

# Space Law: Challenges and Predictions

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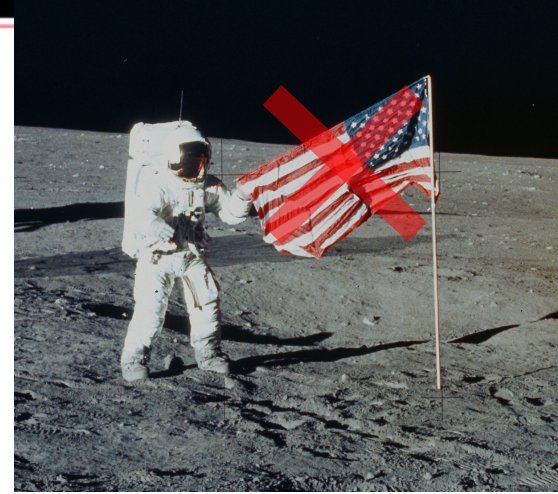
**National Academy of Sciences' Space Science Week  
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# Three grand challenges to space law

1. Lunar activities – exploitation & habitation
2. Tackling space debris & going beyond – to promote space sustainability & STM
3. National space legislation & the risk of fragmentation

# 1. Lunar activities

- ◆ Baseline legal issue: Art. II, OST, prohibits national appropriation of any part of outer space by any means
- ◆ Two generic interpretations inherently possible:
  1. Outer space belongs to all of humankind → all resources also somehow belong to all of humankind
  2. Outer space ≈ ‘global commons’ → all States are entitled to use resources for their own benefit (& allow their private sector to join) (= essentially US approach)



# International discussions...

*2017 Luxembourg Law on the Exploration and Use of Space Resources*

*2021 Japanese Space Resources Act*

*2019 UAE Law on the Regulation of the Space Sector - expressly including space mining*

**Nebraska Law**  
University of Nebraska

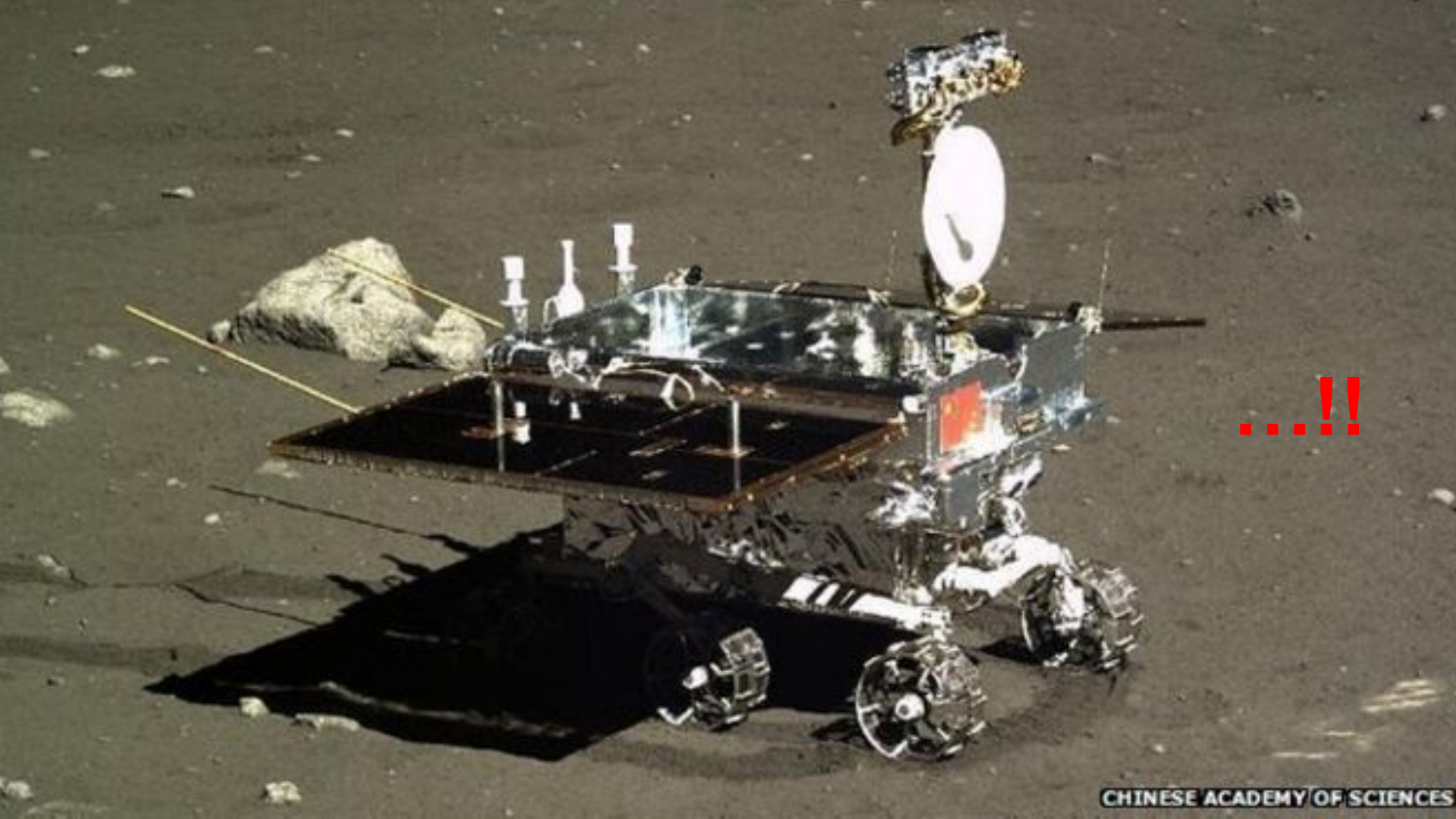
# International discussions...



