



# UN OOSA PROMOTING SPACE SUSTAINABILITY

## COMMERCIAL SPACE SECTOR EVENT



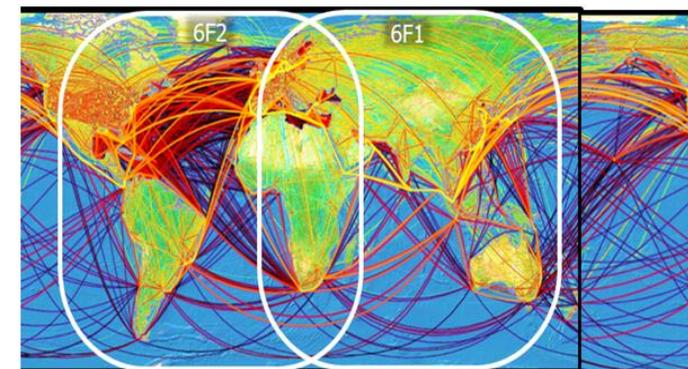
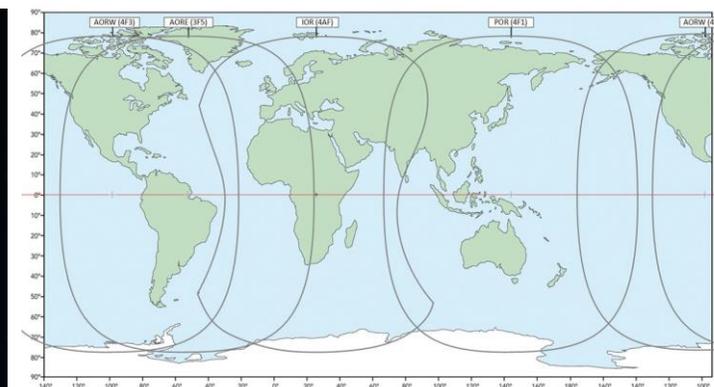
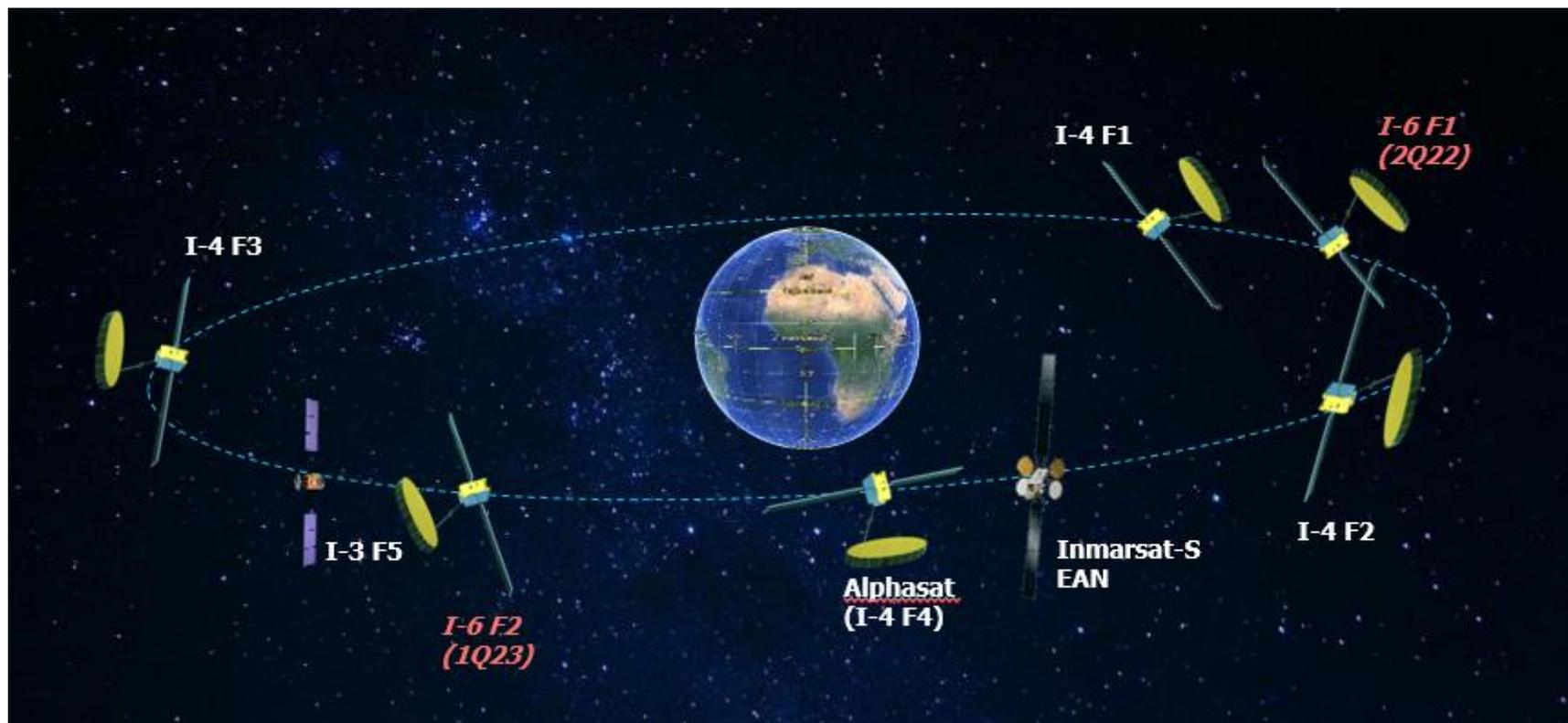
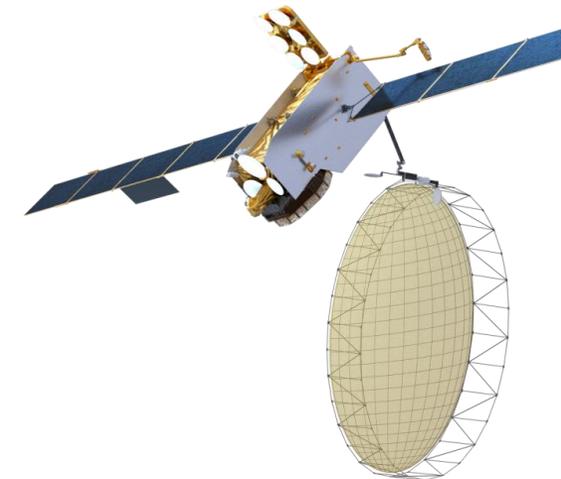
NICK SHAVE

