



UN OOSA PROMOTING SPACE SUSTAINABILITY

COMMERCIAL SPACE SECTOR EVENT

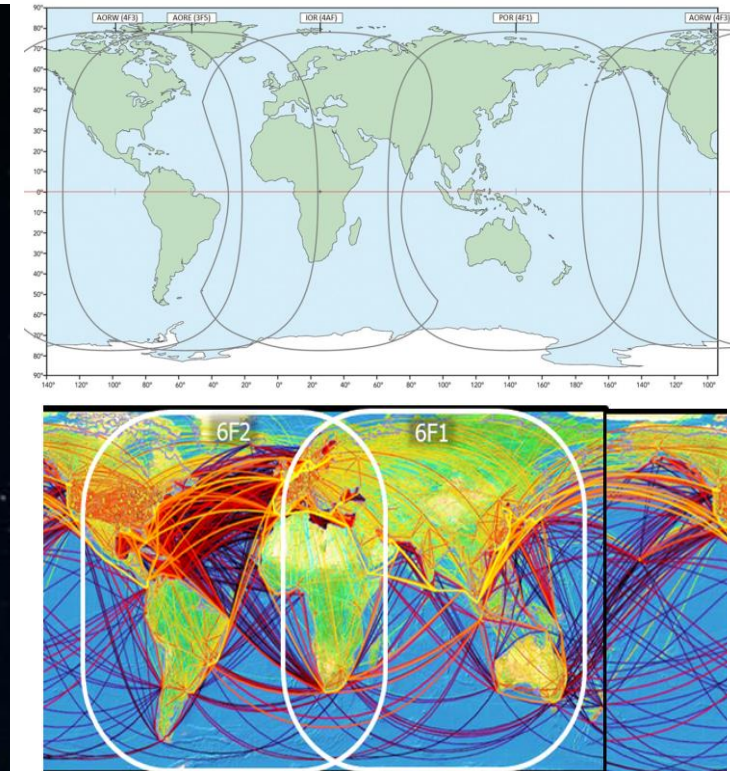
