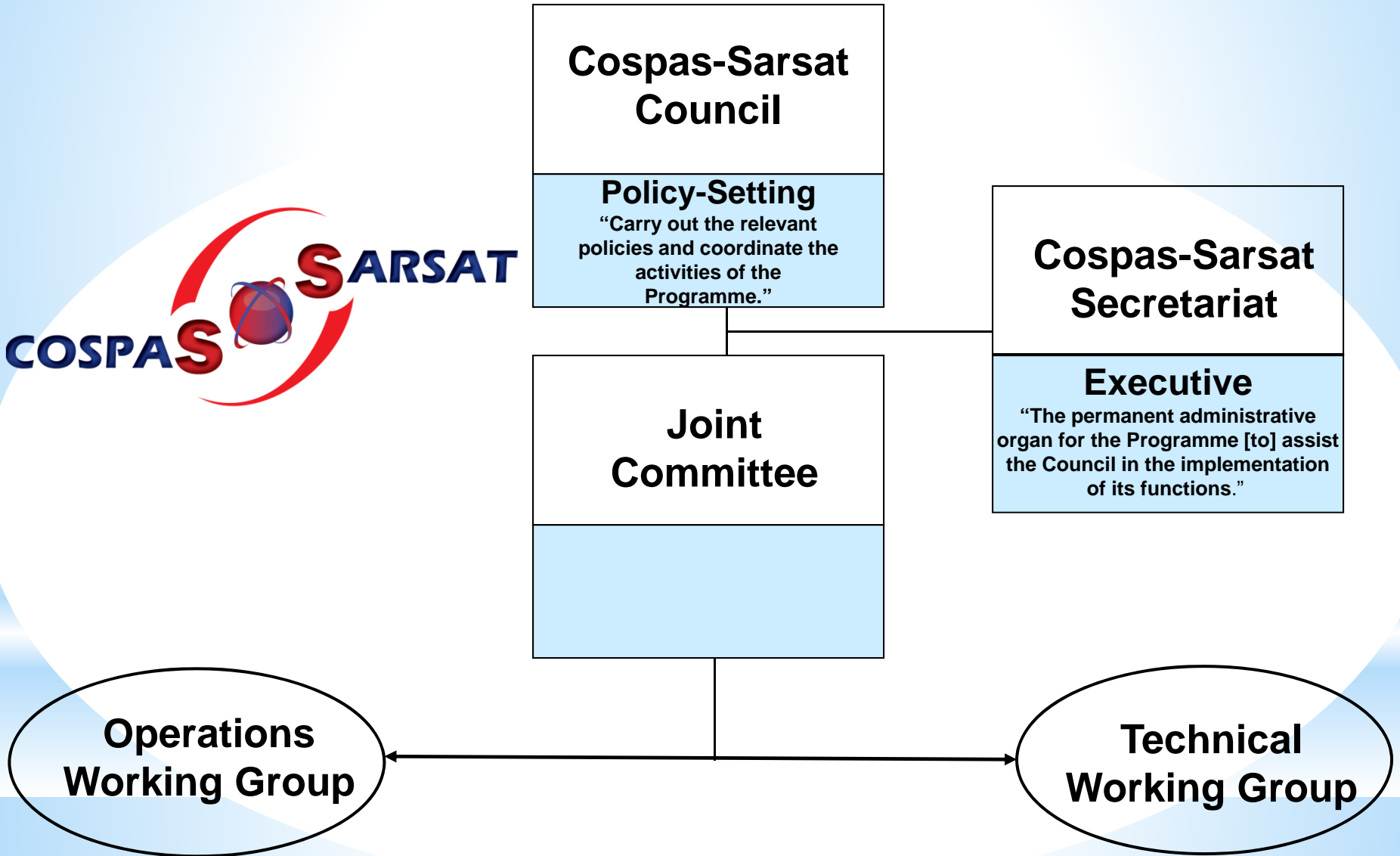
**Cospas-Sarsat
Secretariat**

Executive
“The permanent administrative
organ for the Programme [to] assist
the Council in the implementation
of its functions.”

