

# Indo-Pacific Space Diplomacy



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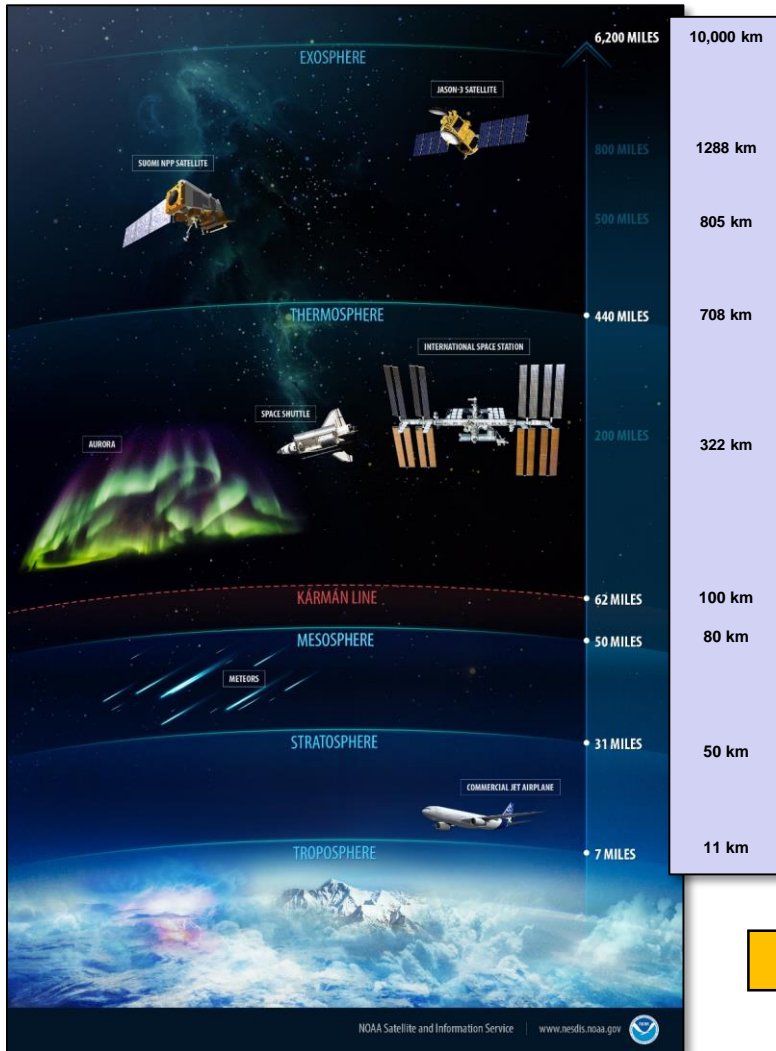
*Note: The opinion and analysis expressed in this presentation do not represent the positions and policies of DKI APCSS, the U.S. Department of Defense, or the United States Government.*

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# Background – Space “Defined”



## CURRENT STATE:

- No official agreed-upon definition; most nations use 100 km \* i.e. Space “begins” at 100 km (below is sovereign airspace)
- Since 1984, UN Space Working Group discusses annually

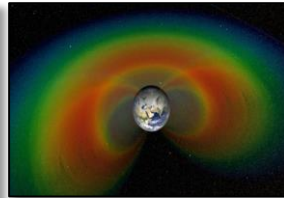
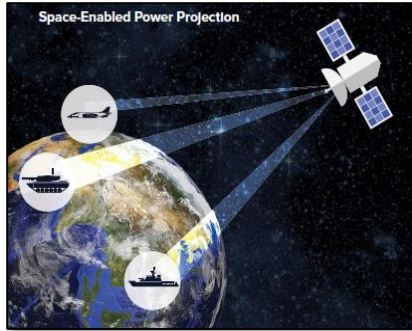
## FUTURE PROPOSALS:

- Distance Rule – simple, fixed, upper-altitude boundary
- Orbiting Line – space = lowest perigree of orbiting satellite
- Kármán Line – space = where it’s impossible to fly aircraft
- Modeled on UN Convention on the Law of the Sea (UNCLOS)





# Background – Space “Defined”



Above – NASA: Artist Depiction of Van Allen Radiation Belts ([link](#) to orbital educational video)

### Orbit Types and Uses<sup>22,31</sup>

Orbits are notional and for illustrative purposes only.

