Please note: the substantive content of the 2026 NRI Roadmap Survey begins at Question 20 (with prior questions dealing with administrative and other information).

As such all submissions that are published include the responses submitted from Question 20 onwards only.

Q20.

Part 2: Research themes

2.1 NRI comprises the assets, facilities and associated expertise to support leading-edge research and innovation in Australia and is accessible to publicly and privately funded users across Australia and internationally. We are seeking your input on possible directions for future national-level investment - i.e., where the requirements are of such scale and importance that national-level collaboration and coordination are essential.

The 2021 Roadmap used a challenge framework to support NRI planning and investment. With this in mind, consider likely future research trends in the next 5 - 10 years, and with respect to one or more of the 8 challenge areas identified in the 2021 Roadmap as listed below:

- describe emerging research directions and the associated critical research infrastructure requirements that are either not currently available at all, or not at sufficient scale and
- describe current national infrastructure requirements that you anticipate will no longer fit the definition of NRI in 5-10 years.

Do not limit your commentary to NCRIS funded capabilities.

Q21.

Resources Technology and Critical Minerals Processing

Q22.

Food and Beverage

Q23.
Medical Products

Q24.
Defence

Q25.
Recycling and Clean Energy

Q26.
Space

Q27.
Environment and Climate

With the goal of NetZero in mind there currently does not exist a facility that provides data that will help us track how emissions and their resultant levels in the atmosphere are tracking for NetZero

Q28.
Frontier Technologies and Modern Manufacturing

Q29.

2.2 The 2024 statement of National Science and Research Priorities (NSRPs) includes outcomes linked to each priority to assist in identifying critical research needed in the next 5 to 10 years.
Consider the priority statements and, with respect to one or more of the 5 priority areas as listed below:

- describe emerging research directions and the associated critical research infrastructure requirements that are either not currently available at all, or
- not at sufficient scale and describe current national infrastructure requirements that you anticipate will no longer fit the definition of NRI in 5-10 years.

Do not limit your commentary to NCRIS funded capabilities, and where relevant, refer to the underpinning outcomes and research identified in the NSRPs document.

Q30.

Transitioning to a net zero future

Net Zero means that our emissions to the atmosphere are being balanced by the removal of carbon by various sinks available. To understand if we are on track to reaching net zero requires an understanding of how carbon is changing in the atmosphere. If it continues to increase then we are not reaching net zero regardless of what we say we are emitting.. A national facility for spatially distributed observations of atmospheric composition will directly contribute to Australia's Net Zero ambitions, and guide appropriate climate adaptation.

Q31.

Supporting healthy and thriving communities

Q32.

Elevating Aboriginal and Torres Strait Islanders knowledge systems

Q33.

Protecting and restoring Australia's environment

Q34.

Building a secure and resilient nation

Q35.
2.3 The case for a new NRI capability, or enhancements to existing capabilities, typically emerges through advocacy from research communities clustering around rigorously identified needs and goals. Such a concept could respond to a requirement for novel or expanded capacity within a domain, or across domains, and must be such that it could only be made available with national-level investment.
If you have identified such a requirement, briefly describe the need, the proposed infrastructure capability, the medium-term goals, impacted research communities, and the timeframe over which you advocate its establishment. Your response can include links to relevant existing reports.

A National Atmospheric Composition network The gaseous and particulate composition of the atmosphere determines our climate, UV radiation exposure and air quality. Management of the emissions that affect the levels of greenhouse gases, ozone depleting gases, and other active constituents is one of the most important yet demanding national and global challenges. Australia is exposed to the risks of these atmospheric changes through their impacts on the environment and because the mitigation of their emissions will lead to local and global readjustments in sectors such as energy and agriculture. A comprehensive observational capability is required to understand the causes of the emissions, to track the efficacy of mitigation measures, and to avoid unwanted consequences of action. The atmosphere is the main interconnector between the emission sources, such as earth resources, industry and agriculture, and where they are removed, mainly by chemical reactions in the atmosphere or uptake by the ocean and land surfaces. The atmosphere is therefore a crucial sphere of the geosciences and monitoring its chemical changes provides the basis to track emissions and to determine their fate and their impacts. Despite this the atmosphere is not represented in the NRI facility network. As a signatory to the Paris Agreement, Australia has committed to the global effort to reduce greenhouse gas (GHG) emissions to Net Zero emissions by 2050. A national facility for spatially distributed observations of atmospheric composition will directly contribute to Australia's Net Zero ambitions, and guide appropriate climate adaptation. The need for this nationally co-ordinated atmospheric composition network has been recently raised in The decadal plan for Earth System Science: https://www.science.org.au/files/userfiles/support/reports-and-plans/2024/decadal-plan-earth-system-science-2024-33.pdf and in the Climate Change Authority Report 2023 2023 Annual Progress Report https://www.climatechangeauthority.gov.au/sites/default/files/documents/2023-11/2023 AnnualProgressReport_0.pdf and the atmospheric composition research community AUSTRAL - Australia's Urban Supersite neTwork for Research on Air quaLity. The University of Melbourne. Poster. https://doi.org/10.26188/28605209

Q36.
Part 3: Industry perspectives
This section is seeking input specifically from industry-based respondents. Other respondents can skip this section.
Recommendation 6 of the 2021 Roadmap related to improvements in industry engagement with NRI. To complement work on this topic that has occurred since then, we are seeking additional advice on NRI requirements as perceived by current or potential industry-based users.

Q37.
3.1 Have you (or your organisation) interreacted with or used Australia's NRI?

- ○ Yes
- ◉ No

Q38.
3.2 If so, please briefly outline the NRI capabilities you (or your organisation) have interacted with or used. Do not limit your response to NCRIS capabilities.

This question was not displayed to the respondent.

Q39.

3.3 Please indicate your (one or more) primary reasons for interacting with NRI:

This question was not displayed to the respondent.

Q40.

3.4 If you answered no, please indicate your (one or more) primary reasons:

- [ ] I did not know about it
- [ ] Other facilities suit my needs better
- [ ] I would like to, but cannot get access due to geographical location
- [ ] I would like to, but believed that access was only available to academic researchers
- [ ] I am not aware of any capability that meets my needs
- [ ] Other (please specify)

Q41.

Part 4: Other comments

4.1 Please elaborate on any of your above responses or add any other comments relevant to the development of the 2026 Roadmap. Your response can include reference or links to existing reports that you recommend be considered during the 2026 Roadmap development process.

Q49.

4.2 Optional Document Attachment.
Note: Our strong preference is that answers are provided against the relevant questions in the survey. However, this file upload option is available for submissions in file format, where needed. Please ensure the document includes your name or organisation.

AuScope_Atmosphere_final.docx
625.4KB
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