1979 Moon Agreement

*Thou shalt preferably  
share benefits, resources  
& technology*

???



# International discussions...

## ◆ Artemis Accords

- Includes principle of freedom of space mining as baseline for operations under Artemis program
  - *Not a treaty*, technically speaking...
- ↔ *May* however evolve into customary international law...



# Current status Artemis Accords

Space agencies of Angola, Argentina, Australia, Bahrain, Belgium, Brazil, Bulgaria, Canada, Colombia, Czech Republic, Ecuador, France, Germany, Greece, Iceland, India, Isle of Man, Israel, Italy, Japan, Luxembourg, Mexico, Netherlands, New Zealand, Nigeria, Poland, Romania, Rwanda, Saudi Arabia, Singapore, South Korea, Spain, Ukraine, United Arab Emirates, United Kingdom, United States & Uruguay



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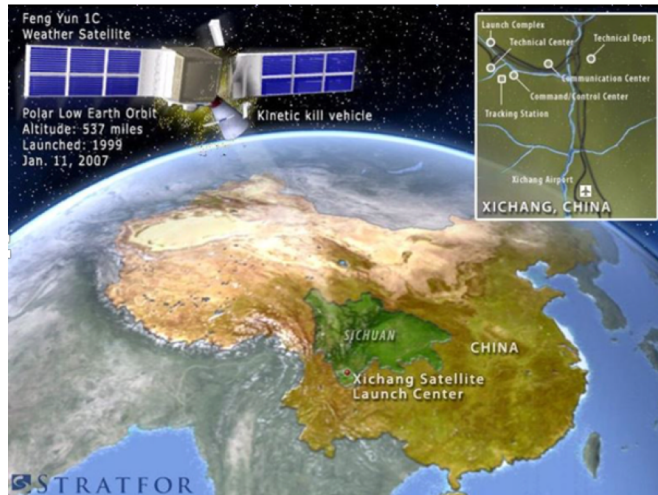
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# Beyond the Artemis Accords

