MICROGRAVITY SCIENCES AND PROCESSES (A2)
Microgravity Experiments from Sub-orbital to Orbital Platforms (3)

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A TOP-LEVEL SUMMARY OF MICROGRAVITY RESEARCH WHICH WOULD BENEFIT FROM COMMERCIAL SUBORBITAL PLATFORMS AND WHAT THE NASA COMMERCIAL REUSABLE SUBORBITAL RESEARCH (CRUSR) PROGRAM IS DOING TO HELP

Abstract

The Next-Generation Suborbital Research Conference was held in Boulder, CO on the 18th - 20th of February, 2010. The 250+ attendees included researchers, technologists, educators, and representatives from commercial suborbital providers such as Virgin Galactic, Blue Origin, Masten Space Systems, and XCOR Aerospace.

The conference presented many of the benefits of using commercial reusable suborbital vehicles for suborbital science. For atmospheric science, these vehicles provide an easy way to access the mesosphere and thermosphere. Traditional microgravity experiments in the physical sciences can benefit from order of magnitude improvements in experiment duration as well as the ability to repeat experiments frequently. Biomedical data can be collected from space tourists – a group that is much larger and more diverse than that of the astronauts that have flown to date. Observations from suborbital telescopes have an advantage over orbiting telescopes for observations pointed at the sun since space telescopes like Hubble and Spitzer have large solar exclusion angles.

NASA's Deputy Administrator Lori Garver and NASA Ames Center Director Pete Worden were among the keynote speakers. Ms. Garver announced that NASA's budget for 2011 would include 15 million dollars in funding for NASA's Commercial Reusable Suborbital Research (CRuSR) effort.

Many only see commercial reusable suborbital vehicles as a method for transporting and entertaining space tourists. This paper gives a top-level description of many areas of valuable research which can take advantage of these vehicles and what the enhanced NASA CRuSR effort within the Office of the Chief Technologist's Flight Opportunities Program is doing to facilitate this research.