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## 宇宙法研究所におけるデブリ研究会検討状況の報告

### Status report of Debris Study Group in the Institute of Space Law

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民間主導による宇宙活動が活発化する時代が間近に迫ってきている一方、安定的な宇宙活動を行う上でスペースデブリが大きな問題となっており、国際的な議論が行われている。今後はデブリ発生の低減だけでなく除去の必要性が叫ばれるようになってきていることを踏まえ、日本においても慶應宇宙法研究所とJAXA法務・コンプライアンス課が行っている共同研究の一環であるデブリ研究会において、デブリ除去に関する法的研究が開始されている。本研究会ではスペースデブリ除去の事業化を題材に、まずデブリの国際法上の位置付けについて検討を始め、その後事業化を安定的に継続して行う上で障壁となる課題を洗い出し、その課題を解決するためにどのような制度を創設する必要があるかについて、国際環境法の視点も踏まえながら検討を行っている。今回は本研究会の検討状況について紹介する。



# Status report of Debris Study Group in the Institute of Space Law

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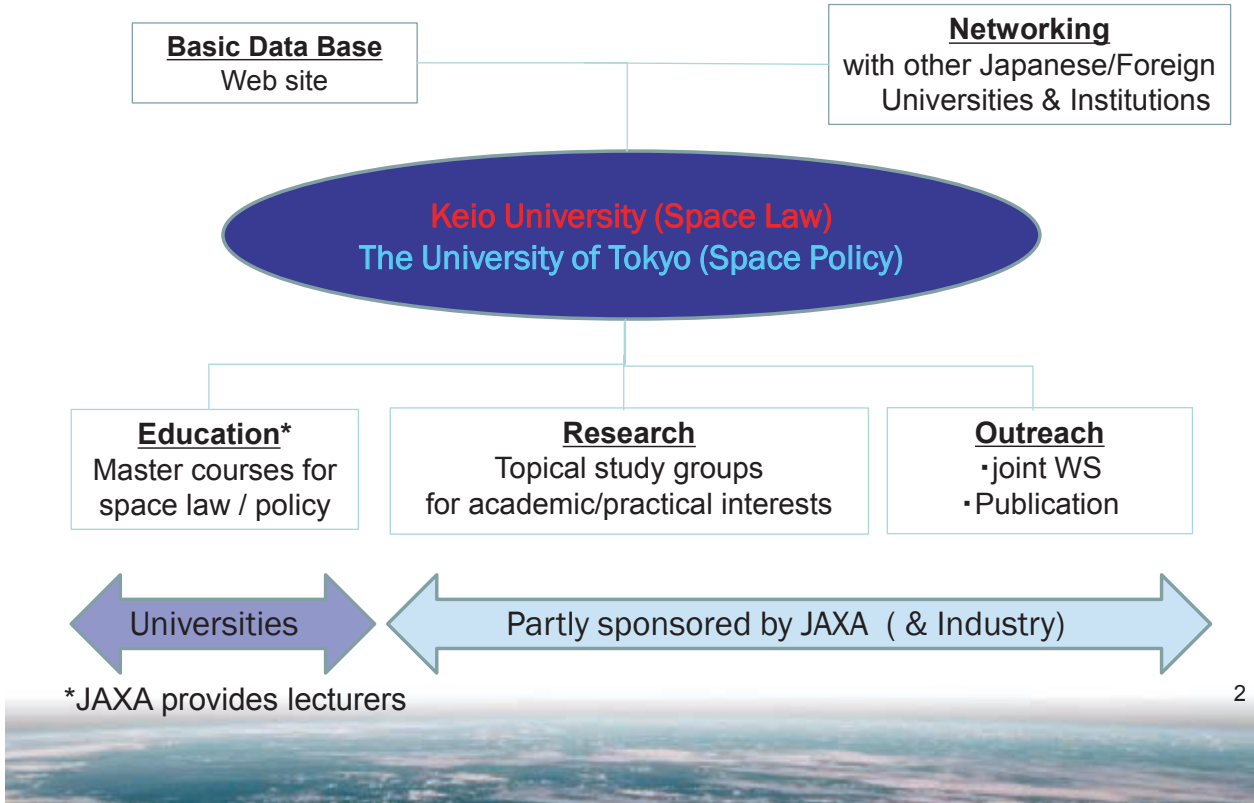


