

Australian Space Policy – Defence burden sharing in orbit and space domain awareness



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Key Messages

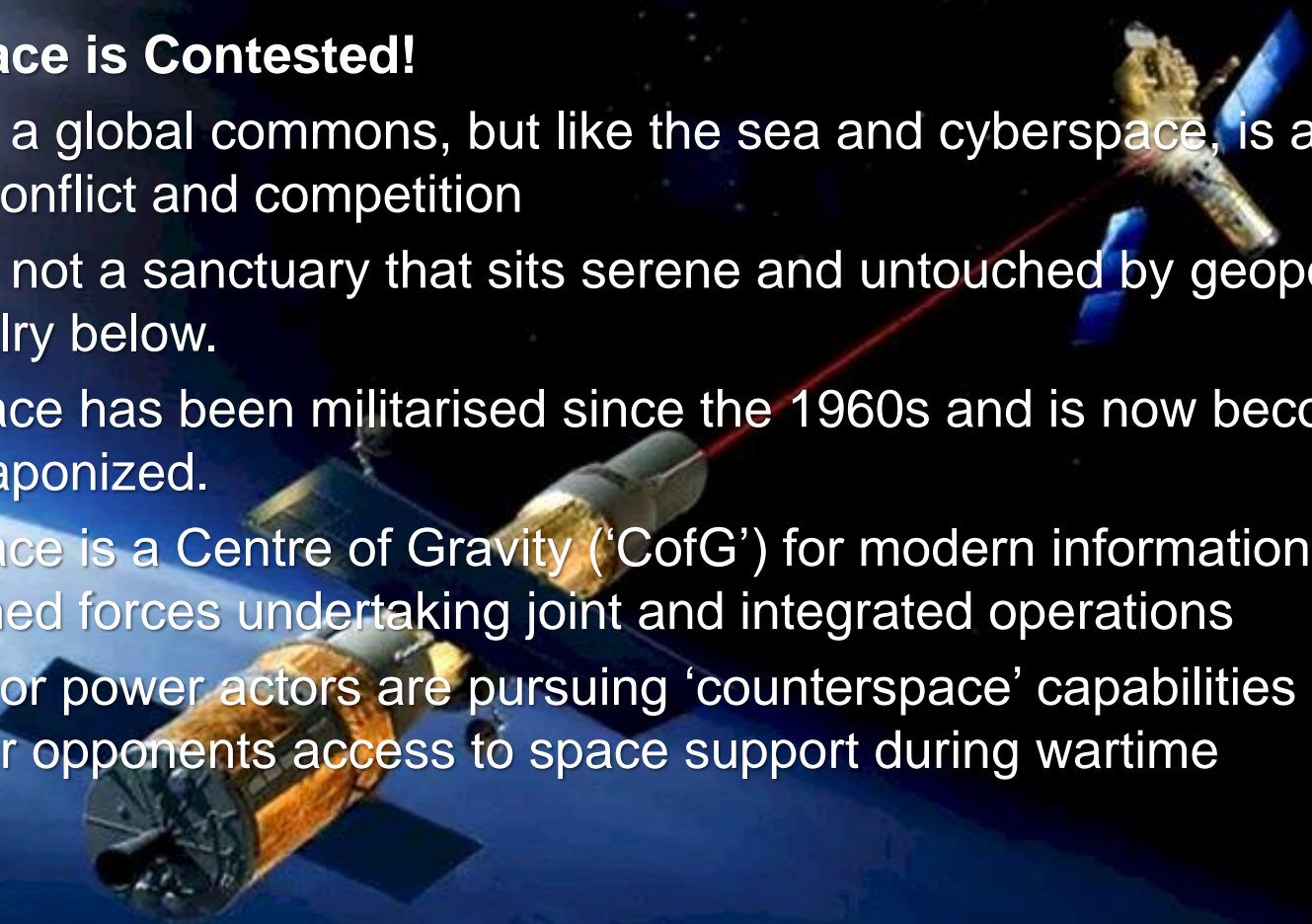
- There has been a significant shift in Australia's thinking on the importance of the Space Domain – for Defence and National Security, and for civil purposes
- Space is now seen to be of rising importance, and space domain awareness and space surveillance is a vital task for the ADF and Department of Defence – as a 'five eyes' nation and a member of CSpO.
- Australia's commercial space sector is growing rapidly, and is well placed to support SDA and Space Surveillance tasks.
- Future steps can see Australia expand its Space Domain Awareness capability through:
 - expanding a network of ground-based sensors provided by the commercial space sector
 - Developing space-based space domain awareness capability
 - Investing in and supporting sovereign space launch capability

