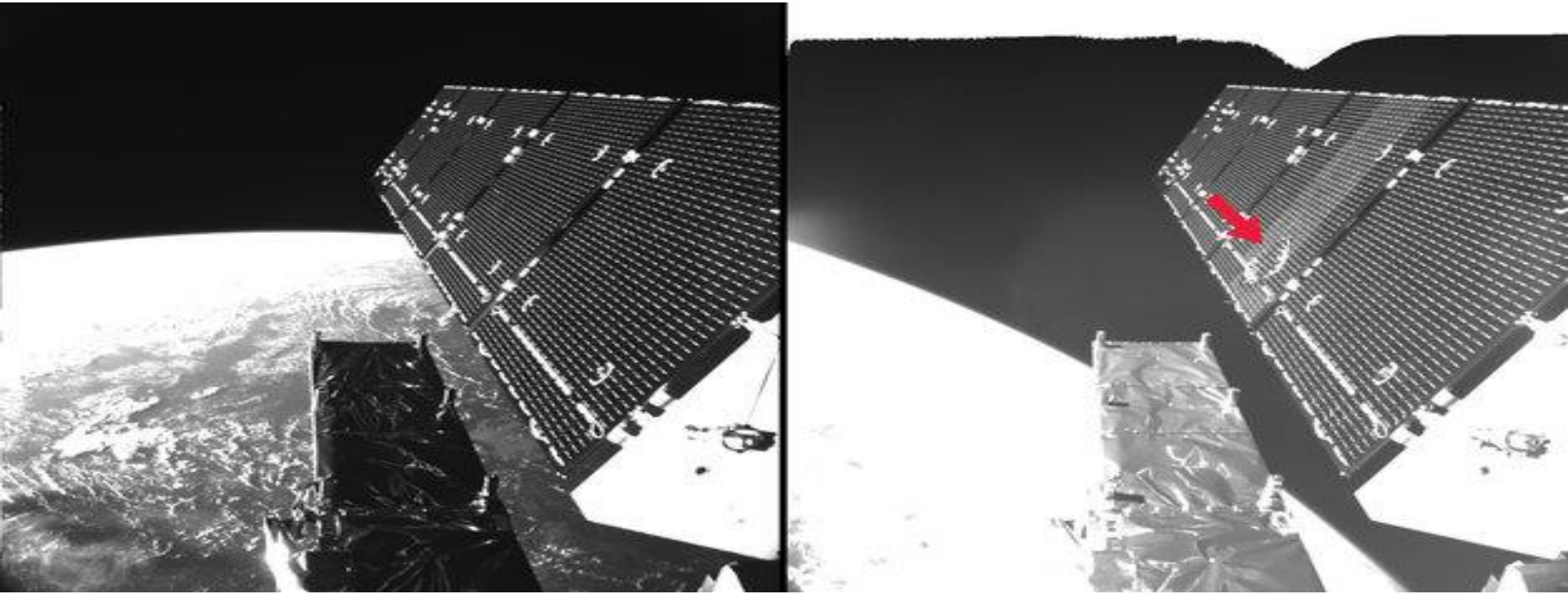
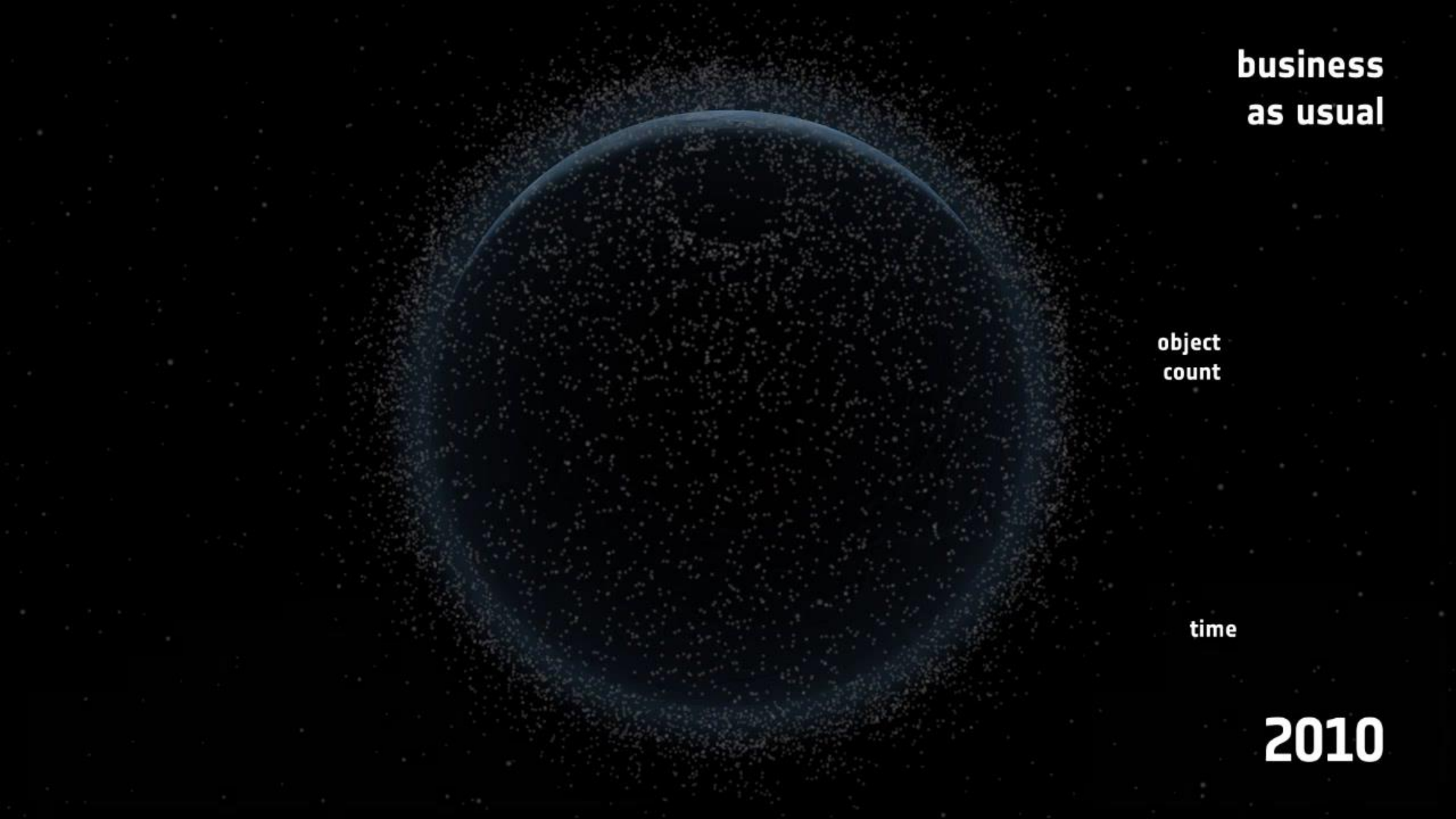
Space Debris related Activities at ESA

