



UNCLASSIFIED



"Contribution of the National Satellite System (SNSAT) to the LTS Guidelines"



Overview

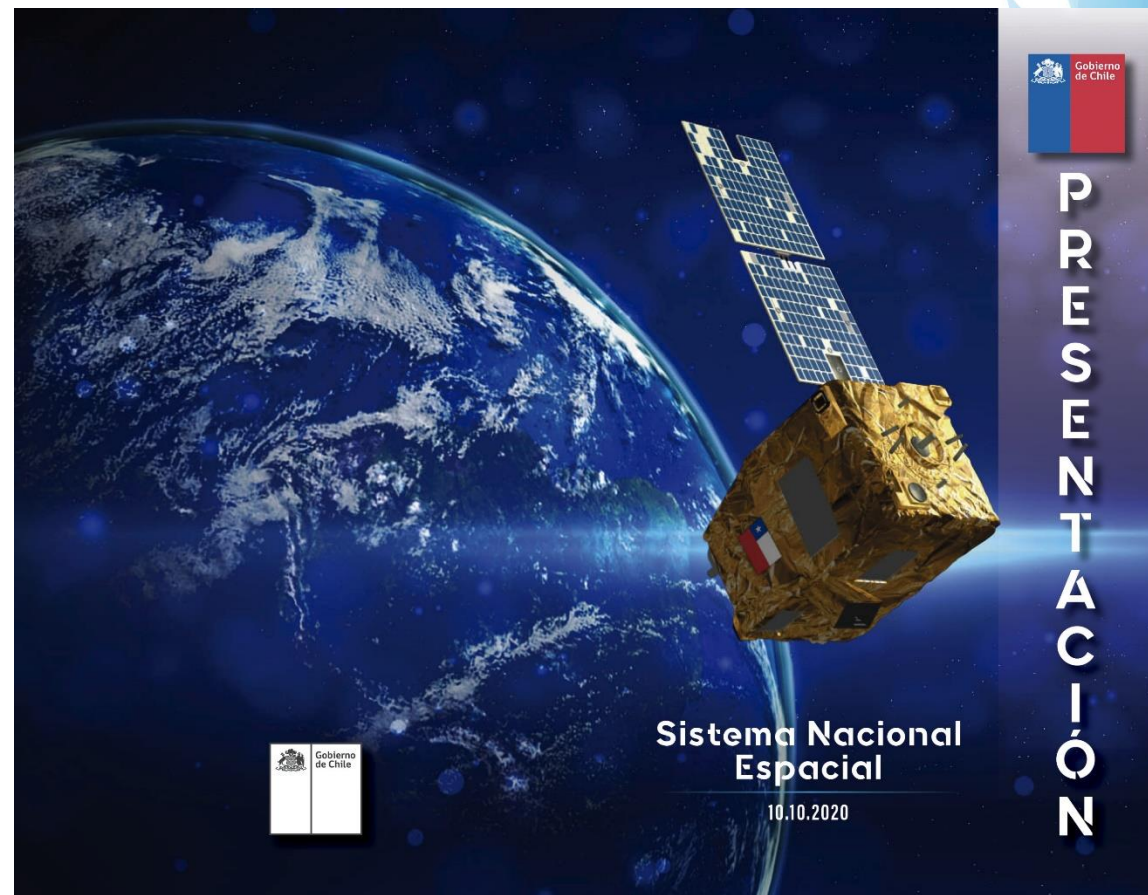
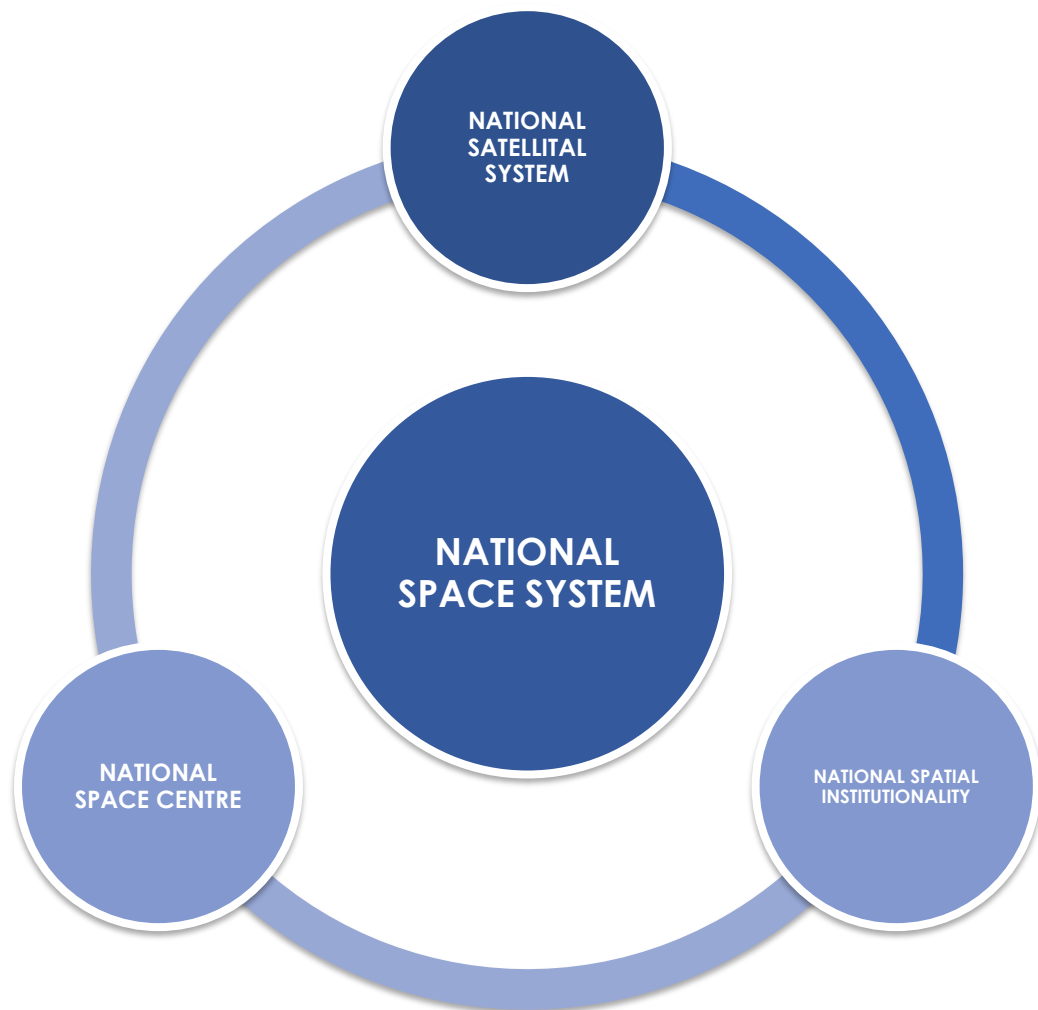