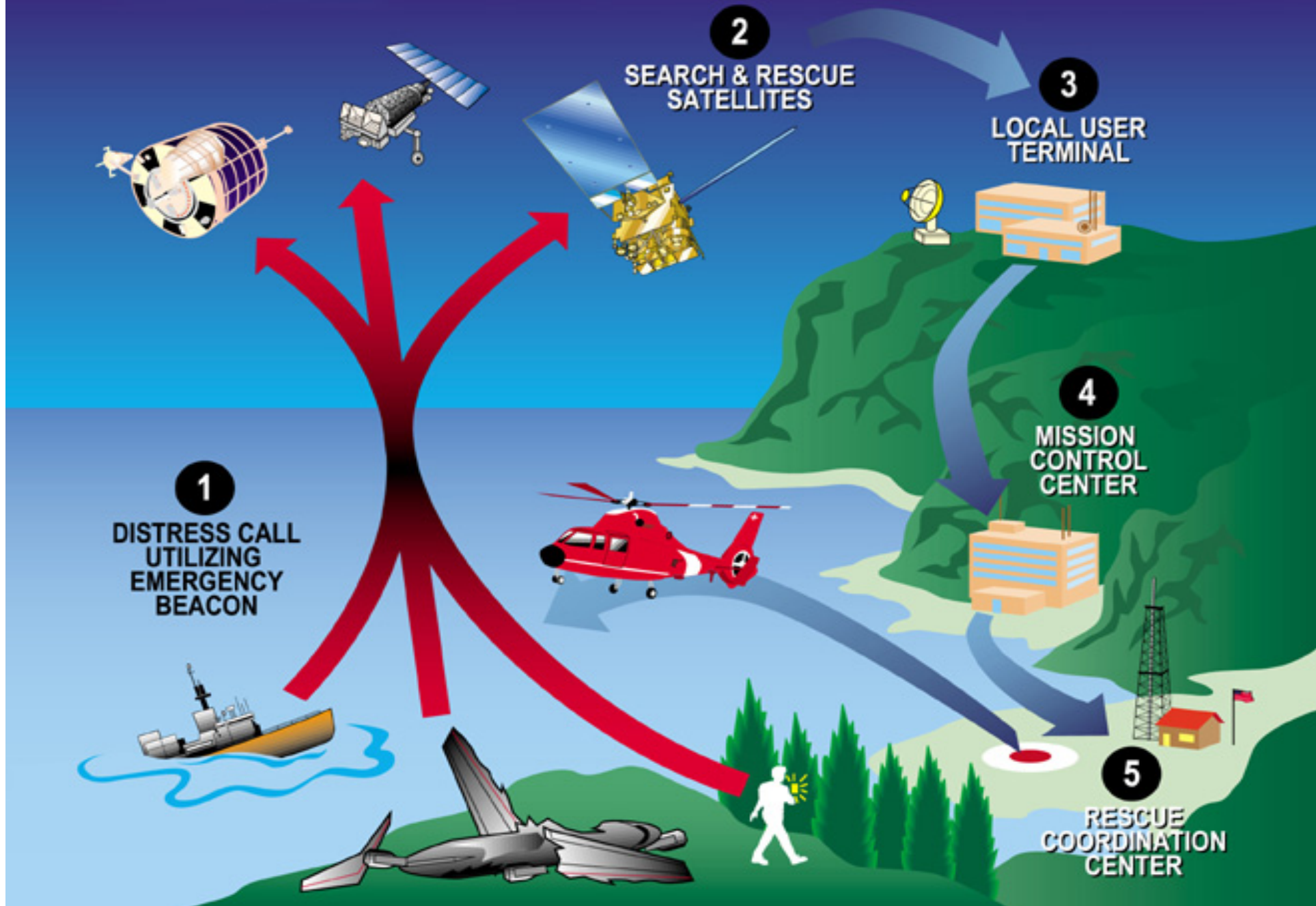
**Joint
Committee**

**Operations
Working Group**

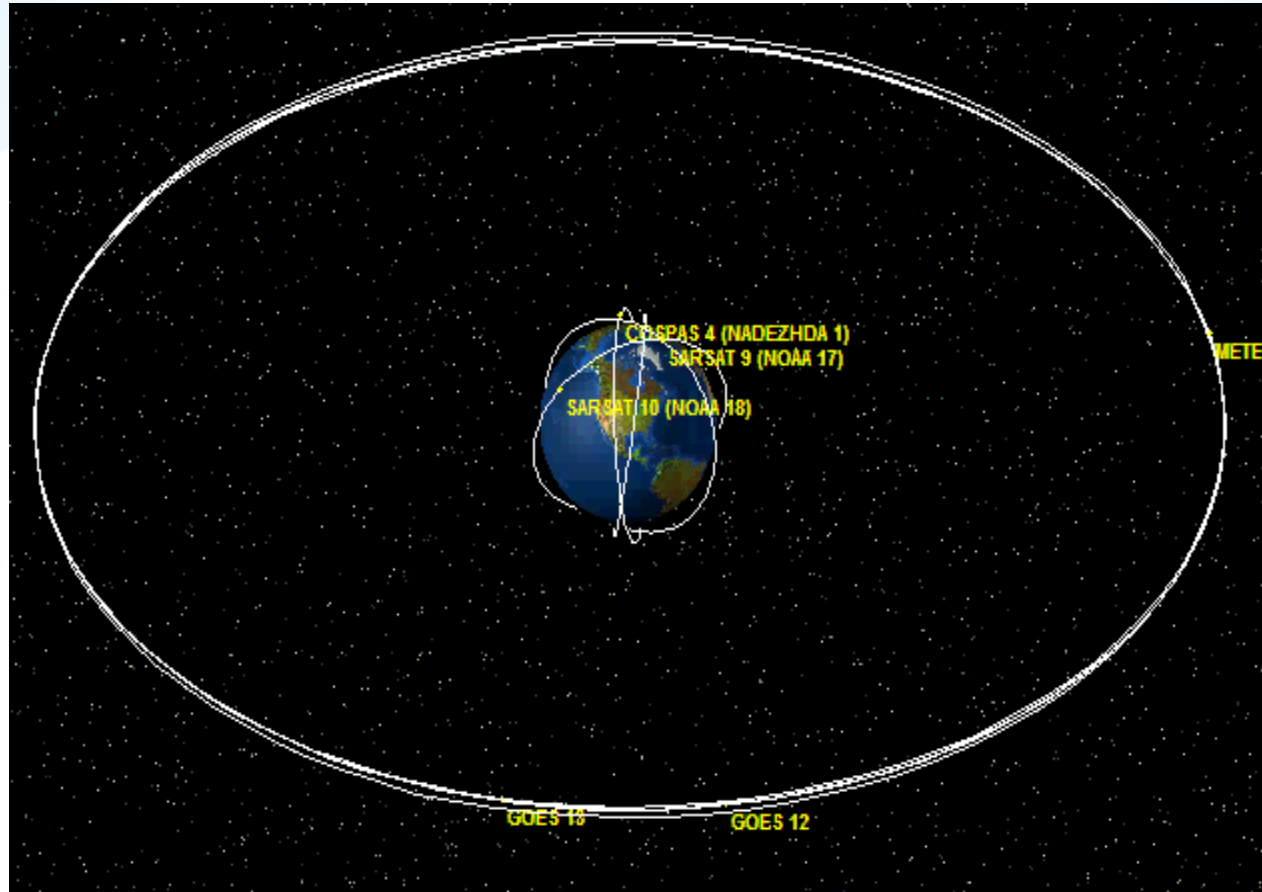
