Innovations in materials, structures, and systems concepts have enabled buoyant vehicles to play an expanding role in NASA's Science Mission Directorate and Exploration Systems Mission Directorate. A new generation of large, stratospheric balloons, based on advanced balloon envelope technologies, will be able to deliver payloads of several thousand kilograms to above 99.9% of the Earth's absorbing atmosphere and maintain them there for months of continuous observation. NASA is seeking innovative and cost-effective solutions in support of terrestrial balloons in the following areas:

- Innovative concepts for trajectory control and/or station keeping for effectively maneuvering large terrestrial balloons in either the horizontal latitude or vertical altitude plane or both;

- Innovative floatation systems for water recovery of NASA's scientific payloads;

- Innovative guided or gliding parachutes systems for use in thin atmospheres.