- I. Introduction**
- II. National Satellite System (SNSAT)**
 - A. SNSAT Background
 - B. Subsystem 1 – 4
- III. Contribution to Long term Sustainability Guidelines**
- IV. Conclusions**



I. Introduction

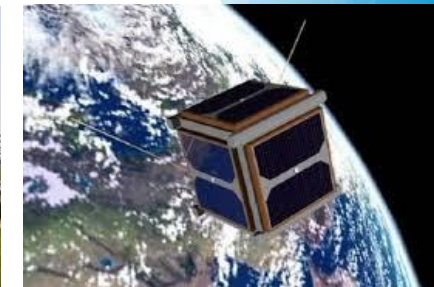
NATIONAL SPACE SYSTEM PILLARS





I. Introduction

NATIONAL SPACE SYSTEM



**AUTONOMY AND
SOVEREIGNTY IN SPACE
OPERATIONS**



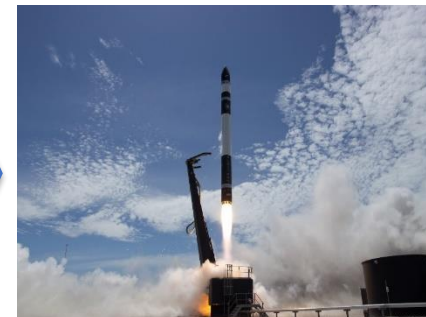
Observation satellites



Space Situational
Awareness



Telecommunications



Launching



Positioning system



II. NATIONAL SATELLITE SYSTEM (SNSAT), Background



SPATIAL DEVELOPMENT STRATEGY

Purpose

Pillar

Area of Interest

Action Lines

Contribute to strengthen the National Space System

Technologic
Frame

Financial
Frame

Normative
Frame

Institutional
Frame

Geospatial Information
Management

Spatial geniuses

SATCOM & Cibersecurity

Mathematical data modeling &
Terrestrial Sensor Network

National
Industry

I + D + i + C

Critical mass

Cooperation &
Collaboration



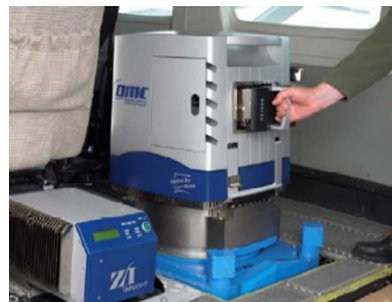
II. NATIONAL SATELLITE SYSTEM (SNSAT), Background



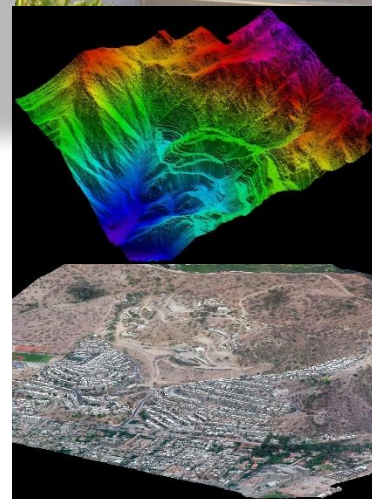
SPATIAL OPERATION GROUP (GOE)



FASat Charlie



AEROPHOTOGRAMMETRIC SERVICE (SAF)



II. NATIONAL SATELLITE SYSTEM (SNSAT), Background

AWARENESS AND SPACE DIFFUSION



SPACE CONFERENCE
SPACE AS A CHALLENGE FOR HUMANKIND
APRIL 4-5, 2018
FIDAE CONFERENCE CENTRE

GOAL
To create a space for technical discussion in order to raise awareness among national decision-makers, as well as in the general public, of the benefits obtained from the active participation in international research and collaboration in the space field for the country.

PRESENTATION
The successful experience of the Space Conference's previous edition, which summoned national and international Government and academic authorities, as well as representatives from renowned international companies of the space area, motivate us to make a new edition of this important meeting at a Latin American level, organized in this opportunity by the Chilean Air Force within the framework of FIDAE 2018.

WHY TAKE PART

LEADERSHIP
FIDAE is the first fair of its kind in the region and has been recognized worldwide for its prestige and leadership in the aeronautics, defense and space fields.

EXPERIENCE
More than 37 years of experience support the history of FIDAE, with the participation of the most important companies in the world.

OPPORTUNITY
Participating in the most important aerospace fair in Latin America, will allow interaction between leading space companies worldwide and professional visitors with high decision-making power.

FIDAE SPACE SUMMIT

II. NATIONAL SATELLITE SYSTEM (SNSAT), Subsystems

SUBSYSTEM 1

Geospatial Information

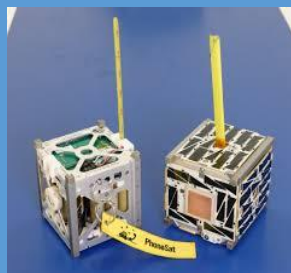
- Satellital Ground Stations
- Optical and radaric service imagery.
- Web Geoportal to access and processing.
- Complementary APP for public uses.



SUBSYSTEM 2

National Production

- Local production of mini/micro satellites and payloads:
- Design.
- Assembling.
- Integration.
- Certification.



SUBSYSTEM 3

National Satellite

- Satellite constellation in replace of Fasat Charlie



SUBSYSTEM 4

Telecommunication services

- Dedicated Satellital communications services.