**Technical
Working Group**



COSPAS-SARSAT System Overview

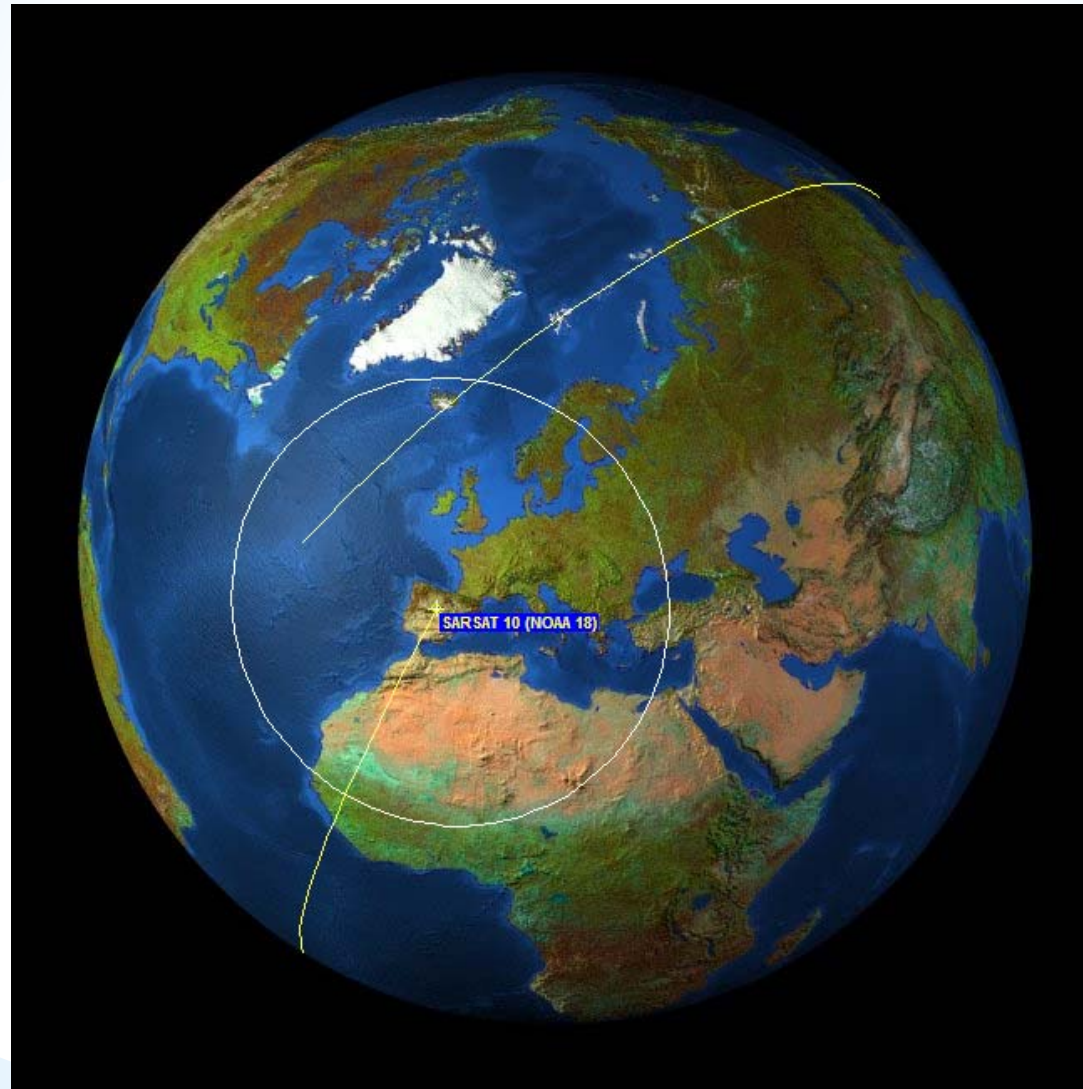


