



Space Crisis Dynamics and Uncertainty Tabletop Exercise Summary Report

Executive Summary

As more countries integrate space into their national military capabilities and rely on space-based information for national security, there is an increased chance that any interference with satellites could spark or escalate a crisis or conflict. At the same time, the growing reliance on space for national security capabilities creates incentives for attacks on space capabilities as part of a conflict on Earth. The situation is further complicated by (1) the increasing dependence on commercial and civil space systems supporting the global economy, and (2) the challenge of determining the exact cause of a satellite malfunction: whether it was due to a space weather event, impact by space debris, unintentional interference, or deliberate aggression.

To help assess these challenges, the Secure World Foundation (SWF) and the Center for Strategic and International Studies (CSIS) co-organized a tabletop exercise (TTX) on Space Crisis Dynamics and Uncertainty on November 9-10, 2016, in Washington, DC. The goal of the TTX was to raise awareness about the risks of escalation and crisis stability, and to identify gaps or shortcomings in existing national and international policies, strategies, communication channels, and political/legal mechanisms. The output of the TTX will be used to inform future work on developing new mechanisms to enhance space security and reduce the risk of a crisis involving space capabilities escalating to armed conflict.

A total of 18 people played in the TTX, divided up among the four teams. The players were drawn from government, industry, and academia, and had backgrounds in national security space, space policy, civil space, and diplomacy.

This summary report from the TTX includes all the instructions, background materials, and scenarios that were provided to the teams before and during the TTX. It also includes a summary of the moves made by the teams during each of the scenarios, and an overview of the main points and perspectives from the post-scenario group discussion.

Table of Contents

Table of Contents

Executive Summary	1
Table of Contents	2
Agenda	3
Standard Operating Procedures.....	5
Background Briefing.....	7
Scenario 1 – Disputed Islands and Resources.....	18
Scenario 1 Summary	24
Scenario 2 – Border Tensions and Terrorism	30
Scenario 2 Summary	37
Scenario 3 – Proxy War and Insurgency.....	41
Scenario 3 Summary	46

Agenda

Wednesday, Nov. 9

0900 **Welcome and Introductions**

Todd Harrison, CSIS
Brian Weeden, Technical Advisor, SWF

0915 **TTX Inbrief**

TTX rules and procedures, teams adjourn to their rooms with rapporteurs for group introductions

1000 **Scenario 1**

1000-1015 - Move 1 inbrief

1015-1055 - Move 1 team discussion

1055 - Individual team Move 1 decisions go to White Cell

1055-1110: White Cell assesses next step, Rapporteurs lead team discussions on Move 1 decision-making process

1110-1125 - Teams briefed on Move 1 results = Move 2 inbrief

1125-1155 - Move 2 team discussion

1155 - Individual team Move 2 decisions go to White Cell

1155-1210 - White Cell assesses next step, Rapporteurs lead team discussions on Move 2 decision-making process

1210-1225 - Teams briefed on Move 2 results = Move 3 inbrief

1225-1245 - Move 3 team discussion

1245 - Individual team Move 3 decisions to White Cell

1245-1300 - White Cell assesses final status, Rapporteurs lead team discussions on Move 3 decision-making process

1300-1315 - Teams briefed on Move 3 results = Stop

1315 **Lunch Break**

1415 **Scenario 2**

1415-1430 - Move 1 inbrief

1430-1510 - Move 1 team discussion

1510 - Individual team Move 1 Decisions go to White Cell

1510-1525: White Cell assesses next step, Rapporteurs lead team discussions on Move 1 decision-making process

1525-1540 - Teams briefed on Move 1 results = Move 2 inbrief

1540-1610 - Move 2 team discussion

1610 - Individual team Move 2 decisions go to White Cell
1610-1625 - White Cell assesses next step, Rapporteurs lead team discussions on Move 2 decision-making process
1625-1640 - teams briefed on Move 2 results = Move 3 inbrief
1640-1700 - Move 3 team discussion
1700 - Individual team Move 3 decisions to White Cell
1700-1715 - White Cell assesses final status, Rapporteurs lead team discussions on Move 3 decision-making process
1715-1730 - Teams briefed on Move 3 results = Stop

1730 **Wrap Up**

Thursday, Nov. 10

0900 **Recap and Discussion of Day 1**

0930 **Scenario 3**

0930-0945 - Move 1 inbrief
0945-1025 - Move 1 team discussion
1025 - Individual team Move 1 decisions go to White Cell
1025-1040: White Cell assesses next step, Rapporteurs lead team discussions on Move 1 decision-making process
1040-1055 - Teams briefed on Move 1 results = Move 2 inbrief
1055-1125 - Move 2 team discussion
1125 - Individual team Move 2 decisions go to White Cell
1125-1140 - White Cell assesses next step, Rapporteurs lead team discussions on Move 2 decision-making process
1140-1155 - Teams briefed on Move 2 results = Move 3 inbrief
1155-1215 - Move 3 team discussion
1215 - Individual team Move 3 decisions to White Cell
1215-1230 - White Cell assesses final status, Rapporteurs lead team discussions on Move 3 decision-making process
1230-1245 - Teams briefed on Move 3 results = Stop

1300 **Working Lunch**

Team Rapporteur briefs on intra-team discussions

1400 **Discussion of Next Steps**

1430 **Adjourn**

Standard Operating Procedures

Learning Objectives

1. Raise awareness among national policymakers of the impact specific national policies, strategies, doctrine, and capabilities have on crises involving space capabilities.
2. Identify gaps in existing policy, legal, communication, multilateral mechanisms as well as capabilities for stabilizing crises and deterring conflict involving space capabilities.

Teams

The primary entities in the TTX will be teams, each of which represents a fictional state actor. The teams will be designated by a color code -- Red, Orange, Yellow, and Blue. Each team will be provided with a background briefing that outlines their national objectives, capabilities, and diplomatic relationships, which will largely be consistent throughout the TTX.

Participants will be assigned to a specific team for the duration of the TTX. Participants will be playing as themselves and representing their own personal experience, expertise, and opinions. Participants will be assigned such that each team has a breadth of expertise in national security/military, diplomacy/policy, civil, and commercial space.

The TTX will be run by the Control (White) Cell, which consists of four individuals from SWF and CSIS, two outside observers, and four rapporteurs. Each of the rapporteurs will be embedded with one of the teams, and will be responsible for handling communications between that team and the Control Cell and answering questions. The Control Cell will be responsible for adjudicating the actions taken by each team.

All discussions and deliberations during the TTX are for non-attribution.

Moves

Each scenario will consist of three moves over a three-hour period. All four teams will be playing in each scenario.

At the start of Move 1, organizers will inbrief each of the teams on the background information and their starting status, and inform them of how much time they have to make their first decision. At the end of the deliberation period, each team will provide their rapporteur with one or more actions that were made. The rapporteurs will use the Team Move Form to electronically communicate the action(s) to the organizers.

The organizers will adjudicate the actions taken by all teams, according to the capabilities established by the scenario, and decide which outcomes would be seen by which teams.

Simultaneously, each rapporteur will work with their team to document the decision-making process on the Team Discussion Form.

At the end of Move 1, the organizers will provide each rapporteur with the results of their action(s) and those taken by other teams. This will provide the starting status for Move 2.

The process will repeat for Move 2 and Move 3.

The scenario will end when all teams have submitted their third set of action(s) and the rapporteurs have documented the third decision-making process.

White Cell

Dr. Zack Cooper, Center for Strategic and International Studies

Mr. Todd Harrison, Center for Strategic and International Studies

Ms. Victoria Samson, Secure World Foundation

Dr. Brian Weeden, Secure World Foundation

Background Briefing

This TTX focuses on four countries: Yellow, Blue, Orange, and Red. The geographic locations of these countries are depicted in the map below. Their respective military capabilities are explained in the force list on the following page.



Figure 1. Scenario map

Yellow has the world's second largest economy and the most technologically sophisticated and capable conventional military. Yellow also has a robust global presence through a longstanding network of alliances, which include a treaty commitment to defend Orange in the event of an attack on its territory or military forces. Yellow has advanced space capabilities that include missile warning; intelligence, surveillance, and reconnaissance (ISR); military satellite communications (MILSATCOM); and positioning, navigation, and timing (PNT). Yellow has the largest and most sophisticated commercial space sector in the world, which provides capabilities and services to both Yellow and the global market. Yellow also operates multiple commercial space stations in Earth orbit. Finally, Yellow has a significant nuclear deterrent on a 24/7 alert-ready and launch-on-warning posture.

Blue has the world's largest economy and a fairly sophisticated conventional military that is dominant in its immediate region but lacks global reach. Blue has moderate space capabilities across the national security and civil sectors but only minimal commercial capabilities. Blue has its own national space station, which hosts astronauts from other countries. Blue has no formal alliances but does have partnerships with several emerging countries. Blue has a minimal nuclear

deterrent in a second strike posture.

Orange has the world's third largest economy and a small but technologically sophisticated military. Orange has significant capabilities in space-based communications and intelligence, reconnaissance, and surveillance, provided by both governmental and commercial satellites. Orange has a mutual defense treaty with Yellow and has access to some of Yellow's space capabilities. Orange has the ability to develop nuclear weapons but has not yet done so.

Red is a small, technologically sophisticated country with minimal conventional military capabilities. Red is not an ally of Blue, Yellow, or Orange. Red has very limited indigenous government space capabilities but does have some commercial satellite ISR and communications companies that provide services to Red and other global actors. Red disavows the possession and use of nuclear weapons.

Each team has been provided a private background briefing that details their individual national interests and objectives, their relationships with the other teams, and their military and diplomatic options.