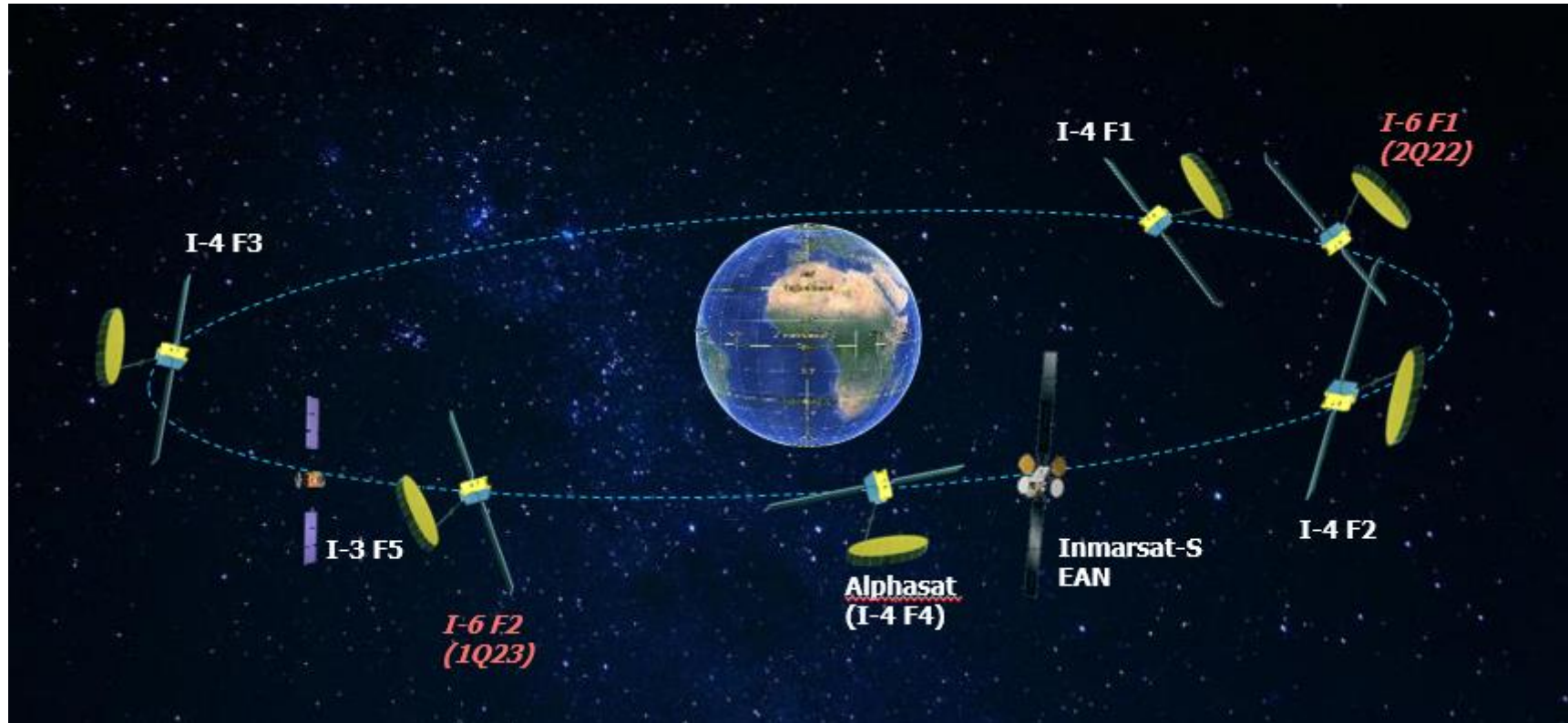
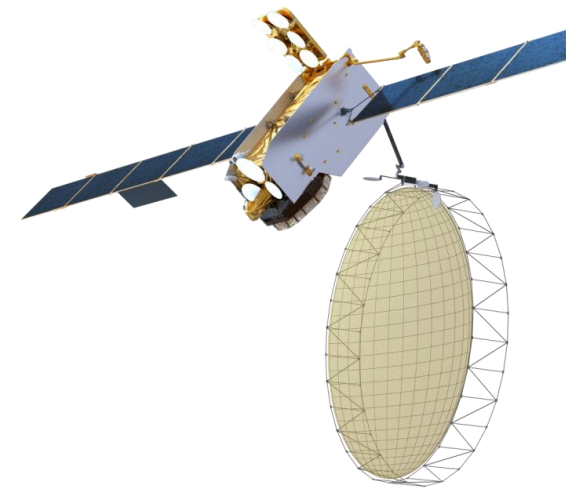
NICK SHAVE

