

# Astronomy and the National Security

The Astronomical Society of Japan

March 15, 2019

## Statement

- The Astronomical Society of Japan (ASJ) shall not engage in any research or activities that might threaten human security or world peace because it was founded to promote and advance astronomy as its primary mission (\*1).
- As a group of scientific investigators, we, ASJ, recognize our responsibilities in society, and we shall contribute to human security and world peace through research, education, and the promotion of astronomy; as well as through international research collaborations and exchanges.

\*1 [http://www.asj.or.jp/asj/en/intro\\_E.html](http://www.asj.or.jp/asj/en/intro_E.html)

# Background

Being triggered by the statement by the Science Council of Japan released on March 24, 2017 (\*2) concerning the National Security Technology Research Promotion Fund put forth by ATLA (The Acquisition, Technology and Logistics Agency) (\*3), we, the Astronomical Society of Japan (ASJ) have been actively promoting discussion amongst our members on the relation between astronomy and national security, in particular militaristic research. While we are not to restrict members from applying for certain research funds, this kind of discussion is within the scope of ASJ's mission (Appendix 1). Special sessions were held at the ASJ's bi-annual meetings, some feature articles were run in our publication, and two surveys were conducted of ASJ's members (Appendix 2). According to the surveys, ASJ's members have a broad range of opinions about the National Security Technology Research Promotion Fund (Appendix 3).

\*2 Statement on Research for Military Security

(<http://www.scj.go.jp/ja/info/kohyo/pdf/kohyo-23-s243-en.pdf>)

\*3 National Security Technology Research Promotion Fund, a special fund established in 2015 by the Acquisition, Technology and Logistics Agency (ATLA) under Ministry of Defense.

([https://www.mod.go.jp/atla/en/policy/research\\_and\\_development.html](https://www.mod.go.jp/atla/en/policy/research_and_development.html))

Astronomy is a discipline of pursuing the truth about any natural phenomena involving, but not limited to, the universe and celestial bodies. This quest for truth should be borne of free thoughts and be independent of differences in politics, culture, ideology, religion, etc. The achievements of such research activities should be made openly available and shared by the global human society. In addition, modern astronomy is one of the most international disciplines in basic science, and it not only produces scientific achievements, but also contributes to world peace through personnel exchanges and mutual understandings.

At the same time, astronomy is not completely unrelated to military research. Technologies related to astronomy always hold the potential to be used for war (Appendix 4). In the past, in Japan as well, achievements of basic science including astronomy were appropriated for war, and some scientists even actively cooperated with war efforts. The above statement reflects such historical regrets, and summarizes the opinions of the current ASJ members. ASJ will continue to discuss these subjects.

## Appendix

Appendix 1: Excerpt from By-laws of the Astronomical Society of Japan (ASJ). Translation is for this document's information only; not official.

### Chapter 2 Scope and undertaking

Section 4 ASJ pursues advancement and popularization of astronomy.

Section 5 ASJ carries out the following in order to achieve the above stated goals.

1. Organize a general meeting twice a year as well as conduct other academic conferences.
2. Publish a research journal as well as academic books: Monthly Japanese journal, The Astronomical Herald and Bimonthly English Journal, The Publications of the Astronomical Society of Japan.
3. Conducts research.
4. Organizes public lectures, for information and outreach.
5. Trains or supports the next generation of professionals.
6. Encourages astronomy-related education.
7. Promotes researches and gives awards to the outstanding research.
8. Communicates and cooperates with other academic societies.
9. Promotes international collaborations.
10. Influences policy making on the matters concerning astronomy.
11. Engages in other programs that serves its mission.

Section 6 ASJ engages in the above programs throughout Japan, abroad, and space.

Appendix 2: Discussion with the members in the following activities.

- a. Series of special articles in its monthly magazine. The Astronomical Herald (Japanese).
- b. Three special sessions during its annual society meeting (March 14 and September 19 in 2018, March 14 in 2019).
- c. Surveyed the members' opinions in October 2018. 29 % responded which is higher than other surveys conducted by ASJ.
- d. 2<sup>nd</sup> survey in March 2019.
- e. Created a working group to ensure rigorous and thorough discussion in preparation of the texts (contents) of the Statement.
- f. Board of Directors meetings (9/11/2017, 12/13/2017, 3/14/2018, 5/19/2018, 9/19/2018, and 1/12/2019), General Assembly of the Representatives (9/12/2017,

- 1/20/2018, 3/15/2018, 6/20/2018, 9/20/2018, and 1/16/2019), All membership assembly (9/12/2017, 3/15/2018, 9/202018, plus special assembly on 12/22/2018).
- g. The General Assembly of the Representatives decided to announce this statement on March 15, 2019.
  - h. The English version is approved at the General Assembly of the Representatives on June 8, 2019 following the Board of Directors meeting on May 18, 2019.