		Yellow*	Blue	Orange	Red
Ground	Personnel (Active/Reserve)	650K / 450K	1,500K / 800K	150K / 200K	150K / 300K
	Tanks	2,500	6,500	600	500
	Artillery	7,000	12,000	1,500	2,000
	SOF Groups	15	15	5	1
Naval	Carriers	10	3	1	-
	Destroyers	70	60	35	5
	Frigates	10	60	10	20
	Attack Subs	60	60	15	5
	Ballistic Subs	12	8	-	-
Air	Heavy Bombers (non/stealthy)	120 / 30	150 / 0	-	-
	Fighters (4 th -gen/5 th)	2,200 / 300	2,000 / 100	300 / 100	400 / 0
	Attack Helos	800	200	80	100
	Manned ISR	400	150	80	10
	Unmanned ISR	300	120	20	5
	Ballistic Missile Interceptors	50	10	-	-
	Conv.-armed Ballistic Missiles	20	90	-	-

		Yellow*	Blue	Orange	Red
Ground	Personnel (Active/Reserve)	650K / 450K	1,500K / 800K	150K / 200K	150K / 300K
	Tanks	2,500	6,500	600	500
	Artillery	7,000	12,000	1,500	2,000
	SOF Groups	15	15	5	1
Naval	Carriers	10	3	1	-
	Destroyers	70	60	35	5
	Frigates	10	60	10	20
	Attack Subs	60	60	15	5
	Ballistic Subs	12	8	-	-
Air	Heavy Bombers (non/stealthy)	120 / 30	150 / 0	-	-
	Fighters (4 th -gen/5 th)	2,200 / 300	2,000 / 100	300 / 100	400 / 0
	Attack Helos	800	200	80	100
	Manned ISR	400	150	80	10
	Unmanned ISR	300	120	20	5
	Ballistic Missile Interceptors	50	10	-	-
	Conv.-armed Ballistic Missiles	20	90	-	-

* Only of Yellow systems are resident in region

Figure 2. Team military capabilities

Yellow Team Background

NATIONAL INTERESTS/OBJECTIVES

As one of the few countries with global military capabilities and alliances, Yellow's primary interest is in stabilizing the geopolitical landscape in order to protect its economic and political interests. Yellow is deeply dependent on the continued flow of trade, including access to natural resources. Yellow is increasingly concerned about the vulnerability of its space capabilities and its reliance on space-based capabilities to project global military power.

DIPLOMATIC RELATIONSHIPS

Yellow has a mutual defense treaty with Orange.

Yellow has a longstanding peaceful diplomatic relationship and strong economic ties with Red.

Yellow's diplomatic ties with Blue are strained at best. Although both recognize the power and influence of the other, they are also economic and political competitors. Blue has recently sought to undermine Yellow's diplomatic and economic relationships with other countries, particularly Red.

Yellow Team Options

Space	<p>Non-Kinetic</p> <p>Jam commercial/protected SATCOM downlinks, localized to the immediate area (Success: 90%; Attribution: 90%)</p> <p>Jam commercial/protected SATCOM uplinks, would likely affect users not in local area (Success: 90%; Attribution: 60%)</p> <p>Jam civilian/military PNT signal, localized to area (specify civil/military) (Success: 90%; Attribution: 90%)</p> <p>Jam civilian/military PNT signal, beyond local area (specify civil/military) (Success: 70%; Attribution: 90%)</p> <p>Cyber attack (ISR/PNT/protected SATCOM) satellites; protected SATCOM satellites are also used for nuclear C2 (Success: 70%; Attribution: 40%)</p> <p>Dazzle ISR satellites, could permanently disable (blind) satellites. Effectiveness may be difficult to discern (Success: 60% dazzle / 10% blind; Attribution: 80% if successful)</p>	<p>Kinetic</p> <p>Move co-orbital ASATs near protected SATCOM satellite(s) in GEO (Attribution: 80%)</p> <p>Use co-orbital ASATs to destroy protected SATCOM satellite(s) in GEO, would produce debris in GEO (Success: 90%; Attribution: 80%)</p> <p>Use direct ascent ASAT missile to destroy ISR satellite(s) in LEO, would produce debris in LEO (Success: 90%; Attribution: 100%)</p>
Non-Space	<p>Non-Kinetic</p> <p>Raise/lower the alert status of forces in the region</p> <p>Deploy/withdraw aircraft in the area (specify manned/unmanned and armed/unarmed)</p> <p>Deploy/withdraw maritime forces in the area</p> <p>Deploy/withdraw ground forces in the area</p>	<p>Kinetic</p> <p>Declare a no-fly zone (give authority to shoot down aircraft)</p> <p>Attack naval forces (Success: 90%; Attribution: 100%)</p> <p>Attack ground forces (Success: 90%; Attribution: 100%)</p> <p>Attack SSA facilities (Success: 90%; Attribution: 100%)</p>
Diplomatic	<p>Public</p> <p>Send public demarche to Blue/Orange/Red</p> <p>Propose bilateral discussions with Blue/Orange/Red</p> <p>Propose multilateral discussions with Blue/Orange/Red</p> <p>Impose economic sanctions against Blue/Orange/Red</p>	<p>Private</p> <p>Send private demarche to Blue/Orange/Red</p> <p>Propose secret bilateral discussions with Blue/Orange/Red</p> <p>Leak information (or misinformation) to the media</p>

Blue Team Background

NATIONAL INTERESTS/OBJECTIVES

As a dominant regional economic and military power, Blue's primary national interest is in protecting and enhancing its regional influence. Blue seeks to minimize Yellow's influence in its region, particularly its alliance with Orange. Blue is concerned that Orange and Yellow wish to contain its regional influence, as evidenced by their alliance and economic partnerships with Blue's neighbors.

DIPLOMATIC RELATIONSHIPS

Blue has no formal alliances with any countries but does have partnerships with several developing states.

Blue's relationship with Yellow is mixed. Blue and Yellow have historically been economic and political competitors, with Yellow wielding strong diplomatic influence among Blue's neighbors. Although Yellow has refrained from directly opposing Blue in recent years, it has not prevented its ally, Orange, from doing so.

Blue's relationship with Orange is strained. Over the last few years, Orange has made public denouncements of Blue and directly opposed Blue's political and diplomatic initiatives.

Blue has strong economic ties with Red and has recently sought to strengthen this relationship.

Blue Team Options

Space	<p>Non-Kinetic</p> <p>Jam commercial/protected SATCOM downlinks, localized to the immediate area (Success: 80%; Attribution: 90%)</p> <p>Jam commercial/protected SATCOM uplinks, would likely affect users not in local area (Success: 80%; Attribution: 60%)</p> <p>Jam civilian/military PNT signal, localized to area (specify civil/military) (Success: 90%; Attribution: 90%)</p> <p>Jam civilian/military PNT signal, beyond local area (specify civil/military) (Success: 70%; Attribution: 90%)</p> <p>Cyber attack (ISR/PNT/protected SATCOM) satellites; protected SATCOM satellites are also used for nuclear C2 (Success: 60%; Attribution: 40%)</p> <p>Dazzle ISR satellites, could permanently disable (blind) satellites. Effectiveness may be difficult to discern (Success: 50% dazzle / 10% blind; Attribution: 80% if successful)</p>	<p>Kinetic</p> <p>Move co-orbital ASATs near protected SATCOM / missile warning satellite(s) in GEO (Attribution: 80%)</p> <p>Use co-orbital ASATs to destroy protected SATCOM / missile warning satellite(s) in GEO, would produce debris in GEO (Success: 90%; Attribution: 80%)</p> <p>Use direct ascent ASAT missile to destroy ISR satellite(s) in LEO, would produce debris in LEO (Success: 90%; Attribution: 100%)</p>
Non-Space	<p>Non-Kinetic</p> <p>Raise/lower the alert status of forces in the region</p> <p>Deploy/withdraw aircraft in the area (specify manned/unmanned and armed/unarmed)</p> <p>Deploy/withdraw maritime forces in the area</p> <p>Deploy/withdraw ground forces in the area</p>	<p>Kinetic</p> <p>Declare a no-fly zone (give authority to shoot down aircraft)</p> <p>Attack naval forces (Success: 80%; Attribution: 100%)</p> <p>Attack ground forces (Success: 80%; Attribution: 100%)</p> <p>Attack SSA facilities (Success: 70%; Attribution: 100%)</p>
Diplomatic	<p>Public</p> <p>Send public demarche to Yellow/Orange/Red</p> <p>Propose bilateral discussions with Yellow/Orange/Red</p> <p>Propose multilateral discussions with Yellow/Orange/Red</p> <p>Impose economic sanctions against Yellow/Orange/Red</p>	<p>Private</p> <p>Send private demarche to Yellow/Orange/Red</p> <p>Propose secret bilateral discussions with Yellow/Orange/Red</p> <p>Leak information (or misinformation) to the media</p>

Orange Team Background

NATIONAL INTERESTS/OBJECTIVES

Orange's primary national objective is managing the military threat from Blue and maintaining the alliance with Yellow. Orange lacks any significant natural resources of its own, so it is highly reliant on international trade to supply its economy. Recent economic changes in Orange and in the global oil market have placed significant strain on Orange's ability to purchase the oil and other natural resources it needs to maintain its economy.

DIPLOMATIC RELATIONSHIPS

Orange has a mutual defense treaty with Yellow, which is based on deep and longstanding economic ties. Orange has more limited intelligence and military ties with Yellow, which only shares information and capabilities with Orange on a case-by-case basis.

Orange has a strained relationship with Blue. Over the last decade, Blue has significantly increased its military and economic power in the region, to the detriment of Orange. Orange is deeply concerned that Blue is using its growing regional power to undermine Orange's economy and security.

Orange has a strained diplomatic relationship with Red. Although Orange and Red have some economic ties, they have never had a strong diplomatic relationship due to religious tensions that have sometimes triggered conflict. In recent years, Red has moved closer to Blue.