PRESENT LEOSAR/GEOSAR SYSTEM ORBITS



PRESENT LEOSAR SYSTEM

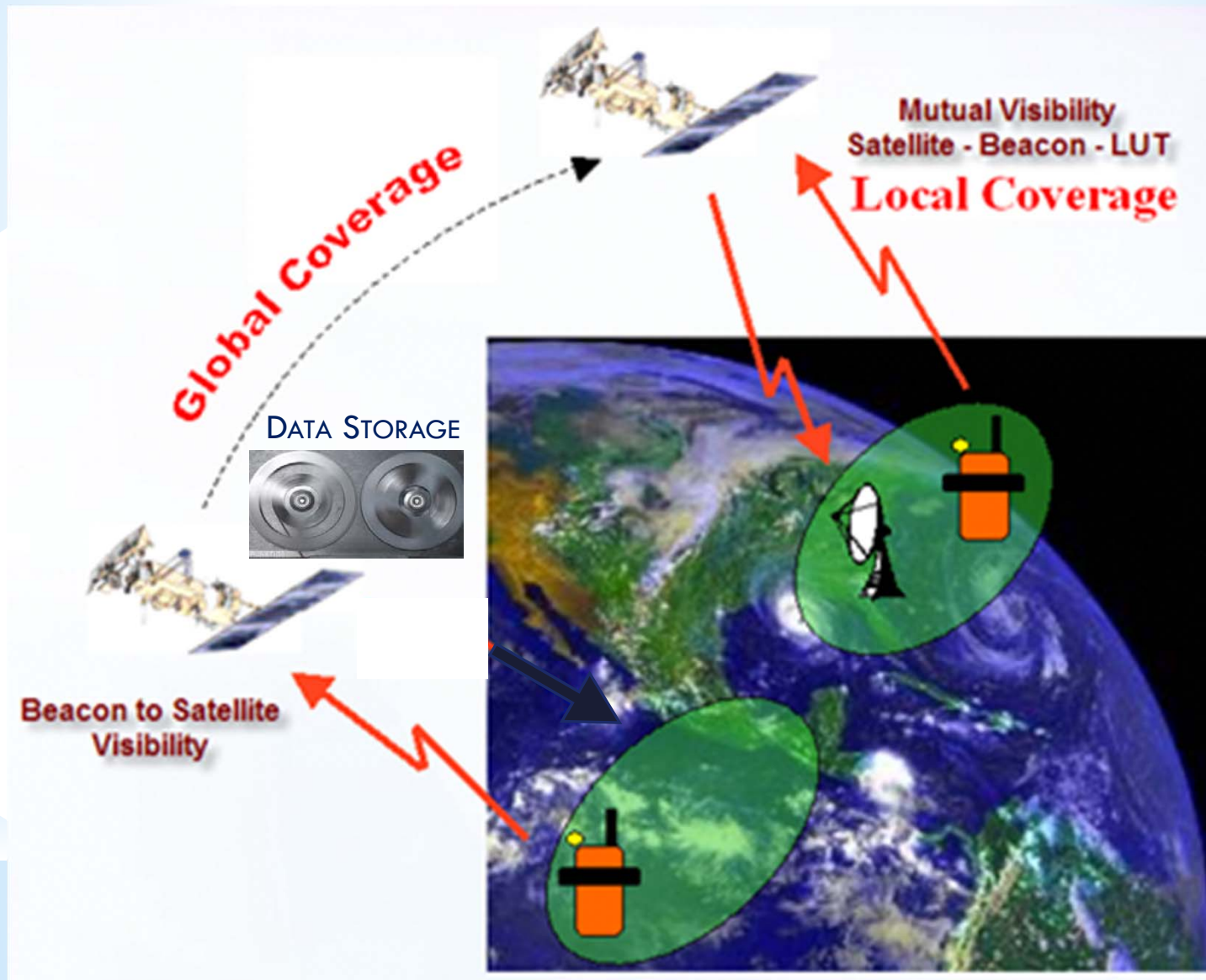
EXAMPLE TRACK



LEOSAR MOVING "FOOTPRINT"