The importance of Space

- Australia is dependent on Space for:
 - Maintaining ability to undertake joint information-based operations and gaining and sustaining a 'knowledge edge' in war
 - Sustaining its information-based economy and society in a globalized international order
- Space is essential to fighting a Western Way of Warfare:
 - Fast, precise, low-cost that embraces importance of LOAC and Jus in Bello – distinction and discrimination, military necessity, proportionality
- Without access to Space we are deaf, dumb and blind. We cannot talk to our forces, coordinate amongst them or with allies, understand the battlespace, or fight in a manner that maximizes chances of success and minimizes risk of failure.
- "...to lose space capabilities it would almost be a reversion back to industrial-based warfare." Gen. William Shelton, Commander USSPACECOM (2015)

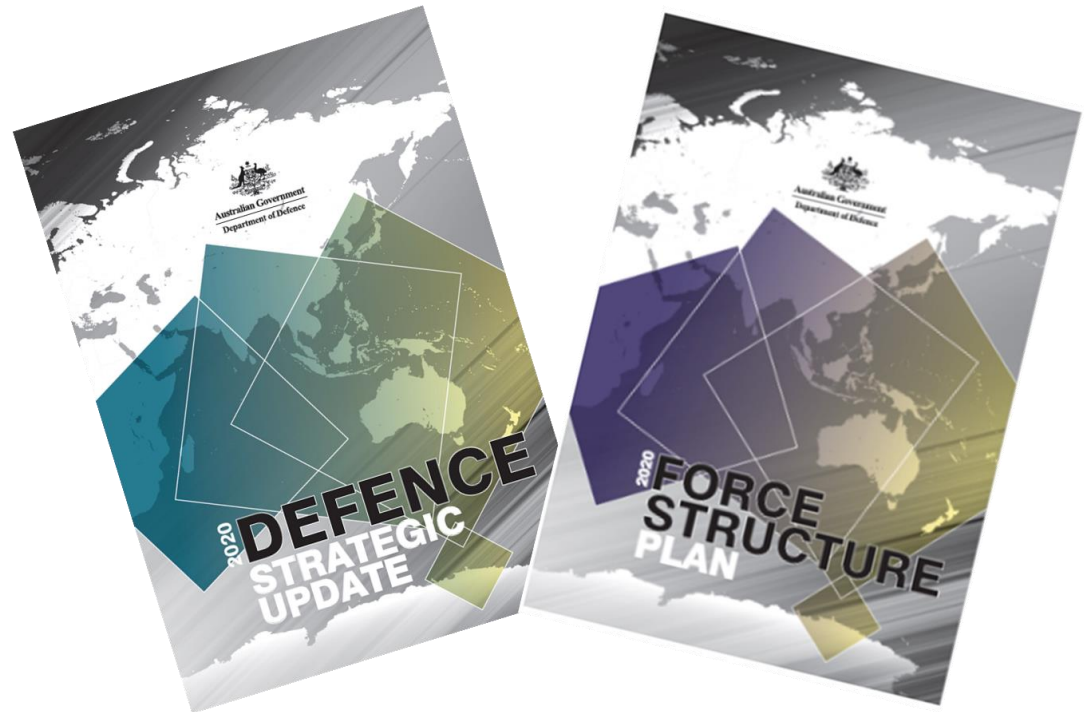
Contested Space

- **Space is Contested!**
- It is a global commons, but like the sea and cyberspace, is a domain of conflict and competition
- It is not a sanctuary that sits serene and untouched by geopolitical rivalry below.
- Space has been militarised since the 1960s and is now becoming weaponized.
- Space is a Centre of Gravity ('CofG') for modern information based armed forces undertaking joint and integrated operations
- Major power actors are pursuing 'counterspace' capabilities to deny their opponents access to space support during wartime

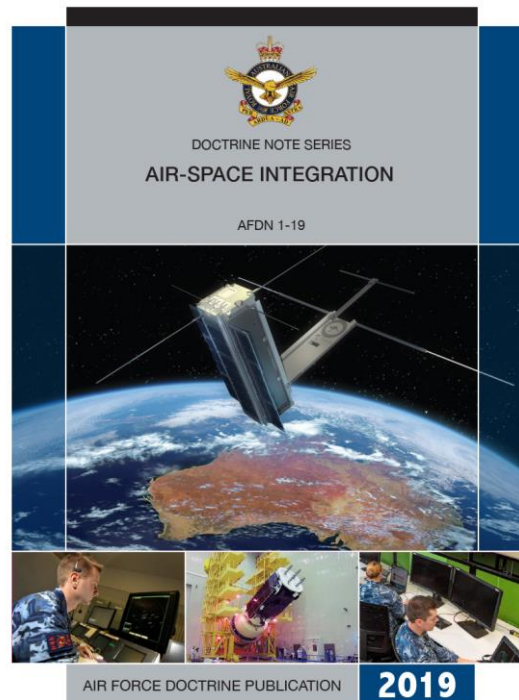


Key Policy developments

- The 2020 Defence Strategic Update and Force Structure Plan boosted the profile of Space as an operational domain for Defence



