

STUDY GROUP OF LEGAL ISSUES ON THE ADVANCED ORBITAL ACTIVITIES

「先端的な軌道上活動に関する法的課題」研究会

Yurika Ishii

Associate Professor, National Defense Academy of Japan

石井由梨佳 防衛大学校准教授

The 10th Symposium on Space Law

25 February 2019

STUDY GROUP OF LEGAL ISSUES ON THE ADVANCED ORBITAL ACTIVITIES

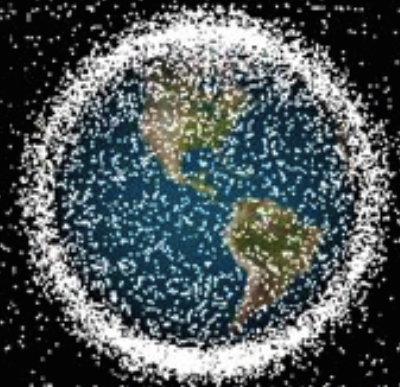
The Research Area and Our Goal

ACTIVE DEBRIS REMOVAL (ADR)

An Overview

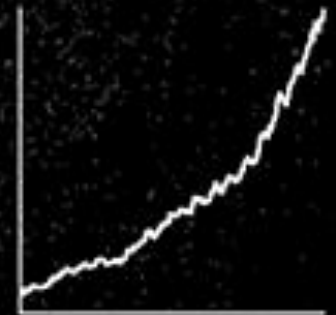


1950



2018

**Business
As Usual**



2209

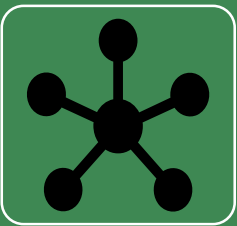
IADC SPACE DEBRIS MITIGATION GUIDELINES OF 2007

Limit Debris Released during Normal Operations

Minimize the Potential for On-Orbit Breakups

Post Mission Disposal

Prevention of On-Orbit Collisions



Identification and formulation of legal systems for supporting the ADR

- JAXA is planning to experiment an active removal of a large-size debris.

The Experiment of Core Technology for ADR



Recognition
of on-orbit
situation

Proximity
operation

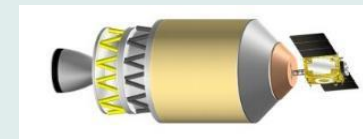
Advanced onboard
image processing



Toward the
World's first
Active Large
sized Debris
Removal

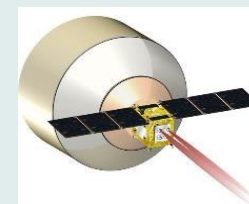


ADR mission



Target (TBD) :

The upper stage of a
Japanese rocket

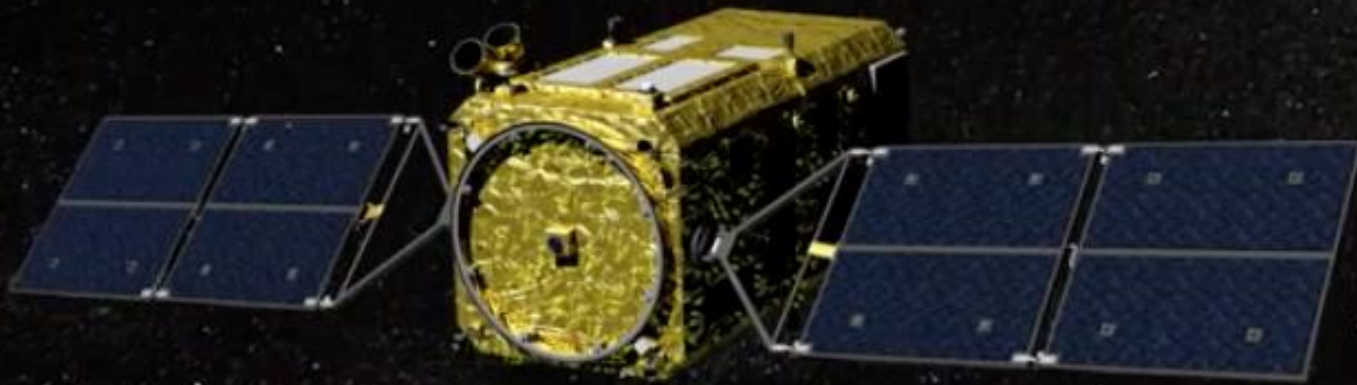


Approach/
Capture/
Orbit transfer/
Controlled reentry

デブリ除去衛星のデブリへの非協力接近

デブリは運用中の宇宙機と異なり、自らの位置を示す電波などを発信しないため、デブリ除去衛星側で捜し出す必要があります

ターゲットデブリ
(例：ロケット上段部)

