Deep-Space Advanced Radar Capability, Site 1, Exmouth

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Updated 5 November 2026

- **added Google Earth images of DARC Site 1 transmit and receive facility, 1 October 2026**

See also:

- Deep-Space Advanced Radar Capability [DARC]
- Deep-Space Advanced Radar Capability, Site 2, Cawdor Barracks, St Davids, Wales

In February 2022 Northrop Grumman was awarded a US$341 million contract as prime integrator to develop, test and deliver the first DARC site in Australia. In August 2025 Space Systems Command and Northrop Grumman announced a successful test linkage of multiple ground-based antennas at DARC Site 1. In addition to the US$341 million award to Northrop Grumman for Site 1, according to the ABC, the Australian government will reportedly spend 'almost $2 billion over more than 20 years to operate and sustain the WA site'.

Locations:

Transmit array: -21.890855°, 114.119219°

Receive array: -21.905228°, 114.114506°

[caption id="attachment_101057" align="aligncenter" width="1024"]



US-Australian space domain awareness and communications facilities, Exmouth, WA - Image: Google Earth, 1 October 2026 ; facility labels: Australian Bases & US Involvement Project[/caption]

DARC Site 1 is located on the northern part of the Exmouth Peninsula in Western Australia, between the small town of Exmouth to the south and the huge Very Low Frequency antenna towers of the Naval Communications Station Harold E. Holt on the northern tip of the peninsula, North West Cape. The DARC facility sits in a cluster of major electronic military facilities that personify the contemporary level of integration between Australia and United States defence facilities and operations. The DARPA-designed US-built Space Surveillance Telescope is a few kilometers to the northwest of the DARC array. To the east next to the waters of the Exmouth Gulf is the transmitter station for the ADF's Enhanced Defence High Frequency System Exmouth facility in a circular array half a kilometer in diameter. A few kilometers northeast of DARC the US-built Space Surveillance Telescope is located on the southeast corner of the administrative area of the Naval Communications Station.

[caption id="attachment_101060" align="aligncenter" width="1024"]



DARC Site 1, receive array. Image: Google Earth, 1 October 2026[/caption]

[caption id="attachment_100200" align="alignnone" width="1024"]



Distributed antennas of the receive array of the Deep-Space Advanced Radar Capability, Site 1, Exmouth under construction. Source: Photo Credit: Apache Drone Photography. United States Space Force, photo by X0813, VIRIN:250219-X-FC312-1001, https://www.spaceforce.mil/Multimedia/Photos/igphoto/2003649357/mediaid/8939687/[/caption]

During the August 2025 test, SSC and Northrop Grumman reported that DARC

- 'Operated seven of its planned 27 antennas, bringing the program a step closer to full operational capacity.
- 'Showcased technology capable of tracking spacecraft that could threaten space assets or the security of the United States, Australia and allied nations.
- 'Conducted a multi-week campaign of data collection, analysis and fine-tuning to confirm calibration and operational performance.'

[caption id="attachment_100203" align="alignleft" width="1430"]



A reflector being assembled in the Antenna Integration Structure (AIS) at DARC Site 1 in Australia. photo credit: Mike Kortum, Four Sea Group Inc. United States Space Force photo by X0813, VIRIN: 250219-X-FC312-1002.[/caption]

According to Northrop Grumman, seven of Site 1's antennas were able to "characterize the movement of multiple satellites" in recent trials. "DARC's calibrated antenna arrays operated as a single system to successfully characterize the movement of multiple satellites and demonstrate the effectiveness of the system's precision radar tracking technology," said Kevin Giammo, director of space surveillance and environmental intelligence at Northrop Grumman.

Construction of Site 1 began in October 2023. DARC Site 1 consists of two facilities separated by several kilometers, with a total of 27 parabolic dish antennas. Working together, these smaller radar arrays can combine their signals to act like a much larger, more expensive single-dish system. Full operation is expected in 2027.

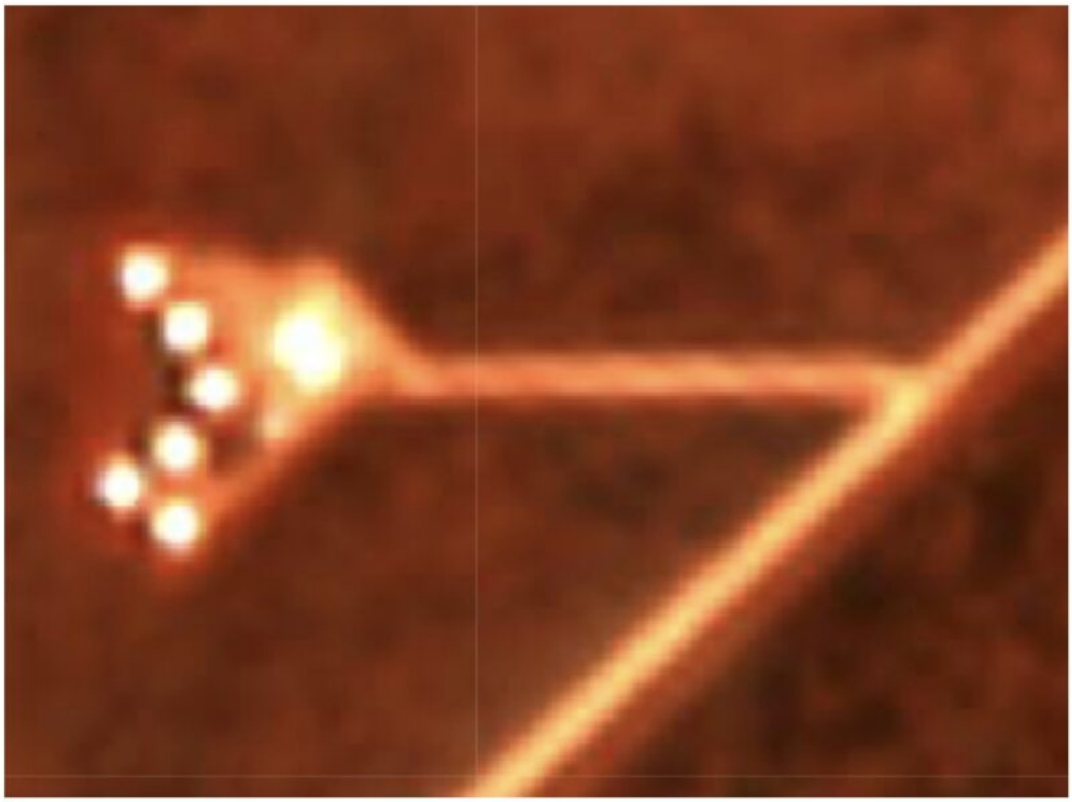
The transmit facility about 1.5 kms west of the C-band radar facility contains 6 15 meter diameter transmit antennas closely arrayed in a north-south pattern.