Current Australian Space Doctrine

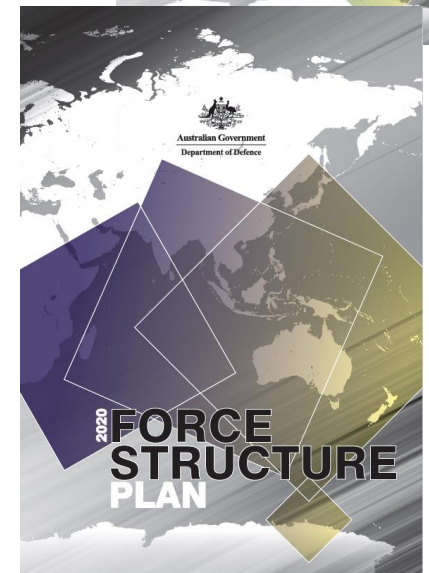


Unclassified
Defence Space
Strategy???

There is an urgent need for spacepower debate in Defence as well as organizational reform and growing a cadre of space professionals

The 2020 Defence Strategic Update and Force Structure Plan

- 2020 DSU and FSP elevate the prominence of the Space Domain – but essentially restate the 2016 Defence White Paper policy decisions.
- Government will:
 - Significantly increase investment (AUD\$7bn to 2030) in Defence Space capability, inc. sovereign Satcomm (JP-9102) and space-based ISR (DEF-799 Phase 2), assuring PNT in a contested environment, and emphasize space domain awareness
 - Boost allied ‘burden sharing in orbit’ through CSpO, with the Australian Space Agency, and with Commercial Space Sector.
 - Greater focus on Space Control for the ADF.



The 2020 Strategic Defence Update and Space Domain Awareness

- “...the Government will significantly increase investment in defence space capabilities, a whole new theatre, including a network of satellites so we have an independent communications network and we’re going to invest some \$7 billion (AUD) in those space capabilities over the coming decade, working closely with industry and other government agencies, including the Australian Space Agency, headquartered in Adelaide where I was there to open that agency not that long ago. Working with key partners and allies, we will take advantage of Australia’s unique geographical position to better contribute to collective space domain awareness and we will look to enhance the ADF’s ability to counter emerging threats in the space domain and ensure our continued access to space-based intelligence and reconnaissance.”
 - Prime Minister Scott Morrison, July 1st, 2020



DSTO and Australian Space Agency

- Important for Defence to align space ambitions with Australian Space Agency 2019 Civil Space Strategy National Civil Space Priorities, and 2020 DSTO space-related Science Technology and Research goals (STaR shot) on resilient multi-mission space
- Engagement with the Commercial Space Sector wherever possible to meet key capability requirements – DEF-799 Phase 2 and JP-9102 – and to open up new space capability options.
- A Space 2.0 approach must lead – consider options for a ‘high-low mix’ incorporating locally produced sovereign space capability including both ground segment and space segment.
- What’s missing is an explicit commitment for the ADF and Defence to support Sovereign Space Launch capability
- Australian satellites launched on Australian launch vehicles from Australian launch sites.



Space Domain Awareness in 2020

- “Australia holds a unique geographical position to contribute significantly to collective space domain awareness with our allies and partners. Space domain awareness enables better tracking and identification of space objects and threats, such as space debris, as well as predicting and avoiding potential collisions”



Space is rapidly growing in significance

- Space is no longer merely an adjunct to support terrestrial domains.
- An operational domain in its own right.
- Its 'contested, congested and competitive'
- Space Domain Awareness has lineage going back to the 2009 Defence White paper – but now solid progress is being made.
- JP 9360: “Through Joint Project 9360 – Space Domain Awareness, Defence is seeking to acquire sovereign SDA capabilities including space surveillance sensors and associated mission systems. Defence are in the process of investigating and developing options to further enhance ADF space control capability.”
- Highlights that Australia's approach to Space Domain Awareness won't remain purely a government-led or managed effort.
- The role of the commercial sector is growing.

