Response to
Draft *Australia's Satellite Utilisation Policy*

by

The Australian Academy of Technological Sciences and Engineering (ATSE)

to

Department of Industry, Innovation, Science, Research and Tertiary Education (DIISRTE),
Australian Government

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Australia's Satellite Utilisation Policy

The Australian Academy of Technological Sciences and Engineering (ATSE)[1] welcomes the opportunity to submit a response to the draft *Australia's Satellite Utilisation Policy*.

Introduction

Firstly, ATSE wishes to commend DIISRTE and the Space Industry Advisory Council for their efforts in establishing a national Australian space policy. ATSE sees it as essential that there be an ongoing, high-level mechanism for providing coordinated advice to Government on an Australian strategy for space utilisation.

ATSE is pleased that the AAS-ATSE (2009) *Australian Strategic Plan on Earth Observations from Space* has provided useful guidance for the preparation of *Australia's Satellite Utilisation Policy*. The Academy was also pleased to be involved in the industry consultation process on 10th October, 2012, and to accept the invitation at that time to provide written comment on the Policy document.

It is clear that the Policy process has produced a cooperative approach to space activities across Commonwealth Government departments and agencies. This outcome is very significant in maximising the return on investment in space and in ensuring that space-related priorities are set appropriately. The existence of a single focal point (the Space Policy Unit) for space activities is recognised as a key element in achieving consistency in the management of space activities from both a national and international perspective.

While the preparation of the Policy document is most welcome, there are some elements that could be strengthened. These elements are:

- Appropriate recognition of the public-good aspects of national space activities.
- A recognition that national needs for space infrastructure will evolve.
- The development of a national process for priority setting, rather than just a process for coordination of Commonwealth Government departments and agencies.

The following sections suggest possible changes to the Policy document aimed at strengthening and clarifying these elements.

Public-good space activities

The Policy document brings together defence and civilian needs across the Commonwealth Government, and so there is an appropriate emphasis of national security requirements for space-related activities. However, public-good aspects of these activities extend far beyond national security requirements. The Policy document identifies three broad national needs for space applications: communications, global navigation, and earth observation. Defence applications span all three areas, but civil communications aspects tend to be commercial, e.g. with Optus operating a series of geostationary satellites. Global navigation applications cover both government and industry needs. While there is

[1] The Australian Academy of Technological Sciences and Engineering (ATSE) is an independent body of 800 eminent Australian engineers and scientists driving technological solutions for a better Australia. ATSE was established in 1976 with the mission to promote the application of scientific and engineering knowledge to the future benefit of Australia. ATSE is one of four learned national Academies, which have complementary roles and work together both nationally and internationally. www.atse.org.au

an important commercial component of earth observation applications, the application of earth observations to public-good needs is very extensive and includes the Commonwealth and State Government departments and agencies as well as the education and research sectors. Indeed the Policy document quotes (Section 2, par. 4) the AAS-ATSE Strategic Plan on the importance of earth observations from space for environmental monitoring.

However, in other paragraphs, the public-good applications are somewhat under emphasised. The following changes are suggested.

Sec. 2, par. 4: Given the strong industry/applications credentials of ATSE, it would add substantially to the credibility of the assertion in quotes if the joint sponsorship of the EOS Strategic Plan were acknowledged; e.g. According to the Australian Academy of Science and the Australian Academy of Technological Sciences and Engineering in their jointly prepared *Australian Strategic Plan for Earth Observations from Space*, space measurements provide "the single most important and richest source of environmental information for Australia".

Sec. 2, par. 5: "... In the civilian sphere, real-time *observations* [images], positioning and communications from space [save lives during natural disasters] *are essential in the mitigation and management of natural disasters, including the saving of lives during major disasters such as floods and bushfires."*

Sec. 3, par. 1, point 2: "... satellite information …. across Australia's extensive and often inaccessible *atmosphere,* land and ocean territory.