Holger Krag
ESA/ESOC Space Debris Office


>1mm

Sentinel-1A Impact 2016/08/23 – onboard camera




business
as usual
object
count
time
2010

ESA Debris Mitigation Process

Inter-Agency Space Debris Coordination Committee


ECSS-U-AS-10C
10 February 2012

EUROPEAN COOPERATION FOR SPACE STANDARDIZATION

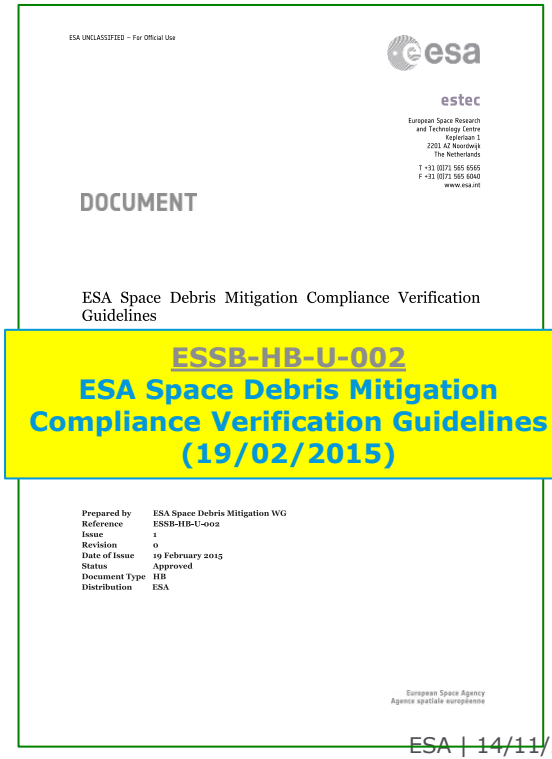
Space sustainability

Adoption Notice of ISO 24113: Space systems - Space debris mitigation requirements

ECSS Secretariat
ESA-ESTEC
Requirements & Standards Division
Noordwijk, The Netherlands

ECSS-U-AS-10C
Space sustainability - Adoption Notice of ISO 24113 (10/02/2012)

