

From **Z** to **A** – and back Zeehan Astronaut

Zeehan Primary School International Space Station Contact 20/3/2002

By Dick Van Beek VK7KVB

The International Space Station (ISS) has been of great interest to most people on planet Earth and in particular to the family of an eight-year-old boy, Thomas Lynd, in a little mining town on the West Coast of Tasmania. Thomas' Dad just happened to be an amateur, Bill VK7KHZ (his real name is Shane!) Thomas and Bill had spoken to Andy Thomas aboard MIR and listened to many passes when Andy spoke to other amateurs in Australia, so when hearing contacts from the new ISS the inevitable question arose, "When are we going to speak to the ISS, Dad?"

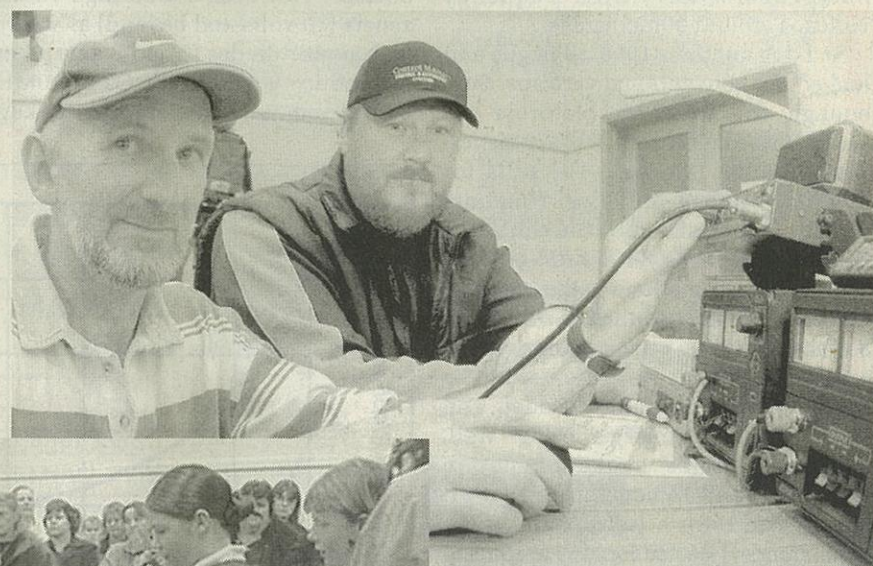
The Zeehan Primary School Principal Neville Barnard was asked if the school would be interested in making a contact with the ISS. "Yes", was the immediate answer. An application was made to ARISS (Amateur Radio International Space Station), approved and a date and time set. This would be a history making first for Australian Amateur Radio and the ARISS.

At about this time VK5ZAI Tony Hutchinson the Australian appointed coordinator of ARISS became more involved and as our appointed mentor was of an enormous help with his advice and continuous email updates.

Grade 5/6 was the lucky class, under the guidance of teacher Miss Kathryn Weidenhofer. This class was nearly at the end of an educational project

covering Communications and Space science so the potential ISS contact would fit in really well with the school curriculum. As the contact date approached the students worked out

questions they would ask, practised correct radio procedure with the aid of an obsolete microphone Bill had given them, and listened to audio files of other schools who had already made contact



Dick VK7KVB and Bill VK7KHZ operate the station for the students



Students queue up to ask questions of astronaut Carl Walz KC5TIE

with ISS. This "training" proved to be very worthwhile on the actual contact day.

One of the conditions of the ARISS contact was that we had 2 complete working stations so the following equipment was selected.

- 1 x 4 x 4 element crossed Yagi antenna at fixed azimuth on a tripod stand with a medium duty rotator, elevation was controlled manually.
- 1 x Quadrifilar Helix circular polarisation standby antenna.



Thomas Lynd closes the Station

- 1 x Alinco DR119t VHF radio with output set at 5 watts.
- 1 x Icom 251A multi mode standby radio. (The Alinco proved to receive better at FM than the Icom.)
- 1 x Tokyo High Power HL180v amplifier.
- 2 x Dick Smith 20 amp power supplies wired in parallel.
- 1 x 210 AH lead acid battery connected to the power supplies.
- 1 x PC (main use, record the contact.)
- 1 x Speaker phone

The big day arrived. By the time I got to the Zeehan Primary School Bill was already at work. We had planned to hold the event outside in the courtyard so people could watch the ISS as it passed overhead while the students spoke to astronaut Carl Walz KC5TIE. But the weather turned sour with high winds and heavy rain so the equipment was set up in the assembly hall. The wind had blown over and damaged the crossed Yagi antenna, so Bill and I completed its installation by anchoring

the tripod antenna stand to the flat roof with G clamps. The Quadrifilar Helix antenna was mounted to the side of the building and all antennas and feeders were checked. SWR on all antennas was below 1.2:1 despite the damp. Next the antennas were tested with the Tokyo High Power amplifier in line for a few minutes with no problems. Power out of the amplifier was 120 watts. Current

No ARISS contact had been made with any Australian school to date so this would be a history making first for Australian Amateur Radio and the International Space Station.

drawn was 30 amps when the Alinco was keyed up and amplifier on. The current was shared between two identical power supplies. The power supplies we used were variable voltage types so it was easy to set the voltage on one and then adjust the other until the amp meter read about the same, in this case about 15 amps per supply. If the mains failed we would fall back on the

210 amp hour battery. We had the radio equipment and antennas ready.

We wanted to record the contact and this was done using a P266 PC that had multimedia capabilities. An electret microphone plugged into the sound card was taped to an extension speaker that was connected to the Alinco radio we would use for the contact. Bill's son Benjamin was given the job of holding the microphone a set length from each person. This set up made it easy to record both sides of the conversation.

A phone was also required to be near the station so Tony VK5ZAI could assist if necessary, also we considered it beneficial to have access the Internet in the lead up to the contact, to keep an eye on the Web page that displayed the ISS tracking software. The phone worked OK but no matter what we did we could not get the modem to work. We learned later that the school used a 4wire commander telephone system. We really wanted to get the computer next to the radio gear on the Internet but this was not to be. The school had a computer set up not