Orange Team Options

Space	<p>Non-Kinetic</p> <p>Jam commercial/protected SATCOM downlinks, localized to the immediate area (Success: 90%; Attribution: 90%)</p> <p>Jam commercial/protected SATCOM uplinks, would likely affect users not in local area (Success: 90%; Attribution: 60%)</p> <p>Jam civilian/military PNT signal, localized to area (specify civil/military) (Success: 90%; Attribution: 90%)</p> <p>Jam civilian/military PNT signal, beyond local area (specify civil/military) (Success: 70%; Attribution: 90%)</p> <p>Cyber attack (ISR/PNT/protected SATCOM) satellites; (Blue/Yellow protected SATCOM satellites are also used for nuclear C2) (Success: 60%; Attribution: 40%)</p> <p>Dazzle ISR satellites, could permanently disable (blind) satellites. Effectiveness may be difficult to discern (Success: 40% dazzle / 10% blind; Attribution: 80% if successful)</p>	<p>Kinetic</p> <p>Use direct ascent ASAT missile to destroy ISR satellite(s) in LEO, would produce debris in LEO (Success: 70%; Attribution: 100%)</p>
Non-Space	<p>Non-Kinetic</p> <p>Raise/lower the alert status of forces in the region</p> <p>Deploy/withdraw aircraft in the area (specify manned/unmanned and armed/unarmed)</p> <p>Deploy/withdraw maritime forces in the area</p> <p>Deploy/withdraw ground forces in the area</p>	<p>Kinetic</p> <p>Declare a no-fly zone (give authority to shoot down aircraft)</p> <p>Attack naval forces (Success: 80%; Attribution: 100%)</p> <p>Attack ground forces (Success: 80%; Attribution: 100%)</p> <p>Attack SSA facilities (Success: 70%; Attribution: 100%)</p>
Diplomatic	<p>Public</p> <p>Send public demarche to Blue/Red/Yellow</p> <p>Propose bilateral discussions with Blue/Red/Yellow</p> <p>Propose multilateral discussions with Blue//Red/Yellow</p> <p>Impose economic sanctions against Blue/Red/Yellow</p>	<p>Private</p> <p>Send private demarche to Blue/Red/Yellow</p> <p>Propose secret bilateral discussions with Blue/Red/Yellow</p> <p>Leak information (or misinformation) to the media</p>

Red Team Background

NATIONAL INTERESTS/OBJECTIVES

As a small but technologically-sophisticated country, Red's primary objective is to protect its economic and social stability. Red is heavily dependent on continued free trade between all the countries in the region, as well as access to natural resources.

Red has a history of religious strife and is governed by leaders of a religious minority. The current government has only been in power a short time and is keenly aware of their precarious situation. The government is supported by the Red military, whose leadership shares religious beliefs with the current government.

DIPLOMATIC RELATIONSHIPS

Red does not have formal alliances with any of the other countries, but its diplomat relationships are mostly friendly. In particular, Blue is Red's largest economic trading partner and has shown interest in stronger diplomatic ties.

Red has a good economic relationship with Yellow but few security or political ties.

Red has a mixed relationship with Orange. Red and Orange have moderate economic ties but also political and cultural tensions due to historical animosities between religious groups in both countries.

Red Team Options

Space	<p>Non-Kinetic</p> <ul style="list-style-type: none"> Jam commercial SATCOM downlinks, localized to immediate area (Success: 90%; Attribution: 90%) Jam commercial SATCOM uplinks, would likely affect users not in local area (Success: 90%; Attribution: 60%) Jam civilian/military PNT signal, localized to area (Success: 90%; Attribution: 90%) Cyber attack (ISR/PNT/protected SATCOM) satellites; (Yellow/Blue protected SATCOM satellites are also used for nuclear C2) (Success: 50%; Attribution: 40%) 	<p>Kinetic</p> <ul style="list-style-type: none"> Use direct ascent ASAT missile to destroy ISR satellite(s) in LEO, would produce debris in LEO (Success: 70%; Attribution: 100%)
Non-Space	<p>Non-Kinetic</p> <ul style="list-style-type: none"> Raise/lower the alert status of forces in the region Deploy/withdraw aircraft in the area (specify manned/unmanned and armed/unarmed) Deploy/withdraw maritime forces in the area Deploy/withdraw ground forces in the area 	<p>Kinetic</p> <ul style="list-style-type: none"> Attack naval forces (Success: 70%; Attribution: 100%) Attack ground forces (Success: 70%; Attribution: 100%)
Diplomatic	<p>Public</p> <ul style="list-style-type: none"> Send public demarche to Yellow/Blue/Orange Propose bilateral discussions with Yellow/Blue/Orange Propose multilateral discussions with Yellow/Blue/Orange 	<p>Private</p> <ul style="list-style-type: none"> Send private demarche to Yellow/Blue/Orange Propose secret bilateral discussions with Yellow/Blue/Orange Leak information (or misinformation) to the media

Scenario 1 – Disputed Territory and Resources

Orange, Blue, and Red have a longstanding dispute over an island chain that may contain natural resources. The island chain is within 1,000 nautical miles of all three countries. Yellow has attempted to act as a mediator to reduce tensions and avoid outright conflict in the region.

On November 1, the Standard Oil Company, a firm that is owned by the Orange government and enjoys substantial financial investment from Yellow companies, announces that it has found massive reserves of oil near Skull Island, which is part of the disputed island chain. Claiming that it has a drilling license from Orange, Standard Oil announces that it has moved offshore drilling equipment to the area to begin extracting oil.

On November 2, Blue and Red publicly protest the move and announce that they cannot allow such an illegal action to occur. Both countries move naval units into the territorial waters around the island chain for the stated purpose of monitoring the activity of Standard Oil and protecting their own claims. Orange announces that in order to protect its commercial activities, it is moving its own naval units into the territorial waters of the island chain.

On November 4, Orange lands a small military force on Skull Island and establishes a satellite ground station. Blue and Red denounce this action as a violation of international law and demand that Orange withdraw immediately. Yellow calls an emergency meeting of the United Nations Security Council (UNSC) to discuss the situation.

On November 6, a Yellow carrier strike group arrives near the island chain but stays beyond the territorial sea, where it conducts air patrols as well as ISR operations using manned and unmanned aircraft. Yellow publicly calls on all parties to refrain from hostile activities. The media reports that commercial shipping in the area is experiencing interference with civil PNT navigation systems.

On November 7, a Blue manned helicopter flying an ISR mission from a destroyer near Skull Island is struck by a small UAV and crashes, killing the pilot. Blue claims that the helicopter was deliberately rammed by an Orange UAV. Blue begins to mobilize additional military units, which includes dispatching naval ships to and establishing long-range ISR patrols over the island chain. Blue also puts land-based aircraft and conventional ballistic missile forces on alert. Blue declares publicly that it will defend itself against any further attacks on its military forces. Blue reiterates its demands that Orange cease the drilling operations and remove its forces from Skull Island, threatening to force an end to the drilling operations if Orange does not comply.

On November 8, Orange protests its innocence in the helicopter crash, claiming that a Red UAV hit the Blue aircraft. However, Orange also begins to mobilize additional naval and air units while declaring that it will defend itself against any aggression. Orange deploys two destroyers to the island chain, which are equipped with midcourse missile defenses that utilize satellites for detection and targeting of ballistic missiles.

On November 9, Red protestors stage mass demonstrations in the streets, calling for Orange to withdraw from Skull Island and for the Red government to do more to protect its national interests. The same day, the UNSC convenes an emergency meeting.

Yellow Team - Scenario 1

OBJECTIVE

Yellow's primary objective is to maintain stability in the region and prevent the outbreak of armed conflict that could jeopardize trade. At the same time, Yellow's government is also keen to uphold its alliance with Orange, while protecting its power projection capabilities, particularly its space-based systems.

PRIVATE INFORMATION

Orange did not consult with Yellow before moving its forces onto Skull Island.

After landing on Skull Island, Orange's forces established a ground-based PNT and satellite communications jamming capability. Orange then began jamming all civil PNT signals in a 200-kilometer radius around Skull Island. Orange's forces in the area are largely unaffected by this jamming as they are utilizing an encrypted military PNT signal provided by Yellow.

Blue's downed helicopter probably collided with a Red UAV because Red's UAVs rely solely on civil PNT signals.

Orange's ship-based midcourse missile defense relies on Yellow missile warning satellites.

Blue's alerting of its land-based missile forces included raising its conventional anti-ship ballistic missiles to their highest alert status. There are also indications that Blue has upped the tasking on its five ISR satellites that are capable of detecting, tracking, and targeting ships at sea.

There are indications that hardline elements within the Blue military are fueling domestic protests and are pushing for forceful action.

Blue Team - Scenario 1

OBJECTIVE

The Blue government's primary objectives are to force Orange to withdraw their forces from Skull Island and for Standard Oil to cease operations. Blue's secondary objective is to undermine Orange and Yellow's ability to use space capabilities to project power into the island chain.

PRIVATE INFORMATION

The Red UAV likely crashed due to Orange jamming of all public PNT signals near Skull Island. The jamming is not likely to affect the military PNT signals used by Blue, Yellow, or Orange.

Orange's ship-based missile defense system utilizes two of Yellow's space-based missile warning satellites in geosynchronous orbit for detecting missile launches. Orange shares military PNT capabilities with Yellow, using its own satellites to augment Yellow's constellation. Orange has its own limited space-based ISR capability, consisting of six satellites providing both optical and SAR imagery, and it has limited access to some of Yellow's space-based ISR capabilities.

Yellow's carrier battle group is highly reliant on space capabilities (SATCOM in particular) to operate in the vicinity of the island chain.

Orange Team - Scenario 1

OBJECTIVE

Orange places the highest priority on defending its claims to Skull Island and the nearby oil fields, as well as deterring aggression by Blue.

PRIVATE INFORMATION

Orange did not consult with Yellow before moving its forces onto Skull Island.

Upon landing on Skull Island, Orange forces established a ground-based PNT and satellite communications jamming capability. As per standard operation procedure, Orange began jamming all civil PNT signals in a 200-kilometer radius around Skull Island. Orange forces in the area are largely unaffected by the jamming, as they are utilizing an encrypted military PNT signal provided by Yellow.