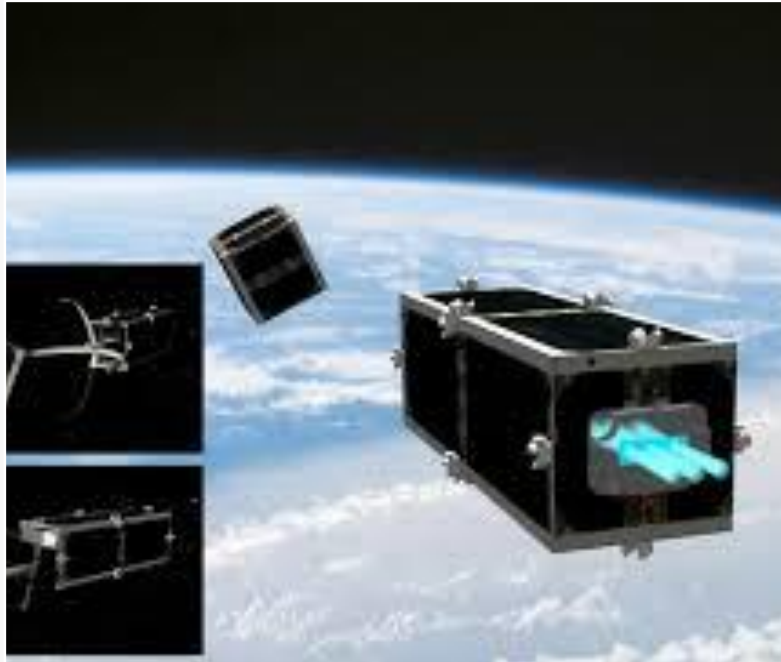


デブリ除去衛星

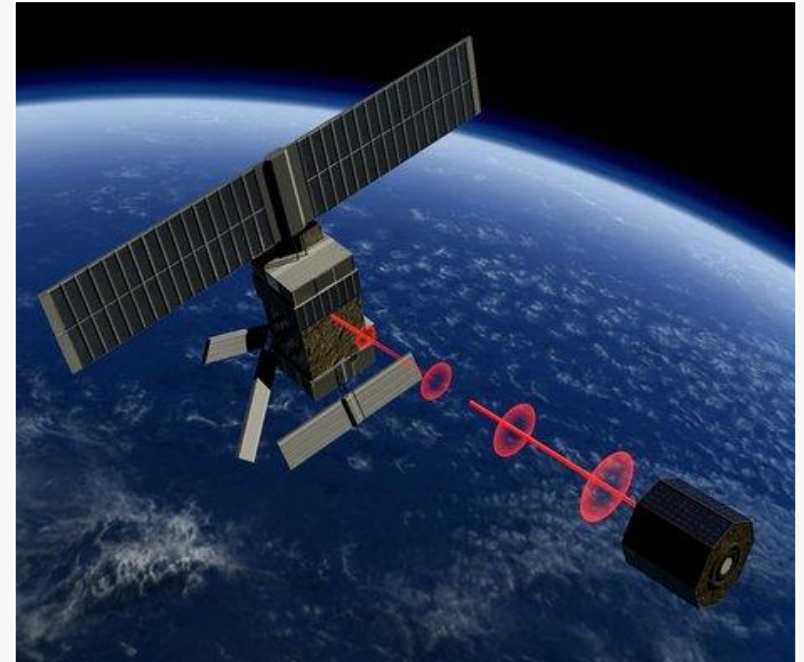


デブリ除去衛星から見たデブリ





Swiss Space
Center



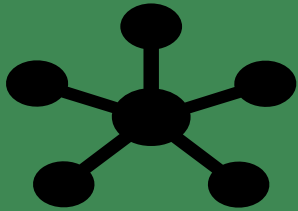
European Space
Agency

THE NEED FOR INTERNATIONAL STANDARD ON ADR ACTIVITIES

To promote industrial
development by
encouraging private
parties to develop
technologies

To secure
the safety
and a clean
environment
at the outer
space

OUR GOALS



To identify the possible legal systems to implement the ADR



To examine pertinent legal issues concerning ADR mainly from international law perspective



To make proposals to the Japanese Government concerning the domestic law on ADR

MAIN LEGAL ISSUES

Jurisdiction

- A state's competence to conduct ADR without obtaining the consent of the state of registry.