09.02.2021

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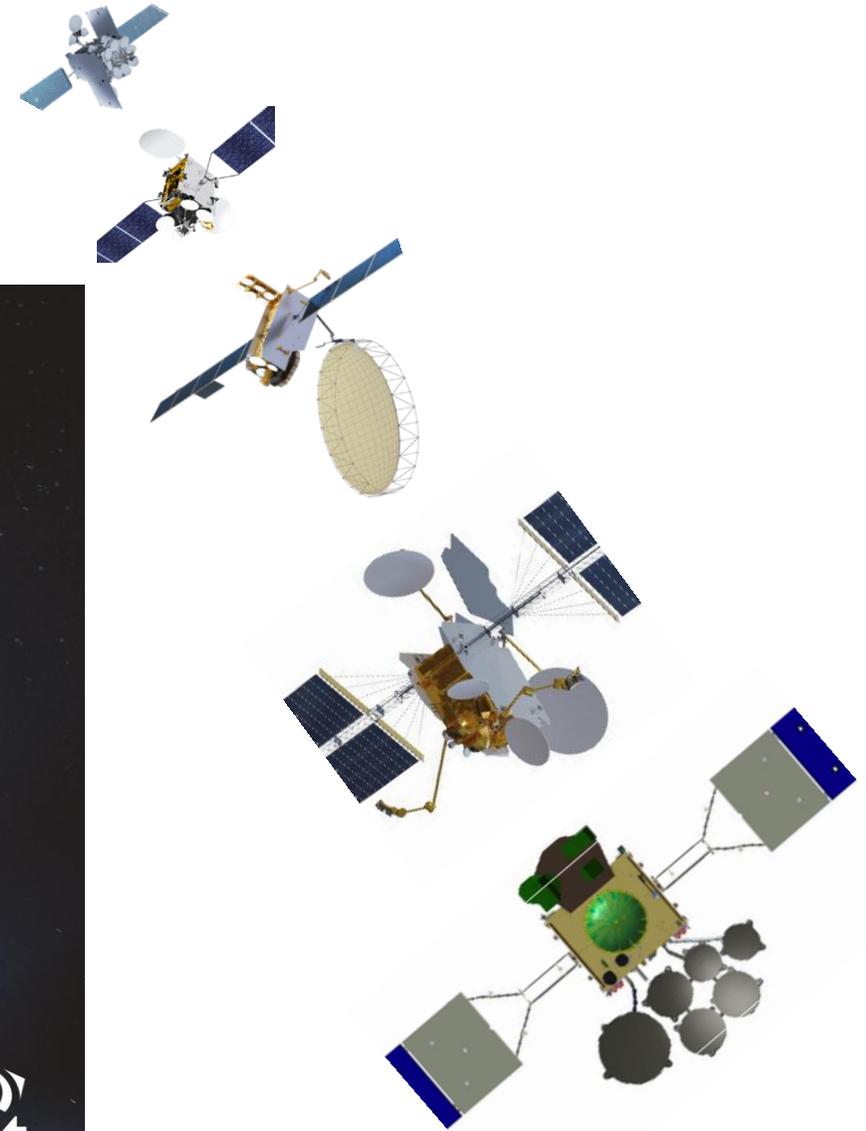
# 40 YEARS GEO SATELLITE OPERATIONS: L-BAND NETWORK