Orange intelligence services say it is likely that a Red UAV collided with the Blue helicopter near Skull Island, potentially due to Orange jamming.

Blue's alerting of its land-based missile forces included raising its conventional anti-ship ballistic missiles to their highest possible alert status. There are also indications that Blue has upped the tasking on its five ISR satellites capable of detecting, tracking, and targeting ships at sea.

There are indications that hardline elements within the Blue military are fueling domestic protests and pushing for forceful action.

Red Team - Scenario 1

OBJECTIVE

Red desires to avoid any perceived change in the sovereignty of the disputed islands. In addition, Red places a high priority on obtaining evidence that Orange is causing environmental damage and violating international law so that it can use the evidence to put international political and public pressure on Orange.

PRIVATE INFORMATION

On November 7, Red lost contact with one of its UAVs flying an ISR mission near Skull Island. Red technical experts say it might have been due to PNT jamming and that the most likely source is the Orange facility on Skull Island.

Since all Red UAVs rely heavily on civil PNT signals for navigation, it is unlikely Red will be able to successfully operate UAVs in the area.

Scenario 1 Summary

Inbrief

Orange, Blue, and Red have a long-standing dispute over an island chain that may contain natural resources. The island chain is within 1,000 nautical miles of all three countries. Yellow has attempted to act as a mediator to reduce tensions and avoid outright conflict in the region.

The crisis begins with the Standard Oil Company, a firm owned by the Orange government, with substantial financial investment from Yellow companies, moving into the island chain to begin oil drilling operations (without prior consultation with its ally, Yellow). Blue and Red publicly denounce the action, and move naval and air forces into the island chain. Orange moves its own naval forces into the region to protect the commercial operations, and establishes a military base on Skull Island to provide additional support. The military base on Skull Island includes a military-grade PNT downlink jammer, which disrupts civil PNT signals in a 200-km radius around the island (but not the military PNT signals). During the crisis, a Blue helicopter is struck by a UAV. The UAV was owned by Red, and the PNT downlink jamming disrupted its ability to navigate (although only the Red Team knows this at the beginning of the scenario).

Yellow's primary objective in the scenario is to maintain stability in the region, and prevent the outbreak of armed conflict that could jeopardize trade. At the same time, Yellow is to uphold its alliance with Orange, and protect its space capabilities that enable long-distance power projection.

Blue's primary objective is to force Orange to withdraw their forces from Skull Island, and to cease drilling operations. Blue's secondary objective is to undermine Orange and Yellow's ability to use space capabilities to project power into the island chain.

Orange's primary objective is to defend its claims on Skull Island and the nearby drilling operation, while deterring aggression by Blue.

Red's primary objective is to avoid any perceived change in the sovereignty of the island chain, and obtaining evidence that Orange is causing environmental damage and violating international law in order to put international political and public pressure on Orange to withdraw.

Move 1

Blue's goal in Move 1 was to pressure and isolate Orange while sidelining Yellow, by changing the psychology of Orange. Blue decided to deploy additional air and naval forces to the region, and also begin downlink jamming of the Yellow commercial SATCOM used by Standard Oil for their drilling operations. The Control team adjudicated this as successful, but with attribution to Blue.

Blue sent a private message to Red, offering to coordinate a diplomatic and military response to Yellow, and asked if Red was willing to undertake peaceful, reversible cyber operations against Standard Oil's global networks. Blue sent a private message to Yellow to remind Yellow of its

economic investments in Standard Oil, and ask if that is in line with their public remarks. Publicly, Blue demarched Orange, and accused Orange of creating the PNT interference that caused the collision. Blue also publicly endorsed Yellow's call for restraint, while emphasizing Orange's illegal actions, and offered to host 3+1 talks (with Yellow as the observer) on regional challenges.

Red's goal in Move 1 was to avoid escalating the situation. Red began the scenario by increasing the tasking of its commercial ISR satellites for the island chain, in order to obtain evidence of potential environmental damage. Red also tasked their commercial fishing fleet to collect water samples, and placed government scientists on the commercial fishing vessels to aid in the collection and analysis, in order to try and learn more about the situation and reassert its sovereignty while avoiding provoking Orange.

Red sent a private message to Blue, indicating that Red believed its UAV may have been the source of the crash, and expressing interest in an investigation into potential PNT downlink jamming by Orange. Red also sent a private message to Yellow, expressing grave concern about the situation and Orange's attempt to change the status quo by force. Red released a public message to its population that it was actively working with the United Nations Security Council to condemn Orange's actions, and it was using its military forces to limit escalation and protect economic activity in the region. The goal of these messages was to build confidence with Blue and Yellow.

Yellow's goal in Move 1 was to de-escalate the situation, and establish communications with all actors to identify credible voices and decision-makers. Yellow began by privately increasing the alert status of its satellite dazzler and offensive cyber capabilities, in case they needed to be used in the future.

Yellow sent a private message to Orange expressing its displeasure with the lack of prior consultation before deploying military forces to Skull Island, and requesting consultation on any further Orange military deployments in the area. Yellow also stated that it was investigating the source of the PNT interference. Yellow also sent a private message to Red, indicating Yellow's interest in preserving safety of life and trade in the region, believed that it may have been Red's UAV that was involved in the collision, and asked if Red can help Yellow communicate with Blue to de-escalate tensions. Yellow also sent a private message to Blue, asking if Blue was open to sharing ISR data as a confidence-building measure. Publicly, Yellow released a statement indicating its support for freedom of navigation and trade in the region, and characterizing the situation as a trade dispute, not a territorial one.

Orange's goal in Move 1 was to diffuse the crisis while maintaining their military presence, and also to try and use Yellow to offset a potential military response from Red. Orange decided to continue the PNT downlink jamming, and also position its naval forces and sea-based missile defenses to defend Skull Island.

Orange sent a private message to Yellow, reminding Yellow of their treaty commitments, and expressing concern about potential threatening action by Blue. Orange also asked Yellow to open diplomatic negotiations between all the parties, while also increasing Yellow's naval defensive

presence in the island chain. Orange sent a private message to Red offering to potentially share in the region's economic benefits, and wishing that Red remained neutral in the matter. Publicly, Orange expressed regret over the loss of life, and offered compensation to Blue while calling for restraint by all parties.

Move 2

Blue's goal in Move 2 was to ratchet up the pressure on Orange, without being the first to engage in an illegal use of force. Blue made a request to Red to engage in joint military exercises on the Blue/Red border, which Red did not respond to. Blue conducted a cyber attack on the Orange ground station on Skull Island, which the Control Cell adjudicated as a failed attack that was not attributed back to Blue. Blue also continued the cyber attacks against Standard Oil's global network, and implemented economic sanctions against Orange in concert with Red.

Blue sent Yellow a private message, indicating that it was open to ISR sharing. Publicly, Blue presented at a meeting of the UNSC satellite imagery of Orange's military activity on Skull Island, and demanded that Yellow call on Orange to remove its forces from Skull Island.

Red's goal in Move 2 was to slow Blue down, while bringing in Yellow to pull Orange back from the island chain. The Red Team discussed how aggressively to deal with Orange, but were in agreement that they did not want to get into a fight with Blue. Red publicly released imagery of Orange's deployment of ships near Skull Island with missile defenses.

Red sent a message to Yellow indicated a shared concern for preserving life and trade, and avoiding escalation. Red confirmed that its analysis showed Orange as the source of the PNT downlink jamming, that Orange was also damaging the local environment surrounding Skull Island, and that Red would be happy to facilitate some sort of dialogue with Blue. Red sent a private message to Blue, indicating that Yellow had approached Red with an offer to facilitate a diplomatic solution, a move that Red supported, but also requesting the purpose of the military exercise on the border. Red sent a private message to Orange indicating a shared desire to resolve the situation diplomatically, but noting that Orange's actions had violated international law. Publicly, Red expressed concern about Orange's further militarization of the islands, continued its call for a peaceful resolution, but also asserted its right to self defense if its interests were threatened.

Yellow's goal in Move 2 was to reinforce de-escalation, and return to a stable environment. Yellow publicly released satellite imagery of Skull Island and the island chain, in the hope of providing common awareness of the situation.

Yellow sent a private message to Blue stating that it was prepared to attribute the commercial SATCOM downlink jamming to Blue, and that Yellow would defend itself against any intentional degradation of Yellow's satellite capabilities; Yellow also pointed out that its preference was de-escalation in order to avoid future loss of life. Yellow sent a private communication to Orange reminding Orange that Yellow controlled the missile warning information, and suggesting that Standard Oil purchase commercial SATCOM from Red or Blue. Yellow sent a private message to Red to request Red delay moving its commercial fishing

vessels into the region in order to allow Yellow to place its Coast Guard personnel and military PNT receivers on the vessels. Publicly, Yellow offered to provide Coast Guard personnel and military PNT receivers on Red fishing vessels to ensure safety of life.

Orange's goal in Move 2 was de-escalate the situation without compromising their presence on Skull Island. Orange believed that Blue made a mistake in stating this was a commercial situation, and planned to use that to de-escalate.

Orange sent a private message to Yellow, calling on Yellow as its alliance partner to mediate the dispute as a commercial matter with Blue and Red. Orange sent a private message to Red, offering to make Red a full economic partner in sharing resources in the region. Publicly, Orange agreed with Blue's characterization of the situation as a commercial dispute, and agreed to 3+1 talks if Yellow acted as the mediator. Orange also expressed interest in discussing a code of conduct on electromagnetic interference. Orange also leaked disinformation to the media that the initial samples from the drilling indicated a disappointing level of oil.

Move 3

Red's goal in Move 3 was to get the other team's to acknowledge its sovereign and commercial rights, as they felt the other teams ignored them more as the scenario moved along. Red was also still looking for a way to get Orange off Skull Island. Red decided to raise the alert status of their forces in the region, and also to conduct an offensive cyber operation against the Orange military ground station on Skull Island, which they determined was the likely source of the PNT jamming. The Control Team adjudicated the attack as being successful, and without any attribution.