iadc-online.org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DOCUMENT

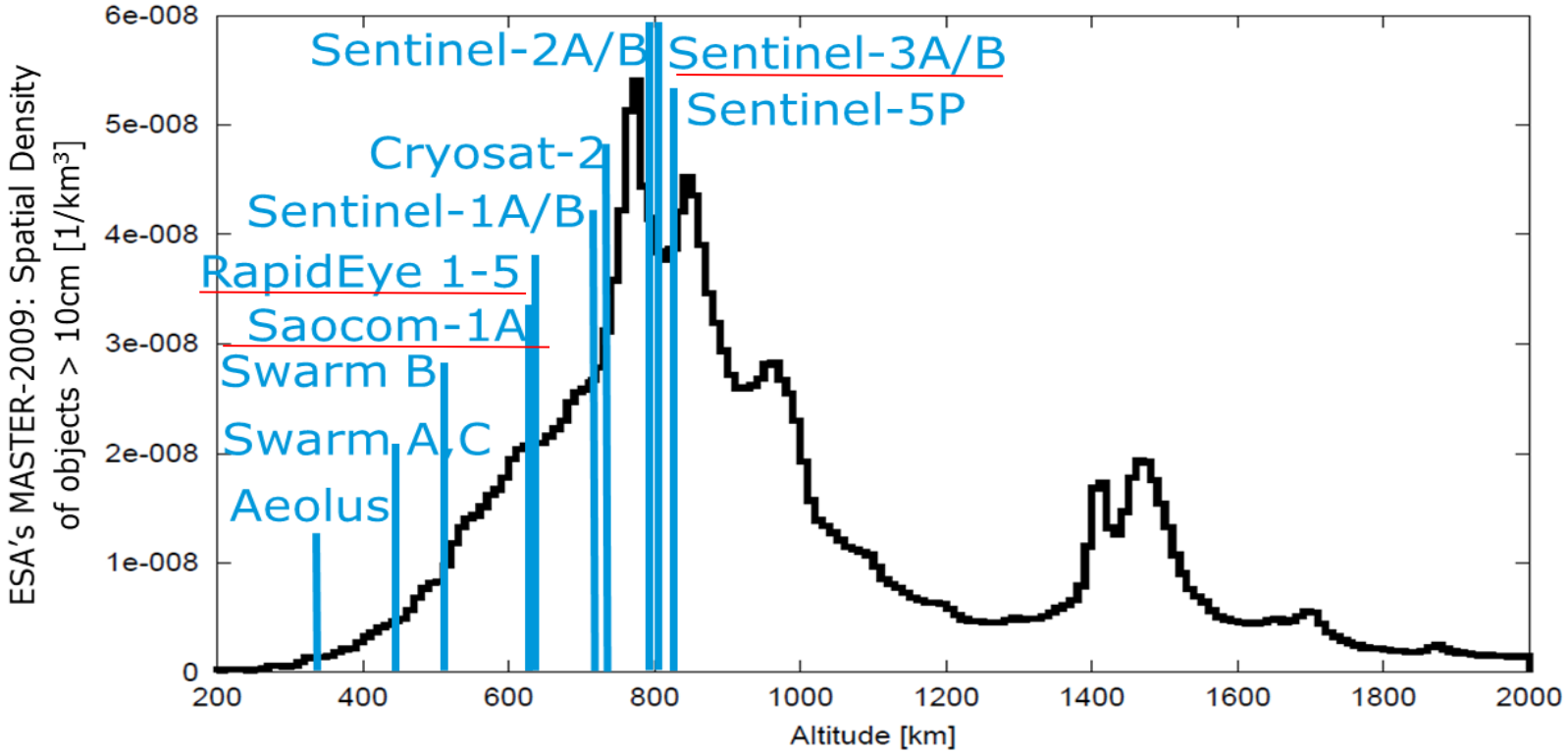
ESA Space Debris Mitigation Compliance Verification Guidelines