Commercial SDA is growing

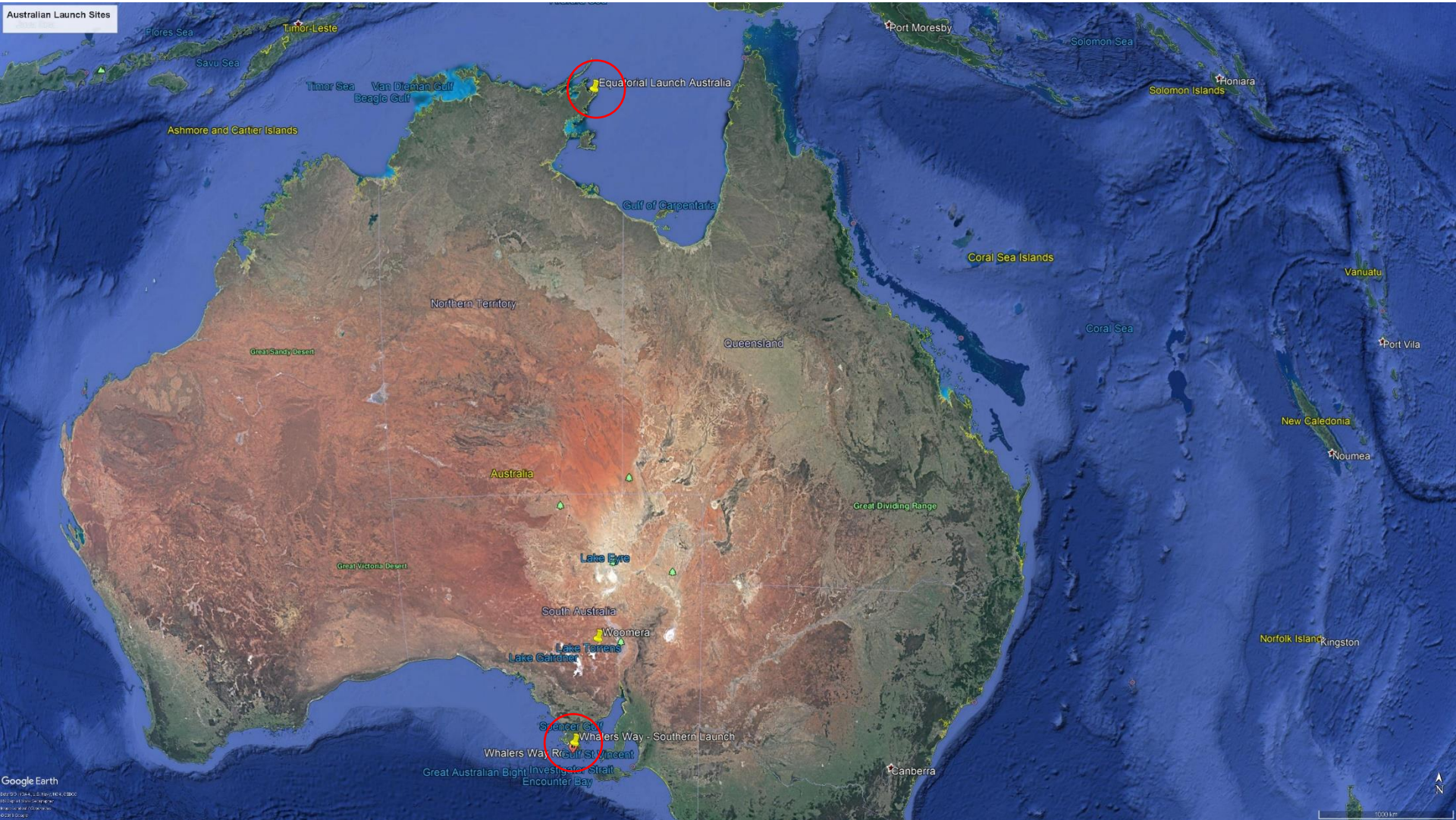
- Western Sydney University – International Centre for Neuromorphic Systems – ‘Astrosite’ (<https://www.westernsydney.edu.au/icns/astrosite>)
- Inovor Technologies – ‘Hyperion’ (space-based space surveillance) - <https://www.inovor.com.au/space-technology/hyperion-mission/>
- High Earth Orbit Robotics (space-based space surveillance) - <https://www.heo-robotics.com/>
- Curtin University – ‘Murchison Widefield Array’ - <https://www.mwatelescope.org/>
- EOS Australia – ‘Laser-Optical based space surveillance’ - <https://www.eos-aus.com/space/>
- Australia is well placed to exploit Space 2.0 technologies and ‘second mover’ advantage to pursue breakthrough space domain awareness capabilities within the commercial sector – to support ADF and Defence requirements – and to ‘burden share in orbit’ with five-eyes partners and others.