Red sent a private message to Yellow, stating that Red had been getting significant pressure from Blue to join in economic sanctions against Orange, engage in military exercises, and coordinate actions. Red stated that their preference was a peaceful reversion to the status quo ante, but they were being pushed into a situation where they might have to take a more active posture unless Yellow could get Orange to withdraw. Red privately asked Blue about the purpose of Blue's military exercises on its border with Red. Red sent a private message to Orange, reasserting Red's sovereignty and freedom of access of its commercial fleets. Publicly, Red supported Orange's call for removal of military forces, but disagreed with the characterization of this as an economic crisis. Red encouraged its commercial industry to increase their activity in the island chain, and reaffirmed the protection from Red's military. Red publicly called on all parties to engage in diplomatic discussions in Red's capital.

Yellow's goal for Move 3 was to reinforce the actions of the other teams to de-escalate tensions. Yellow kept its satellite dazzler and cyber forces at a high readiness level, and pulled Yellow maritime forces out of the region in order to de-escalate the situation.

Yellow sent a private message to Orange asking to include Red as a stakeholder in Standard Oil, and also potentially bring Red under the mutual defense umbrella. Yellow sent a private message to Red to encourage them to approach Standard Oil about joining in the venture. Publicly, Yellow offered to send Yellow personnel if the UN wanted to observe the Red-Blue military

exercise, and volunteered to mediate the resolution of what it continued to describe as a trade issue.

Orange's goal for Move 3 was to maintain its presence on Skull Island, make Blue out to be the aggressor, and to emphasize the commercial nature of the operation. Orange did not take any actions in Move 3. Orange sent a private message to Yellow, indicating that it was disappointed with Yellow's unwillingness to follow through on their mutual defense commitments.

Publicly, Orange expressed disappointment with Blue's unprovoked cyber attacks on the "peaceful, commercial installation" on Skull Island, and characterized them as a violation of international law. Orange reiterated Standard Oil's rights to engage in commercial activity, and that the military presence on the island was limited to "guards." Orange also reiterated their acceptance of Blue's offer for international negotiations, mediated by Yellow.

Blue's goal for Move 3 was to achieve their objective of removing Orange forces from Skull Island. Blue commenced downlink jamming of the Yellow/Orange commercial and military SATCOM being used by the Orange forces on Skull Island, and dazzling of Yellow/Orange ISR satellites as they flew over Skull Island; this last move was intended to cover only the short period of time needed for Blue to conduct an air assault on the Orange forces on Skull Island. The Control Team adjudicated the the jamming and dazzling as both being successful and attributed to Blue, and a successful attack.

Blue privately told Yellow that any interference with Yellow SATCOM was unintentional. Publicly, Blue endorsed Orange's call for all parties to remove their forces from the region, and called for Orange to remove their military forces from Skull Island as a first step towards a return to the status quo ante.

Conclusion

In the post-scenario discussion, the Red Team stated that their goal was to return the situation to the status quo ante, but felt that they were being ignored by the other teams, and thus debated how early to launch the cyber attack. The Red Team also stated that they fundamentally saw this as a territorial dispute, while both Yellow and Orange wanted to keep it an economic dispute.

The Blue Team stated that they wanted to find a way to get Orange off of Skull Island, without provoking a military response from Yellow. That drove Blue to look for ways to control escalation while still being coercive. As part of this, the Blue Team felt that Standard Oil could be treated as an independent actor from the Orange government. The Blue Team stated that they were hesitant to go directly to attacks on space capabilities, because they felt that once the conflict moved to space it would be hard to stop it from ratcheting up.

The Orange Team stated that they resorted to lawfare, disinformation, and diplomacy to offset their weak military position. Thus, the Orange Team focused on being conciliatory, and offering economic incentives to Red and Blue, such as sharing in the commercial profits. The Orange Team said that they were surprised by Blue's decision to escalate to armed attack at the end, and felt that up until then Orange was winning with diplomacy.

The Yellow Team felt that Orange's decision to land forces in the island chain without prior consultation undermined their alliance, and thus were not incentivized to strongly back Orange. Yellow's overall strategy was to de-escalate, communicate, find credible stakeholders, frame the scenario, and take initiative in the international fora. As part of this, the Yellow Team stated that they tried to use their space capabilities to increase transparency, and hopefully peel Red away from Blue while deterring armed attacks. The Yellow Team stated that if there had been a Move 4, they probably would have responded to Blue's jamming and dazzling in kind, but probably also with a communication to Blue to try and resolve the situation. The Yellow Team also stated that they probably would have considered the jamming and dazzling to be equivalent to a permanent attack, because it could come at any time and they thus could not rely on those space capabilities.

Scenario 2 – Border Tensions and Terrorism

Geopolitical tensions are growing. Many countries are struggling to adapt to rapid changes being driven by globalization and the realignment of traditional political and economic relationships. Orange and Blue have been hit particularly hard by the changes, which have caused political and economic instability in both countries and reopened scars of past conflict between them. Hardline governments have risen to power in both countries on promises to restore each to their former glory and to right historical wrongs.

On November 1, Orange is struck by the largest terrorist attack in its recent memory in a province bordering Blue. Suicide bombers detonate multiple devices inside a packed train station in the largest city of the province, killing dozens and injuring hundreds.

On November 3, Orange media leaks that the preliminary investigation has linked the attack to extremists in Blue. Despite Blue's denial of any official involvement, public outrage in Orange forces action. A state of martial law is declared in the province, and Orange military forces are mobilized to secure the border between Blue and Orange. Blue expresses concern that the mobilization seems excessive. Blue media pundits warn that the build-up might be in preparation for a military attack by Orange.

On November 6, Orange media broadcasts a report that claims to show evidence linking the terror attack to Blue intelligence services. Although Blue officially denies the link, the report has a strong influence on the Orange public, who demand action from their government.

On November 8, a Blue fighter aircraft on patrol shoots down a Yellow helicopter within Blue territory near the border with Orange, killing all on board. Blue states that the helicopter violated its airspace. Blue media announces that the helicopter was carrying an Orange special forces team and that the team was on a covert mission to infiltrate Blue. The helicopter was launched from a joint Orange-Yellow base located in Orange's territory near the border with Blue. Pundits in Blue speculate that Orange and the Yellow are preparing to invade Blue.

Blue places its armed forces on their highest alert and mobilizes multiple armored and mechanized divisions to the border with Orange, along with fighter patrols. Blue publicly vows to defend itself against all threats.

Yellow Team - Scenario 2

OBJECTIVE

Yellow's primary objectives are to deter a ground invasion of Orange by Blue and to ensure the integrity of Yellow's nuclear deterrent, including the ability to detect and respond to a nuclear attack using space-based missile warning and protected communications.

PRIVATE INFORMATION

Yellow has been in discussions with Orange on possible responses to an attack by Blue, as well as options for retaliation or a pre-emptive attack to blunt a possible Blue offensive.

The Yellow helicopter was carrying an Orange special forces team to conduct a raid on the extremist border enclave in Blue from which the terrorists originated. The helicopter was supposed to be stealthy against radar detection by Blue but was detected by Red, which provided the tracking data to Blue.

In response to the deepening crisis, Yellow has made slight alterations to the orbit of several of its intelligence satellites to increase ISR of Blue forces in the crisis region.

Yellow intelligence services are moderately certain that Blue intelligence was at least aware of the terror attack beforehand, if not complicit in it. Intelligence sources show there is a high level of activity among Blue war planners and indicate potential preparations for a pre-emptive strike on Yellow space forces, which would be consistent with Blue doctrine of denying adversaries the use of space.

On November 8, Yellow space surveillance capabilities detected a change in the orbital trajectory of three small objects in the GEO belt, which had originally been cataloged as debris from a Blue space launch five years ago. The new trajectories have the three objects drifting around the GEO belt towards the region over the crisis area between Blue and Orange.

A few hours ago, the first of the small satellites was predicted to arrive at the location of one of Yellow's GEO missile warning satellites, which provides warning of missile launches from the crisis region as well as battlefield intelligence. Around the same time, the Yellow missile warning satellite began experiencing interference with its command and control channel, resulting in interruptions to its health and status reports, as well as interfering with Yellow's ability to send commands to the satellite.

Yellow does not have sufficient space situational awareness coverage over the conflict area to independently confirm, but Red does have a ground telescope with good visibility.

ISR satellites show that Blue's mobilization includes increased readiness of their ASAT capabilities. At least six of Blue's mobile direct ascent ASAT launchers have left their bases and their current whereabouts are unknown. Additionally, Blue's airborne laser dazzler platform is making daily patrols in the region bordering Orange. Blue has also deployed mobile PNT jammers to the border region.

Blue Team - Scenario 2

OBJECTIVE

Blue's primary objective is to deter a ground invasion or violation of Blue's territory by Orange or Yellow.

PRIVATE INFORMATION

An investigation has revealed that the terror attack was supported by a small rogue element within Blue's intelligence services, but there was not broad support within Blue's government.

The Yellow helicopter was shot down because it crossed the border into Blue airspace and was believed to be carrying a full Orange commando team. The helicopter was detected by a sophisticated Red civil air traffic tracking radar, after which Red warned Blue about the unknown aircraft.

As part of the mobilization, Blue has dispersed six mobile direct ascent ASAT systems, four ground-based mobile PNT jammers, and began regular flights of an airborne laser dazzler platform, all within Blue territory near the border region.

Several days ago, Blue activated three small inspection satellites in the GEO region and tasked them to move toward Yellow's GEO satellites over the crisis region to determine the ability of Yellow to use those satellites to support a potential conventional conflict on the ground. Blue has not yet activated its co-orbital ASATs hidden in the GEO belt.