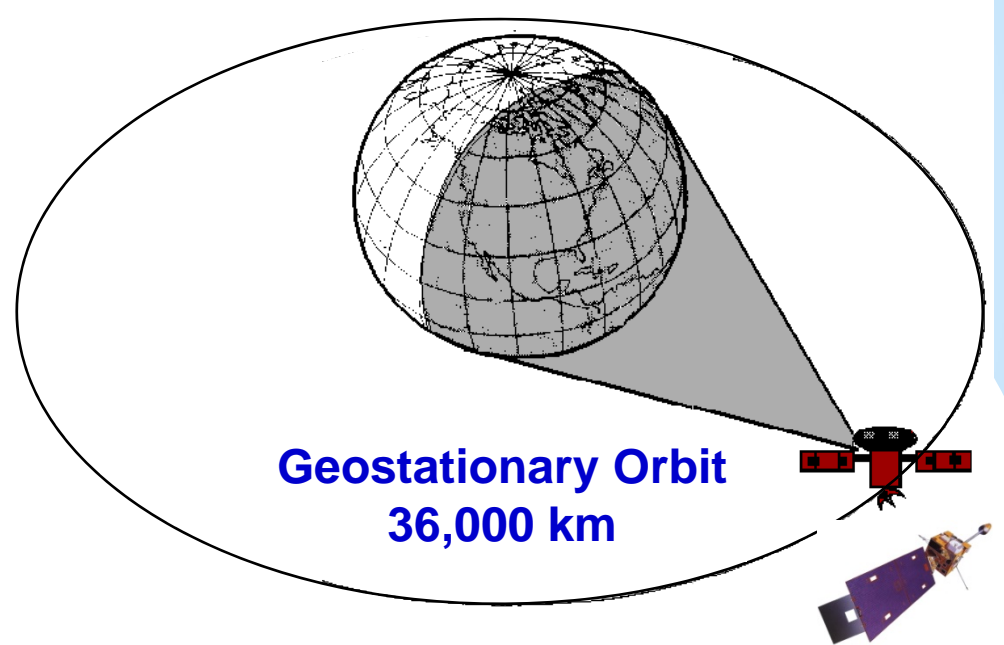
PRESENT LEOSAR SYSTEM

TWO MODES OF OPERATION



PRESENT GEOSAR SYSTEM

- **36,000 KM HIGH: GEOSTATIONARY SATELLITES RELAY TRANSMISSIONS FROM BEACONS**
- **GEOLUTs ONLY “DETECT” ALERTS AND REPEAT MESSAGE**
- **LARGE, FIXED COVERAGE AREAS**
- **WITH NO RELATIVE MOTION BETWEEN BEACON AND SATELLITE THERE IS NO DOPPLER EFFECT ON SIGNAL TO USE FOR DETERMINING LOCATION**
- **LOCATION IS AVAILABLE ONLY IF BEACON HAS A GNSS RECEIVER CHIP AND ENCODES THE LOCATION IN THE BEACON MESSAGE**