Liability

- Liability in a case when ADR caused damage on other state's space object.

Domestic Law

- Insurance and the government compensation

International Cooperation

- Burden sharing of ADR.
- Notification and consultation.

The Members

Joint Research Project

Space Law Research Center, Keio
Legal and Compliance Division, JAXA

Academia

Prof. Kazuhiro
Nakatani
Prof. Setsuko Aoki
Prof. Tateo Horiguchi
Prof. Yurika Ishii
Prof. Makiko Shigeta

Industry

NEC Corporation
Kawasaki Heavy Industries, Ltd.
Mitsubishi Electric Corporation
Astroscale Japan Inc.

Government (Observer)

National Space Policy Secretariat, CAO,
Space Policy Division, MOFA
Space Industry Office, METI
Space Development and Utilization Division, MEXT

OUR ACTIVITIES IN FY 2018

Case Studies on international certificate systems (wind power plants and ships for international navigation)

Regulations on destroyed buildings, cars and debris in natural disaster

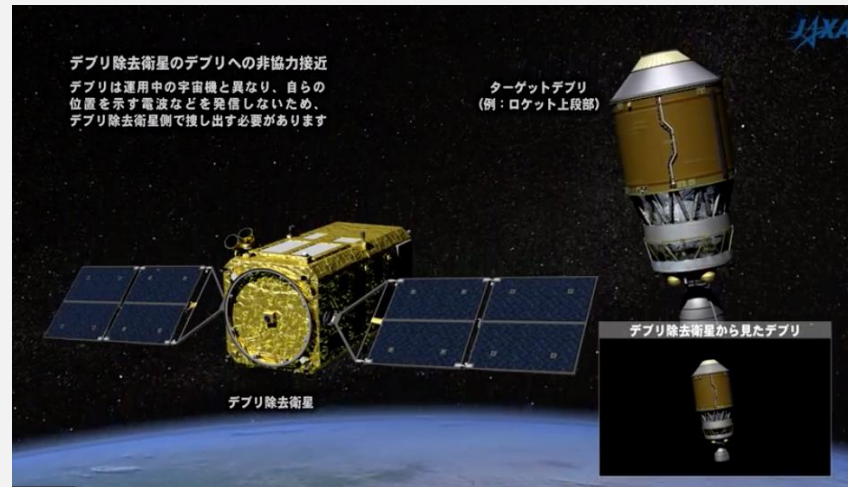
ADR and Article 8 of Outer Space Treaty

Environmental Modification Convention and ADR

ADR AND ARTICLE 8 OF OUTER SPACE TREATY

THE ISSUE

State A's ADR
Satellite X



An Object Y Not
Registered to State A

OUTER SPACE TREATY (1967) ARTICLE 8 宇宙条約8条

A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such **object**, and over any personnel thereof, while in outer space or on a celestial body.

宇宙空間に発射された**物体が登録されている条約の当事国**は、その物体及びその乗員に対し、それらが宇宙空間又は天体上にある間、**管轄権及び管理権を保持する。**

WHAT ARE DEBRIS?

Space debris are all man-made objects including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional.

IS DEBRIS AN OBJECT UNDER ARTICLE 8?

Space Objects

Registered to a State and
Functioning

Registered to a State but
defunct

Debris

- 1. Not Registered**
- 2. Registered
State
Unidentifiable**
- 3. Object
Untraceable**

Man-made Objects in Outer Space

JURISDICTIONAL RULE

There is no treaty directly applicable to this situation.

There is no *a priori* jurisdictional rule in an international area under international law.

COMPARISON: THE JURISDICTIONAL RULE IN THE HIGH SEAS

- Permanent Court of International Justice allowed non-flag state to exercise its criminal jurisdiction in a collision case at the high seas.