## Contents

1. Cooperation between Keio universities and JAXA
2. Activities of joint research project on active debris remediation
3. Conclusion



## Basic framework of capacity-building through cooperation between 2 leading universities and JAXA



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## Space Law Research in Keio Advanced Research Center for Space Law

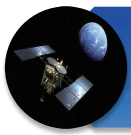
“Institute of Space law” established in Jan. 2012



Consideration for the space activities from legal viewpoint



Capacity building in Japan’s space law research



Nurturing practitioners and researchers



Capacity building in Asian countries

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# Joint Research Programs

## The 2013-2014 programs:

- (1) Space commercialization: possibilities and challenges
- (2) Legal Issues relating to Global Navigation Satellite Systems (GNSS)
- (3) Space law database (provided in Japanese)
- (4) Aerospace governmental procurement programs and the WTO
- (5) Space debris removal: Legal Issues**
- (6) Suborbital Flights



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## The International Regime for Space Debris Remediation in Light of Commercialized Space Activities

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Read by Kosuke Kawashima  
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## Disclaimer

- The views expressed in this presentation are the authors' personal views and do not reflect the positions of any organization that the authors are or may be affiliated.
- The research was conducted by the Space Law Center of Keio University.
- The original paper was co-authored with Ms. Motoko Uchitomi and Mr. Hiroyuki Kishindo (both JAXA)

## The Environmental problem in Space

- More than 16,000 pieces of space debris are catalogued.
- Space debris is becoming a threat to safe and open space activities.
- Proposal of active debris remediation has been made.
- Technology for debris remediation is being developed.

## Elements to be considered.

- International regime is yet to be established (“tragedy of commons”).
- To establish a workable regime:
  - The private law aspects of debris needs be dealt with.
  - The international environmental law must be the basis for the regime.
  - The possibility of conducting remediation as commercial service has to be considered.

## Private law aspect: ownership

- Comparison with the removal of wreck on the sea (Nairobi Convention of IMO).
  - Duty of the registered owner to remove the wreck
  - Or, the government removes the wreck and the owner pays for the cost.
- Consent of the owner of the debris is necessary.
- Government’s authority to remove the debris and collect the cost: to be dealt with in national space legislation.

## Approval of the state

- Difference from the wrecks on the sea: approval of the state having jurisdiction over the debris is needed.
  - Responsibility of the state over the space activities
- Which state?
  - State of registry, if the debris is registered or derived from a registered space object.
  - State of the owner of debris in other cases – general international law

## Incentives of for removing the debris

- Little benefit in recovering the debris (as opposed to the salvage on the sea)
- Commercial benefit may be found in securing the safe use of orbit.
  - Benefit of other operators, rather than the benefit of the owner/operator of the debris
- If the debris removal becomes feasible, the responsibility of the state not to leave dangerous debris can be affirmed (preventive principle).

## Liability for damage caused by debris?

- It will not be easy to establish liability even where the debris collides into another space object:
  - Because proving the fault is difficult, as the result may not be foreseeable in many cases.
- Product liability of manufacturer of the debris is more likely to arise, because “defect” does not require foreseeability of the occurrence of damages.

## National legislation to address the debris issue

- If a state can be responsible for leaving the space debris on orbit but the owner/operator cannot be held liable in many cases, what can a state do? – National space legislation.
  - Requirement to arrange for active remediation once the space object becomes debris.
  - Strict liability for damages caused by the debris. (polluter pays principle)



## How to share the cost?

- Who pays? – “polluter pays” or the beneficiary pays?
  - It does not affect the efficiency of the regime (Coase theorem)
- However, the sharing of cost will determine the attractiveness of the regime.
- International fund based on contributions from both the polluter and beneficiary.

## Proposal for a contribution scheme

- Practical solution: combined approach.
- Beneficiary makes contribution and records “Request for remediation.”
- “Polluter” also makes contribution and makes a record in “list of remediation subject.”
  - Polluter gets release from any possible liability by making a contribution.
- Matching of “Request” and “List” is made (“Marketplace”).

## Conclusion

- Active debris remediation is necessary for securing safe and open access to the space.
- International regime for debris remediation must:
- Reflect the reality of commercialized space activities – private law aspect must be deal with.
- International environment law needs to be considered.
- The regime to enable remediation as the commercial service must be established.



**Thank you very much  
for your kind attention.**