FLEXIBLE, RESILIENT, ASSURED



# 10 YEARS GEO KA-BAND OPERATIONS + *HEO IN 2022*

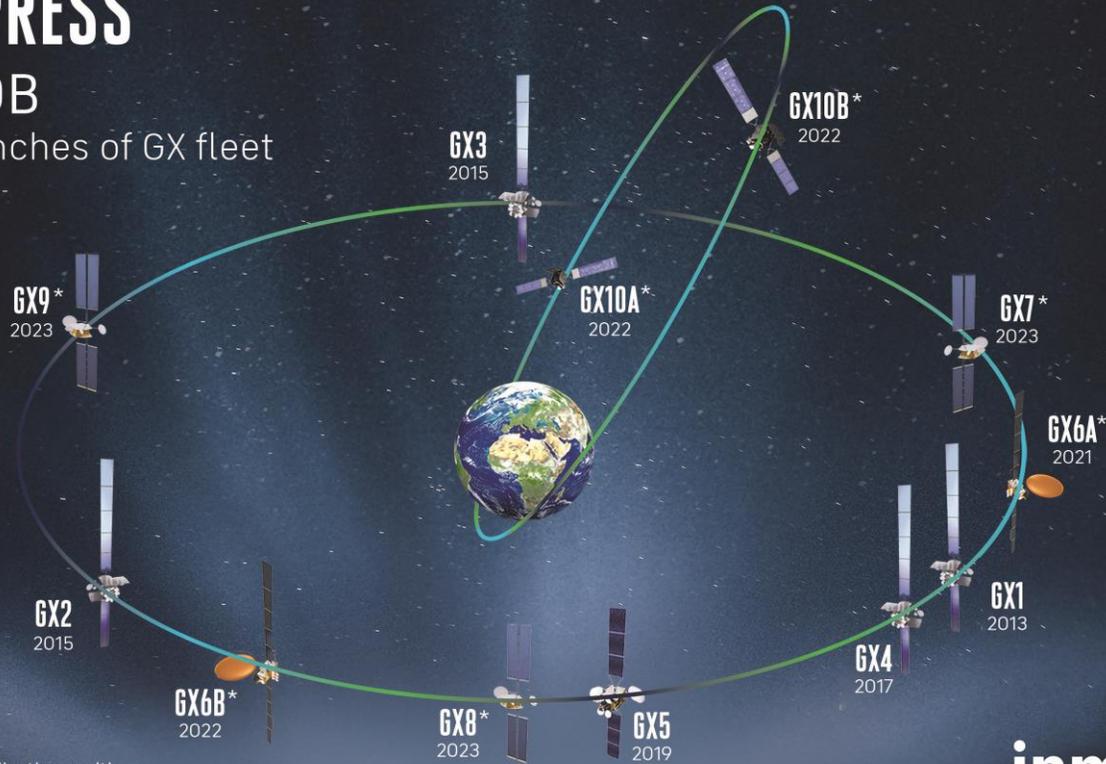
POWERFUL, FLEXIBLE, RESILIENT



## GLOBAL XPRESS

GX1 - GX10B

