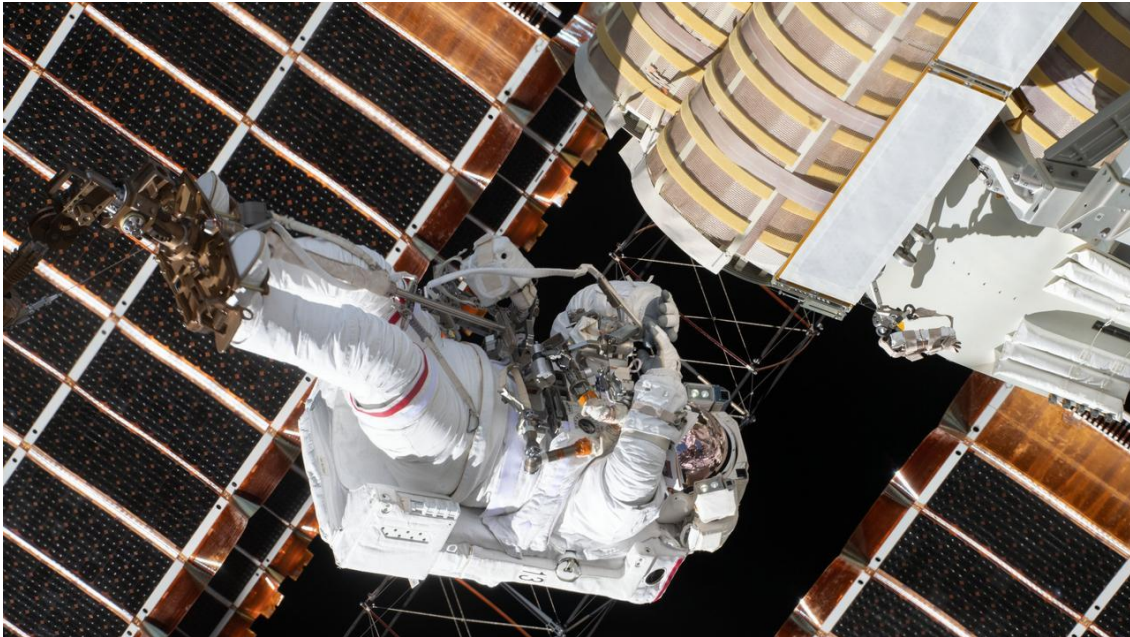


International Space Station scores new power boost from the Sun



Expedition 65 Flight Engineer Thomas Pesquet of ESA (European Space Agency) is pictured attached to an articulating portable foot restraint on the end of a robotic arm during the space walk to install new solar panels on the International Space Station. Picture: NASA.

Spacewalking astronauts **equipped** the International Space Station with powerful new solar panels on June 20, **overcoming** suit problems and other **obstacles**.

It took two spacewalks for French astronaut Thomas Pesquet and NASA astronaut Shane Kimbrough to install and **unfurl** the panel to its full 19 metres in length. The solar wing unrolled like a red carpet once the final set of bolts was released. The slow but steady extension took 10 minutes, with station cameras providing live TV views.



Spacewalkers Shane Kimbrough, left, and Thomas Pesquet work to complete the installation of a roll-out solar array on the International Space Station. Picture: NASA.

“It is beautiful,” Pesquet called out.

“Well done, both of you,” Mission Control replied once the operation was complete. “That was great to see.”

The astronauts started the 6.5 hour space walk picking up where they left off on June 16, when a series of problems prevented them from unrolling the hi-tech solar panel.

After pushing and tugging, the astronauts managed to unfold the solar panel so both halves **aligned** end to end, resembling a roll of paper towels. Their shouts of “Woo-hoo!” were met with applause in Mission Control.

The two could not make final power connections until they were back on the night side of Earth, when the station’s old solar panels stopped soaking up sunlight and generating power. They had to wait to avoid the possibility of electric shock.



Dwarfed by the International Space Station's main solar arrays, the astronauts work to complete the installation. Picture: NASA.