[caption id="attachment_101064" align="aligncenter" width="1024"]



DARC Site 1, Exmouth, transmit array. Image: Google Earth, 1 October 2026 [/caption]

Transmit antenna array DARC Site 1, Exmouth,
EOSDA Sentinel-2 L2A, 18 October 2025



Note: Antenna identification system for 6 transmit antennas -from north to south, Antennas 22 - 27: Richard Tanter
Source: EOSDA Sentinel-2 L2A, 18 October 2025, at https://eos.com/landviewer/?lat=-21.88990&lng=114.11485&z=16&lng=114.12623&id=S2C_tile_20251018_49KHR_0&b=Red,Green,Blue&anti=true&processing=L2A

The larger receive array several kilometers to the south is made up of 21 12 metre diameter parabolic antennas arranged in a more widely spaced polygon.

Receive antenna array, DARC Site 1, Exmouth, August - October 2025

Sentinel-2 L2A, 4 August 2025



Source: Sentinel-2 L2A, *EOSDA LandViewer*, 16 August 2025, at https://eos.com/landviewer/?lat=-21.89774&lng=114.15276&z=13&mapLabels=true&id=S2A_tile_20250801_49KHR_0&b=Red,Green,Blue&anti=true

Landsat 8, 12 October 2025



Source: Landsat 8, *EOSDA Landviewer*, 21.90489°S 114.10645°E, 12 October 2025, [false colours], at https://eos.com/landviewer/?lat=-21.90411&lng=114.11485&z=16&id=LC08_L1TP_1

The following figure depicting the receive array uses US Space Force imagery from 19 February 2025 depicting 21 antennas in place as the basis of a preliminary antenna identification system.

DARC - Site 1, Exmouth, 2025 - annotated, oriented to north



Note: Antenna identification system for 21 antennas as of October 2025: Richard Tanter. Photo Credit: Apache Drone Photography. Source United States Space Force, photo by X0813, VIRIN:250219-X-FC312-1001,
https://www.spaceforce.mil/Multimedia/Photos/igphoto/2003649357/mediaid/8939687/

The rapid development of Site 1 has been a priority U.S. for both Space Command and IndoPacific Command. In April 2023, the head of Space Forces Indo-Pacific, Brigadier General Anthony Mastalir, said that getting DARC Site 1 operational was 'absolutely critical':

> 'When you look at a place like Australia as a landmass, you have a lot of opportunity to contribute to that space picture…The Australians, the defense Space Command folks and the acquisition arms, they absolutely understand that, so they're moving aggressively to embrace some of these opportunities and bring systems like DARC — deep space radar capability — here on the continent.'

GlobalSecurity.org provided an outline of requirements of the Site 1 specified in the 2022 construction contract:

> 'FY 2023 plans continue Site 1 design and development activities including design reviews, hardware purchases, software development and integration, and construction. Complete Site 1 EA. Complete final Facility Design Review (90%) and Critical Design Review. Purchase, install and check out hardware including, but not limited to, the antennas, transmitters, receiver hardware, and associated processing, cabling, communications subsystems. Begin construction of Site 1 including roads, buildings, utilities, foundations, and installation of all antenna structures. Perform additional site development efforts such as the construction of facility-support and site infrastructure to include backup generator buildings, fuel storage (tank farms), electrical substations for power site distribution, wastewater treatment/septic & leach, non-potable water storage / fire protection distribution (site & buildings), water treatment (potable) and physical security equipment to meet protection level 3 (PL3) requirements.'

For the Australian Defence Force, DARC Exmouth is an element in Operation Dyurra, described as

> 'the dedicated Australian Defence Force space operation which integrates space capabilities, services and effects into wider operations.'

The DARC Exmouth facility will be operated remotely by U.S. and Australian defence forces. As of October 2025, no details have been released about ADF operational involvement with DARC 1, but it is likely that the ADF's Defence Space Command No. 1 Space Surveillance Unit (1SSU) based at RAAF Base Edinburgh in South Australia will be involved.

No. 1 Space Surveillance Unit operates Australia's space domain capabilities, including the Space Surveillance Telescope (SST) and Space Surveillance Radar (SSR) located close to the DARC site near Exmouth. No. 1 Space Surveillance Unit also operates the ADF Jindalee Operational Radar Network (JORN), and the Australian Mission Processor that provides Australian access to data downlinked from U.S. infrared Defense Satellite Program and Space Based Infra Red System satellites through the Relay Ground Station at the Joint Defence Facility Pine Gap.

At Edinburgh, No. 1 Space Surveillance Unit operates the SST and SSR together with Operating Location Bravo, an element of U.S. Space Force's Space Delta 2.

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