

# NPEC's China Space Wargame

## Introduction

May 5, 2021

5:00 – 8:00 PM

# This game will consist of three moves, each move consisting of three sessions

Time	Activity	Location	Link
5:00 – 5:30	Introduction and Opening Scenario	Plenary	<a href="#">Plenary &amp; Control Room</a>
5:30 – 7:00	Move 1	Breakout Rooms	<a href="#">US Team Breakout Room</a>
			<a href="#">PRC Team Breakout Room</a>
			<a href="#">Japan &amp; Regional Allies Team Breakout Room</a>
			Control: <a href="#">Plenary &amp; Control Room</a>
7:00 – 8:00	Teams Brief Move 1 Decisions and Actions	Plenary	<a href="#">Plenary &amp; Control Room</a>

The game's objective is to determine what U.S./Allied space policies and actions might constrain Chinese adventurism

- The Chinese adventurism of most interest is what the PRC might do in East Asia and space.
- Examine high-level issues that will shape U.S. space policy in the next two decades, including:
  - What is the optimal mix of military space capabilities between low-earth orbit and higher orbits for 2027 – 2029?
  - What kinds of active and passive defenses should the United States and its closest allies develop to cope with emerging Chinese ASAT capabilities?
  - What kinds of unilateral, bilateral and international space diplomacy and regulatory measures should the U.S./Allies pursue, and with whom?
  - How might one's theory of space control shape what constitutes deterrence in space?

# Game Design: 3 moves, 3 hours/per move, 3 teams

- This examination will be held through the conduct of a ‘virtual’ wargame that will be conducted in three 3-hour sessions.
- The participants will be delegated to one of three teams, and a Control team.
  - United States
  - China (PRC)
  - Japan and Regional Allies
- **\*PLEASE NOTE\*** As the game is unclassified, players who have deeper knowledge must not use that information in the wargame.

# Game Design (continued)

- Each of the three moves begin as a plenary session (all participants) where instructions and joint briefings are conducted.
  - ~30 minutes for the beginning of each move.
  - Control will brief all participants on the opening scenario in Move 1, and subsequent actions and developments during each move.
- After the plenary session; teams will dial into another Webex session for team deliberations and decisions.
  - ~90minutes
  - Absorb and process the current situation.
  - Discuss strategy and important issues presented by the situation.
  - Decide on courses of action that are written and briefed in plenary sessions at the end of each move.
- At the conclusion of each move there will be a ~30+ minute plenary session where each team briefs out its decisions.
- Rinse and repeat three times, with the last hour of the last session opened up for participant insights and views.
- A short 'quick' action report will be delivered to each participant ~one month after the game's conclusion.

# Team Organization: A Facilitator and a Captain-Briefer

Roles	U.S.	PRC	Japan & Regional Allies	Control
Facilitator	John Spacapan	Andrea Beck	Bailey Martin	Henry Sokolski and Mark Herman
Team Captain-Briefer	Andrea Harrington	Mick Gleason	Taro Hayashi	
Members	Renn Gade John Galer Hagerty staff (TBD) Peter Hays Zachary Keck Brandon Kelley Chris Kunstadter Joseph Michaels Sid Ravishankar Marin Strmecki Pete Worden	Alexander Bowe Brian Chow Taylor Clausen Melissa de Zwart Pete Garretson Namrata Goswami Megan McCulloch Ian Merritt Kevin Pollpeter Kaylee Walsh	Richard Buenneke Griffin Cannon Justin Dunnicliff Matt Hallex Diane Howard Therese Jones John "Patsy" Klein Seongwon Lee Marco Tantardini Sam Wilson	
Rapporteurs	Kathy Martinez	Bernardo Medeiros	Ernest Ntangu	

# Move 1 (which begins in year 2027) is replayed in year 2029

Move 1	2027	<ul style="list-style-type: none"><li>• Crisis turn where critical decisions about the path ahead are made.</li><li>• Low Capabilities: operational capabilities are assumed to be in an experimental phase.</li></ul>
Move 2	2029	<ul style="list-style-type: none"><li>• Replay of Move 1 with greater operational capabilities</li></ul>
Move 3		<ul style="list-style-type: none"><li>• Examine the long-term implications and enduring character of the crisis.</li></ul>

After each move, teams brief their decisions and rationale to all participants in a plenary session

The China team must communicate its actions to other teams no later than 30 minutes after the first move begins (violators will be shot).