Sec. 3, par. 1, point 3: "... space capabilities are *essential contributors to the safety of Australian life and property in natural disasters, and to national security and law enforcement."*

Sec. 4, principle 2: Access to radio spectrum is needed not only for ground stations, but more importantly for the long-term security of earth observations from space; that is, the unique frequencies ('fingerprints of nature') used to monitor the earth environment need to be protected. This aspect must be included in the Policy document.

Sec. 4, principle 6, par. 2: "... Earth observation from space supports [climate change modelling] *weather forecasting and warning services, climate change monitoring and modelling, natural disaster management* and the management of natural resources, while ..."

Sec. 4, principle 7: This principle covers economic (as well as national) security and so it should include strategies aimed at retaining and extending our national capabilities in earth observation from space. Such capabilities are currently included (in a somewhat ad hoc manner) in principle 6. Similarly natural disasters and resource management are currently swept up in the last point of principle 7.

A new point should be added to principle 7:
Australia will continue to invest in capabilities for earth observation from space aimed at assuring national economic well-being through the delivery of appropriate environmental

and resource management services.

Section 5: The distinction of space weather as a government responsibility from all other environmental and resource monitoring and prediction services gives a misleading perspective on national priorities. One approach would be to note space weather under the EOS heading. Alternatively EOS could be replaced by two topics: environmental monitoring and geoscience observations.

Future needs for space infrastructure

The Policy document appropriately focuses on the need to set national priorities for applications of satellite data, rather than set commitments for human space-flight or exploration of other planets. However, it also excludes long-term consideration "domestic launch capabilities" (Section 1, par. 6). Indeed the document can be characterised as low-key.

On the other hand, Section 3 (par. 2) states that "Australia has a long list of achievements in space" and the box at the end of that section gives a somewhat misleading perspective on Australia's achievements in space, rather than in space-related activities. Rather than listing Australia's achievements in the application of satellite observations, the box could be read to imply that we have been a major contributor to the international space effort. In reality, as noted in the AAS-ATSE (2009) EOS Strategy, Australia is seen essentially as a free-rider in the international earth observation community, and this perspective could jeopardise our secure access to earth observations in the future. It is therefore essential for Australia to become more active in supporting the overall international effort. Indeed in paragraph 3 of Section 1 and in Section 4, Principle 2, this need is recognised.

Some specific changes are suggested below.

Sec. 1, par. 6: Replace the first sentence by: "Australia's Satellite Utilisation Policy safeguards our national interests by …. Securing access to earth observations from space will require Australia to contribute appropriately to the overall global effort primarily through regional and international partnerships." The second sentence is consistent with Principles 2 and 3 of Section 4.

Sec. 3, par. 2, sentence 2: "Australia has a long list of achievements in [space] *space-related activities*..."

Sec. 3, box: Delete the first clause and perhaps the first sentence. Indeed the tone of this box is misleading, as essentially isolated events are construed as a national policy. The major achievements of Australia actually relate to the application and evaluation of satellite data.

Sec. 4, principle 1: The second principle should be deleted. The Principle relates to the application of satellite data, and so it is irrelevant to discuss launch activities here. It could (if essential) be moved to Principle 6 and reworded as: "*Australian Government support for commercial, scientific or educational space launch activities would be the provision of a regulatory environment ...*"

Sec. 4, principle 2: The first principle could be read as stating that Australian policy is to continue as a free-rider in the international public-good arena. This does not provide an appropriate perspective for overseas countries reviewing our national policy. Moreover, this reading of the Policy is inconsistent with Principle 3 as well as the seventh principle of Principle 2, which seek to increase international engagement.

It would therefore be appropriate to temper the first principle by adding to the second sentence: "..., while recognising the benefits of enhanced international collaboration."

Sec. 4, principle 2: The sixth principle is a statement of what will not be done. Given statement in Principle 1 about space launches, this statement would seem to be redundant and should be omitted.