Scheduled launches of GX fleet



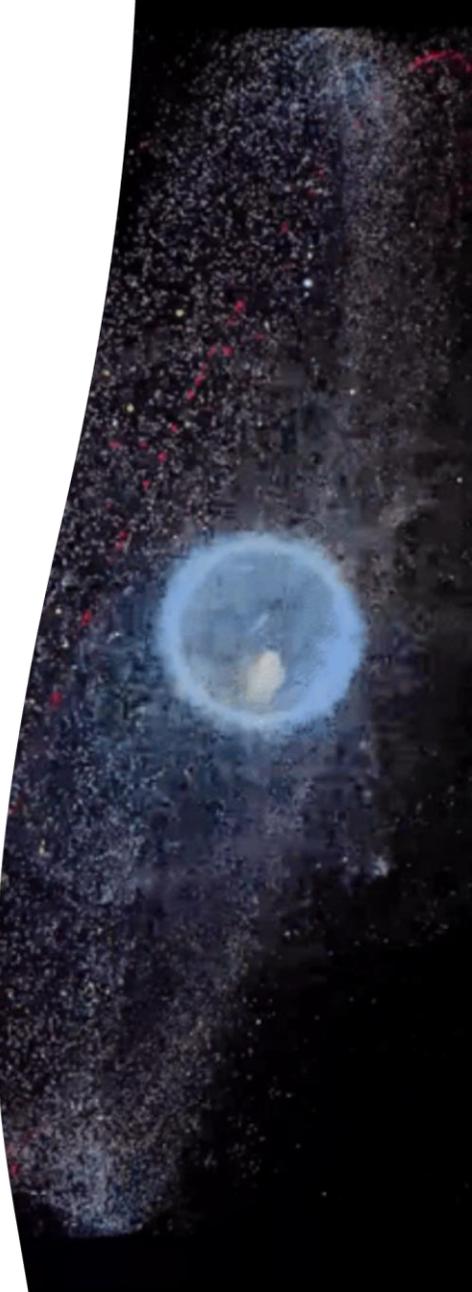
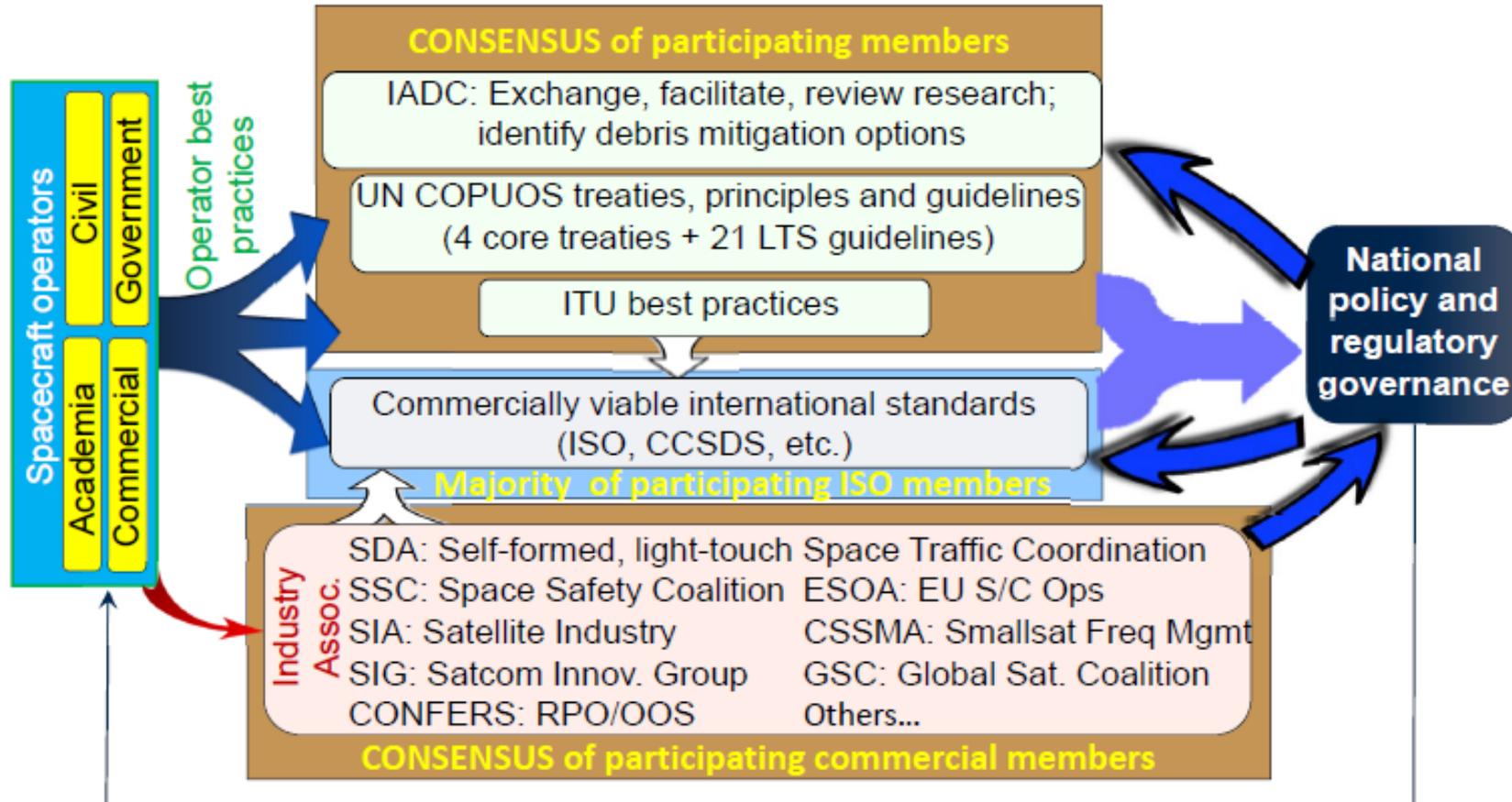
Please note that these are indicative positions  
\*Subject to confirmation from launch providers

