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Release No: APR-245
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Aurora Awarded Contract for Titan Balloon Buoyancy Modulation System

CAMBRIDGE, MA, January 14, 2010 – Aurora Flight Sciences announced today it has been selected by NASA for a Small Business Innovative Research (SBIR) Phase 1 project to develop a rapid buoyancy modulation system (BMS) for a hot air, or Montgolfiere, balloon operating on Titan, a moon of Saturn. Balloons are potentially useful vehicles for exploration in the dense atmosphere of Titan. Current NASA concepts for Titan balloon systems utilize the waste heat from a radioisotope power system to provide their buoyancy, but a major drawback to that approach is that the balloon is unable to make sudden changes in altitude. This ultimately limits the balloon’s utility. Aurora has, instead, proposed the use of chemical reactions to provide intermittent heat input to interior gases and improve the balloon’s maneuvering capability.

Aurora’s concept consists of an open air burner, similar to that found on terrestrial hot air balloons, which combusts onboard stored oxygen with atmospheric gas to provide rapid heat input—up to ten times higher than the balloon’s primary heat source. To promote stable combustion of the Titan “air”, which contains roughly 4% methane by volume, a catalytic reactor technology will be used to provide a pilot flame for the main burner. “We believe that an air-breathing system is key to providing extended mission duration and a lightweight and low volume solution,” said Dr. James Sisco, the program’s principal investigator. “This technology could be a key enabler for future balloon missions to Titan.”

The BMS project will be executed in collaboration with NASA’s Jet Propulsion Laboratory, and will build upon Aurora’s prior experience in catalytic combustor development for terrestrial propulsion systems.

About Aurora Flight Sciences

Aurora Flight Sciences designs and builds robotic aircraft and other advanced aerospace vehicles for scientific and military applications. Aurora is headquartered in Manassas, VA and operates production plants in Bridgeport, WV and Columbus, MS and a Research and Development Center in Cambridge, MA. To view recent press releases and more about Aurora please visit our web site at www.aurora.aero.

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