During the delay, the camera and light assembly on Kimbrough's helmet came loose, even though he was wearing a different suit to avoid the trouble he had last time. Pesquet did his best to secure it with wire ties and the effort paid off when the actual unfurling went off without incident.

This new solar wing — with five more to come — will give the ageing station a much-needed electrical boost, as demand for experiments and space tourism grows.

Pesquet and Kimbrough will go back out on June 25 to complete work on the second panel delivered by SpaceX earlier this month. This first pair adds to the space station's oldest solar wings, which are **degrading** after 20 years of continuous operation. SpaceX will deliver two more pairs over the next year.

Although smaller than the originals, the new solar panels supplied by Boeing generate considerably more power. The space station needs this re-energising if

NASA hopes to keep the space station running the rest of this decade, with private guests paying millions of dollars to come aboard.



The spacewalkers were forced to abandon the job unfinished days earlier after a series of problems. Despite a small suit issue, the second attempt was a success. Picture: NASA.

CHINESE ASTRONAUTS BOARD SPACE STATION MODULE IN HISTORIC MISSION

Three Chinese astronauts flew to an unfinished space station on June 17 in China's first crewed mission since 2016.

The astronauts rode on Shenzhou-12 and boarded the Tianhe module, which will be the eventual space station's living quarters. They will live in Tianhe for three months, the longest stay in low-Earth orbit by any Chinese national. The space station, due to be finished by the end of 2022, will be the only alternative to the American-led International Space Station (ISS), which may be retired in 2024 after two decades of operation.

If the ISS – backed mainly by the United States, Russia, Japan, Europe and Canada – is **decommissioned**, China would operate the only active space station,

potentially giving it greater power in shaping future norms and regulations for near-Earth space.



Astronauts from China's Manned Space Agency, left to right, Tang Hongbo, Liu Boming and Nie Haisheng wave at a departure ceremony before the launch of the Shenzhou-12 on June 17, 2021, marking the country's first manned mission in nearly five years. Picture: Kevin Frayer/Getty Images.

“At this current stage, we haven’t considered the participation of international astronauts, but their future participation will be guaranteed,” said Zhou Jianping, chief designer of China’s manned space program.

The Shenzhou-12 astronauts Nie Haisheng, 56, Liu Boming, 54, and Tang Hongbo, 45, will test technologies on Tianhe including its life-support system. They will also be monitored for how they fare in space physically and psychologically. An upcoming mission to the space station will last six months.

Former air force pilot Tang Hongbo, 45, trained for more than a decade before being selected for his first spaceflight on Shenzhou-12.

“I’ve waited for 11 years, and finally I’m ready, and I can contribute my strength,” Tang said.



The manned Shenzhou-12 spacecraft from China's Manned Space Agency safely rocket launches with the three astronauts on board. The crew will now stay in the Tianhe module for three months. Picture: Kevin Frayer/Getty Images.

GLOSSARY

- **equipped:** made ready, prepared for service
- **overcoming:** defeating, dealing with a problem successfully
- **obstacles:** something that blocks the way or stops progress
- **unfurl:** unroll, spread out
- **aligned:** placed or arranged in a straight line
- **degrading:** wearing out
- **decommissioned:** withdrawn, retired, dismantled

<p><u>Reading Task</u></p> <p>Synthesising: Synthesising is summarising the main ideas of a text into your own words. Remember, because it is a summary, it can not include any extra new information. Write a summary of the main points from this article in your own words.</p>	<p><u>Additional Reading Task</u></p> <ol style="list-style-type: none">1. How long was the panel the astronauts installed?2. Why does the International Space Station (ISS) need more power?3. How long has the ISS been operating?4. How long will the Chinese astronauts spend in space on this mission?5. What will the Shenzou-12 astronauts test on the Tianhe module?
<p><u>Writing Task</u></p> <p>Should Australia send more people to space?</p> <p>Do you agree or disagree? Write a persuasive text, convincing your audience to have the same views as you.</p>	<p><u>Additional Writing Task</u></p> <p>If you could interview an astronaut what would you ask them? Write 5 questions that you would ask an astronaut working on the International Space Station.</p>