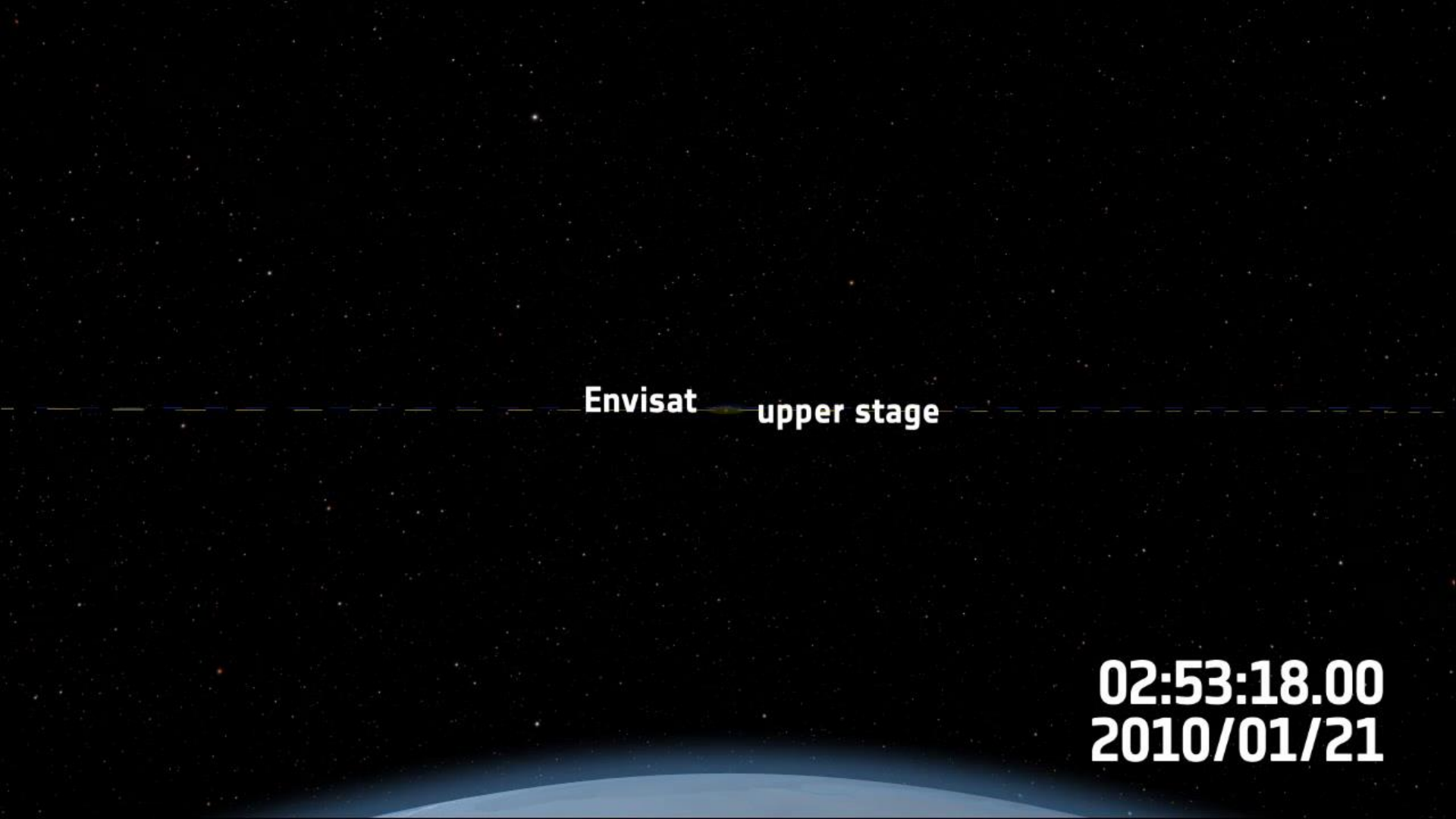
Prepared by	ESA Space Debris Mitigation WG
Reference	ESSB-HB-U-002
Issue	1
Revision	0
Date of Issue	19 February 2015
Status	Approved
Document Type	HB
Distribution	ESA

European Space Agency
Agence spatiale européenne

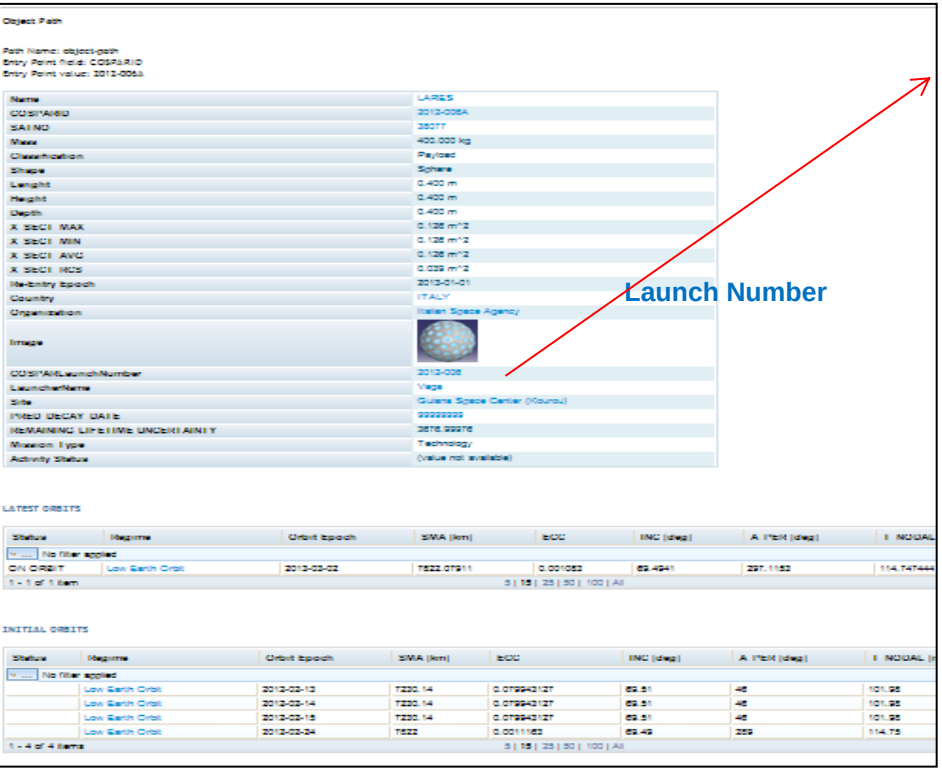
ESSB-HB-U-002
ESA Space Debris Mitigation Compliance Verification Guidelines (19/02/2015)