Each team should communicate with the others as often as desired

- Teams use email to communicate with each other and Control
  - Teams reach out to other nation teams to ask questions, negotiate or take action
  - Teams reach out to Control for questions regarding game design or parameters
  - Control team oversees all communication and is copied on all emails
- Facilitators will manage team email

# Scenario Introduction: What the Chinese are about to do and why

- The results of the NPEC Taiwan Wargame have circulated internationally.
  - The final report for this wargame is available [here](#) (password: StrategyFall2020).
- Based on the NPEC game, a recent US Air Force wargame and other open source wargame results, the PRC has concluded that China must take action now to resolve the future of Taiwan by force.
- One of the PRC's most significant insights from the NPEC wargame is that the US needs to be separated from its regional allies as a precondition for enforcement of the PRC's Economic Exclusion Zone around Taiwan. This has the potential to escalate into a direct military confrontation with the U.S.

# Opening Scenario: 2027 – Timeline for Taiwan EEZ Blockade Set

- Beijing decides secretly on a 1 year timeline to enforce a blockade of their Taiwan Exclusive Economic Zone (EEZ).
- A key component of the plan is to use the next year to separate and weaken the U.S.-Asian alliance, particularly with Japan, to neutralize their naval assets in future confrontation with the U.S.
- PLA Military is tasked to initiate a series of covert and overt space operations to weaken Japanese resolve and confidence in the U.S. defense treaty.

Each team has a Space Order of Battle showing their space as assets by type, function and orbit

- Each team has a set of capabilities with which they can conduct\*
  - Space Situation Awareness (SSA)
  - Offensive/Defensive Control of Space (OCS/DCS)
  - NAVWAR operations
- Players have the ability to launch, maneuver assets, and engage in space operations against assets in a particular orbit based on capability parameters (e.g., LEO ASAT)

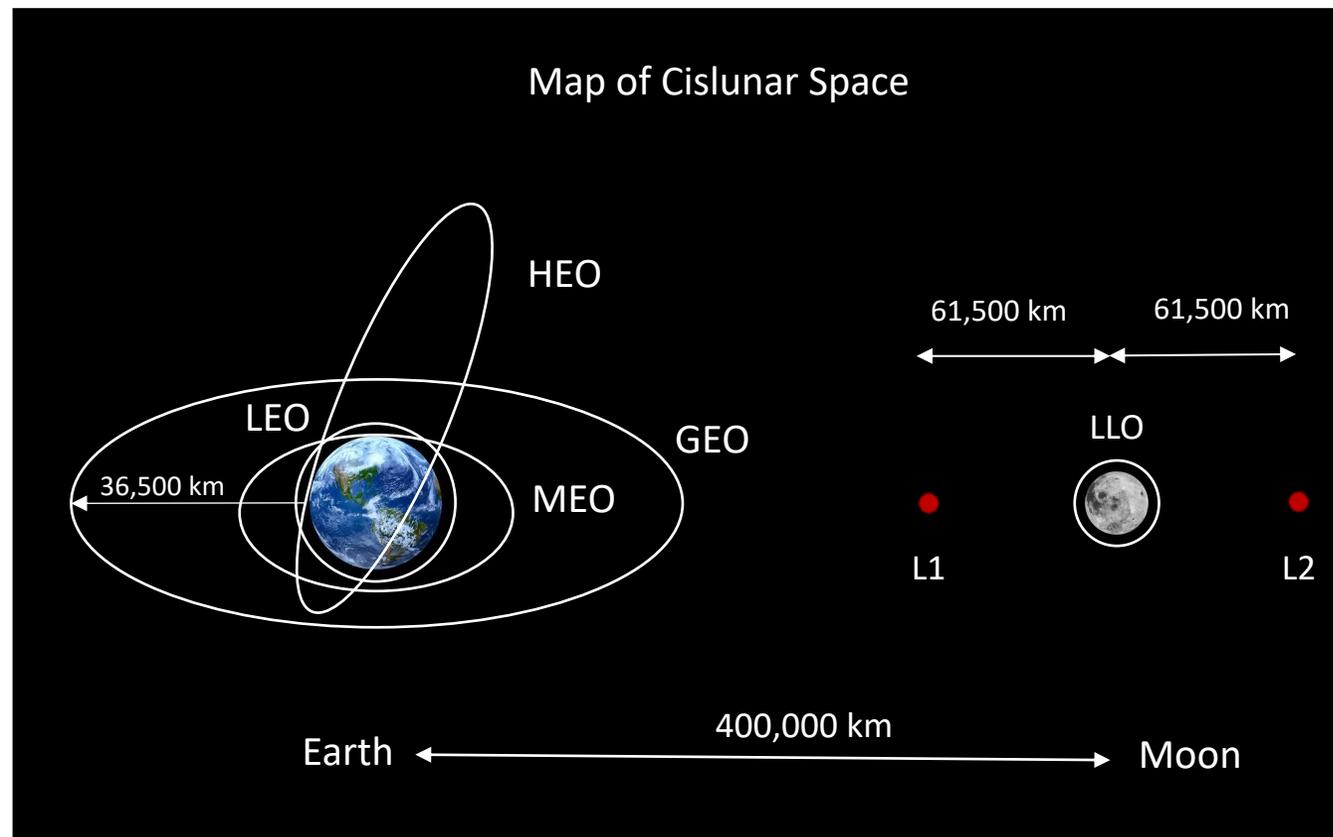
\* Source: "Space Doctrine," Joint Publication 3-14, October 26, 2020