- ◆ ILRS: **China** & **Russia**; plus Azerbaijan, Belarus, Egypt, **Pakistan**, South Africa & **Venezuela**
- ◆ Bilateral agreements **Luxembourg** with **UAE**, **Japan**, Portugal, **China**, Czech Republic, Poland **United States**, **Belgium**, New South Wales & India on international space mining cooperation
- ◆ Note: **Russia** discussed bilateral agreement with **Luxembourg** as well

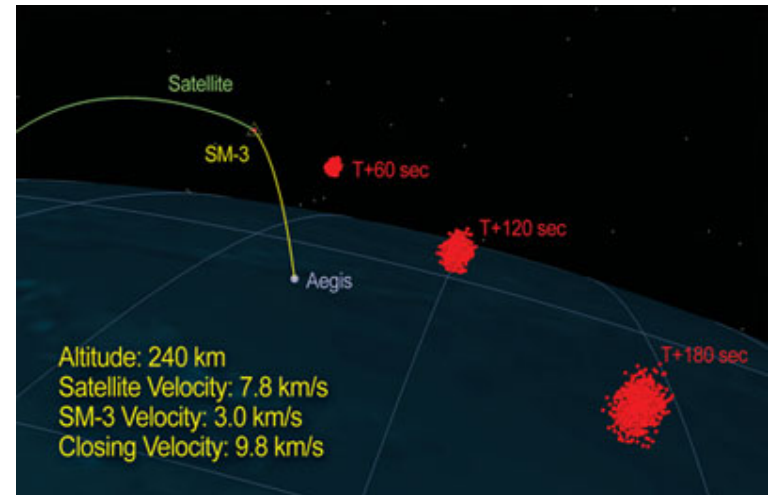
## 2. Space debris & 'beyond'

- ◆ Baseline legal issue: Art. IX, OST, apart from 'due regard' only requires consultation in case of likely serious harm...