  
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# WHY SUSTAINABLE SPACE?

A collision at GEO would destroy the natural resource of the GEO belt

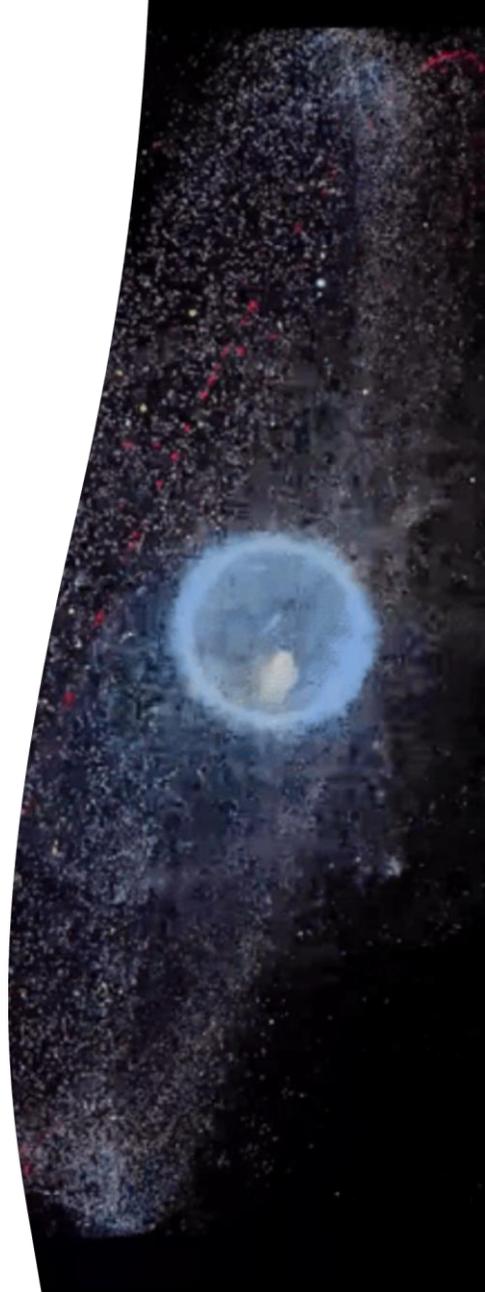
# TODAY'S COMPLEX FRAMEWORK - A VIRTUAL CYCLE