# Commercial assets reside in all orbits, and teams can target these as desired

- Commercial satellites in 2027-2029 will be used by various governments to support military missions
- Commercial satellites may be targeted
- Teams seeking information on specific commercial assets should ask Control

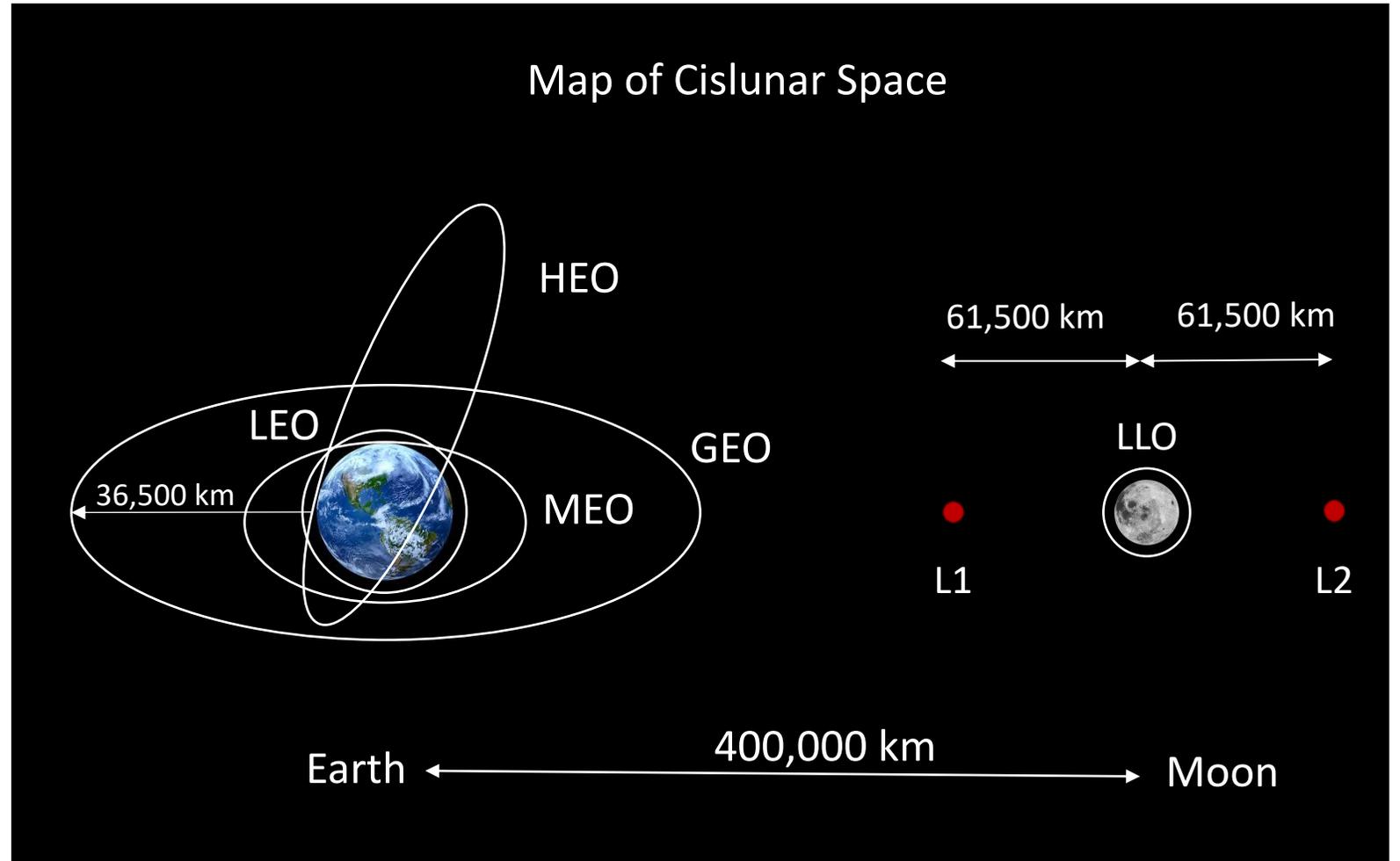
# U.S. Government-owned Space Order of Battle