National priority setting

The Policy document is titled "Australia's Satellite Utilisation Policy" and Principle 5 of Section 4 is aimed at improved domestic coordination. Indeed a major advance has been the recognition of the Space Policy Unit in DIISRTE as the national focal point for space-related matters both nationally and internationally. Thus the continuation of such a focal point is an essential element in a national space policy[2]. However, while there is an impression that the document is on our national space policy, it is actually focused on the Australian Government space policy. This unfortunate limitation applies especially to the mechanisms for national coordination and priority setting.

In both the AAS-ATSE Strategic Plan (2009) and in the Policy document, it is recognised that space-related applications extend far beyond the Commonwealth Government departments and agencies. The key agents in space applications include industry, State governments and universities. The Policy document and earlier work on "Principles for a National Space Industry Policy" recognise the need for links to industry, and the Coordination Committee on Innovation provides an appropriate linkage mechanism. However, the proposed Australian Government Space Coordination Committee will not provide the required effective links to the States and universities. In contrast, the AAS-ATSE Strategic Plan (2009) recommended the establishment of a national advisory council with active involvement of the national agencies, the learned academies and the user community to advise on national priorities for operations, research, education and applications across all sectors and all levels of government[3].

The following specific changes could be made in the Policy document to acknowledge the need for national cooperation.

Sec. 4, principle 1: The first principle recognises the need for national integration on applications of national significance. However, the implementation strategies are limited Commonwealth departments and agencies. The proposed Australian Government Space

2 While ATSE does not see the names of government units as a critical issue, it does note that the title of Space Policy Unit can be confusing to overseas space agencies seeking to make contact with the Australian focal point for space matters. Independently of the size or organisational level of the focal point, reversion to the early 1990s terminology of a 'National Space Office' would be an indicator that Australia sees space activities to be as important as other developed (and even some developing) countries do.

3 While the AAS-ATSE Plan (2009) was focused on earth observation from space (EOS), the proposed organisation can be applied across all space applications. Ideally the EOS aspects would be recognised through distinct entities within the overall space policy organisation.

Coordination Committee should link to a new National Space Advisory Council, which provides the overall national perspective. The second and third strategies should be changed to:

- Set Australian Government priorities through the Australian Government Space Coordination Committee focused on space applications of national significance.
- In civilian space activities, prioritise research and applications focused on EOS, satellite communication and positioning, and other potential avenues of space research and application through the National Space Advisory Council.

Sec. 4, principle 2: The fifth principle of Principle 2 requires a mechanism to embrace all public and commercial stakeholders involved in providing space systems or space-enabled products and services. However, none of the associated strategies embrace the broad national space community. The addition of a National Space Advisory Council should achieve the required principle.

Sec. 4, principle 5: The second principle of Principle 5 focuses solely on Australian government agencies. The fourth principle acknowledges the contributions of the States and Territories, but the associated strategy is extremely weak, involving the need to "seek opportunities to involve the States and Territories..." The universities and learned academies are not mentioned in the discussion of domestic coordination. The establishment of a National Space Advisory Council would provide the needed national coordination.

Sec. 4, principle 7: This principle should be extended to read "Protect and enhance national security and social and economic well-being".

Section 6: This section discusses the mechanisms for Australian Government governance of civilian space activities. However, the real need is for a national governance mechanism. The proposed Australian Government Space Coordination Committee can fulfil the need for coordination across Commonwealth Government departments and agencies. It is further proposed that this Committee should report to the Coordination Committee on Innovation. This line of reporting implies that the Policy document is focused on the national space industry policy. On the other hand, the document appropriately covers the full range of space activities and sectors. The required level of national coordination would be achieved by replacing the Coordination Committee on Innovation in the proposed structure by the National Space Advisory Council.
The yearly report described in the fourth dot-point in section 6 might be better entitled "Australian Government Space Activities", and should be directed at a wider audience than the Coordination Council on Innovation.

Further Information

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