Juno with Belgium

The United States National Aeronautics and Space Administration (NASA) and the Belgian Centre Spatial de Liège (CSL), with the support of the Belgian Federal Science Policy Office (BELSPO), have expressed a mutual interest in collaborating on NASA's Juno mission. NASA and CSL have previously completed successful cooperation on space missions, including the Imager for Magnetopause-to-Aurora Global Exploration (IMAGE) mission. NASA selected the Juno mission in May 2005 under a New Frontiers Program Announcement of Opportunity (AO-03-OSS-03). The Juno mission will launch in August 2011 and, after arriving at Jupiter in October 2016, will orbit Jupiter's poles while taking a multitude of measurements.

The Juno mission will further our understanding of planetary and solar system formation by studying the origin and evolution of Jupiter. Juno will probe Jupiter's interior structure, atmospheric composition and dynamics, and polar magnetosphere. Using a spinning, solar-powered spacecraft, Juno will make global maps of the gravity, magnetic fields, and atmospheric composition of Jupiter from a unique polar orbit with a close perijove. Juno will carry precise, high-sensitivity radiometers, spectrometers, magnetometers, and gravity science systems and its 30 science orbits will extensively sample Jupiter's full range of latitudes and longitudes. From its polar perspective, Juno will also combine in situ and remote sensing observations to explore the polar magnetosphere and determine what drives Jupiter's remarkable auroras.

Dr. Scott Bolton of the Southwest Research Institute in San Antonio, Texas, is the Juno Principal Investigator (PI). Dr. Bolton has assembled an international team of experts to develop the Juno instruments and to carry out the scientific investigations. The international Juno team includes participants from the United States, Belgium, Italy, France, and Denmark. This Agreement will cover the Belgian contributions to the Juno mission, specifically the contribution of the Scan Mirror Assembly to the Juno Ultra-Violet Spectrometer (UVS).

The Juno-UVS is an imaging spectrograph with a spectral bandpass that spans a wavelength range in the extreme (EUV) and far ultraviolet (FUV) of 70-205 nm. This wavelength range covers the UV emissions from H2 bands and the H Lyman series, and includes Rayleigh scattered sunlight at wavelengths sensitive to absorption signatures of aurorally-produced hydrocarbons. Juno-UVS will remotely sense Jupiter's auroral morphology and brightness, provide a context for the in-situ measurements, and map the mean energy and flux of precipitating particles.

The purpose of this letter is to establish a Letter of Agreement (LOA), hereinafter referred to as "the Agreement," which will allow NASA and CSL, hereinafter referred to as "the Parties," to collaborate on the Juno project. The Agreement defines the Parties' responsibilities and the terms and conditions for the collaboration.

RESPONSIBILITIES

To implement this collaboration, NASA will use reasonable efforts to:

1. manage and conduct the Juno project throughout the life of the mission, including development, integration, test, launch, and operations of the Juno spacecraft,

2. support the development of the UVS instrument as outlined in Southwest Research Institute Document No 12029.04-MOU-01, Rev2 Chg0 (NASA contract number NNM06AA75C),

3. supply two flight scan mirror interface boards (SMIBs) and flight interface cables,

4. supply engineering and flight model failsafe actuators for the scan mirror assembly (SMA) mechanisms,

5. include Prof. Jean-Claude Gérard as member of the Juno-UVS science team and provide him and his collaborators access to the UVS science data, in accordance with Southwest Research Institute Document No 12029.04-MOU-01, Rev2 Chg0, and

6. consistent with the Committee on Space Research (COSPAR) guidelines, if necessary, provide CSL with specific planetary protection guidance and requirements through a planetary protection implementation plan.

To implement this collaboration, CSL will use reasonable efforts to:

1. deliver one engineering SMA (commercial grade mirror, motor, and mechanism), two engineering SMIB control cards (including two interface cables), and two SMA flight models each including a flight mirror, motor, mechanism, and interface test cable,

2. design, fabricate, develop, test, qualify, calibrate, and deliver the Juno-UVS SMA, including a flat relay mirror, stepper motor, flight SMIB, failsafe actuator (as delivered under NASA responsibility 3 and 4 above), and interconnect cable, as well as provide scan mirror characterization and environmental testing, and operations support throughout the life of the mission,

3. complete specific detailed duties and tasks as outlined in Southwest Research Institute Document No 12029.04-MOU-01, Rev2 Chg0 (NASA contract number NNM06AA75C),

4. provide technical support as needed during instrument integration and test as outlined in Southwest Research Institute Document No 12029.04-MOU-01, Rev2 Chg0 (NASA contract number NNM06AA75C),

5. provide bi-monthly progress reports to the Juno-UVS team and updates to the project schedule as necessary,

6. provide suggestions to NASA and the Juno PI on a candidate name(s) of Belgian scientists to participate in the Juno-UVS science team, and

7. implement planetary protection requirements, as necessary, if and when specific requirements are provided by NASA in the planetary protection implementation plan.