



Supporting Spaceflight

The Bureau's Spaceflight capability supports the spaceflight sector and its activities in Australia by providing expertise in meteorological and space weather intelligence.

The Bureau's role and spaceflight

With the expansion of space-based infrastructure and its associated service industry, the Bureau plays an integral role in Australia's spaceflight sector through its Spaceflight capability.

The Bureau supports emerging Australian launch providers and operators whose aim is to provide commercial services to customers wanting reliable and cost-effective access to space. Weather has a direct impact on launch success. Access to accurate and trusted weather information increases the likelihood of a safe and successful launch, reduces risks to the whole operation and drives cost efficiencies through effective planning.

Providing this dedicated service supports the rapidly growing global space sector, anticipated to be worth USD\$1.1 trillion by 2040. Through this service the Bureau actively supports Australia's spaceflight sector to operate successfully and safely, aligning with its mission: to provide trusted, reliable and responsive services.



A launch vehicle at the Southern Launch Whalers Way Orbital Launch Complex, September 2021. (Image credit: Southern Launch)

Working with space launch providers

The Bureau supported a short-notice trial for the first commercial launch for Southern Launch, an Australian launch provider:

The efforts of the Bureau of Meteorology, including in the lead up...were an important contribution in helping to ensure a safe launch experiment. The timely forecast data assisted us in selecting optimal launch times and predicting trajectories.

Lloyd Damp, Founder and CEO of Southern Launch, 2021.

Localised weather expertise and advice from the Bureau's on-location observational infrastructure also provided valuable local data for Equatorial Launch Australia and NASA's suborbital missions, launched from Arnhem Space Centre in the Northern Territory in 2022.



The Aurora Australis over Antarctica. Aurorae are a spectacular display of space weather. (Image credit: Barend Becker)



NASA's Suborbital Rocket launched from Equatorial Launch Australia's Arnhem Space Centre, July 2022. (Image credit: Cam Hines)

Coordinated support for future spaceflight

The Bureau is developing and coordinating support for future spaceflight campaigns across the sector, with specific offerings directly aligned to the customer's needs and requirements.

Working with government partners and regulators including the Australian Space Agency, Civil Aviation Safety Authority (CASA) and Air Services Australia, ensures a whole of government approach is achieved for the benefit of the spaceflight sector.



TED-01 launch at the Southern Launch Koonibba Test Range, September 2020. (Image credit: Southern Launch)

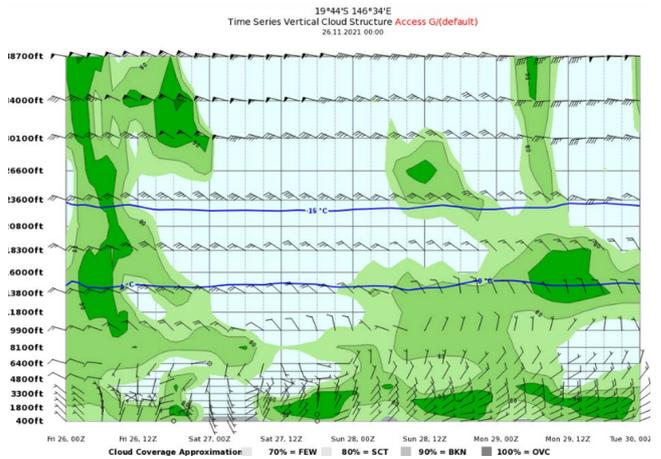
Expert environmental intelligence

The Bureau's Spaceflight capability supplies specialist expertise and local knowledge to our customers to enable improved and high-quality decision-making to support safe and successful launch and spaceflight.

Products and services are delivered in partnership with expert meteorologists and space weather forecasters, tailored for specific customers through a deep understanding of their decision-making requirements and operational needs.

Local data and meteorological expertise is provided to support the entire spectrum of spaceflight activities, which includes educational and guidance materials, as well as spaceflight campaign assistance. For example, for a launch campaign this is provided over multiple timescales relating to:

- development—for launch providers, operators, and rocket manufacturers
- planning—pre and post approval
- launch window—from when the preferred timeframe is chosen to when it is confirmed
- post launch—review and analysis.



An output from the Bureau's global Australian Community Climate and Earth-System Simulator (ACCESS) model. This model output assists the Bureau's decision support meteorologists in communicating conditions for launch window selection. Green highlights represent likely cloud, with wind and temperature overlays to assess surface and upper air conditions.

Contact us



space@bom.gov.au



www.bom.gov.au