Collision Avoidance in ESA




Envisat
upper stage
02:53:18.00
2010/01/21

The new DISCOS Web Frontend



Launch Path

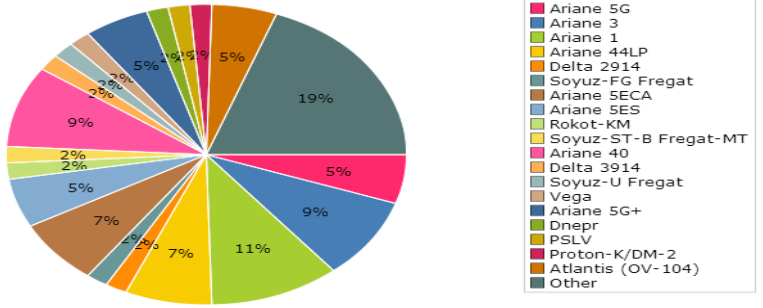
Path Name: launch-path
Entry Point field: COSPARLaunchNumber
Entry Point value: 2012-006

Launch date	2012-02-13
LauncherName	Vega
Number of payloads	9
Flight number	VV01
Related objects	10
Launcher Image	(value not available)

RELATED OBJECTS

COSPARID	SATNO	Name	OBJECT CLASS	Regime
No filter applied				
2012-006A	38077	LARES	Payload	Low Earth Orbit
2012-006B	38078	ALMASat	Payload	Low Earth Orbit
2012-006C	38079	e-st@r	Payload	Low Earth Orbit
2012-006D				
2012-006E				
2012-006F				
2012-006G				
2012-006H				
2012-006J				
2012-006K				
1 - 10 of 10				