One of the three inspection satellites arrived at the location of a suspected Yellow satellite providing missile warning and intelligence to the crisis area. Blue instructed its satellite to alter its trajectory to conduct rendezvous and proximity operations (RPO) of the Yellow missile warning satellite in order to assess its capabilities and functions. The other two Blue satellites continued drifting toward other Yellow satellites. Shortly after beginning its inspections, the Blue satellite conducting RPO near the Yellow satellite began experiencing interference with its command and control channel. This has interrupted its health and status reports, as well as Blue's ability to send commands.

Intelligence sources show a high level of activity among Yellow war planners and indicate potential preparations for a pre-emptive strike on critical command and control and air defense nodes that would be consistent with Yellow doctrine of seizing the initiative and dealing a decisive blow early in a campaign.

Yellow has altered the orbits of its ISR satellites to optimize collection over Blue territory. The satellites provide daily coverage of the border region and previously proved successful at identifying targets that were destroyed by PNT-guided munitions. Yellow will likely have fully mapped Blue's deployed forces and C2 architecture in a few days.

Blue has requested exclusive access to Red commercial ISR satellites over the conflict region, but has not yet received a response.

Orange Team - Scenario 2

OBJECTIVE

Orange's primary objective is to deter a ground invasion by Blue. Orange's secondary objective is to bring the perpetrators of the terror attack to justice and eliminate the terrorist threat.

PRIVATE INFORMATION

The Yellow helicopter was carrying an Orange special forces team to conduct a raid on the extremist border enclave in Blue from which the terrorists originated, with orders to capture or kill those responsible for the terror attack.

Orange has been in contact with Yellow to discuss possible responses to an attack by Blue, as well as options for retaliation or a pre-emptive attack to blunt the offensive.

Yellow intelligence has alerted Orange that three small Blue satellites, suspected to be co-orbital ASATs, are drifting through the GEO belt towards important Yellow satellites, including ones that provide tactical warning of missile launches and battlefield intelligence of the border region.

Orange has requested exclusive access to Red commercial ISR satellites over the conflict region, but has not yet received a response.

Red Team - Scenario 2

OBJECTIVE

Red's primary objective is to deter an attack on its sovereign territory. Red's secondary objective is to prevent a conflict between Orange and Blue -- its two largest trading partners -- which would threaten political and economic stability in the region.

PRIVATE INFORMATION

Red has a very sophisticated civil air traffic control radar that detected the Yellow helicopter as it moved across the border. Red alerted Blue that it had detected an unknown aircraft but did not know it was a Yellow/Orange military mission.

Red has a scientific telescope located near the border with Orange and Blue, which provides data to a global tracking network operated by Yellow.

Red's telescope observed one of the three objects alter its trajectory to stay close to one of Yellow's missile warning satellites, while the other two have continued to drift further along the GEO belt.

Scenario 2 Summary

Inbrief

The scenario begins with a terror attack on Orange that was supported by a rogue element in Blue's intelligence services. Media speculation and leaks of possible involvement by Blue intelligence services leads to growing public anger in Orange, prompting an attempt at a covert raid of Blue by Orange and Yellow. However, the aircraft involved in the raid are shot down, leading both sides to mobilize forces along the border and prepare for possible conflict.

As part of the preparations, Blue secretly dispatches three small inspection satellites to drift towards Yellow national security space assets in GEO. As one of them arrives near a Yellow satellite that provides missile warning for both Yellow and Orange, both the Yellow missile warning satellite and the Blue inspector satellite experience interference with their command and control channels (although each is only aware of the interference with their own satellite). Yellow is reliant on a ground telescope located in Red for direct observation of the situation.

Yellow observes Blue mobilizing its mobile direct ascent ASAT launchers and airborne satellite dazzler platforms near the border with Orange. Blue observes a high level of Yellow war planning, including possible preparations for pre-emptive strikes on critical command-and-control nodes, and retasking of space-based ISR assets to increase collection of Blue military targets.

Yellow's primary objectives in the scenario are to deter a ground invasion of Orange by Blue and to ensure the integrity of Yellow's nuclear deterrent, including the ability to detect and respond to a nuclear attack using space-based missile warning and protected communications.

Blue's primary objective is to deter a ground invasion or violation of Blue's territory by Orange or Yellow.

Orange's primary objective is to deter a ground invasion by Blue. Orange's secondary objective is to bring the perpetrators of the terror attack to justice and eliminate the terrorist threat.

Red's primary objective is to deter an attack on its sovereign territory. Red's secondary objective is to prevent a conflict between Orange and Blue -- its two largest trading partners -- which would threaten political and economic stability in the region.

Move 1

Note: In a change from Scenario 1, Teams were permitted to communicate privately with one another during each move. Actions and public messages may only be submitted at the end of a move.

Orange's goals in Move 1 were to deter Blue, solidify their alliance with Yellow, and deal with public discontent. Blue's goals were simply to de-escalate the situation in the region. Yellow

hoped to keep Blue in a box, protect its nuclear C2 assets, and reassure its allies. Red played a smaller role, hoping to deter an attack on its sovereign territory by making themselves more valuable to Yellow and Blue in peacetime than in wartime.

During the Move, all three teams exchanged private messages. Blue sent a private message to both Orange and Yellow that admitted to the terror attack being sponsored by a rogue element in their intelligence services, stated that they had been dealt with, offered compensation, and explained that their increase in alert levels was to offset a potential Orange response. Blue also messaged Red about obtaining exclusive access to Red commercial ISR services. In response, Yellow demanded that Blue end all operations against Yellow satellites, and bring the matter before the International Court of Justice. Red also informed Blue that it was willing to share the commercial ISR data it possessed, but was unable to grant exclusive rights.

Orange messaged Yellow to urge reinforcements of land forces, tanks, and artillery to establish a deterrent to Blue forces, to which Yellow agreed. Orange also requested that Yellow establish a “security zone” around its space assets for self-defense, which Yellow declined.

Red privately messaged Blue and Yellow with the concern that Blue’s rendezvous and proximity activities in GEO were escalatory, and offered to provide SSA information to deescalate the situation to both sides. Yellow agreed to send a senior delegation to the Red interior, in exchange for access to the SSA information.

At the end of Move 1, Orange increased its alert level, and, jointly with Yellow, deployed additional naval forces to the border region. Orange also released a public statement demanding justice, while stating its intention to refrain from attacks on Blue except in collective self-defense.

Blue raised the alert status of its conventional forces, but not its nuclear forces, and increased tasking of its government and Red commercial ISR assets of Yellow mainland. Blue also moved all of its GEO inspection satellites to a non-threatening distance from Yellow satellites, and released an open letter to Orange proposing a phased, reciprocal stand-down of forces on the border.

Yellow conducted cyber attacks against Blue SSA ground sites and non-nuclear C2 sites. The cyber attacks on Blue SSA were adjudicated as not successful, but were attributed to Yellow. Though the cyber attacks against Blue’s non-nuclear C2 were also not successful, this action was not attributed to Yellow. Yellow also released a public message urging all parties to de-escalate.

Red increased its military readiness, and moved military forces closer to its border between Blue and Orange, and publicly stated that the shift was defensive in nature to maintain the integrity of its border sovereignty.

Move 2

In the beginning of Move 2, several teams exchanged private messages on the possibility of Red observers on the Orange-Blue border to monitor de-escalation. Orange made the original request to Red, which Red, Blue, and Yellow responded favorably to. Blue not only welcomed the idea, but requested that Red also monitor de-escalation against space-based assets. Yellow also suggested information sharing and transparency measures to mitigate any potential attempt by the terrorists to elevate tensions again.

At the end of Move 2, Red took several actions to try and gain greater insight into Blue's decision-making, and to de-escalate the situation. Red deployed border monitors along the Blue-Orange border to establish a demilitarized zone. Red also launched an offensive cyber operation against the Blue government to derive insights on the intentions and relationship of the government to the terror organization. The operation was adjudicated as successful, and confirmed that the attacks were sponsored by a rogue element and not authorized by the Blue government. Red also publicly invited high-level delegations from all parties to attend de-escalation discussions.

Both Yellow and Orange elected to perform no actions this move, as they felt that the actions of the other teams were moving in a direction that was consistent with their objectives.

Blue initiated several actions with the goal of deterring Yellow, fracturing the Yellow/Orange alliance, and enhancing its relationship with Red. Blue conducted three simultaneous cyber attacks on military logistics sites in Yellow, adjudicated as successful attacks on Yellow military air refueling, naval port facility, and military logistics inventory system, and none of which were attributed. Blue also began conducting intermittent, random PNT jamming over its own mainland as a deterrent to Yellow/Orange use of precision-guided munitions, and staged a massive rally to demonstrate public support for the Blue government. Blue also publicly proposed a regional economic and security group with Orange and Red to stabilize the region and reduce violent extremism, and publicly called for peace talks.

Move 3

Although the cyber attacks on Yellow were not attributed, Orange and Yellow assumed they were conducted by Blue. Orange privately suggested to Yellow that they respond with a joint attack on Blue's military satellite command and control ground stations, but Yellow declined for fear of escalating the situation (including Blue potential moving against Yellow satellites in GEO). Simultaneously, Blue blamed Red for the cyber attacks which Blue had initiated successfully, in an attempt to sow confusion (which was successful to some degree).

At the end of Move 3, Yellow did not take any actions as it felt it was still accomplishing its objectives.

Orange, contrary to Yellow's request, jammed the SATCOM downlinks in the vicinity of Blue SSA ground stations and conducted special forces raids to destroy the ground stations in order to cripple Blue's ability to command and control its inspection satellites. The jamming and raids were adjudicated as successful, and attributed to Orange. Orange publicly invited Blue to discuss Blue's proposal for a regional economic and security group, while privately expressing to Yellow that it would never accept such a group that excluded Yellow.