Space Resilience and sovereign launch

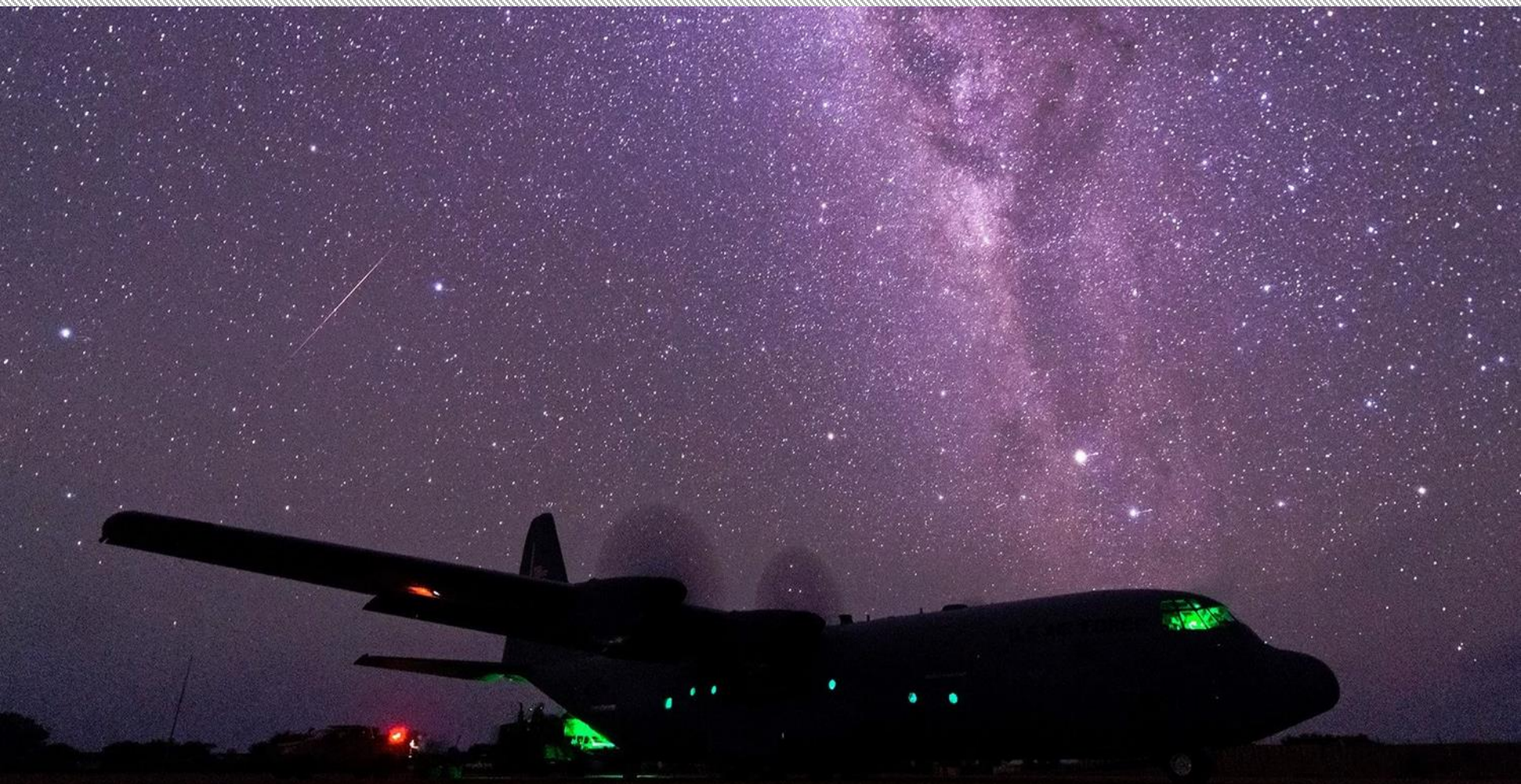
- Space Resilience already is seen as vital for Australia, with SDA a key basis for resilience.
 - Boosting resilience through augmentation, reconstitution and space domain awareness.
 - Demands a sovereign launch capability going forward.
 - Australia is well placed to support space launch activities – three launch sites are under development, and private sector launch providers are emerging.
 - Exploit '4IR' for space capability –
- Australian satellites launched on Australian launch vehicles from Australian launch sites.
 - But government has to get behind sovereign space launch - a challenge to drive forward policy settings.



Australian Launch Sites



Thank You & Q&A



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