BULLET BACKGROUND PAPER

ON

NATO SPACE DETERRENCE SSP

PURPOSE

This BBP serves as a summary of the key points and takeaways from the author's Air War College Strategic Studies Paper (SSP) titled "Achieving Alliance Space Deterrence: A Proposal for NATO Space Defense." That paper argues that NATO is not postured for space deterrence owing to inadequate strategic guidance that limits alliance space roles and functions, gaps in organizing, training, and equipping of NATO personnel, and other associated weaknesses. The paper identifies the deficiencies and offers potential remedies for each.

BACKGROUND

- NATO declared space an operational domain in 2019, reflecting an increasingly competitive and contested space domain.

- Since Russia's Feb 2022 invasion of Ukraine, NATO members have seen a marked increase in the scale and scope of counterspace threats and escalating potential for space conflict

  -- Counterspace threats present along a continuum, from reversible and non-kinetic to irreversible and kinetic. As barriers to space entry continue to erode, the number of potential space adversaries expands. NATO must adapt by taking concrete measures to extend its deterrence core function to incorporate the alliance's space equities.

- "Space Deterrence" defined: The paper defines Space Deterrence as the ability to dissuade or deter a potential adversary from taking hostile action against the space assets or capabilities of NATO and/or those of an alliance member

  -- The paper recognizes that hostile "grey zone" action below the level of armed conflict is constant and largely non-deterrable, thus space deterrence should be focused on deterring irreversible aggressive actions with a high likelihood of vertical or horizontal escalation

- *NATO's Overarching Space Policy* published Jan 2022 declares NATO is not "aiming to develop space capabilities of its own" nor aiming to "become an autonomous space actor"

  -- This declaration refers to on-orbit capabilities and does not proscribe NATO from owning or controlling space capabilities that <u>operate within terrestrial domains</u>

- *NATO's 2022 Strategic Concept* declares "Deterrence and Defense" (D2) as the first of NATO's three "core tasks." Its "360 degree" approach (published June 2022) established a new D2 baseline to include all five operational domains: air, land, maritime, space and cyber

REQUIREMENTS FOR SPACE DETERRENCE

- The SSP identifies the critical components of space deterrence as: deterrence strategy, i.e. punishment or denial; deterrence extent, i.e. narrow vs broad; and the Three Cs: Capability, Credibility, and Communication.

- **Punishment vs. Denial.** A punishment strategy deters aggression by threatening unacceptable consequences in response to an act of aggression. A denial strategy deters aggression by rendering a potential attack unlikely to achieve its objectives and thus futile.

  -- Denial strategies generally rely on resilience and/or rapid reconstitution, thus an attack will have limited effects that will be rapidly negated by the defender

  -- <u>For Space Deterrence,</u> a combination of punishment and denial strategies would likely be most effective. Punishment should apply to the most consequential attacks such as surface-to-space ASAT attacks and NUDET, and denial strategies of resilience and reconstitution for low-to-medium consequence threats such as EM jamming or blinding. Highly proliferated "mesh" networks and readily available spare nodes are key to such a denial strategy.

- **Narrow vs Broad.** Narrow deterrence limits the focus to a single domain or type of attack. Nuclear deterrence generally revolves around a threat to retaliate to the use of nuclear weapons with a nuclear counterattack. Broad deterrence is not limited to one domain, weapons type, or even instrument of power. All-Domain/Multidomain Operations and "Integrated Deterrence" are examples of broad deterrence strategies.

  -- <u>For Space Deterrence,</u> a broad deterrence strategy incorporating consequences on a diverse range of adversary capabilities, networks, and interests would be most effective. This is especially important where an adversary's dependence on space is minimal or significantly less than that of a defender.

- **Capability.** Deterrence requires that a defender have the requisite capability to make good on the punishment threat, or to deny the attacker the ability to achieve its objectives. Capability includes weapons and materiel, but also the systems necessary to utilize such weapons such as Battlespace Awareness, C2, etc.

  -- <u>For Space Deterrence,</u> the most critical *capability* requirements are battlespace awareness, resilient space C2, integrated space fires and protection (including EW and cyber), and rapid reconstitution of space capabilities.

- **Credibility.** Deterrence rests on convincing an adversary that you have both the capability and the *political will* to carry through with your deterrence strategy. To be credible, the political will must be reasonably aligned to the implied threat; e.g. a threat of massive retaliation involving probable loss of life in response to an attack on a space asset with no immediate human cost is not likely to be credible.