ORBIT	ALTITUDE*	USES
<b>Low Earth Orbit (LEO)</b>	Up to 2,000 km	- Communications - ISR - Human Spaceflight†
<b>Medium Earth Orbit (MEO)</b>	Approx. 2,000 to 35,000 km	- Communications - Position, Navigation, and Timing
<b>Highly Elliptical Orbit (HEO)</b>	LEO altitudes at perigee (nearest to Earth) Approx. 40,000 km at apogee (farthest from Earth)	- Communications - ISR - Missile Warning
<b>Geosynchronous Earth Orbit (GEO)</b>	Approx. 36,000 km	- Communications - ISR - Missile Warning

## CIVIL USES:

- Science, remote sensing, telecom, navigation

## MILITARY APPLICATIONS:

- Power projection (graphic above)

## COMMERCIAL INTERESTS:

- Launch recovery, exploration and resource development, manufacturing, and habitation

## THE 4TH INDUSTRIAL REVOLUTION:

- Convergence of AI, cyber, quantum computing, 5G, and space...



# Issues

## CONGESTED:

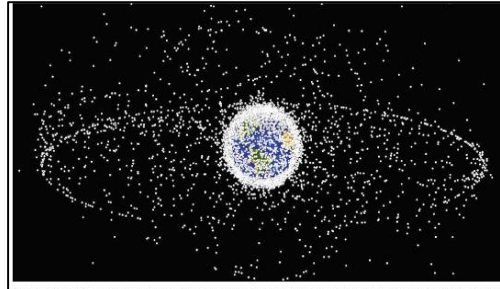
- State and non-state players
- “Stuff out there” – still operating or just trash
- Orbital Debris

## COMPETITIVE:

- Between states
- Among commercial players
- Responsibility, control, liability
- Over resources, spectrums, orbital slots, territorial rights, etc.

## CONTESTED:

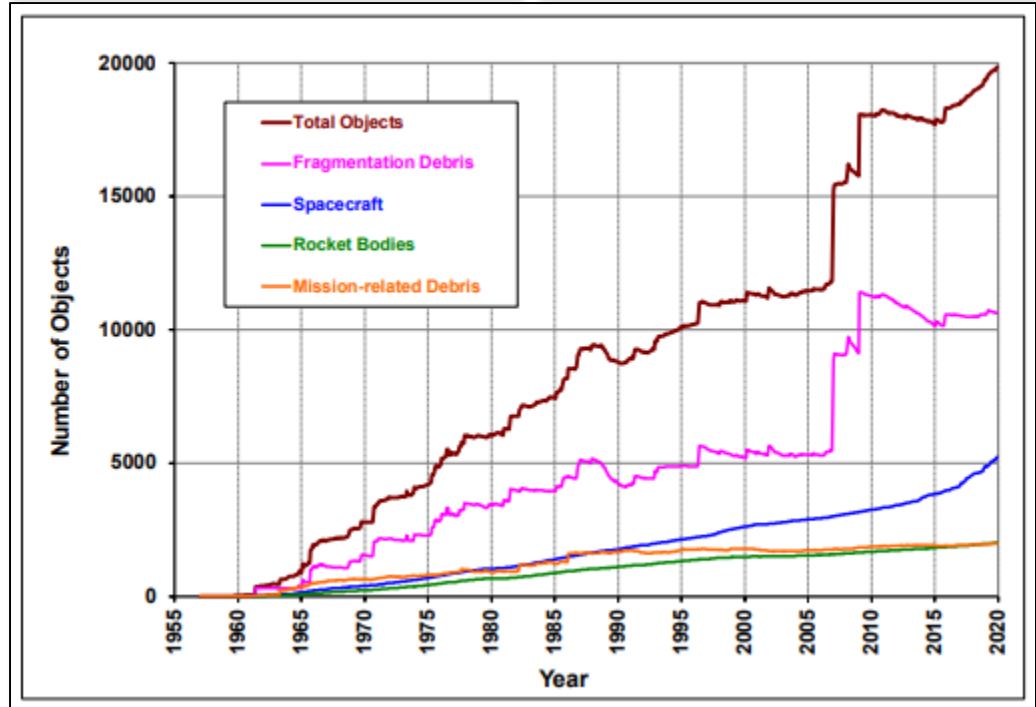
- Diplomacy (Intl cooperation and mutual assistance)
- Economic, Technology
- Militarily (“arms race”)



Computer rendering of tracked large objects in Earth's orbit. Roughly 90 percent of the objects are orbital debris, not active satellites.



