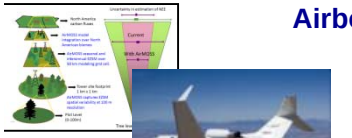
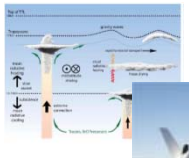
Earth Venture-1 Selection Summaries




Airborne Microwave Observatory of Subcanopy and Subsurface (AirMOSS) – USC/JPL

PI: Mahta Moghaddam, USC

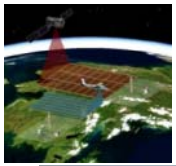
North American ecosystems are critical components of the global carbon budget. To better understand the size of terrestrial/atmospheric carbon exchange on a continental scale, this investigation addresses a major uncertainty in existing estimates by measuring soil moisture in the root zone of major North American ecosystems. Investigators will use NASA's Gulfstream-III aircraft to fly a new synthetic aperture p-band radar that can penetrate vegetation and soil to depths up to several feet.




Airborne Tropical Tropopause Experiment (ATTREX) – ARC

PI: Eric Jensen, NASA Ames

Water vapor in the stratosphere has a large impact on Earth's climate, the ozone layer and how much solar energy the Earth retains. To improve our understanding of the processes that control the flow of water vapor and trace gases upwards from the lower atmosphere, investigators will sample the Tropical tropopause transition layer from NASA's Global Hawk remotely piloted aerial system. These flights will study the convective, chemical and physical processes that add water vapor to the stratosphere.




Carbon in Arctic Reservoirs Vulnerability Experiment (CARVE) – JPL

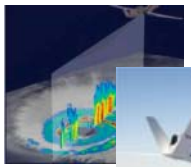
PI: Chip Miller, JPL

This investigation will collect the first simultaneous measurements of surface properties and trace gas data that will provide insights into Arctic carbon cycle response to warming, especially the release of the greenhouse gases carbon dioxide and methane as permafrost melts. Trace gas sensors and an infrared camera will be flown on a C-23 Sherpa aircraft in Alaska during multiple deployments from Spring thaw to Autumn refreeze.


Deriving Information on Surface Conditions from COlumn and VERtically Resolved Observations Relevant to Air Quality (DISCOVER-AQ) – LaRC

PI: James Crawford, NASA Langley

The overarching objective of the DISCOVER-AQ investigation is to improve the interpretation of satellite air quality observations to enable diagnosis of near-surface conditions. NASA's King Air and P-3B research aircraft will fly together to sample columns of the atmosphere over instrumented ground stations, linking “nose-level” air quality data to the satellite observations.




Hurricane and Severe Storm Sentinel (HS3) – GSFC/ARC

PI: Scott Braun, NASA Goddard

The prediction of the intensity of hurricanes is not as reliable as predictions of the location of hurricane landfall, in large part because of our poor understanding of the processes involved in intensity change. This investigation focuses on studying hurricane intensity changes in the Atlantic Ocean basin using sensors on two NASA Global Hawks, flying high above storms and the storm environment for up to 30 hours each.