II. NATIONAL SATELLITE SYSTEM (SNSAT), Subsystems



SUBSYSTEM 1 “Geospatial Information Management”

THIRD PARTIES SATELLITAL
CONSTELLATION ACCESS

GEOSPATIAL INFORMATION ACCESS

SATELLITAL GROUND STATIONS

Optical and radarcic imagery
service

Geoportal
Mobile app

Fixed and transportable
ground stations (Antofagasta,
Santiago, Punta Arenas),

Multiespectral
Digital
Camera

LIDAR
SENSOR

PROCESS

PRODUCTS AND
SERVICES

II. NATIONAL SATELLITE SYSTEM (SNSAT), Subsystems

SUBSYSTEM 2
“Local
development
of National
Space
Capabilities”

**NATIONAL
SPACE
CENTRE**

**National Space Laboratory of
Satellite Production**

- Capacity up to 04 simultaneous satellites.
- Production of 07 microsatellites.
- Fasat C replacement, production in Chile.

**National Space Mission Control
Centre**

- Coordinated and integrated operation over national and international satellites.

**National Geospatial analysis
and processing information
Centre**

- Data analysis and processing. BIG DATA and imagery processing.

**National Space
entrepreneurship and
Innovation Centre**

- Promote the entrepreneurship and initiative projects and national industry integration