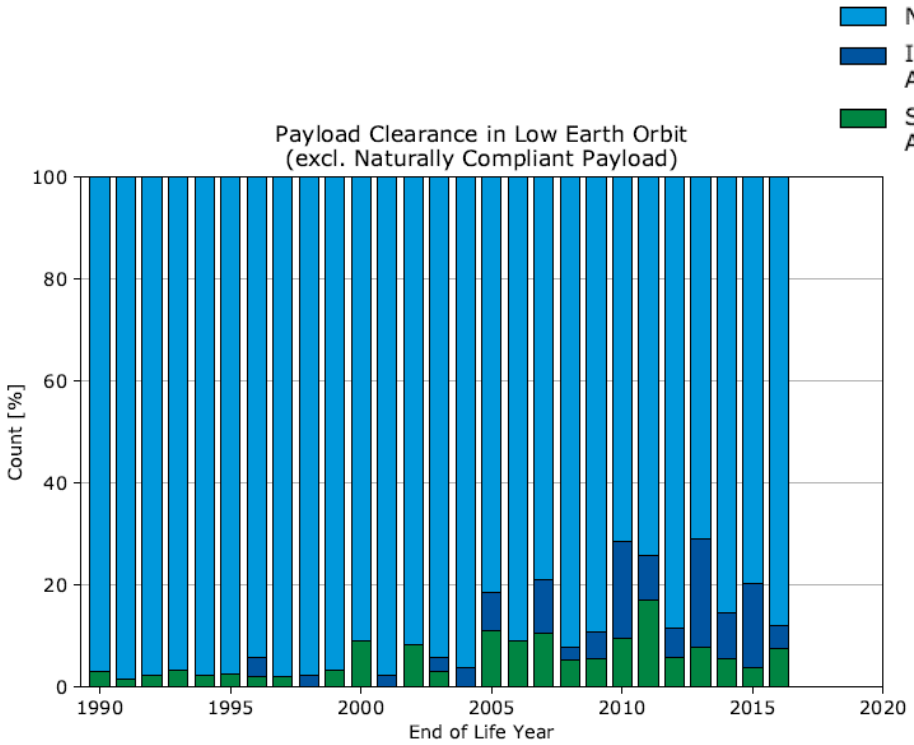
Launches per Launcher with Country

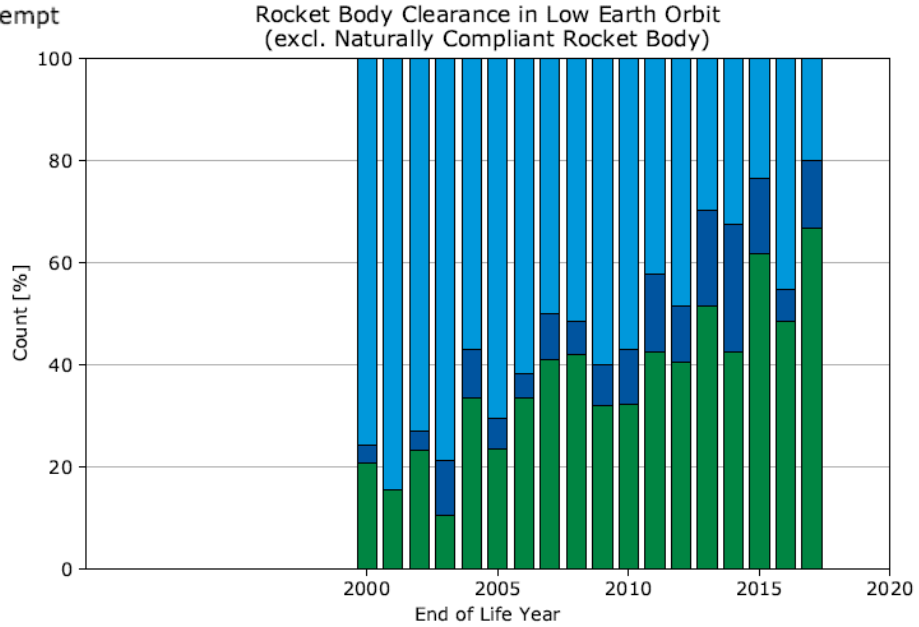


ESA Space Debris Tools

https://sdup.esoc.esa.int

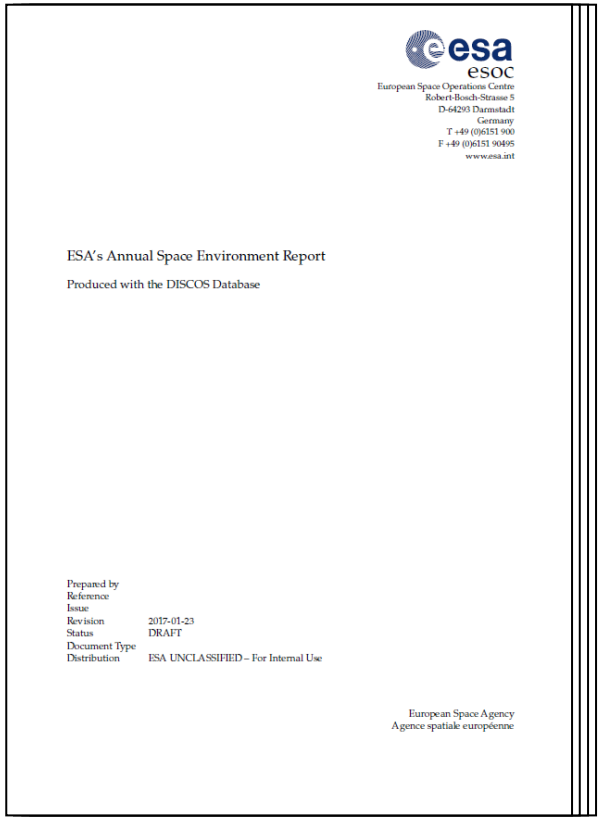
Current Behaviour: Post Mission Disposal in LEO





ESA Annual Space Environment Report

www.esa.int/debris



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ESA's Annual Space Environment Report

