Stability, sustainability, and crises: The role tabletop exercises in space crisis dynamics can play in ensuring the long-term sustainability of space

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- Why this is an issue for the long-term sustainability of space

- Goals of the Tabletop Exercises (TTX)

- Washington, DC, TTX

- New Delhi, India, TTX

- Conclusions

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- Increasing number of and diversity in *new actors*, concurrent with increasing *importance of space* in daily activities globally

- Stability rests upon *reliable and predictable access to space*

- *Lack of clarity* of the cause when satellite capabilities disappear

- Co-hosted by SWF and the Center for Strategic and International Studies (CSIS) in Washington, DC, in November 2016

- Hosted by the Observer Research Foundation in February 2017

- Intended to *raise awareness* about the risks of crisis escalation

- *Identify gaps* in existing mechanisms and deterrence capabilities

- Host discussions in an *unclassified, open* forum

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- Four fictional countries, loosely based on real-life, given color codes

- Run by the Control Cell

- ***Not for attribution discussions***

- Three moves over three hours

- DC: three scenarios; New Delhi: one scenario

- Position, navigation, and timing (PNT) downlink jammer used
  - Blue helicopter struck by a Red unmanned aerial vehicle (UAV)

- Saw the use of cyber attacks

- Hesitation to go directly to attacks on space assets

- Space assets used to increase transparency in an attempt to de-escalate

- Jamming and dazzling satellites perceived as escalatory as a more permanent attack

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- Blue inspection satellites sent to monitor Yellow national security satellites in Geostationary orbit (GEO); both sides experience interference

- Blue mobilizing anti-satellite (ASAT) launchers and airborne dazzlers

- Orange attacks Blue's SSA ground stations

- Cyber-attack used as well

- Concerns about inspection satellites near strategic assets

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- Proxy war, satellite jammers, space weather, lead to inadvertent satellite blinding

- Red threatens ASAT attack as a form of saber-rattling

- Yellow uses its dead satellite to ram into Blue ISR space assets, creating large debris field

- Cyber-attacks attempted on satcom

- Orange attacks Red ASAT ground stations

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- Real *reluctance to use kinetic force* against satellites

- Loss of key military space capability could be partially compensated for

- Temporary and reversible interference not always perceived as such

- Threshold between strategic and tactical assets not always as clear

- In-kind responses not always warranted

- Space capabilities used an attempts to de-escalate

- ASAT aiming at a TV broadcasting satellite accidentally shoots down military communications satellite

- Yellow satellite is dazzled; goes to the Hague Permanent Court of Arbitration

- Yellow jams Blue's military PNT signal (localized to their border region), moves co-orbital assets near protected satellites in GEO against Blue

- Cyber-attack on ISR satellites

- Four-party talks started

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- Reluctance to use kinetic force against satellites
  - Cyber attacks and other electronic interference seen as much more usable

- Important to have this discussion because counterspace efforts are being considered internationally

- Space actors need to consider the resilience of their space assets

- *Norms of behavior can help* guide debates about appropriate responses

Questions?

Thanks.

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