Orbit	Satellites
LEO	<ul style="list-style-type: none"> <li>• 9 Observation</li> <li>• 6 Radar</li> <li>• 9 Optical</li> <li>• 23 Unknown</li> <li>• 30 Tech Dev</li> <li>• 50 Communications</li> <li>• 1 Space Observation</li> <li>• 13 Electronic</li> <li>• 105 Meteorological Weather Satellites</li> <li>• US X-37B Space Plane</li> </ul>
MEO	<ul style="list-style-type: none"> <li>• 34 Positioning, Navigation &amp; Timing (PNT)</li> </ul>
GEO	<ul style="list-style-type: none"> <li>• 20 Observation</li> <li>• 4 Space Observation</li> <li>• 20 Communications</li> </ul>
HEO	<ul style="list-style-type: none"> <li>• 5 Observation</li> <li>• 3 Communications</li> </ul>
L1	<ul style="list-style-type: none"> <li>• Surveillance (prototype)</li> </ul>
L2	<ul style="list-style-type: none"> <li>• Comsat (NASA)</li> </ul>



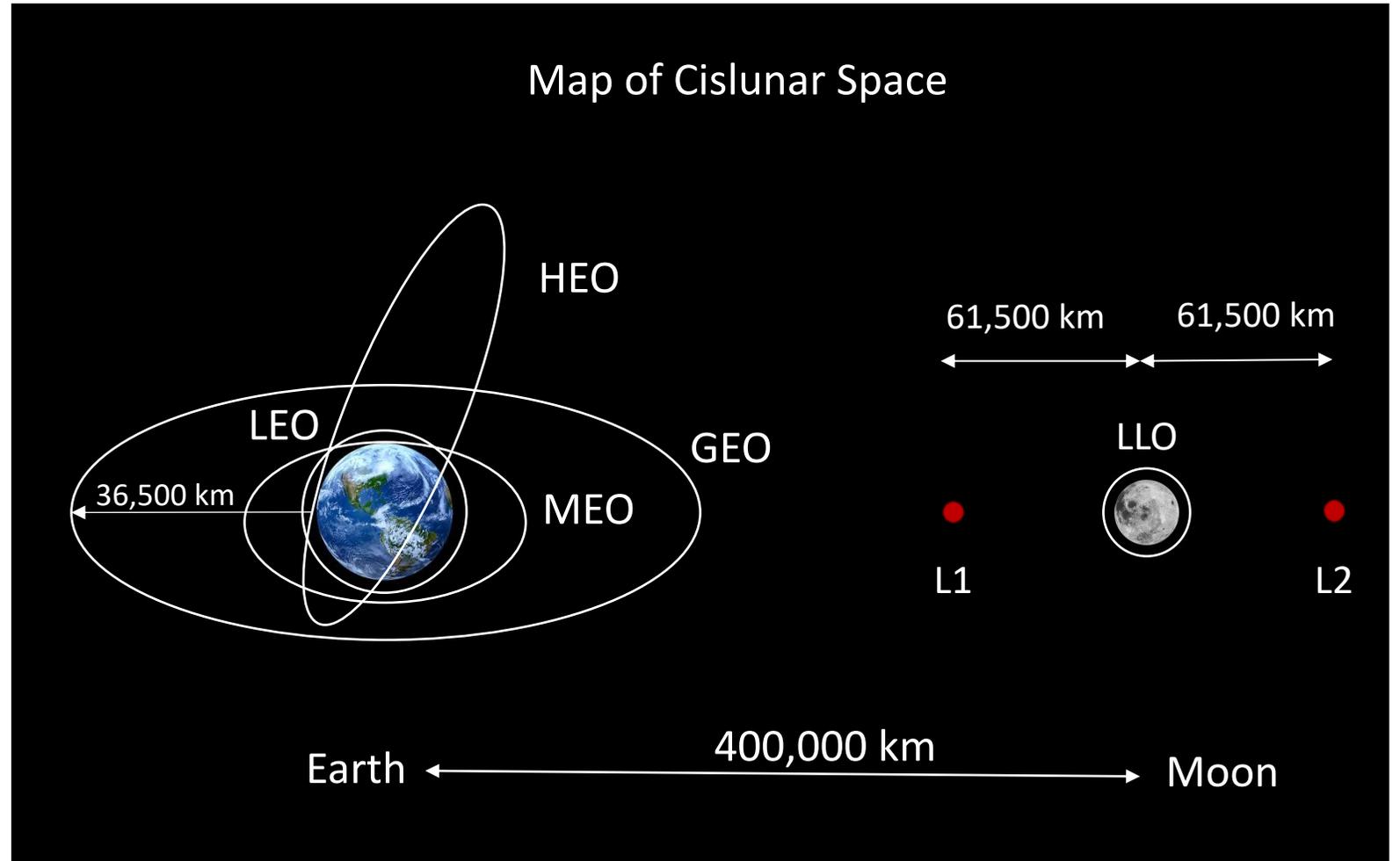
# PRC Space Order of Battle

Orbit	Satellites
LEO	<ul style="list-style-type: none"> <li>• 200 ISR satellites (optical, radar and electronic)</li> <li>• 25 Communications</li> <li>• 3 Observation</li> </ul>
MEO	<ul style="list-style-type: none"> <li>• 29 Positioning, Navigation and Timing (PNT)</li> </ul>
GEO	<ul style="list-style-type: none"> <li>• 1 Optical Earth Observation</li> <li>• 4 Communications</li> <li>• 20 PNT</li> </ul>
L1	<ul style="list-style-type: none"> <li>• 1 Surveillance</li> </ul>
L2	<ul style="list-style-type: none"> <li>• 2 Communications</li> </ul>



