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 (4th-gen/5th)	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	Non-Kinetic
	    Jam commercial/protected SATCOM downlinks, localized to the immediate area (Success: 90%; Attribution: 90%)
	    Jam commercial/protected SATCOM uplinks, would likely affect users not in local area (Success: 90%; Attribution: 60%)
	    Jam civilian/military PNT signal, localized to area (specify civil/military) (Success: 90%; Attribution: 90%)
	    Jam civilian/military PNT signal, beyond local area (specify civil/military) (Success: 70%; Attribution: 90%)
	    Cyber attack (ISR/PNT/protected SATCOM) satellites; protected SATCOM satellites are also used for nuclear C2 (Success: 70%; Attribution: 40%)
	    Dazzle ISR satellites, could permanently disable (blind) satellites. Effectiveness may be difficult to discern (Success: 60% dazzle / 10% blind; Attribution: 80% if successful)
		Kinetic
		    Move co-orbital ASATs near protected SATCOM satellite(s) in GEO (Attribution: 80%)
		    Use co-orbital ASATs to destroy protected SATCOM satellite(s) in GEO, would produce debris in GEO (Success: 90%; Attribution: 80%)
		    Use direct ascent ASAT missile to destroy ISR satellite(s) in LEO, would produce debris in LEO (Success: 90%; Attribution: 100%)

Non-Space	Non-Kinetic
	    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
		Kinetic
		    Declare a no-fly zone (give authority to shoot down aircraft)
		    Attack naval forces (Success: 90%; Attribution: 100%)
		    Attack ground forces (Success: 90%; Attribution: 100%)
		    Attack SSA facilities (Success: 90%; Attribution: 100%)

Diplomatic	Public
	    Send public demarche to Blue/Orange/Red
	    Propose bilateral discussions with Blue/Orange/Red
	    Propose multilateral discussions with Blue/Orange/Red
	    Impose economic sanctions against Blue/Orange/Red
		Private
		    Send private demarche to Blue/Orange/Red
		    Propose secret bilateral discussions with Blue/Orange/Red
		    Leak information (or misinformation) to the media

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

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

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	Non-Kinetic
	    Jam commercial/protected SATCOM downlinks, localized to the immediate area (Success: 90%; Attribution: 90%)
	    Jam commercial/protected SATCOM uplinks, would likely affect users not in local area (Success: 90%; Attribution: 60%)
	    Jam civilian/military PNT signal, localized to area (specify civil/military) (Success: 90%; Attribution: 90%)
	    Jam civilian/military PNT signal, beyond local area (specify civil/military) (Success: 70%; Attribution: 90%)
	    Cyber attack (ISR/PNT/protected SATCOM) satellites; (Blue/Yellow protected SATCOM satellites are also used for nuclear C2) (Success: 60%; Attribution: 40%)
	    Dazzle ISR satellites, could permanently disable (blind) satellites. Effectiveness may be difficult to discern (Success: 40% dazzle / 10% blind; Attribution: 80% if successful)
		Kinetic
		    Use direct ascent ASAT missile to destroy ISR satellite(s) in LEO, would produce debris in LEO (Success: 70%; Attribution: 100%)

Non-Space	Non-Kinetic
	        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
		Kinetic
		        Declare a no-fly zone (give authority to shoot down aircraft)
		        Attack naval forces (Success: 80%; Attribution: 100%)
		        Attack ground forces (Success: 80%; Attribution: 100%)
		        Attack SSA facilities (Success: 70%; Attribution: 100%)

Diplomatic	Public
	    Send public demarche to Blue/Red/Yellow
	    Propose bilateral discussions with Blue/Red/Yellow
	    Propose multilateral discussions with Blue//Red/Yellow
	    Impose economic sanctions against Blue/Red/Yellow
		Private
		    Send private demarche to Blue/Red/Yellow
		    Propose secret bilateral discussions with Blue/Red/Yellow
		    Leak information (or misinformation) to the media

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

Non-Kinetic	Kinetic
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%)	Use direct ascent ASAT missile to destr_ satellite(s) in LEO, would produce debris in (Success: 70%; Attribution: 100%)
Non-Kinetic 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	**Kinetic** **Attack naval forces** (Success: 7_ Attribution: 100%) **Attack ground forces** (Success: Attribution: 100%)
Public **Send public demarche** to Yellow/Blue/Orange Propose bilateral discussions with Yellow/Blue/Orange Propose multilateral discussions with Yellow/Blue/Orange	**Private** **Send private demarche** to Yellow/Blue/Orange Propose secret bilateral discussions with Yellow/Blue/Orange **Leak information** (or misinformation) media