Produced with the DISCOS Database

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Reference
Issue
Revision 2017-01-23
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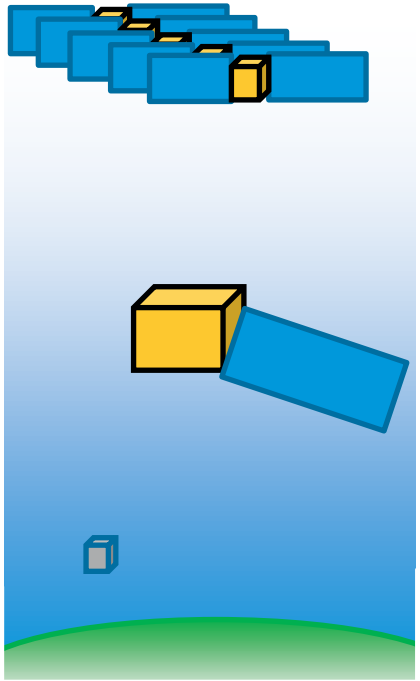
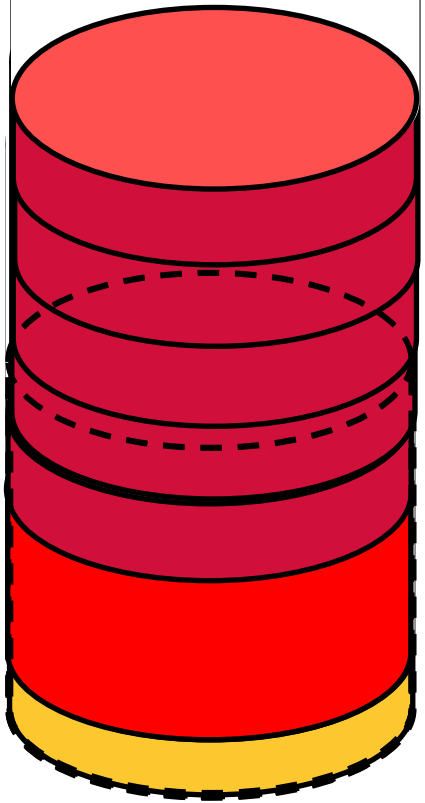
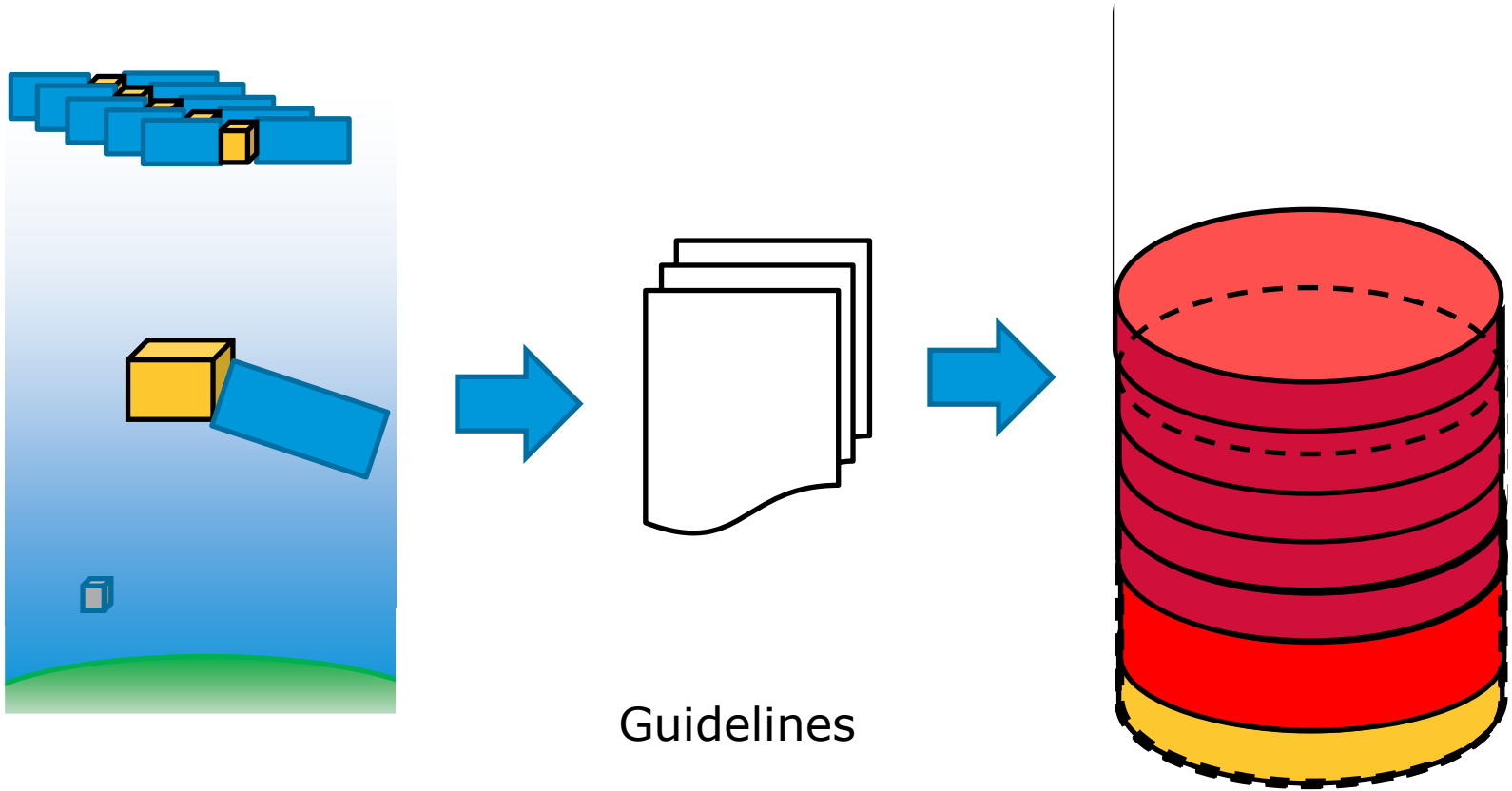
European Space Agency
Agence spatiale européenne