09.02.2021

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.co.uk

40 YEARS GEO SATELLITE OPERATIONS: L-BAND NETWORK

FLEXIBLE, RESILIENT, ASSURED



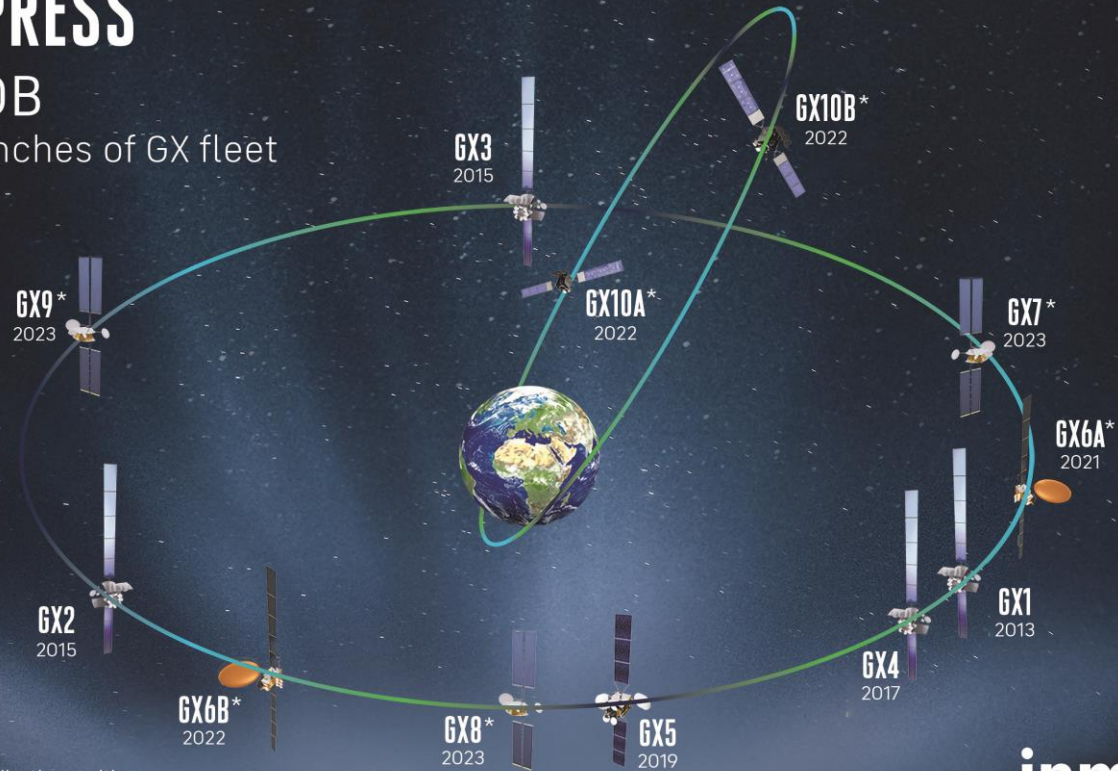
10 YEARS GEO KA-BAND OPERATIONS + *HEO IN 2022*

