

The real Star Wars

By Colin Johnston, Science Communicator

On 11 January, FY-1C, a derelict Chinese weather satellite, was quietly circling the Earth when a sudden and brutal assault smashed it into at least 900 pieces. Its attacker was a projectile launched by a ballistic missile as China's military tested its latest toy, an anti-satellite weapon or ASAT and converted one large piece of space junk into nearly a thousand little ones.

The experiment drew considerable international criticism, some of which was rather hypocritical. Throughout the Cold War both the U.S. and former Soviet Union developed various ASAT weapons. According to public sources none are ready for use at present. In the 1970s and 1980s the Russians maintained a fleet of Istrebital Sputnikovs ("satellite destroyers"). There are persistent and credible stories too that weapons were installed on several of the Salyut space stations. In 1985 the U.S. Air Force successfully destroyed the Solwind science spacecraft with a missile launched from a jet fighter. Admirably, alarmed by the possibility of a space arms race and the project's ever-expanding costs, the US Congress prevented the planned purchase of 112 of these weapons. In more recent years, the Pentagon has spent nearly \$400 million to develop a much more advanced "kinetic kill vehicle", although this project failed to produce any functioning hardware. Against this background the decision by the government of China, a rising world power, to test a space weapon seems like an attempt to keep with the other great powers.

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The protests against the test are completely justifiable. Earth orbit is filling up with human-made debris, ranging from worn-out but intact satellites through tools lost by spacewalking



Inspired by Science Fiction? This 1941 illustration by Leo Morey shows a similar principle to the Chinese ASAT in colourful action .

astronauts to microscopic fragments. These are essentially shrapnel from exploding satellites, a few were destroyed deliberately as part of American or Russian weapons tests, but most were accidents. There have been explosions of surplus fuel left in the satellite's tanks and more rarely faulty batteries have detonated, wrecking satellites. About two hundred such incidents have generated about 100 tonnes of fragments; all travelling around our planet faster than bullets. These are a significant and growing hazard to space travellers. In 1996 the French satellite Cerise was crippled by a collision with a piece of space junk. Manned spacecraft like the Shuttle have to make course changes to avoid known space debris but the threat is greatest from the unknown bits of debris, those too small to track. Sooner or later there will be a significant accident, perhaps even with human casualties, caused by such a particle. Deliberately adding to the dangerous cloud of junk above our heads was a deeply irresponsible act.

Apart from the practical objects, does anyone want a deadly new arms race in space? Thank-

fully there seems to be very few. In fact, in the USA military satellite operators have never wanted the complications the use of weapons in space would bring. Unfortunately the Chinese experiment may not only have endangered other space users by populating low Earth orbit with more shrapnel but it may provoke renewed experiments in space warfare from other nations. This would be sad indeed. Imagine the example it would set if instead the Chinese government

announced that it would not pursue such technology any further. Already the United Nations forbids nuclear weapons or other weapons of mass destruction being stationed in orbit. If other nations were shamed into following this lead into renouncing all weapons intended for use in space, we could see the beginnings of space as a demilitarized region (as Antarctica is, by international treaty). It may not happen, but it would be good if it did.