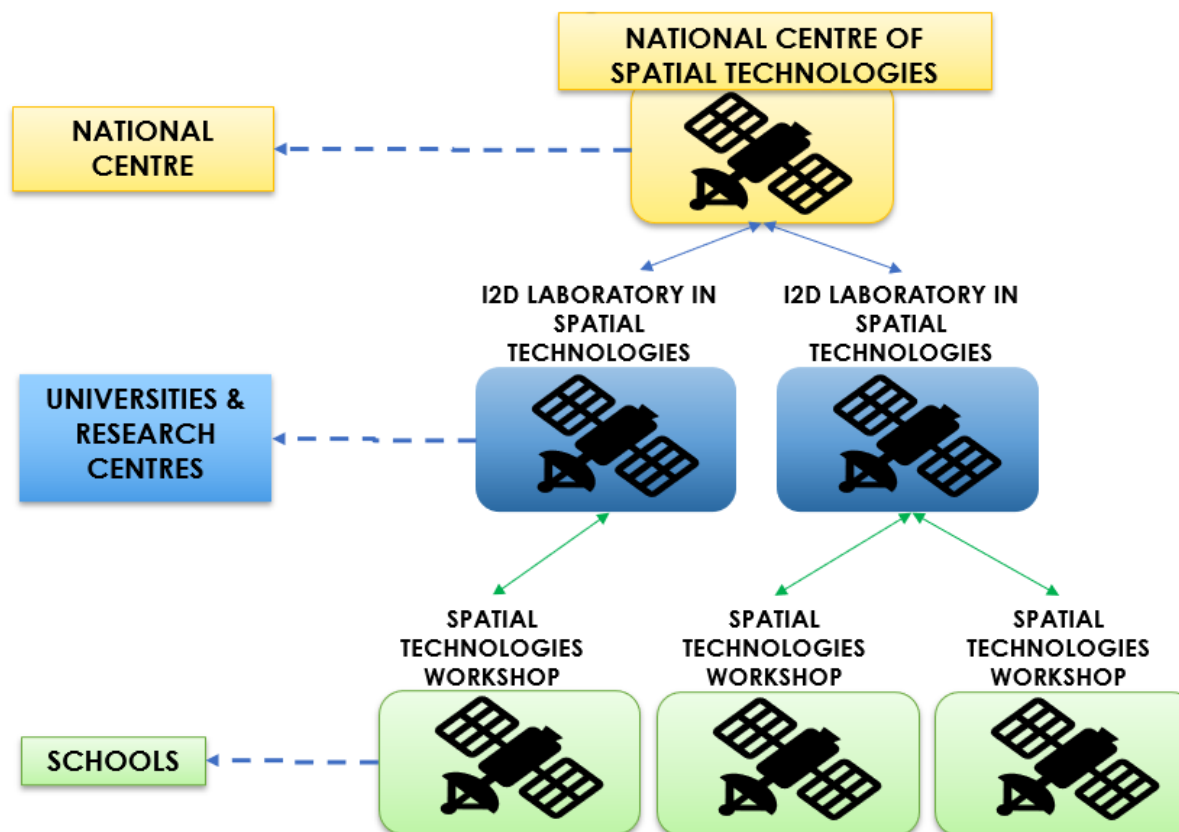


II. NATIONAL SATELLITE SYSTEM (SNSAT), Subsystems

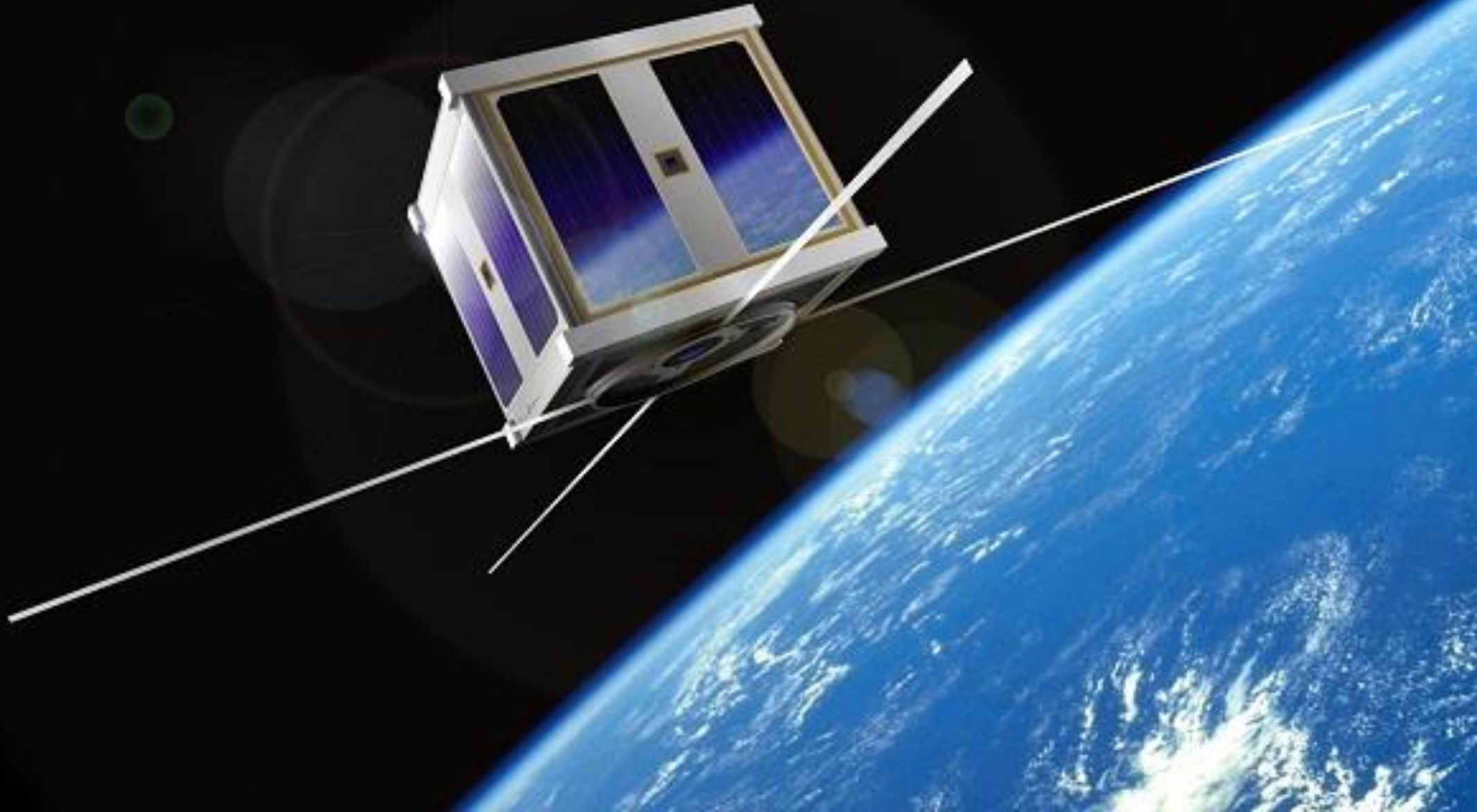
COOPERATION/SPATIAL PUBLIC POLITICS/NATIONAL R&D PROGRAMS



AIT – NATIONAL SYSTEM



Sustainable technologic development model and spatial capabilities





III. CONTRIBUTION TO LONG TERM SUSTAINABILITY (LTS) GUIDELINES



Guideline [A.1 A.2] Adopt, revise and amend, as necessary, national regulatory frameworks for outer space activities:



Chilean Spatial Institutional



COPUOS 62nd session, 2019





III. CONTRIBUTION TO LONG TERM SUSTAINABILITY (LTS) GUIDELINES



Guideline [A.5] Enhance the practice of registering space objects



Regulation in progress...