POWERFUL, FLEXIBLE, RESILIENT

GLOBAL XPRESS

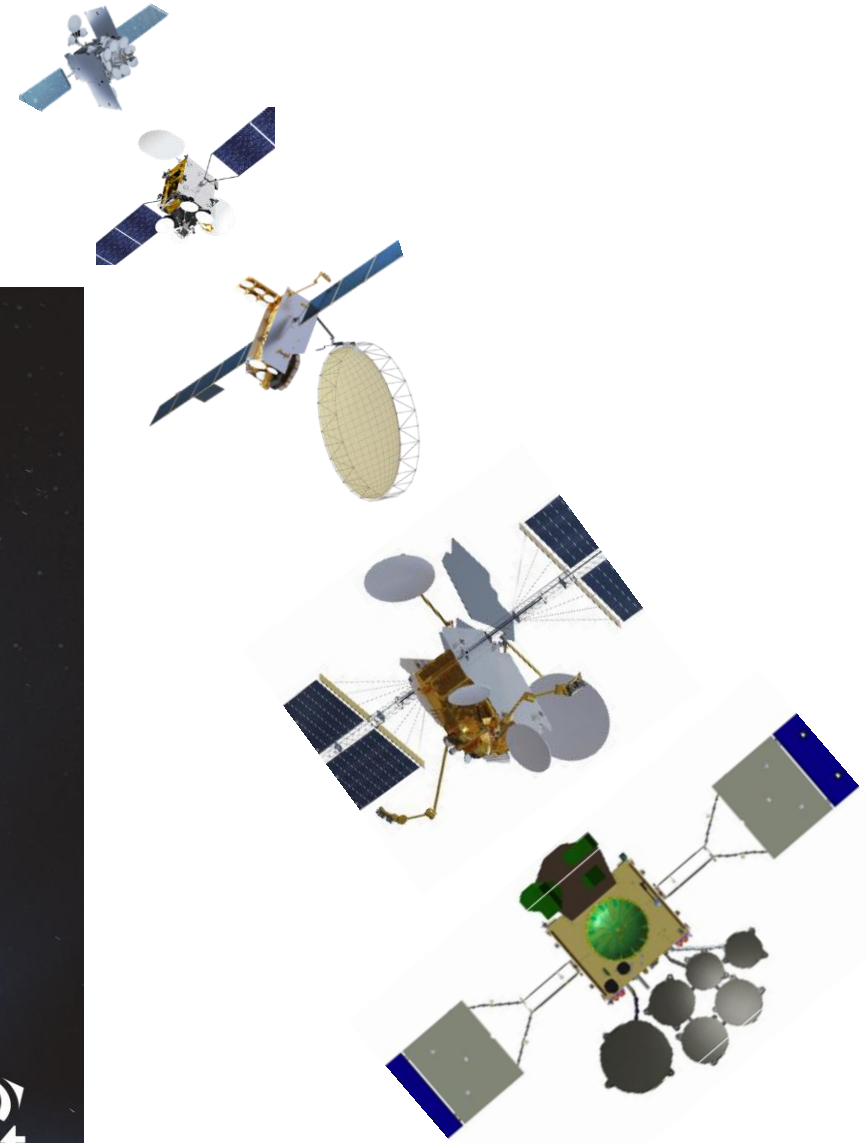
GX1 - GX10B

Scheduled launches of GX fleet



