Titan Strawman Payload Options
(incl. some from *Titan Explorer* and *TandEM* proposals)

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Solid Surface Experiments

- Seismometer: 2.8kg, 3W
- Meteorology Package: 2kg, 2W
  - Electrical properties (permittivity, conductivity, lightning detection)
  - Wind speed and direction
  - Atmospheric Pressure / acoustic expt
  - Atmospheric Temperature
  - Dew point methane humidity sensor
- Mass Spectrometry systems, incl. stable isotope analysis: 30kg, 40-100W
- Radio science (USO)
- Close-up / microscopic imaging / imaging Vis-IR: 1kg, 2W
- Descent Imaging (+ illumination?): 2kg, 10W
- Panoramic Imaging + filters: 4kg, 5W
- Point NIR Spectrometer: 5kg, 6W
- Raman / LIBS: 1.5kg, 4W
- Magnetometer: 2.5kg, 4W
- Subsurface temperature profile & thermal conductivity (i.e. heat flow): 4kg, 10W
- XRD / XRFS: 2kg, 2W?
- Robotic Arm: 10kg, 5-20W
- Surface material properties (soil mechanics)

Liquid Surface Experiments

- Wind speed: 1kg, 2W?
- Mass Spectrometry systems, incl. stable isotope analysis: 20kg, 30-80W
- Sonar: 2kg, 20W?
- Radio science (USO)
- Descent Imaging (+ illumination?): 2kg, 10W
- Spectrophotometer: 2kg, 4W?
- Wave motion sensors: 0.5kg, 2W
- Speed of sound: 0.5kg, 2W?
- Refractive index of surface liquid: 0.5kg, 2W?
- Liquid thermal conductivity: 0.5kg, 2W?
- Atmospheric & Liquid Temperature: 0.5kg, 2W?
- …?

Entry / Descent / Gondola Experiments

- Atmospheric entry and descent accelerometry / dynamics: 0.3kg, 1.7W
- Balloon Visible Imager (+ illumination?): 2kg, 10W
- Atmospheric Structure / Meteorology package: 3kg, 4W
  - Dew point methane humidity sensor
  - Electrical properties (permittivity, conductivity, lightning detection)
  - Vertical wind speed
  - Atmospheric Pressure / acoustic expt
  - Atmospheric Temperature
  - Speed of sound?
- Tuneable Laser Spectrometer / Nephelometer (/ LIDAR?) for cloud / aerosol particles: 4kg, 40W
- Laser Altimeter: 5kg, 7W
- Gradiometer: 1kg, 0.5W
- Ground penetrating radar: 5-9kg, 10-15W
- Radio science (USO)
- Mass Spectrometry systems (gas, cloud / aerosol, + surface solid / liquid sampling), incl. stable isotope analysis: 4-10kg, 30W?
- Vis / NIR Spectrophotometer: 7kg, 15W
- Raman / LIBS: 1.5kg, 4W
- Magnetometer: 1kg, 2W

Subsystems

- Separation mechanism
- Entry shell
- Parachute & descent control system
- Landing (feet, airbags, crushable structure,…)
- Inflation (balloon envelope,…)
- Structure
- Thermal
- Power
- Communications & antenna
- Command & Data Handling
- Sample acquisition (robotic arm, mole, tethered sampler, drinking straw,…)
- Sample handling and distribution (crushers, ovens, carousel,…)