# INMARSAT & SPACE SUSTAINABILITY

## IMPLEMENTING LTS GUIDELINES: B1, B2, B3, B4 + C2, C3

- Founder & Executive Member of the Space Data Association (SDA)
- Member of Space Safety Coalition since Sept 2019
- Membership of ISO TC20/SC14 WG 3 and WG7
- Member of EMEA Satellite Operator Association (ESOA)
- European Cooperation for Space Standardization (ECSS)
  - Participants in SDWG and STMWG
- Founder Members of the “Commercial Integration Cell (CIC)” within US DOD Combined Space Operations Centre & UK MOD Space Operations Centre





# SDA: 34 members and participants, 615 satellites, 62% of active GEO



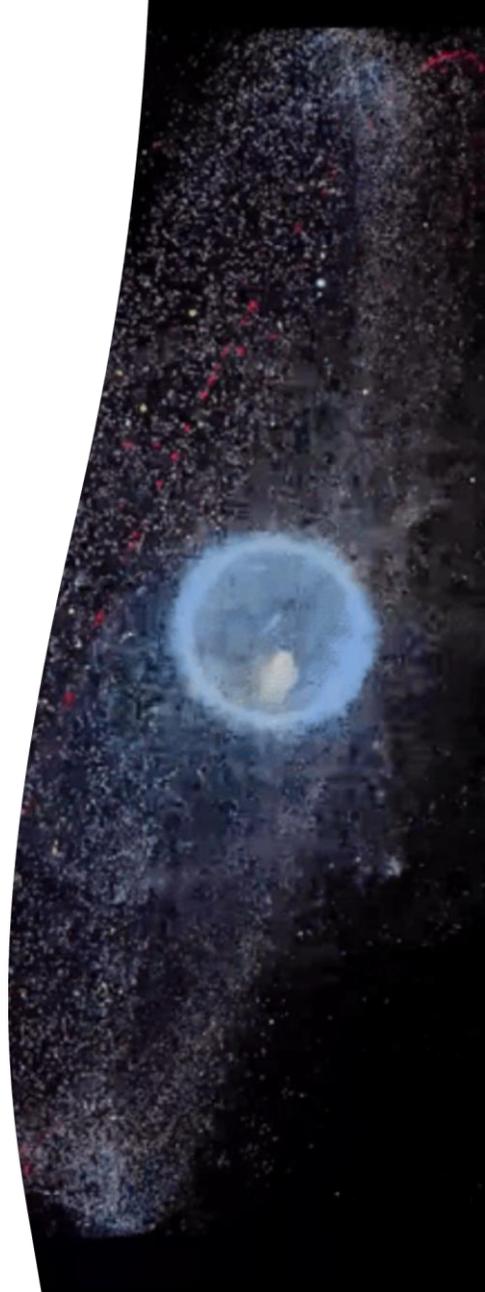


# Promoting Responsible Behaviour

- Clearly demonstrate operational best practices and established norms of behaviour
- Tireless pursuit of the best, most actionable and timely collision avoidance SSA data, techniques and mitigation strategies
- Collaborative, mutual and transparent sharing of key satellite operations elements of information, including planned manoeuvres
- Adherence to stationkeeping boxes, RF levels and national, international and organisational space debris and RFI mitigation policies and practices

# Sustainable space & industry: The Space Safety Coalition (SSC)

- Most satellite operators support space sustainability:
  - “It’s just good business sense”
  - Especially important for new, large satellite constellations
- SSC is a new ad-hoc “light touch” coalition of willing space operators and relevant industry stakeholders, formed to assemble aspirational best practices for the long-term sustainability of space operations
  - Not a legal entity
  - Concept is one of self-regulation
- While non-normative, signatories **endorse and agree to strive to implement** best practices to ensure safety and commercial viability of space activities



# Inmarsat Operations Examples

- The SDA and CSpOC are our 2 main sources of information for tracking debris, collision avoidance and space situational awareness for the Inmarsat satellite fleet
- The Inmarsat Flight Dynamics team constantly evaluates collision risks through fusion of multiple sources of warnings, messages and notifications
- Automated handling of over 15,000 messages/notifications per year using state of the art tools to efficiently compute Collision Avoidance Manoeuvres (COLA)
- If a risk results to be higher than a predefined threshold (based on the probability of collision and minimum distance), actions are taken such as satellite manoeuvre re-planning or execution of ad-hoc manoeuvres
- Over last 3 years, Inmarsat has performed 12 COLA manoeuvres across our fleet of GEO satellites

  
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THANK YOU