



**Weekly Wire**  
**News from East Asia and Pacific**  
**National Science Foundation**  
**Tokyo Regional Office**  
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**AUSTRALIA: Robots Reveal Thicker Antarctic Sea Ice**

The sea ice in Antarctic is much thicker than previously thought, according to the new data obtained by the Woods Hole Oceanographic Institution's robotic submarines. The submarine used a multi-beam sonar to map the bottom of the ice and worked 10 hours autonomously on a pre-programmed course before returning to ship. The data provided a new view of Antarctic sea ice with three dimensional maps, providing a glimpse into a whole new world and the first real look under the ice. The average thickness of ice beneath sea level was 1.4 to 5.5 meters, and they found a lot over 10 meters and up to 17 meters in some places. Satellite images show sea ice coverage is in significant decline in the Arctic due to climate change. Paradoxically, however, it has been increasing in the Antarctic, says Dr. Guy Williams of the University of Tasmania. "Sea ice is important in global climate studies; it is a modulator between ocean and atmosphere; it interacts with oceans because when salt water freezes it rejects salt; and it is a strong reflector of radiation and energy from the Sun," says Williams.

*Source:* <http://www.abc.net.au/science/articles/2014/11/25/4133858.htm>

**JAPAN: ALMA 3<sup>rd</sup> Year Conference in Tokyo**

The Atacama Large Millimeter/submillimeter Array (ALMA) program was launched in 2001 between Europe and North America to establish internationally cooperative astronomical research facilities in Atacama Desert, 5,000 meters above sea level, in Chile. The participation in the program has been expanded to East Asia to produce compelling results as the most powerful mm/submm interferometer in the world. The production of the equipment in each country commenced in 2002 and its transportation and installation in Chile was completed in 2013. The first opportunity for the worldwide astronomical community to submit proposals for new scientific observations was announced in 2011. Commemorating the 3<sup>rd</sup> year of the activity, an international conference will be held in Tokyo for four days from December 8, 2014, highlighting the most recent results from ALMA's first three years of science operations, and to motivate future collaboration among researchers around the world. The science topic includes all fields of astronomy, i.e., cosmology and galaxies in the distant universe, nearby galaxies and the Galactic Center, ISM and star formation in our own galaxy, astrochemistry, circumstellar disks, exoplanets, solar system, stellar evolution and the sun. Prior to the four-day international scientific conference, talks to the public by the researchers from the National Astronomical Observatory of Japan, the Max Planck Institute, and Nagoya University, are planned on December 7, 2014.

*Source:* <http://www.almasc2014.jp/>

**JAPAN: Asteroid Explorer "Hayabusa-2" Launched**

The Japan Aerospace Exploration Agency (JAXA) succeeded in launching their asteroid explorer "Hayabusa-2" on December 3, 2014. "Hayabusa-2" was named after JAXA's asteroid explorer "Hayabusa" that was launched in 2003 and returned to the earth after a 7-year-long journey in 2010, by successfully sampling the dust on the surface of the small asteroid "Itokawa" whose size is only about 500 meters. The hardship the JAXA researchers experienced with a number of engine troubles with "Hayabusa" was

made into an exemplary keep-your-hope movie. “Hayabusa-2” is expected to land on a small asteroid named JU3 in 2018 and return to the earth in 2020 by carrying materials from the surface of the asteroid.  
Source: <http://global.jaxa.jp/> & <https://www.youtube.com/watch?v=d7ETV4rPjyE>