Blue took several steps designed to deter a potential Yellow attack. It put in place sea-based mine countermeasures to secure its coasts, conducted its annual nuclear command and control exercises, and released a public statement warning that an attack by either Yellow or Orange would be viewed as an attack by both, and dealt with accordingly.

Conclusion

In the post-scenario discussion, the Red team stated that their primary internal debate this round revolved around whether or not to posture a direct ascent ASAT as saber rattling to cause Blue and Orange to back down. Yellow stated they were confused during the scenario as to why Red was making such a threat.

The Blue Team stated that they backed away the inspection satellites in the first move, because they were concerned about their ability to avoid a collision that would escalate the situation, driven largely by the link between those satellites and Yellow's nuclear warning system. The Blue team stated that they launched the multiple cyber attacks on Yellow, and jammed PNT over their own territory, in order to degrade Yellow's ability to conduct over-the-horizon precision attacks, and as a proportional response to Yellow cyber attacks. Once Blue realized that the main objective was not to be attacked, they were fine with letting people know it was a rogue entity behind the initial terror attacks. They also explained that while in this scenario having inspection assets near strategic assets mattered more than being next to "tactical" assets, the team members admitted that they were not sure that line would be as clear in the real world, and that it is very hard to tell where that threshold is. They also commented that when an adversary is nuclear-armed, that changes all calculations.

Yellow noted that it didn't retaliate or escalate after the Blue cyber attacks on homeland, because it felt the objectives given to Yellow for that scenario were met and the attacks were tit-for-tat with what they had done the round prior. They also noted that all of their objectives were met in the first move, so they didn't need to execute any more kinetic options.

The Orange team didn't respond to Blue's overtures because it didn't include Yellow. They couldn't agree to anything that excluded Yellow, but didn't want to get caught up in big power war. They also wanted Red to get involved, then felt they had succeeded in getting Yellow and Red involved in deterring Blue. At the end of the scenario, Orange attacked Blue's SSA ground stations to remove Blue's offensive co-orbital space capabilities, which also served well as a response to public demands for action.

Scenario 3 – Proxy War and Insurgency

Deepening economic stagnation and climate change have caused social and political upheaval in many developing countries. Governments have collapsed in several developing states, which are becoming breeding grounds for extremism and violence.

On November 1, in a hotly contested election, Red elects a new government that represents the religious majority. The outgoing government refuses to concede the election, and a civil war erupts. Most Red military leaders resign their posts and join forces with the ousted government to form an insurgent force, which fights a civil war against the remaining military forces wielded by the new government.

Yellow and Orange express public sympathy for the ousted government. Many suspect they are providing material support as well, and there are rumors that Orange training camps are used by Red insurgents. Blue openly supports the new government in Red and is providing them with military aid and advisors to counter the insurgency.

On November 4, Orange announces that one of its TV broadcasting satellites has experienced sustained, deliberate interference on a channel that is owned and operated by a Yellow company. Orange publicly blames the new government in Red and demands that the interference stop. The Red government accuses Orange of using the satellite TV channel to broadcast anti-government propaganda into Red.

On November 7, there is a major solar storm. A large coronal mass ejection strikes the Earth, causing widespread interruptions to power grids across the region. The storm causes widespread interference with satellite capabilities, resulting in failures of several commercial and civil satellites.

On November 9, during a battle between insurgents and Red government forces, a dozen Blue military advisors are killed in an airstrike. Blue claims that this was a deliberate attack on its military advisors by the insurgents and that Yellow's space-based ISR capabilities provided intelligence to support the attack.

Yellow Team - Scenario 3

OBJECTIVE

Yellow's primary objectives are to help restore the ousted government in Red to power and to protect Yellow's own space capabilities to maintain strategic deterrence against Blue.

PRIVATE INFORMATION

Yellow is covertly providing special forces, financial support, and intelligence to Red insurgents.

The Yellow special forces assisting Red insurgents are heavily dependent on satellite communications and space-based PNT to provide support to the Red insurgents. Their primary source of satellite communications is from Yellow commercial satellites, which are also being used to downlink data feeds from Yellow UAVs supporting the insurgency, in order to provide plausible deniability.

Yellow intelligence has geolocated the uplink jamming of the TV satellite as coming from territory controlled by the new Red government. Technical experts say that the jamming bears the hallmarks of a military jamming system developed by the Blue military. The jamming is directed at the transponder used to carry a TV channel sponsored by the Orange government, but is strong enough to have intermittent effects on signals carried by other satellites in the region, including the commercial satellites carrying Yellow's UAV data feeds.

The solar storm did not have any significant effects on Yellow military satellites, but did have an impact on some civil and commercial satellites.

Yellow intelligence assesses that the Red jamming likely played a role in the airstrike on the Blue advisors. Yellow special forces had direct orders to avoid contact with Blue military advisors but may have been unable to determine their presence due to the intermittent interference from the Red jamming of commercial SATCOM links, used by stealthy Yellow UAVs in the area.

In response to the incident, Blue used an airborne laser platform against two of your military ISR satellites, which ended up blinding them.

Blue Team - Scenario 3

OBJECTIVE

Blue's primary objectives are to support the new Red government and to preserve Blue's own space capabilities to maintain strategic deterrence. Blue's secondary objective is to increase its power and influence in the region.

PRIVATE INFORMATION

Blue is overtly providing military advisors, intelligence, and material aid to the new Red government. Blue's support includes covert lending of a military SATCOM jammer to the Red government, which is likely being used to jam the TV broadcast satellite. The TV channel carried by the satellite is being funded by the Orange government and is highly critical of the new Red government.

The Red government reports that a stealthy Yellow UAV was overhead when the Blue military advisors were killed in the airstrike. There is evidence that Yellow UAVs have been providing intelligence to the insurgents.

Several Blue ISR satellites experienced anomalies at the time of the solar storm and are currently offline. Blue has very limited ISR coverage over the conflict area in Red.

Political pressure is building in Blue to avenge the deaths of its military advisors.

In response to the death of the advisor, Blue used an airborne dazzler against two Yellow military ISR satellites.

Orange Team - Scenario 3

OBJECTIVE

Orange's primary objective is to return the ousted government to power in Red. A secondary objective is to undermine Blue's influence and power in the region, including ending the jamming of the commercial SATCOM TV channel.

PRIVATE INFORMATION

The Orange government is funding the TV channel being broadcast into Red via satellite. While the channel is not being run by the Orange military, it naturally has been broadcasting material critical of the new Red government.

Orange has been cooperating with Yellow to provide support for opposition forces in Red. In particular, training camps located in Orange's territory are being used to train insurgent forces in Red.

Red Team - Scenario 3

OBJECTIVE

Red's primary objectives are to solidify its grip on the country and eliminate the ousted government as a political threat. Red also seeks to solidify its alliance with Blue.

PRIVATE INFORMATION

As part of Blue's military assistance to Red, Blue has covertly provided Red with a highly sophisticated SATCOM jammer that is designed to be effective against all commercial communication satellites. The Red government is currently using the jammer to surgically target the broadcast of an Orange-backed TV channel, which has been critical of the new Red government.

The Red government has detected stealthy Yellow UAVs operating over its territory. These flights have coincided with insurgent operations. One such Yellow UAV was detected in the area when the Blue military advisors were killed.

Scenario 3 Summary

Inbrief

The scenario focuses on the tensions created by a proxy war in Red, with Blue actively supporting the new government, and Orange and Yellow covertly supporting an insurgency consisting of remnants from the ousted government. Blue has covertly supplied Red with a military-grade commercial satellite jammer, which is being used to interfere with commercial broadcasts from an Orange satellite that are critical of the new Red government. A major solar storm damages several commercial and civil satellites, with significant impact to Blue's ISR coverage over Red. Blue military advisors are killed in a battle with insurgents, which drew upon Yellow space-based ISR and stealthy UAVs for intelligence and support. Yellow intelligence suggests that the Red SATCOM jamming played a role in the incident. In retaliation, Blue attempts to dazzle two of Yellow's imagery satellites with an airborne laser over Blue territory, which ends up blinding the satellites, but otherwise leaving them operational.

Yellow's primary objectives are to help restore the ousted government in Red to power, and to protect Yellow's own space capabilities to maintain strategic deterrence against Blue.

Blue's primary objectives are to support the new Red government and to preserve Blue's own space capabilities to maintain strategic deterrence. Blue's secondary objective is to increase its power and influence in the region.

Orange's primary objective is to return the ousted government to power in Red. A secondary objective is to undermine Blue's influence and power in the region, including ending the jamming of the commercial SATCOM TV channel.

Red's primary objective is to solidify its grip on the country and eliminate the ousted government as a political threat.

Move 1

Teams were permitted to communicate privately with one another during each move. Actions and public messages were only allowed at the end of a move.

The action in Move 1 was between two alliances. On the Orange/Yellow side, Orange's goals were to support Red insurgents in recapturing their homeland and prevent Blue from attacking Orange. Yellow's goals were also to limit Red's new government's ability to retain control of their country and support the insurgency through an elimination of the Red government's counterspace capability. Additionally, Yellow wanted to eliminate Blue's space control capabilities which attacked Yellow systems without acknowledging their attacks were successful. In general, Yellow wished to remain covert, and avoid further retaliation against its space assets.

Towards the beginning of the move, Orange messaged Yellow to request assistance in restoring stability to the region by supporting the ousted government of Red with naval, ground, and air

forces in order to establish a no fly zone, a blockade of Red's coast, and jamming communications in the Red capital. Orange offered to establish a communications hub and missile defense on and around Skull Island to protect Yellow's forces. Yellow then counter-proposed that the Orange-Yellow alliance deploy a joint naval task force off the coast of Blue to determine Blue's true intentions and objectives. Orange accepted the offer and also agreed to supply naval forces.

At the end of the move, Yellow initiated cyber attacks on power stations in Red, and the planning cell for the Blue airborne laser. Yellow also conducted a cruise missile attack against the airbase supporting the airborne laser. The cyber attack on the Red power stations was successful, and publicly blamed on the solar storm. The cyber attack on the Blue airborne laser was unsuccessful, but attributed to Yellow, while the cruise missile attack was successful. Yellow also began sponsoring a social media campaign to undermine public support for the new Red government.