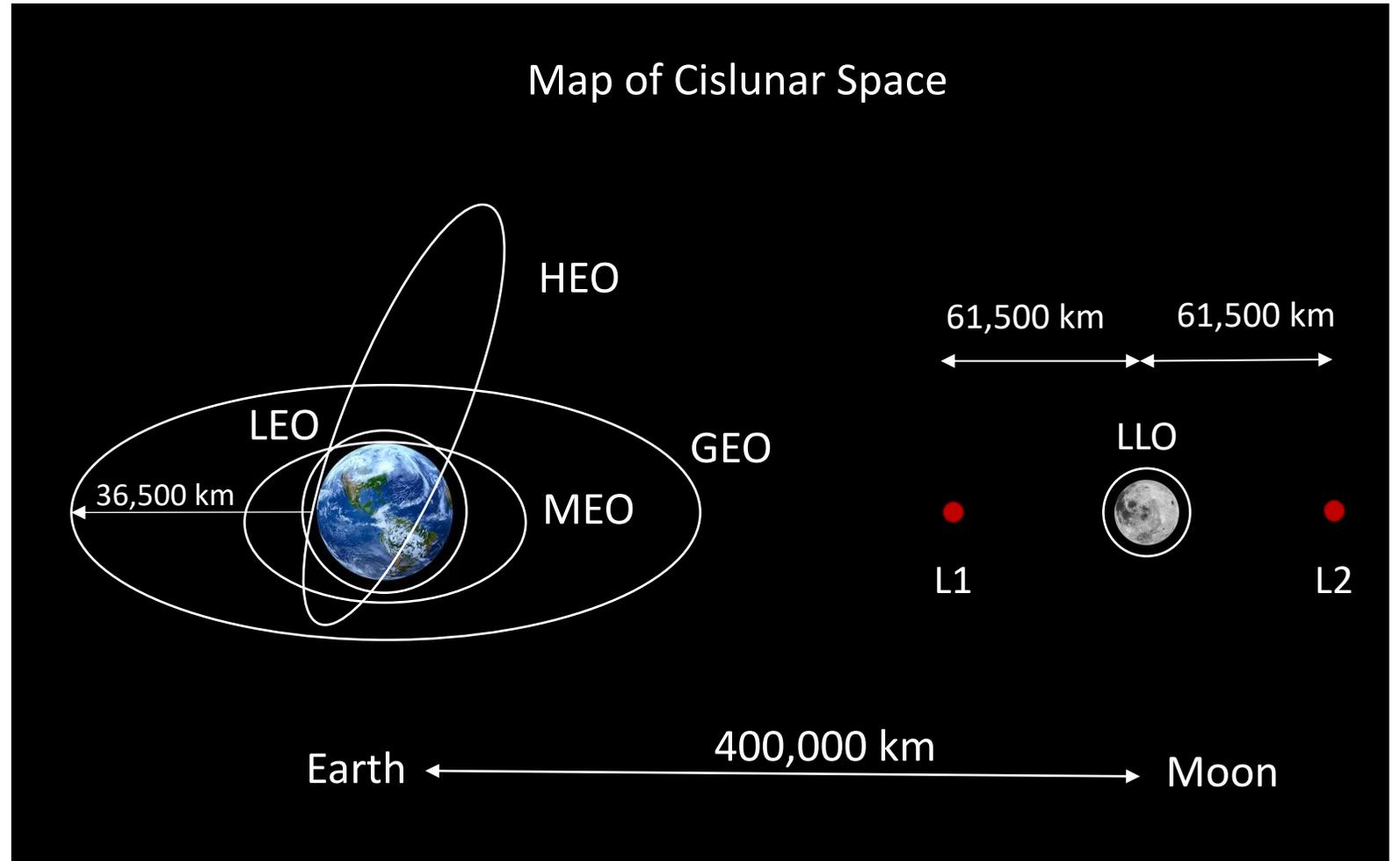
# Japanese Space Order of Battle

Orbit	Satellites
LEO	<ul style="list-style-type: none"> <li>• 7 Optical</li> <li>• 7 Radar</li> <li>• 4 Earth Observation</li> <li>• 5 Technology</li> <li>• 4 On-orbit servicing/ active debris satellites</li> </ul>