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

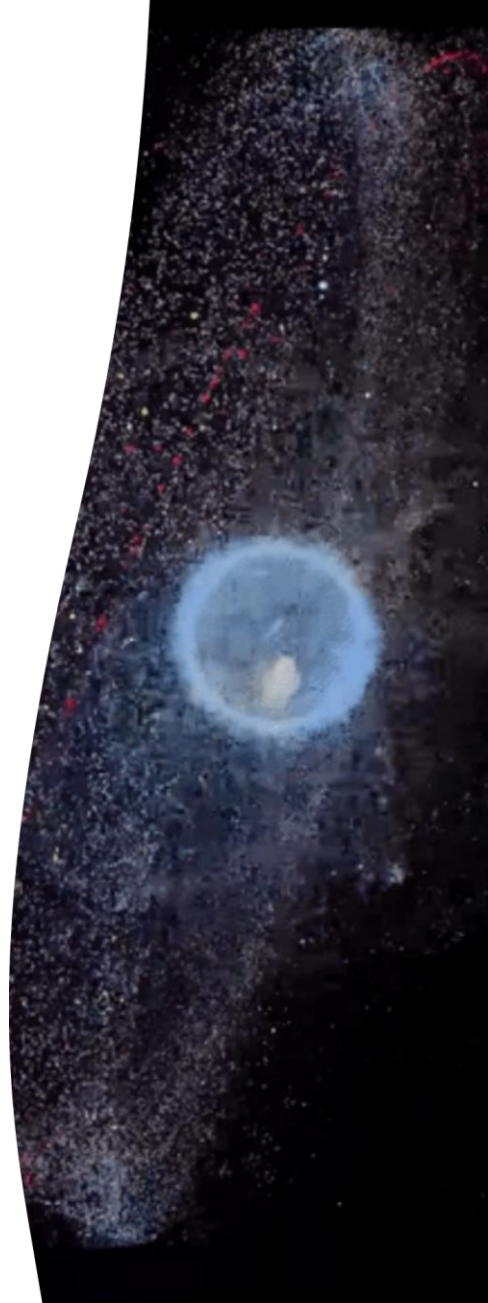
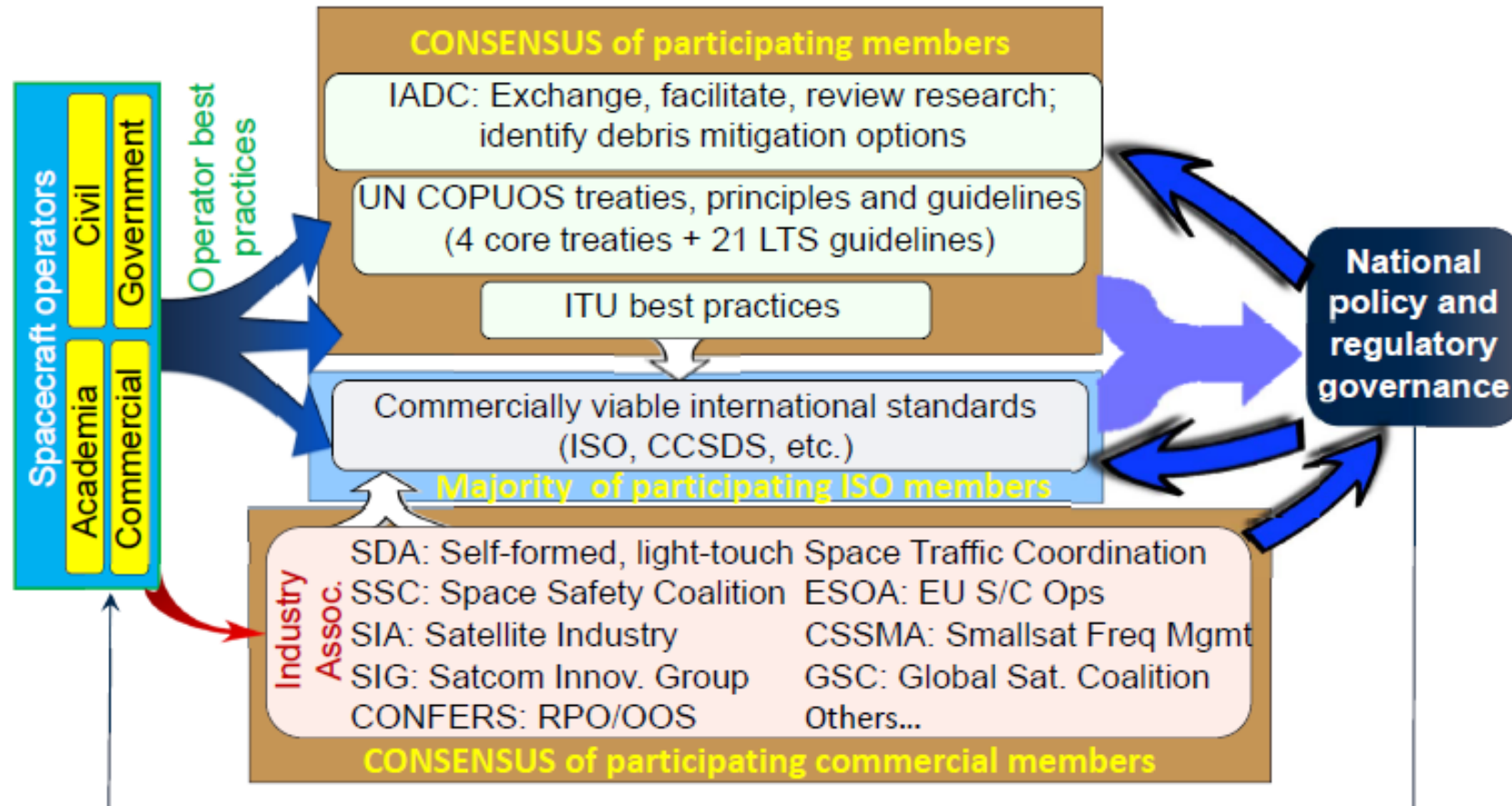
inmarsat



WHY SUSTAINABLE SPACE?