Orange initiated what it called Operation Restore Freedom, which included activating its military reserves, mobilizing its ground forces to both the Orange/Blue border (to deter a Blue ground attack) and both ground and air forces to the Orange/Red border (to support the Red insurgents), and placing its forces on high alert. Orange also initiated jamming of Red SATCOM and ISR capabilities within Red territory, and attempted a cyber attack into Blue's national banks that were funding the Red government. Both the jamming and the cyber attack were successful, and not attributed to Orange. Orange also deployed naval forces to Skull Island, which defeated the Red/Blue forces simultaneously attempting to do the same, and established a blockade. Finally, Orange military forces joined with the insurgents to make a push against the Red capital.

On the Red/Blue side, Red's goals were to establish themselves as a legitimate government while trying to eject any Yellow and Orange insurgents, UAVs, and advisors from its territory and prevent future interventions. Blue's goals were to remain an economy of force and defense and prevent an escalated conflict in space. At the onset of Move 1, Red proposed a broad strategic alliance with Blue. In a private message, Red made it clear that it was prepared to engage in a broad range of military deployments and active measures in conjunction with Blue. Blue agreed to the mutual defense alliance, but suggested a more diplomatic approach to deterring Orange's support to the Red insurgency.

At the end of Move 1, Red called up its military reserves and deployed air and land forces to the Orange border with the intent of interdicting the flow of supplies to the Red insurgency. Red maintained its jamming of the Orange TV station, and initiated jamming of all PNT within Red territory in an attempt to thwart Yellow/Orange precision attacks. Both were adjudicated as successful. Red also launched joint air attacks with Blue to destroy Yellow UAVs within Red airspace, which were successful. Red launched cyber attacks against the ISR data dissemination systems in Yellow and Orange, which was successful and not attributed. Red tasked its commercial ISR satellites to try and find the insurgent training camps in Orange. Publicly, Red leaked a media report that Yellow was attempting to use the solar storm as cover for hostile activities in space, and announced that Red and Blue entered into a broad strategic alliance.

Blue bolstered the protection of its space control infrastructure, and deployed artillery and tanks to the Red-Orange border. Blue and Orange also attempted to move naval forces into the island chain near Skull Island, but were defeated by Orange forces. They also privately demanded an apology from Yellow for the death of the Blue advisors, and Yellow's aggressive actions against Blue space assets.

Move 2

At the start of Move 2, Yellow sent a private message to Blue clarifying its actions against Blue's airborne laser system. Yellow insisted that their attack was justified and proportional to Blue's prior actions, and proposed to keep this conflict defined to terrestrial domains from then on.

In this move, Red's goals were to push Orange and insurgent forces out of its territory, and use the threat of escalation in space to try and force Orange to back down. Blue's goals were to sustain the new Red government, and avoid horizontal escalation.

Red privately messaged Blue to discuss two possible military operations - one to remove the Orange presence from the Islands using naval forces, SOF, or a cyber attack, and the other to deploy a joint Red-Blue punitive ground mission to remove the terrorist camps in Orange. Blue agreed to the naval action, and offered its full support. However, Red then sent a private message to all the other teams, without Blue's consent, that threatened to use Red's direct ascent ASAT capabilities to "render LEO inoperable" unless Orange and Yellow ended their support for the insurgency.

At the end of Move 2, Red deployed its reserve forces to try and stop the insurgent push on the capital, mobilized its ASAT capabilities, and moved troops to defend the ASAT sites. Red launched successful air strikes against insurgent camps in Orange territory, and launched a special forces raid against the main Orange ISR ground station, which was unsuccessful. Red and Blue also launched a joint attack on the Orange and Yellow naval forces near Skull Island, and managed to gain control, with heavy losses. Red also privately warned Orange to back down, while making a public call for the Red public to help resist the insurgents.

Blue moved its military forces into Red to defend the capital against the insurgent and Orange attack, and launched air strikes, which halted the offensive. Blue also attempted to jam Yellow commercial SATCOM downlinks, military and civil PNT, and ISR satellites over Red territory. The SATCOM jamming was successful, but the PNT jamming and ISR dazzling was unsuccessful. Blue also sent a private message to Yellow, offering to cease its reversible jamming and dazzling attacks if Yellow stays out of the region. Publicly, Blue condemned Yellow's cruise missile attack against its airbase, and warned that continued attacks risked grave escalation between two nuclear powers.

For the Orange-Yellow alliance, Orange's goals were to remove Red Team leadership and restore the previous government, with a close eye on a possible Blue ground invasion. Yellow's goals were to de-escalate in space, support the ousted Red government, and reassure support to Orange in support of the old Red government.

Yellow sent a private message to Orange to consider a joint electronic warfare and cyber attack against the Red government leadership to isolate them. They also recommended both of the alliance's commercial SATCOM companies to not support Red government leadership after these successful attacks. Orange accepted, and requested that Yellow nuclear forces be placed on Stage 1 Alert while also sending a private message to Blue reiterating Yellow's commitment to defending Orange by any means necessary. Yellow reassured Orange of the strength of their alliance.

At the end of Move 2, Yellow attempted to maneuver its two blinded ISR satellites so as to intentionally collide with two Blue ISR satellites at a point where they were out of sight of Blue ground-based SSA sensors. Both attempts succeeded, and the collisions created several thousand pieces of orbital debris. Yellow also attempted to jam Red SATCOM command and control nodes, which was unsuccessful and not attributed to Yellow. Yellow joined Orange in deploying propaganda against the Red government, and publicly called out Red for irresponsibly threatening to inflict harm on everyone's astronauts, including Blue's, with their ASATs.

Orange launched special forces and cruise missile attacks against Red ASAT launch pads and facilities, which were successful. Orange also attempted to use special forces in a decapitation attack against the Red government, which was unsuccessful. Orange leaked to the media that it enjoyed a nuclear guarantee from Yellow as part of their collective security alliance.

Move 3

Red's goals in Move 3 were to stabilize the new Red government and regain internal control, while also further degrading Yellow's space capabilities. Blue's goals were to consolidate the gains they had made earlier in the scenario and assert long-term influence in the region.

Through private communications, Red suggested negotiating a cease-fire with Yellow and Orange, but the round was too short for Red and Blue to agree on the details, and thus it was never formally proposed to Yellow and Orange.

At the end of Move 3, Red worked with Blue to move through Red territory and mop up remaining insurgent forces, while deploying missile defense batteries around the capital. Red launched a cyber attack against a few Yellow military protected communications satellites with the intent of pushing them into super-sync orbit, which was not successful. Red also sent a public message lambasting Yellow for their reckless actions in creating the satellite collisions. Blue increased its airborne ISR patrols over Red to compensate for its lost satellite ISR, and continued its attempts to jam and dazzle Yellow SATCOM, PNT, and ISR over Red territory. Blue privately warned Yellow to stay out of the conflict, while publicly condemning Yellow for degrading the LEO environment and calling for negotiations for an international agreement on norms in space.

Meanwhile, Orange's goal in Move 3 was to avoid further escalation, and prevent a Blue attack into its territory. Yellow's goals were to call peace talks to de-escalate tensions across the region,

blunt Blue aggression indirectly through supporting Orange actions, and free up Orange ground and air forces by providing Yellow air forces in order to allow Orange to apply their forces to support the Red insurgency.

Orange and Yellow experienced several miscommunications during their private messaging, which hampered coordination.

At the end of the move, Yellow took no action, but did release a public message that blamed the satellite collisions on Red, and called for a ceasefire and negotiations between all parties. Orange moved all Orange forces back to its territory to defend against a possible Blue incursion. Orange also issued a public message that condemned Red for the attacks on the insurgent training camps in Orange.

Conclusion

In the post scenario discussion, the Red Team explained that after the Orange push on the capital, Red made the ASAT threat in an attempt to escalate to de-escalate without using nuclear weapons. They also recognize that it backfired, and likely provided a political opening for Yellow to launch the kinetic attacks against Blue satellites. The Yellow Team confirmed that once Red made a public threat about using ASATs, Yellow thought it was a chance to use dead assets to attack Blue in a way that might not have been attributable. Yellow also noted that they felt the long-term increased risk of space debris was seen as a useful trade for taking out valuable Blue ISR assets, although admitted they did not have a full appreciation or discussion of the possible long-term impacts. Blue believed that Yellow's kinetic attack gave Blue the diplomatic high ground, and was ultimately detrimental to Yellow's ability to achieve its objectives.

The Yellow Team also explained that they went after Blue ground stations instead of satellites because they didn't want to let Blue know the laser strikes were effective. Yellow also felt that if the Red cyber attack on Yellow military protected SATCOM was successful, they would have considered it a threat to its strategic deterrent and placed its nuclear weapons on high alert. Yellow stated they probably would have done the same thing if the attack had been on non-protected SATCOM because the same capability could have threatened the protected SATCOM.

The Blue Team recognized that its attacks on Yellow were aggressive, but insisted that they were *reversible* and therefore perceived by the team to be less escalatory. The Blue jamming and dazzling attacks were designed to try to coerce Yellow, and by extension, Orange, although it didn't work. The Blue Team also stated that they didn't respond to the kinetic attacks on its dazzler airbase because it felt the conflict in Red was resolving in its favor, and it didn't want to escalate again. They also focused their attacks in Red to avoid risking bringing Yellow into the conflict directly.

The Red Team stated that they found offensive cyber capabilities to be consistently more useful than space control capabilities, which other teams largely agreed with. This was because the cyber capabilities were perceived as usable, while the space control capabilities largely were not.

The Orange Team noted that the only thing they could do, given limited space capability, was to attack Red ASAT ground stations. Orange originally misread Blue's intentions, and felt that Blue was preparing for a major invasion of Orange.