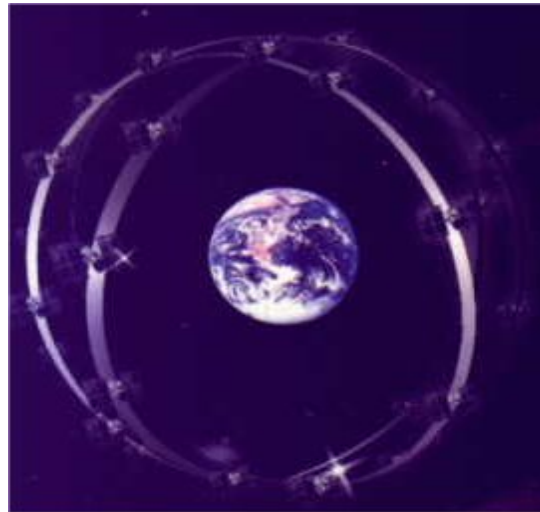
FUTURE MEOSAR SYSTEM FLEET

**MEOSAR Includes SAR Payloads on
Three Global Navigation Satellite Systems**

GPS / USA



Glonass / Russia

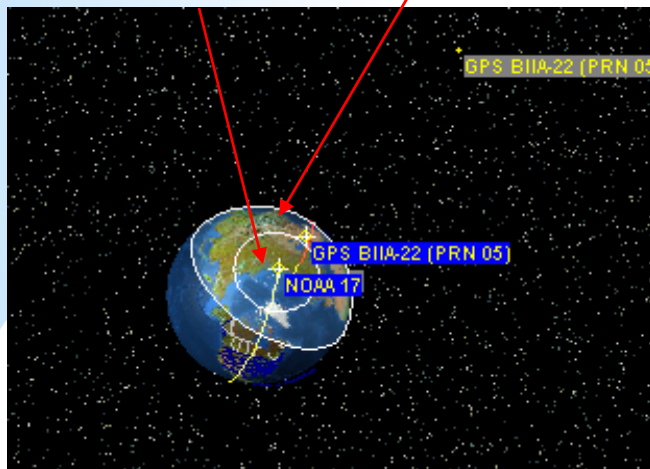


Galileo / Europe

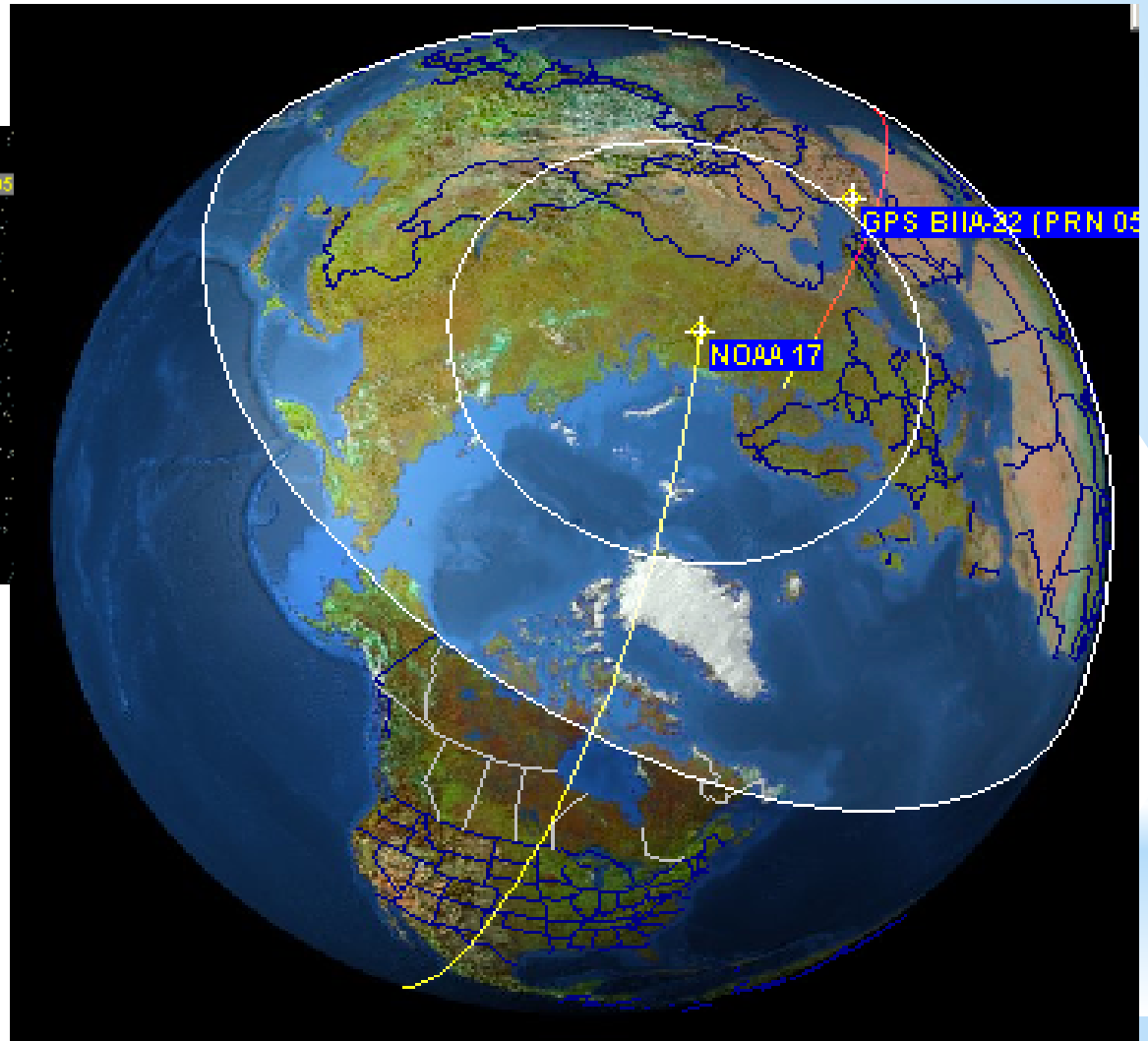


MEOSAR: AN IMPROVED SYSTEM CONCEPT

MEOSAR at 20,000 km