The Venera 13 spacecraft, part of which is visible in the foreground, soft-landed on Venus in March, 1982. Temperatures on the surface can reach 465C.  
ESA/CPSC PHOTO LIBRARY



2021 National Orbital Debris Research and Development Plan: Growth of orbital debris objects over time by object type. ([link](#))



# Opportunities

## ○ **Complicating considerations:**

- Technology advances and proliferation outstripping governance
- More congestion, competition, and higher risks of contestation
- Vulnerability of space assets
- Dual-use technologies and ambiguity
- Increasing militarization
- International norms and agreement remain elusive

## ○ **Some potential higher aspirational goals?**

- Revisions and updates to Outer Space Treaty
- Agreement on and ratification of draft “Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force, Against Outer Space Objects” (PPWT)
- Regional agreements and protocols
- Bilateral and multilateral agreements

## ○ **Some potential lower aspirational goals?**

- Shared Space Situational Awareness
- Managing space junk
- Leveraging existing international collaborations
- Trust and confidence building





# Recommendations

## ■ Help define what constitutes “space”

- Would likely yield peaceful passage through space, consensus
- If we don't define, an international adjudicative body will decide (e.g. liability)
- Regulatory areas of friction likely to grow – how do we hold bad actors accountable?
- UNSWG: “In absence of a clear definition, it is impossible to define an area of applicable law and to consistently enforce laws, rules and regulations.” ([UNGA](#) 2019)
- Significant commercial and economic benefits to clearly delineated areas of operation

## ■ Building Bridges ([BPC](#))

- Partnering for mutual strategic goals (e.g. 1975 Apollo-Soyuz mission, 1994 [ISS](#))
- Sino-American cooperation (e.g. Perseverance) could de-escalate emerging PRC/Russian possible ‘axis’ in space and sustain other areas of cooperation

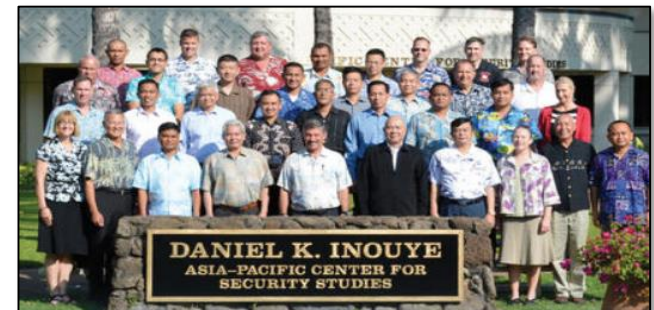
## ■ Enhancing Shared Space Understanding

- Education ([DSCU](#), [DAU](#), [DLIFLIC](#))
- Communities of Interest ([DoD Regional Centers](#))
- Examining regional architectures ([ASEAN](#), [PIF](#))

Space Working Groups, Research, and Discussions at APCSS ([link](#))

## ■ Key Engagements

- Visits to/talks with [APRSAF](#), [APSCO](#), [GISTDA](#), etc.

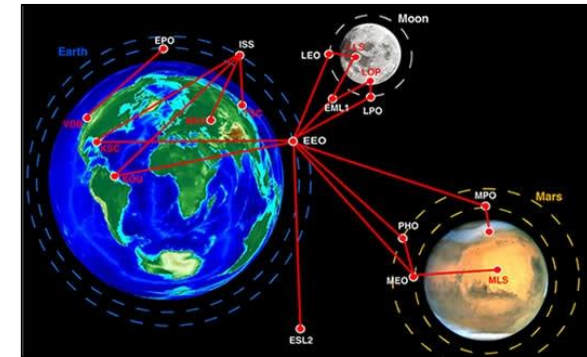




# Space Diplomacy

- **A need for a broader understanding of what and who “diplomacy” involves?**
- **Traditional emphasis on state-to-state diplomacy**
  - Bilateral, multilateral
  - UN, multinational and regional forums
- **Commercial space as a catalyst for common ground?**
  - E.g. collaborative space supply chains
- **What role for Defense space diplomacy?**
  - Trust and confidence building measures
  - Norm development
  - Shared situational awareness
- **What other diplomatic efforts might be possible?**

Source: [MIT Space Logistics](#) – Interplanetary Supply Chain



Rocket Launch Sites Worldwide: 1941-2021



Source: [Atlantic Council Strategy Papers](#), April 2021



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Mahalo for your attention!

Questions?

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