-- For Space Deterrence, the best ways to establish credibility are through establishing comprehensive and mutually reinforcing guidance *(*strategy, policy, doctrine, and TTPs*)*, through proper organization and integration of space forces, and through robust training, exercises and wargaming to demonstrate *operationalization* of guidance and organizational concepts. "Real-world" operations are also an excellent way to demonstrate credibility, but such opportunities may be limited outside periods of conflict.

- **Communication.** The defender must communicate that which they wish to protect (the deterrence object) and the manner in which they plan to deter (punishment and or denial). Often the defender will attempt to dissuade by providing assurances or alternatives that a potential attacker could choose to avoid harm or to achieve an outcome more favorable than the one contemplated.

-- For Space Deterrence, communication is accomplished though both overt information operations and non-overt signaling mechanisms such as posture and exercises. Incorporating non-traditional stakeholders (e.g. intergovernmental, commercial, and academic entities) into operations and exercises by complicating a potential adversary's decision-making process.

NATO SPACE: DEFICIENCIES AND RECOMMENDATIONS

- **Policy and Strategy:** NATO space deterrence is fundamentally weakened by its existing space policy that does not provide the alliance a role for defending against adversary counterspace threats or for assuring alliance space capabilities. While NATO does not own or control on-orbit assets, its forces depend on space capabilities to operate throughout the warfighting continuum. NATO is moving rapidly towards network-centric, all-domain/multi-domain operations, concepts that seamlessly integrate space networks and infrastructure. NATO space policy must evolve and recognize the requirement for NATO forces to defend these space capabilities, whether in the terrestrial, cyber, or space domains. NATO must also develop a strategy for space, laying out its "Space Defense" objectives and theory of success. NATO does not own capital ships, tanks, or air defense platforms, yet it has developed strategies and robust operational architectures for each of the terrestrial domains. It is time that NATO develop a similar approach to space.

- **Capability:** To enhance NATO's space deterrence capability, the alliance should consider:

-- Battlespace Awareness: Expand relationships with non-NATO members and including non-traditional partners such as EU, industry, academic and research institutions. Consider ground-based and space-based SDA assets. Consider partnering with USSPACECOM Joint Commercial Office (JCO) and Space System Command's TacSRT.

-- Resilient C2: Leverage commercial providers offering mesh space data transport architectures using LEO constellations; enhance terrestrial uplink/downlink node connectivity and redundancy

-- Incorporate "space defense" capabilities (EM/EW, Cyber, kinetic) into planning, wargaming and exercises and operations (from tactical to decision-maker level)

-- Establish space/cyber/IO cells within units and at operational headquarters to coordinate space capabilities as well as space deterrence and space defense effects

-- Enable rapid reconstitution by coordinating development of alliance members' platform contributions, space lift capacity, and terrestrial support infrastructure (rockets, fuel, storage/maintenance, facilities, etc.); also conclude agreements with commercial and civil providers for backup capabilities in event of disruption of military capabilities

- Credibility: To enhance NATO space deterrence credibility, the alliance should consider:

-- Develop policy and strategy appropriate to encompass multi-domain operations (see above)

-- Integrate space warfighters throughout the NATO force structure, especially within Multinational Battlegroups and the Allied Response Force

-- Incorporate space defense requirements into the Multidomain Operations Concept, regional defense plans, and other alliance planning efforts

-- Create space doctrine and standards for "space support" and "space defense" roles and operations. Doctrine should clarify the role of NATO space entities in crisis and conflict, including ADCON/TACON relationships and expectation of space data availability.

-- Implement <u>common standards</u> for the ingestion and distribution of space data and products

-- Conduct regular space operations exercises at all echelons incorporating the full-range of counterspace threats. Include non-traditional partners (e.g. commercial entities, civilian agencies) in NATO space exercises.
    --- Consider ASAT/NUDET strategic threat scenarios at decisionmaker-level
    --- Incorporate "integrated deterrence" strategies and responses

4. Communication: NATO can enhance its space deterrence objectives through the following communication activities:

-- Identify space deterrence objectives *specifically* in messaging and signaling activities

-- Consider establishing red-lines; both ambiguous (e.g. "…may result in Article 5") and unambiguous (e.g. "will result in…")

-- Message/signal a mixed deterrence approach (i.e. Punishment *and* Denial)

-- Message/signal "integrated deterrence" strategies and COAs

-- Message/signal enduring commitment to the norm of peaceful use of space and non-interference in the *legal* space activities of other states