LEOSAR at 1,000 km

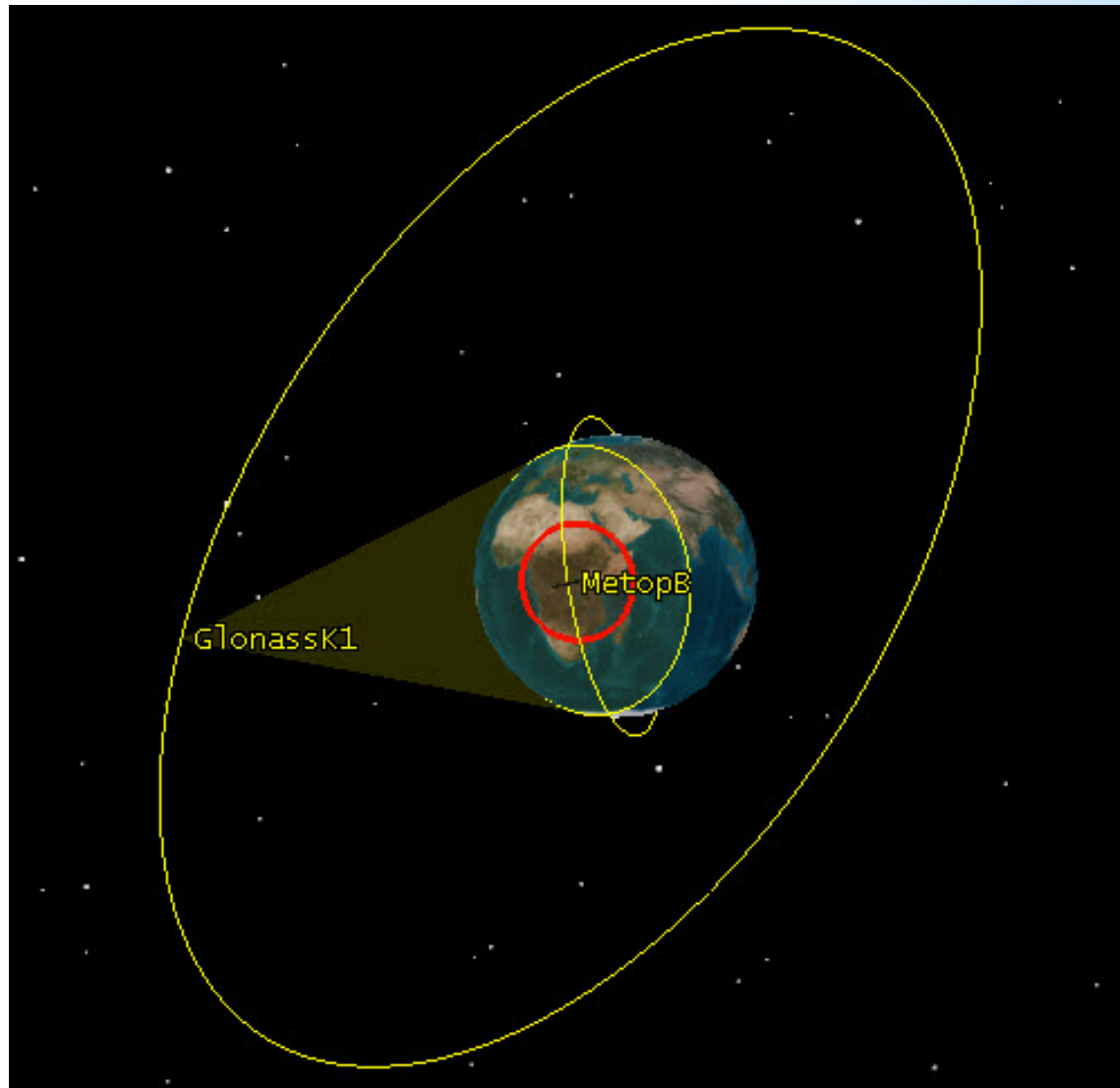


- **MEO FOOTPRINT LARGER THAN LEO**
- **LIKE GEO FOOTPRINT BUT SLOWLY MOVING**
- **CONTINUOUS GLOBAL COVERAGE (INCLUDING POLES)**



MEOSAR: AN IMPROVED SYSTEM CONCEPT

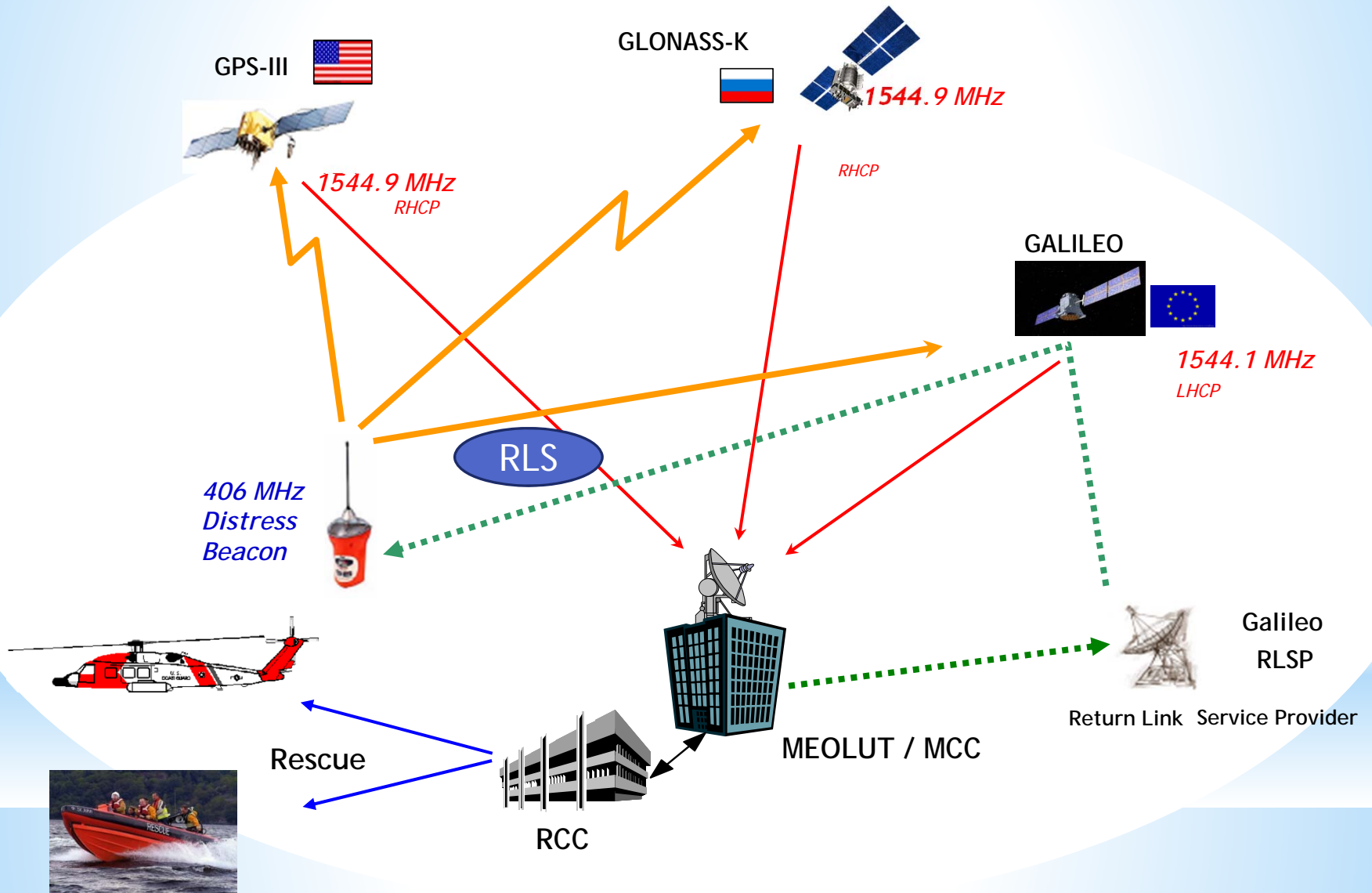
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MEOSAR VIEW FROM SPACE