GEO	<ul style="list-style-type: none"> <li>• 3 Weather</li> <li>• 2 Communications</li> <li>• 4 Positioning, Navigation and Timing (PNT)</li> </ul>



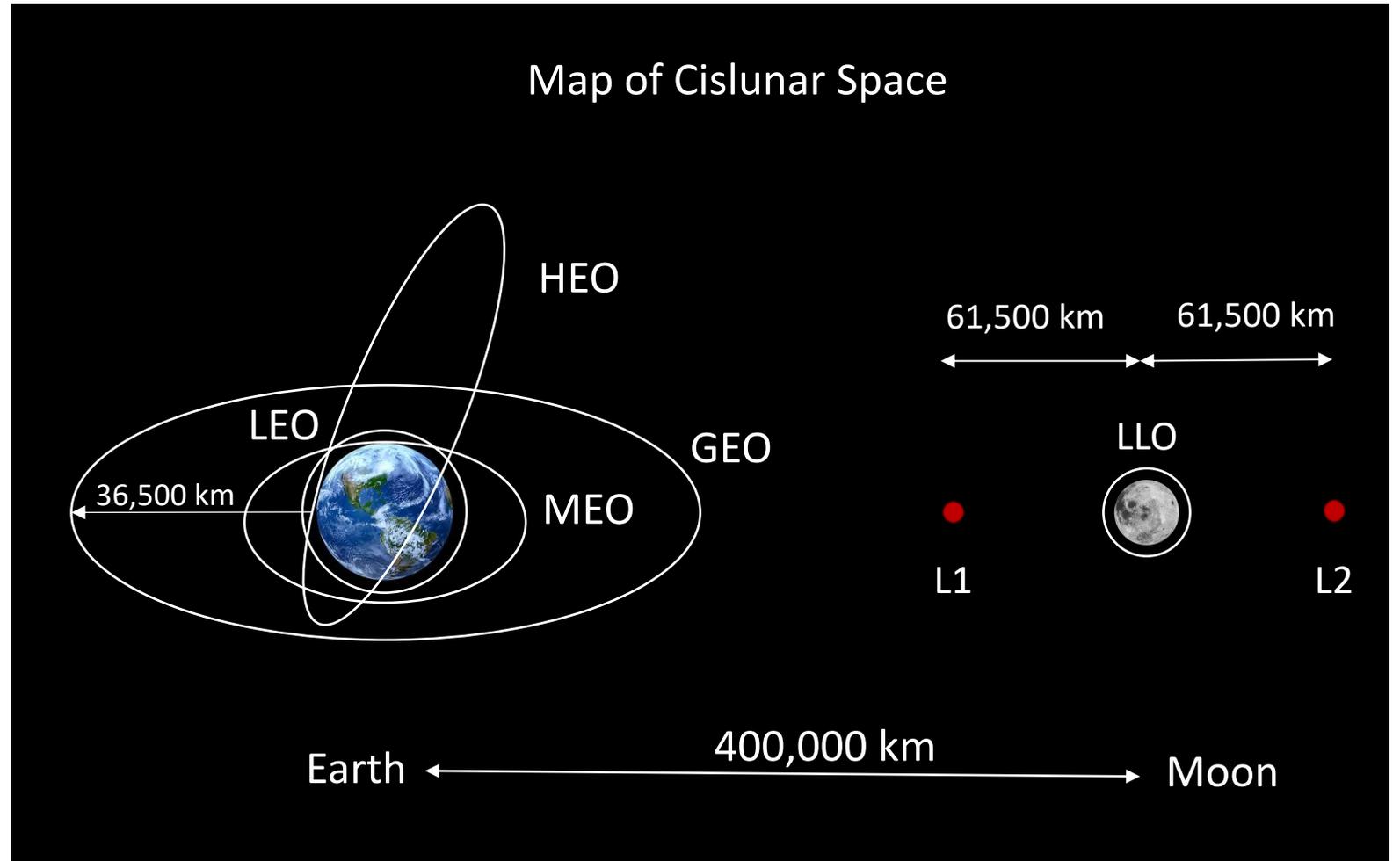
# Australian Government-owned Space Order of Battle