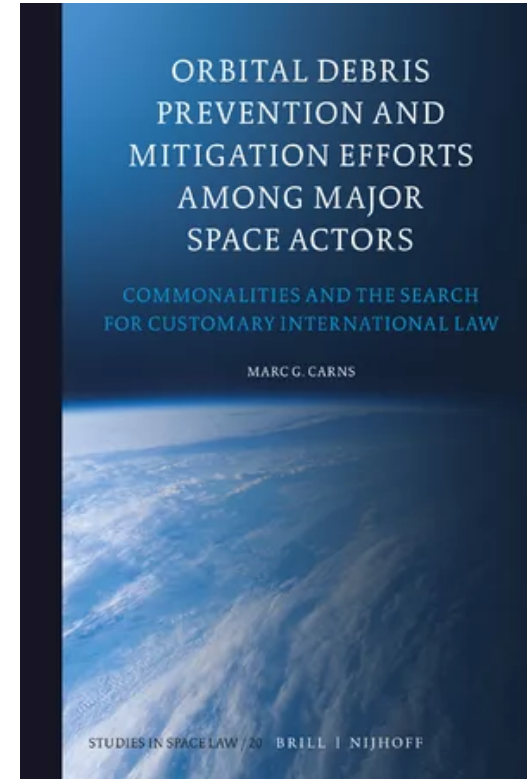
← 2007  
Feng  
Yun 1C

2008 →  
USA-193

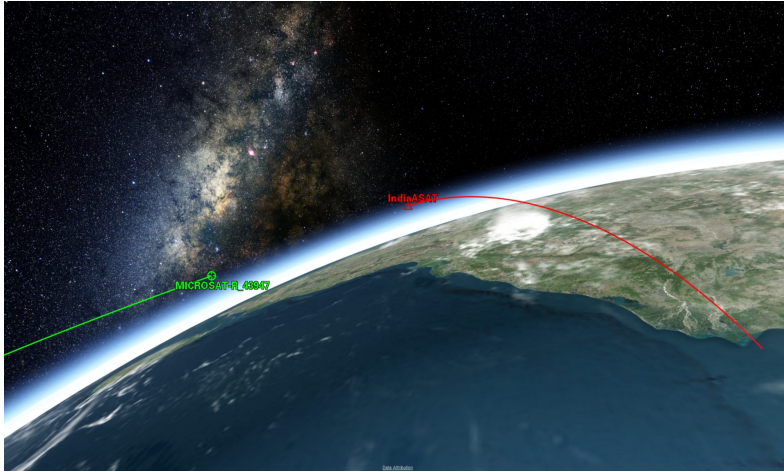


# → Customary international law?

- ◆ IADC Guidelines 2002 → COPUOS Guidelines 2010 → voluntary compliance main agencies & increasing domestic implementation
  - Focus on LEO & GEO
  - Main strategies: 1. limit release debris normal operations; 2. minimize likelihood in-space disintegration; 3. post-mission disposal; 4. avoid in-space collisions

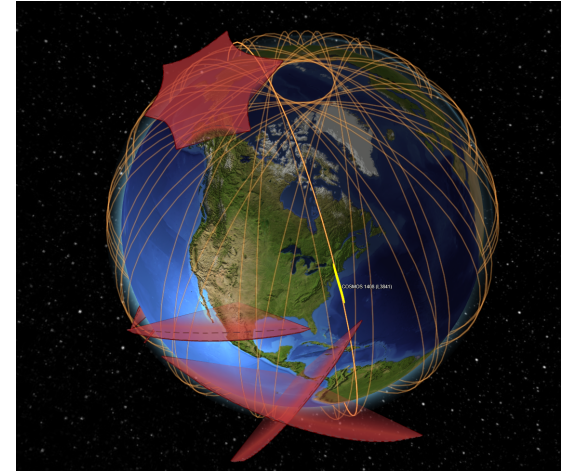


# Alas...



← 2019  
Microsat-R

2021 →  
Kosmos 1408



- 2022 UN resolution on ASAT test ban
- Following US announcement unilateral moratorium
  - Vote: 154–8 (...! ...?); 8 other States followed US example



# Space debris → space sustainability

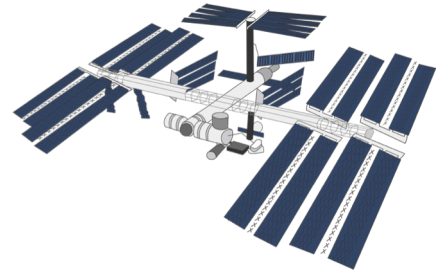
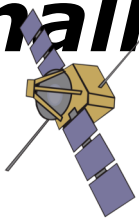
- ◆ Baseline legal issue: moving beyond (wanton creation) space debris proper → beyond Art. IX, OST
- 2021 UN Guidelines for the Long-term Sustainability of Outer Space Activities
  - Includes broader issues such as supervision, frequency use & registration space objects, & data & information sharing



# Space sustainability → STM ... ?

- ◆ Baseline legal issue: how to realign some measure of binding STM with freedom of space activity (Art. I, OST) & absence of territorial sovereignty in outer space (Art. II, OST)?
- ◆ Pursuant to State responsibility (Art. VI, OST), State liability (Art. VII, OST), registration (Art. VIII, OST & 1975 Registration Convention) & ITU regime?

# A challenge of *mic proc* ...



### 3. Privatization: race to the bottom?

- ◆ Baseline legal issue (again): Art. VI, OST, makes States internationally responsible for private space activities if “national activities” – & *requires* them to authorize & continuously supervise those!
- & Art. VII, OST, & 1972 Liability Convention make States directly liable for damage caused by private space activities as ‘launching States’ – *providing strong stimulus* to authorize & supervise those, too...

# → National space legislation

- ◆ Including system for authorization & continuing supervision, & handling international State liability



# 'Cheap flags' & 'license shopping'?

◆ Case of launch of Swarm's SpaceBees in 2018

↔ Different from flags of convenience on the high seas:

- *'The beauty of space law'*: States fully responsible & liable for compliance with international law & international damage resulting from activities conducted from national territory
- & *'The reality of the space business'*: launch phase still by far most dangerous phase of space operations

# Concluding remark...