FUTURE MEOSAR SYSTEM OPERATION



FUTURE “SECOND-GENERATION” BEACONS



- **NEXT GENERATION OF BEACONS CAN BE OPTIMIZED TO TAKE BEST ADVANTAGE OF THE MEOSAR SYSTEM**
- **MORE DISTRESS RELATED INFORMATION SENT TO RCCs**
- **RETURN LINK CAPABILITIES**
- **REDUCED BATTERY CONSUMPTION AND/OR SMALLER SIZE**
- **EXPANDED “HOMING” OPTIONS**

“SECOND-GENERATION” BEACONS WITH MEOSAR

**LEOSAR/GEOSAR
NETWORK WITH
CURRENT-GENERATION
406-MHZ BEACONS**

**MEOSAR/GEOSAR
NETWORK WITH
NEXT-GENERATION
406-MHZ BEACONS**

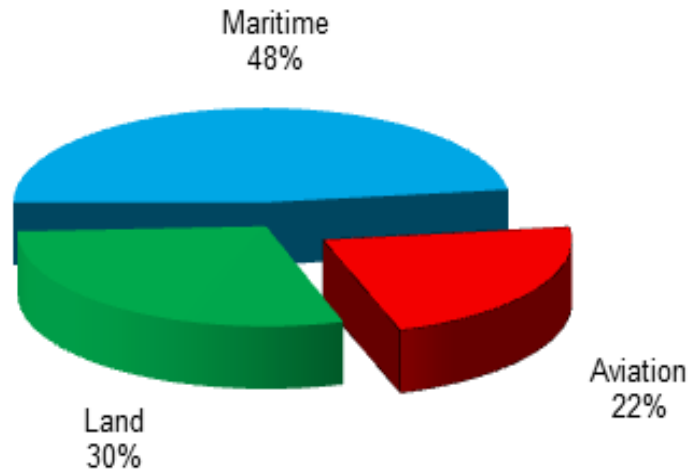
2 – 4 YEARS

- **SIX LEO SATELLITES AND SIX GEO SATELLITES**
- **GLOBAL COVERAGE ONLY OVER TIME**
- **50 SECONDS UNTIL FIRST BURST**
- **INDEPENDENT LOCATION DETERMINED OVER TIME**

- **24 TO 75 MEO SATELLITES AND SEVEN GEO SATELLITES**
- **CONTINUOUS GLOBAL COVERAGE**
- **FIRST BURST IN THREE SECONDS**
- **INDEPENDENT LOCATION DETERMINATION ON FIRST BURST**
- **IN-FLIGHT ACTIVATION**

DISTRIBUTION OF EVENTS 2012

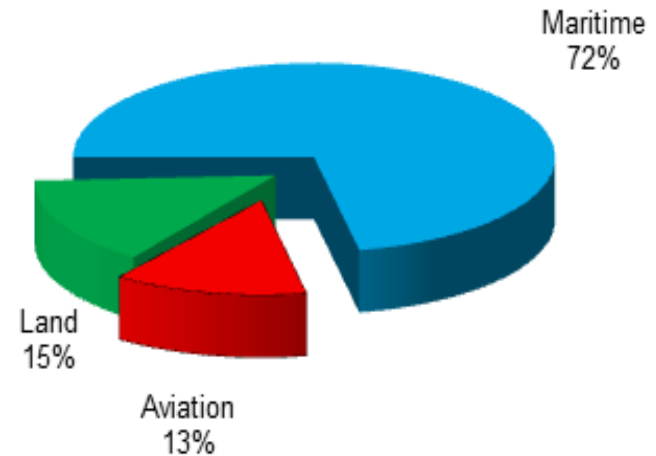
Distribution of SAR Events Assisted by Cospas-Sarsat (Jan. - Dec. 2012)



Total: 634 SAR Events

(283 Events Where Cospas-Sarsat Provided the First Alert; 111 Where It Provided the Only Alert)

Distribution of Persons Rescued with Assistance of Cospas-Sarsat (Jan. - Dec. 2012)



Total: 2,029 Persons



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PRELIMINARY FIGURES 2013

Provisional Number of SAR Events and Persons Rescued (January - December 2013)

Type of Event	Number of Events				Number of Persons Rescued
	Total	Only Alert	First Alert	Support	Total
Aviation	185	42	76	66	334
Maritime	364	87	161	114	1,359
Land	210	78	109	23	425
Total	756	207	346	203	2,118



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SARSAT