Orbit	Satellites
LEO	<ul style="list-style-type: none"><li>• 1 Communication</li><li>• 1 Technology Development</li></ul>
GEO	<ul style="list-style-type: none"><li>• 7 Communications</li></ul>



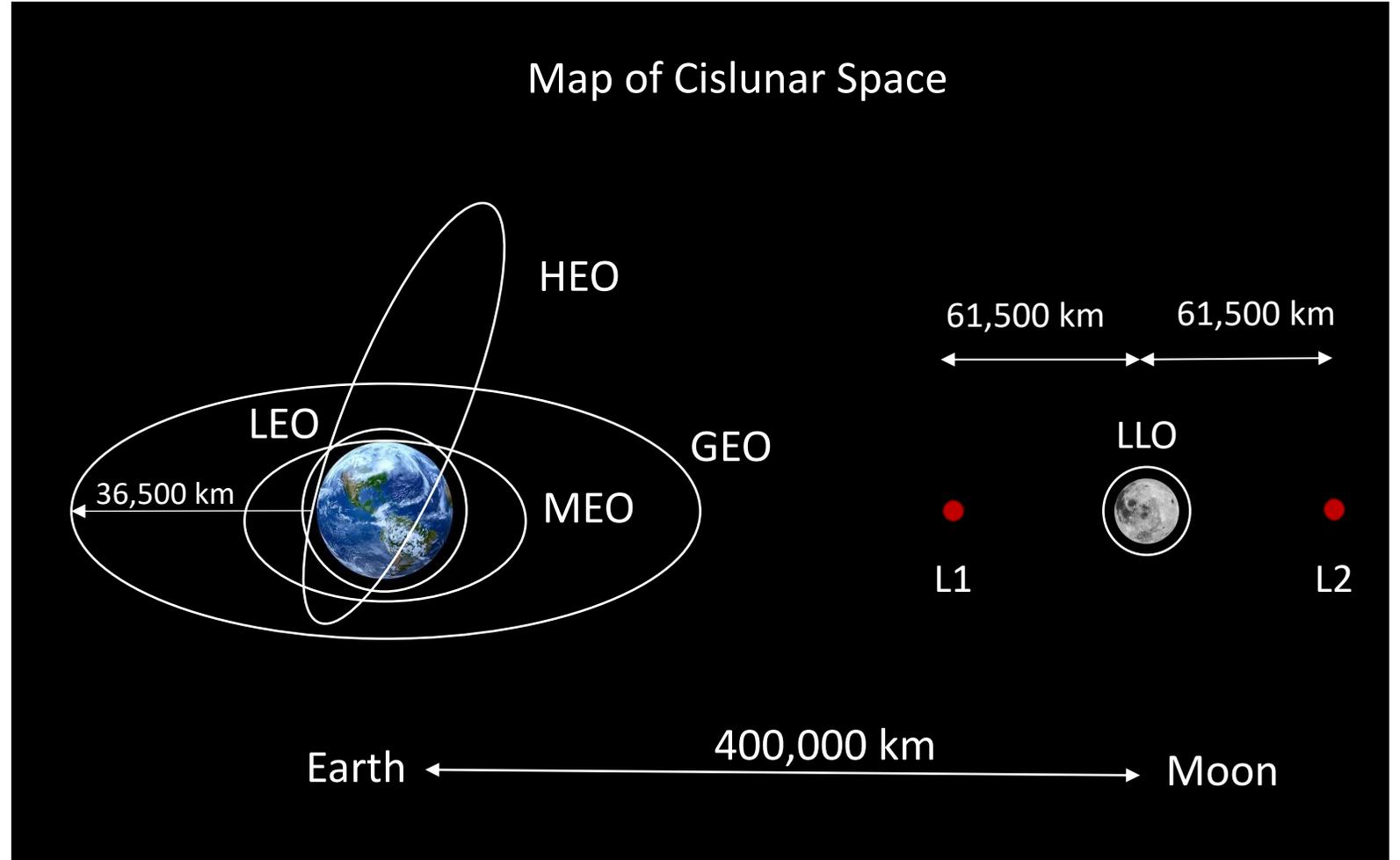
# South Korean Space Order of Battle

Orbit	Satellites
LEO	<ul style="list-style-type: none"><li>• 3 Optical</li><li>• 1 Radar</li><li>• 1 Technology Development</li></ul>
GEO	<ul style="list-style-type: none"><li>• 5 Communications</li><li>• 1 Optical Earth Observation</li></ul>



# Taiwanese Space Order of Battle

Orbit	Satellites
LEO	<ul style="list-style-type: none"><li>• 1 Optical</li><li>• 1 Weather</li></ul>



U.S. will have developed ground-based laser and rendezvous satellite ASAT capabilities by the end of this decade

- Several first-generation commercial satellite re-fueling satellites in GEO later later this decade, with capability to perform simple repair with a robotic arm.
- NASA may contract with commercial companies to provide two systems for active debris removal in LEO
- Two commercial satellites with “space-tug” capability to provide propulsion to US and commercial GEO satellites
- US X-37B Spaceplane, possible ASAT missions
- Several commercial laser-track systems, such as the EOS system in Australia) with enough power to move LEO space debris from collisions with active satellites.