#### Members of the Working Group

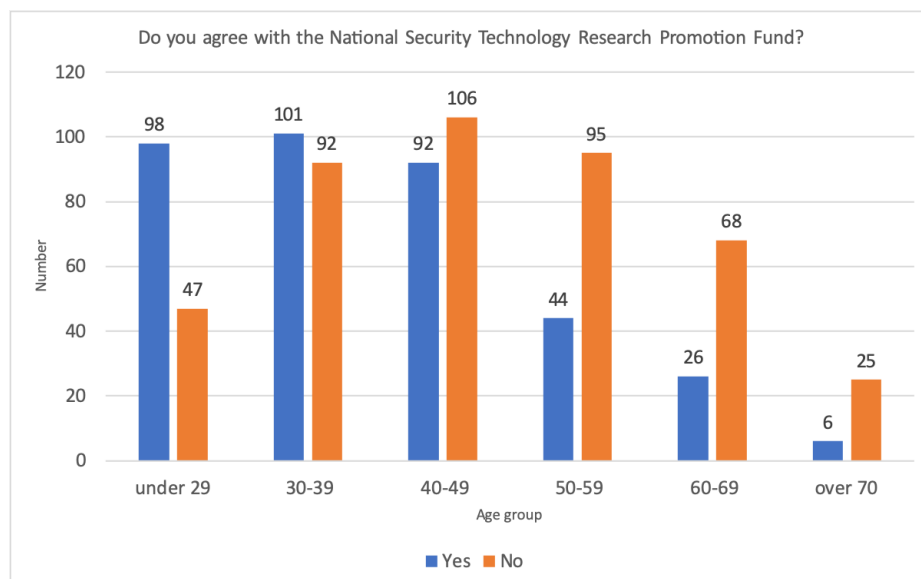
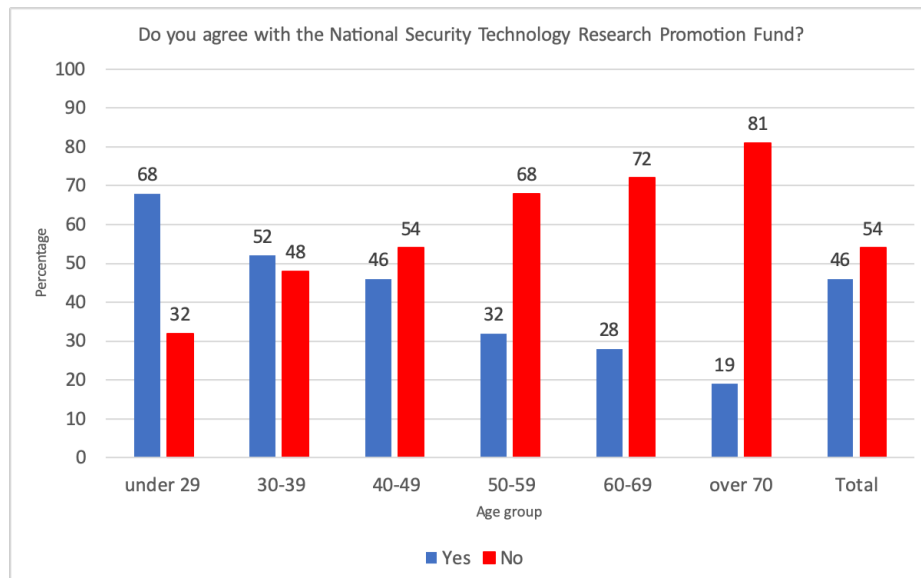
[all are full member of ASJ, listed in alphabetical order of their first name]

Akimasa Kataoka, Ayumi Asai, Keitaro Takahashi, Ken Ebisawa, Kenta Fujisawa, Megumi Shidatsu, Shinki Oyabu, Shohei Isshiki, Tetsuya Zenko, Tomonori Totani (resigned as of December 18, 2018), Yasushi Suto.

Members from ASJ's 2017-2018 administration: Kazunari Shibata (President), Saeko Hayashi (Vice President), Daisuke Iono (Secretary General).

### Appendix 3: First survey summary regarding National Security Technology Research Promotion Fund (“Fund”)

The response was almost equally divided into “for” and “against”, with the latter slightly above regarding the National Security Technology Research Promotion Fund. Some members say they need to apply whatever available funds including this Fund due to the rapidly and seriously depleting research funds in the universities and research institutions. There are opinions against the restriction from the agencies they belong regarding the individual researcher’s applications to the available funds.



Appendix 4: Examples of the connection between the advanced technology used for astronomy research and military:

Optical/infrared telescope, radio telescope, rockets, satellites, GPS, internet, infrared sensor, CCD, adaptive optics, study of ionosphere, radio wave from the Sun, space weather, gamma ray astronomy, high energy nuclear physics

Astronomy (and related research fields) and military technology are entangled in terms of the advanced technology and engineering as shown in the list of examples above:

Astronomy research fields utilize a variety of advanced technologies and hence have deep connection with the military technology.

Observational astronomy tries to catch faint light from distant objects. It requires detection and characterization of faint signals and image processing. Infrared sensors inherited from the military technology. In turn, improvement of those sensors benefitted from the input by the astronomers. Computational astronomy promotes the simulation algorithms and enable the study of the extreme environment (such as the hot and dense plasma). Solar physics is directly associated with the security and people's lives since it involves the study of space weather that can affect communication and broadcast.

As one can imagine, the relationship goes both ways – astronomy benefits from the technology that is available at that time, and output from astronomy encourages the advancement of the technology. Likewise, the advanced technology works for both the military use and commodity use. Hence astronomy is related to the military technology. Such examples are listed above.