

Theme: Conquering Space

Text: Can Russia Fill NASA's shoes?

(by Anatoly Zak, IEEE Spectrum Online, 5 Feb 2003, www.spectrum.ieee.org/WEBONLY/wonews/feb03/colrussia.html)

In the wake of the Columbia space shuttle tragedy on 1 February, Russia is bracing to play an even bigger role in the space station's future. Late last year, as reported in the February issue of IEEE Spectrum, the Russian parliament boosted funding for the International Space Station (ISS), ensuring the nation's role in the project and guaranteeing the station's maintenance during 2003. But with NASA's fleet of space shuttles indefinitely grounded, Russia is the only nation capable of performing critical functions such as resupply, crew transport, and even helping keep the ISS aloft.

"The entire responsibility for maintaining the space station in the next couple of years will lay solely on the shoulders of the Russian space program," Sergei Gorbunov, spokesman at Rosaviacosmos told IEEE Spectrum in a telephone interview. [...]

The loss of the shuttle also places an additional burden on Russia to maintain, supply, and keep the station in orbit. Rosaviacosmos is studying the launch of additional Progress cargo ships to resupply the station.

But keeping the station in orbit is an equally pressing matter. Friction from the sparse atmosphere in the station's orbit causes it to slowly descend throughout the year. Ordinarily, the shuttle pushes the station back into position during visits.

NASA officials confirmed that the ISS will not require a reboost in 2003, but Russia might have to take this task over in 2004. Energia's Grigoriev, said that as many as six Russian cargo ships per year might be required, beginning in 2004, to keep the station in a stable orbit and deliver supplies for the crews in the absence of the shuttle.

Grigoriev said that no engineering issues exist that could prevent Russia from maintaining the ISS in 2003 or 2004. Additional funding might be required, however, to afford an increased number of Russian launches to the outpost during 2004. The production of a single Progress spacecraft (the craft are not reusable) costs around 170 million rubles (US\$6 million) not including the expendable launch vehicle. The Soyuz price tag is 230 million rubles (US\$ \$8 million). In comparison, a shuttle launch weighs in at about \$500 million.



Progress cargo ship

As of 3 February, Russian space officials had yet to consult with their U.S. colleagues on the possible course of action. According to Grigoriev, no high-level consultations would take place until Wednesday, 5 February, after the conclusion of memorial ceremonies in Houston.

Grigoriev said he learned about the Columbia disaster from TV reports; however, Vladimir Soloviev, the ISS flight director at Russian mission control in Korolev, knew about the accident almost immediately from communications with his colleagues in Houston. (436w)

Annotations:

2 IEEE Spectrum – magazine published by the Institute of Electrical and Electronics Engineers, Inc

8 Rosaviacosmos – (Association for) Russian Space Aviation **16** RKK Energia, a leading Russian contractor in the ISS project **21** outpost – ISS **22** expendable – not being reused **23** weighs in at –

costs

Assignments:

1. What factors change the future of the ISS according to the text?
2. To what extent are the Russians able to "fill NASA's shoes"? (What are the pros and cons of what the Russians have to offer to NASA? To answer the question, use the information provided in the text and the knowledge that you acquired in the lessons.)
3. How important do you find the continuation of manned missions on board the ISS (and beyond)?