# PRC ASAT Capabilities

PRC Rendezvous Spacecraft	
Year of Conflict	# of Rendezvous Spacecraft
2027	10
2029	100

PRC Ground-Based Lasers				
Year	Fixed Low-Power Satellite Laser Ranging Stations	Mobile Low-Power Satellite Laser Ranging Stations	Fixed High-Power Laser Bases	Mobile High-Power Laser Systems
2021	5	2	5	0
2027	6	3	6	2
2029	7	4	7	4

# Teamwork: consider what actions you need to take and answer the questions for the team briefing

- Go to your team rooms – each team will need to login to their unique Webex meeting.
- Team Captain assumes leadership role for their team, leading discussion and documenting decisions.
- Team Briefer delivers end of move briefing to the entire group in plenary session.
- Briefing questions are provided to guide each team’s discussion – use these to prepare your brief
  - Teams need to think consciously about when to communicate with other teams and Control during each Move
  - Build a short team briefing on actions and rationales to deliver during end of move plenary session
- In 90 minutes we will reconvene to the main Webex room (plenary session) for team briefs
  - Each team has 10 minutes to brief.

# Nation Team Objectives and Means

Nation Team	Objectives	Means
PRC	<ul style="list-style-type: none"> <li>Persuade Japan and other U.S. Asian allies from interceding in a Taiwan crisis</li> </ul>	<ul style="list-style-type: none"> <li>Use PRC space and space-related capabilities to hold U.S.–allied military and commercial space assets at risk                             <ul style="list-style-type: none"> <li>Use specific actions and timelines to achieve this objective</li> </ul> </li> </ul>
United States	<ul style="list-style-type: none"> <li>U.S. needs to protect and maintain its and its allies space capabilities</li> </ul>	<ul style="list-style-type: none"> <li>Neutralize PRC space operations while protecting military and commercial space assets, and maintaining trust of East Asian allies</li> </ul>
Japan / Regional Powers	<ul style="list-style-type: none"> <li>Deterring Beijing adventurism against US and East Asian allies.</li> </ul>	<ul style="list-style-type: none"> <li>Use various strategies and diplomatic initiatives to maintain U.S./Allied correlation of forces, including in space.</li> </ul>

# United States Move 1 & 2 Questions

- What does the U.S. believe its responsibilities are to its allies and what do they expect of us?
- What could the PRC hold at risk in space that would cause the U.S. not to act in the interest of its East Asian allies?
- What capabilities and policies can the U.S. use to deter the PRC in a crisis?
- Is there a window of vulnerability during the 2020s decade where the PRC might handcuff America's ability to use its space assets in some important way?
  - Is there something the U.S. could acquire now to reduce that restriction significantly?
  - Are there some rules that the U.S. should promote with its allies or internationally that would help reduce those risks?

# PRC Move 1 & 2 Questions

- What space actions and capabilities of the PRC would cause the U.S. not to act in the interest of its East Asian allies?
- Is there a window of vulnerability during the 2020s decade where the PRC might handcuff America's ability to use its space assets in some important way?
  - What could the PRC acquire now to ensure this advantage?
  - Are there rules that the US will promote with its allies or internationally that would restrict the PRC advantage?

# Japan/Regional Allies Move 1 & 2 Questions

- What could the PRC hold at risk in space that would cause Japan / Allied Powers to seek the assistance of the U.S.?
- What do Japan/Allied Powers believe are the U.S.' responsibilities to its allies and what do they expect the U.S. to do?
  - What aspects of our space capabilities do we expect the US to protect?
- What capabilities and policies can the Japan/Allied Powers use to de-escalate the crisis to their advantage?
- Is there a window of vulnerability during the decade of the 20s where the PRC might handcuff Japan's/ Allied Powers' ability to use their space assets in some important way?
  - Is there something that Japan/Allied Powers could acquire now to reduce that restriction significantly?
  - Are there some rules that Japan/Allied Powers should promote with its allies or internationally that would help reduce those risks?

# Move 3 finishes game play and explores the lessons learned over the course of the game

- What worked and what didn't work, and why?
- What initiatives and capabilities would have made a decisive difference in the outcome?