Consumption of Space

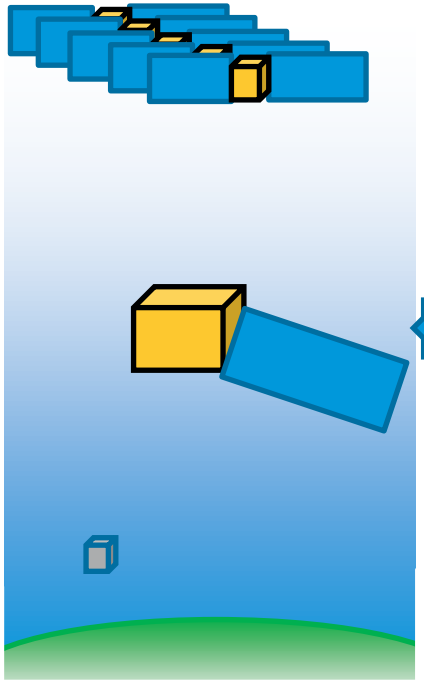


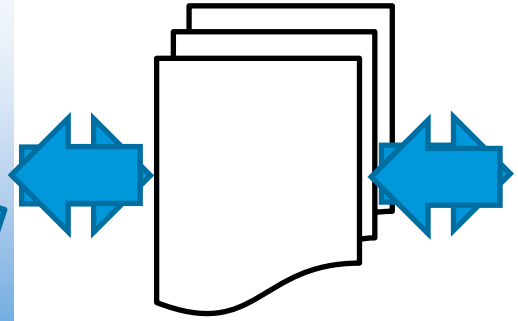


Effect of Current Guidelines

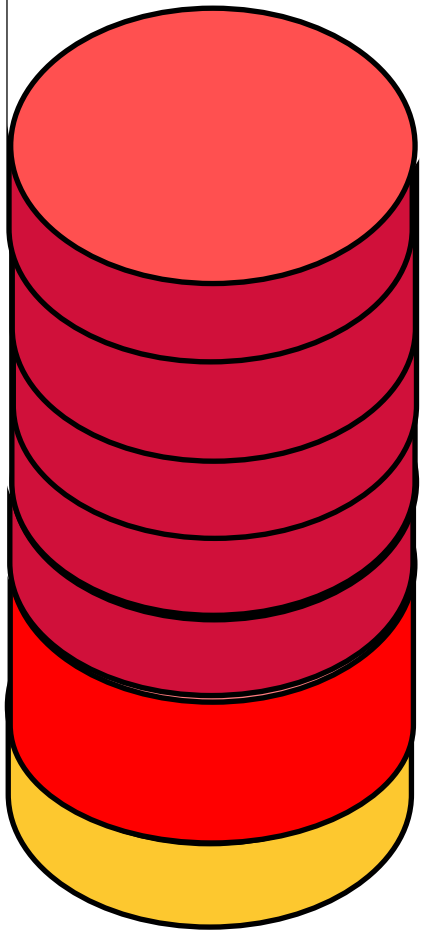


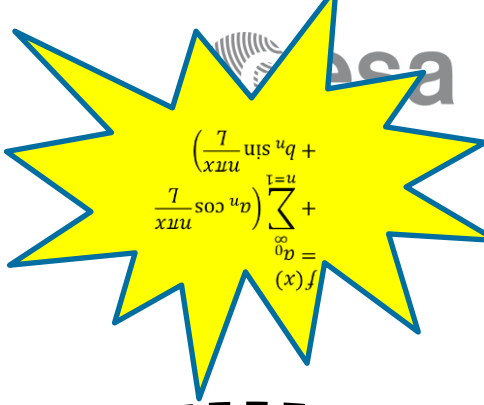
Top-Down Approach

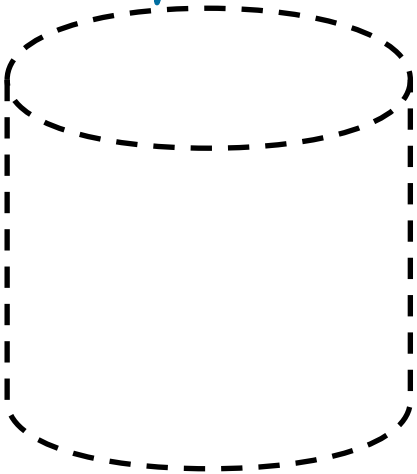




Guidelines





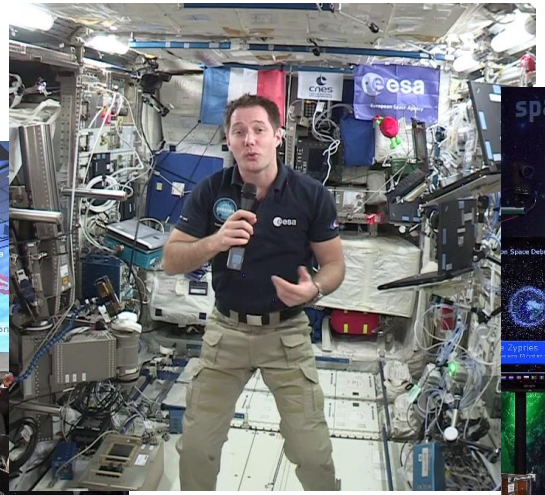


e.Deorbit Mission Scenario

"To remove an ESA-owned debris from 800-1000 km (near polar region)"

Conferences

Next Event: ESA NEO and DEBRIS DETECTION CONFERENCE
https://neo-sst-conference.sdo.esoc.esa.int/



Space Debris Courses

- Coming up next:
  - ESA/ECSL space debris regulation, standards and tools workshop
  - ESOC, Darmstadt Germany, March 19-21
  - Holger.krag@esa.int