S.S. Lotus Case
(1927)



- Denied the judgment of S.S. Lotus.
- Provided that only the flag state has its enforcement jurisdiction.

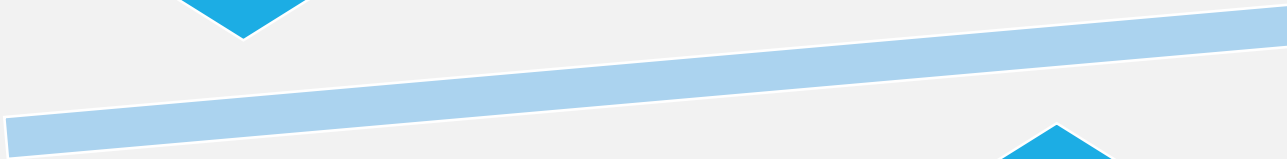
High Seas
Convention
(1958)



THE LIMITS OF OUTER SPACE TREATY



Principle of equality; Freedom
of scientific investigation in
outer space (OST Art I)



The need to
conduct ADR



ADR AND USE OF FORCE

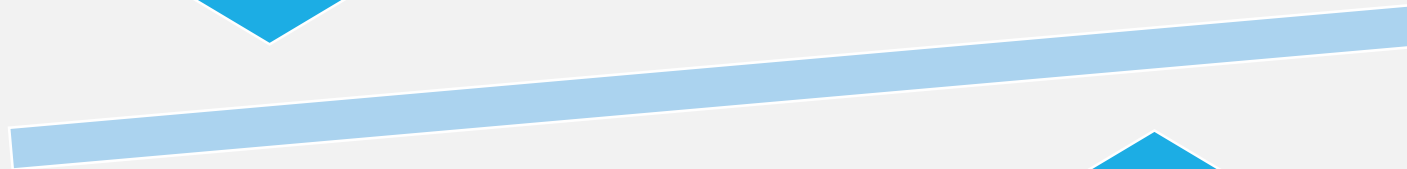
United Nations Charter Article 2(4) All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the Purposes of the United Nations.

国連憲章2条4項 すべての加盟国は、**その国際関係において**、武力による威嚇又は**武力**の行使を、いかなる国の領土保全又は政治的独立に対するものも、また、国際連合の目的と両立しない他のいかなる方法によるものも慎まなければならない。

RECENT STATE PRACTICES



EEA, Draft International Code of Conduct (CoC) for Outer Space Activities, 31 March 2014.



Russia's Criticism against CoC in Committee on the Peaceful Uses of Outer Space (COPUOS)



**COOPERATION TO ENHANCE
TRANSPARENCY AND CONFIDENCE
BUILDING MEASURES**

**A Need for Transparency and Confidence Building
Measures (TCBMs)**

**COPUOS, Draft Guidelines for The Long-Term
Sustainability of Outer Space Activities,
A/AC.105/C.1/L.367. (LTS Guideline)**

ADR AND EXPORT CONTROL

United States International Traffic in Arms Regulations

“EXPORT” UNDER INTERNATIONAL TRAFFIC IN ARMS REGULATIONS

Releasing or otherwise transferring technical data to a foreign person in the United States (a “deemed export”);

Transferring registration, control, or ownership of any aircraft, vessel, or satellite subject to the ITAR by a U.S. person to a foreign person;

Performing a defense service on behalf of, or for the benefit of, a foreign person, whether in the United States or abroad; ...

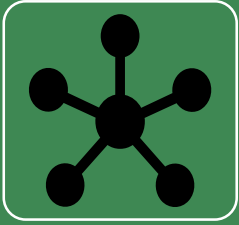
THE NEED FOR INTERNATIONAL COOPERATION

POSSIBILITY OF AN INTERNATIONAL REGIME?

Information
Sharing (in
designating
debris for
ADR and
monitoring
the
situation)

Dispute
settlement

International
funding for
ADRs
(burden
sharing)



Identification and formulation of legal systems for supporting the ADR

Domestic level

New technical standards and certification system for Safety are required



Bilateral level

Common technical standards and certification system for Safety are required



Global level

Global technical standards and certification system for Safety are required

CONCLUSION

The need for international cooperation / common standards

- To secure the environment of the orbit.
- To promote the development of space industry.

The challenges for establishing international rules

- The difficulty in establishing a new treaty.
- The merits and disadvantages of soft-law rules.