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

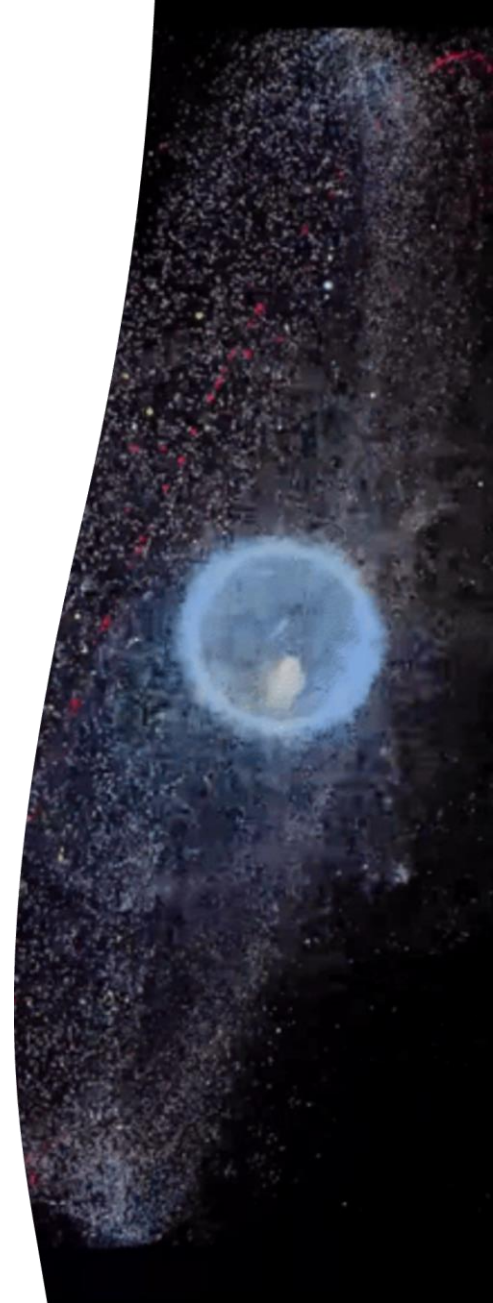
TODAY'S COMPLEX FRAMEWORK - A VIRTUAL CYCLE



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





SPACE DATA
ASSOCIATION

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



NOAA



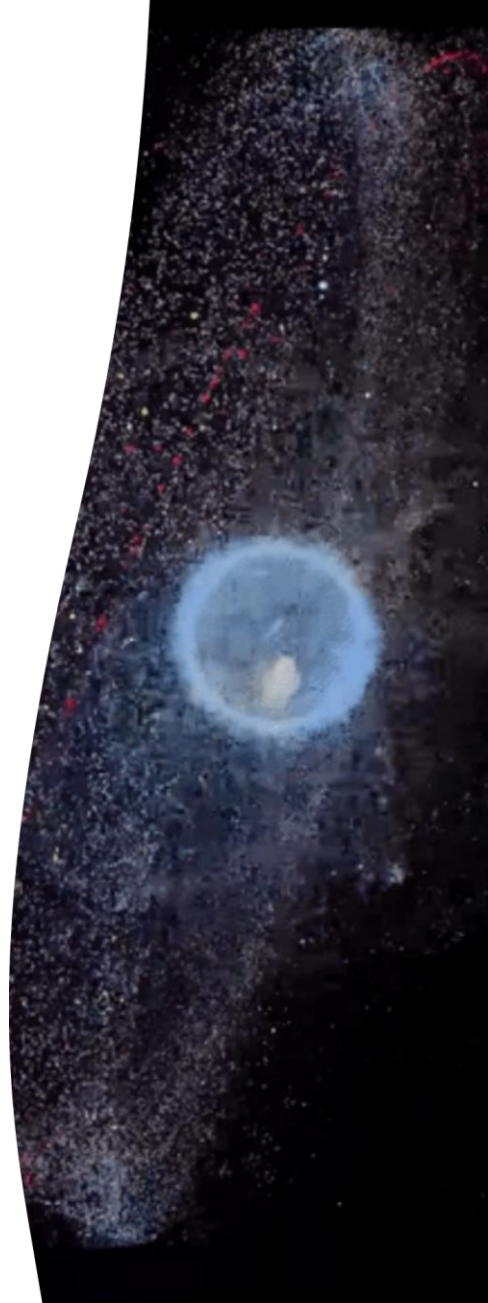
SDA Proprietary and Confidential

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



THANK YOU