- Register and monitoring for space debris Atmospheric entry.
- Emission standard of light pollution
- Space operations of mega-constellations and control access through earth stations in the national territory.
- Manage national space missions generating actions to benefit the useful life of national space systems and the treatment of space debris at the end of it.



III. CONTRIBUTION TO LONG TERM SUSTAINABILITY (LTS) GUIDELINES



Guideline [B.3] Promote the collection, sharing and dissemination of space debris monitoring information.

“All Sky”

Space Situational Awareness (SSA) All-Sky Project refers to keeping track of objects in orbit and predicting where they will be at any given time.



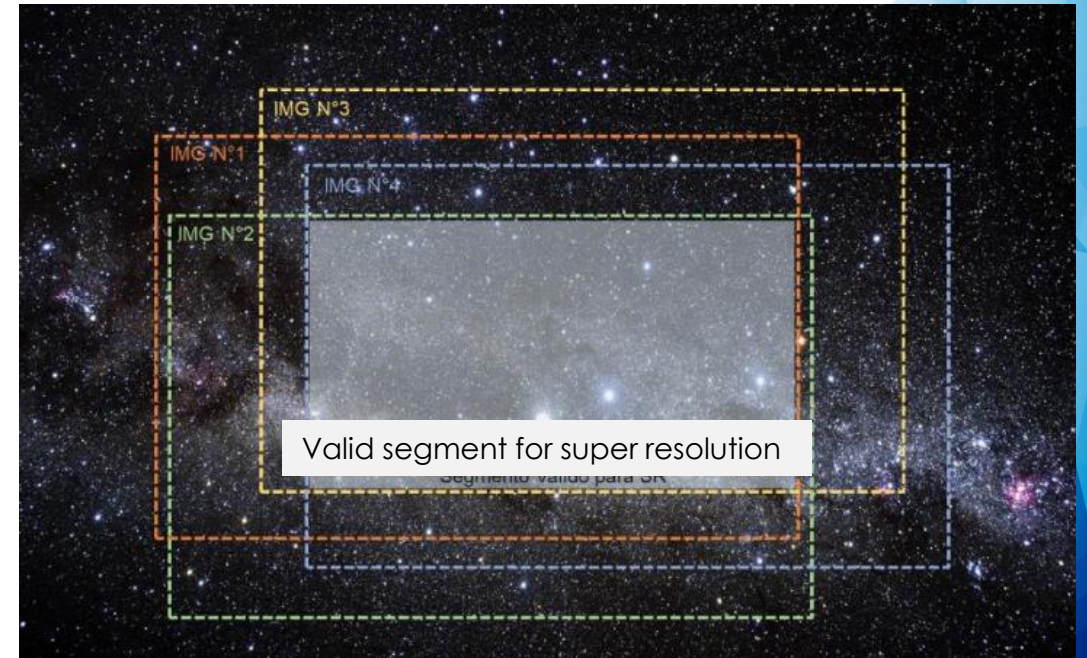
Air Force Office of
Scientific Research



Chilean Air Force



Colorado Center for
Astrodynamics Research (CCAR)





III. CONTRIBUTION TO LONG TERM SUSTAINABILITY (LTS) GUIDELINES



Guideline [B.6] Share operational space weather data and forecasts

**Applied
knowledge
generation**

**Satellite
payloads** for
space
weather
analysis

**Sensor
networks** for
space
weather
information
systems.



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DE CHILE





III. CONCLUSIONS

SNSAT Program aims to develop technology and generate geospatial information for autonomous and sovereignty management of the State.

Sustainability has been considered since the Project beginning as a key component, according to government guidelines.

SNSAT Program considers national and foreign collaboration for complementing efforts and optimize spatial recourses and capabilities

New aerospace capabilities will generate public value, social profitability and economic growing for the country.

