Statement of
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National Aeronautics and Space Administration
before the
Subcommittee on Science, Technology, and Space
Committee on Commerce, Science, and Transportation
United States Senate
June 19, 2002

I appreciate the opportunity to appear before the Subcommittee today to share my thoughts on the power of space flight as a tool for inspiring the next generation of explorers. During my five space flights, including 167 days on the second expedition to the International Space Station, my crewmates Susan Helms, Yury Usachev and I had the opportunity to interact with teachers and their students and to conduct education activities that I know inspired and motivated them.

The International Space Station provides a permanent orbiting classroom that brings education and research out of textbooks and into real life. The microgravity environment is the perfect classroom to demonstrate basic principles like Newton's Laws of motion. By integrating flight activities with inquiry-based learning, NASA offers students and educators the opportunity to participate in space missions and develop teamwork, communication, and problem solving skills.

NASA's in-flight education programs use the unique environment of space to inspire the next generation of explorers. Using tools of modern technology – including the Internet, a digital camera, and amateur radio and video downlinks – students are able to study and explore Earth from space, learn about life aboard an orbiting laboratory, and conduct demonstrations that illustrate scientific and mathematic concepts.

One of the educational payloads utilized on board the Space Station is the Earth Knowledge Acquired by Middle School Students (EarthKAM) program. EarthKAM is a NASA education program that enables students, teachers and the public to learn about Earth from the unique perspective of space. The image library and accompanying learning guides and activities are available to the public and support classes in Earth science, space science, geography, social studies and mathematics.

During Expedition 2, I set up the EarthKAM camera and conducted technical checkouts of the hardware. Our crew conducted the first operational cycles of EarthKAM onboard the ISS, and during the nine days it was operational 488 images were acquired. The EarthKAM imagery sites were selected by students and the camera was controlled in a way that very closely follows the process we use in conducting other scientific research. It is tremendously rewarding to know that these images were used by students nationwide to conduct earth and

space research investigations in their classrooms.

While in space I also communicated with students using the Amateur Radio on the ISS (ARISS). ARISS is a NASA education program that offers the opportunity for students to experience the excitement of space flight by talking directly with crewmembers of the ISS via amateur radio. During the year and a half that we have had humans on board the International Space Station crews have had contacts with 65 schools in 26 states and 10 countries. These contacts involved astronaut crews on board answering questions asked by students while over 15,000 of their classmates listened. Many of the contacts were broadcast live over the Internet and most were covered by local, state and national news media. A typical reaction to the impact of one of these educational outreach contacts can be seen in a note I received from Mr. Allen White who coordinated my contact with Admiral Moorer Middle School in Eufaula, Alabama. Mr. White wrote:

"Did the contact with the ISS have educational benefits? YES! Would we spend the time and preparation to do it again? YES! There is no way I can adequately describe the excitement this created in our school and community. I think this was the most exciting educational event of the year for these students. Nearly a hundred students submitted questions. All three of the science teachers at AMMS, the principal and school administrators supported this effort in every way possible. Interest in the space studies unit was heightened. The U.S. Space program and the ISS became real to both the students and our community because our kids actually talked directly to an astronaut in space! The space program was no longer just something they had read about. This event was the talk of the town for weeks!"

We also had the opportunity to conduct NASA Spaceflight Education Opportunities . This is a NASA education program that facilitates live, interactive programs between crewmembers onboard the ISS and students and educators in classrooms around the world. Expedition 2 participated in four live, interactive programs during their mission. These included the following:

- Sioux City, Iowa – May 15, 200l. Topic: Research on the ISS.
- San Francisco Exploratorium – May 23, 2001. Topic: Living in space and radiation.
- NASDA (Japanese Space Agency) – June 6, 2001. Topic: Life onboard the ISS.
- Cooper-Hewitt Design Institute, New York, NY – June 26, 2001. Topic: Technology and design.

In addition to the live programs, Expedition 2 downlinked an opening message for the Space Day 2001 activities.

NASA's Education Program is comprehensive and reaches beyond the K-12 education community to university students, faculty members and the public as well. In 1980, while teaching at the US Military Academy, I had the opportunity to be a participant in the NASA Faculty Fellowship Program. Through this program I was able to gain research experience and participate in valuable collaborations with NASA researchers. An educational product of the ISS Program is the IMAX 3D Space Station film which was made in large part by astronauts on board the Space Station and has helped educate the general public on the assembly of the

ISS and life in space. This Fall during the World Space Congress NASA will be leading the way in distance learning with an educational downlink from the Expedition 5 crew.

Space exploration is a powerful motivator for young people and is a tremendous tool for teachers. I am extremely proud of the work that NASA has done to maximize our country's investment in the Space Shuttle and International Space Station by using them as education platforms. Students, teachers, faculty, and the public will continue to be inspired, motivated, and taught using these national space assets.