

Dwayne Brown
Headquarters, Washington
202-358-1726
dwayne.c.brown@nasa.gov

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Monica Talevi
European Space Agency, Noordwijk, The Netherlands
31-71-565-3223
monica.talevi@esa.int

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NASA AND ESA SELECT SCIENCE INVESTIGATIONS FOR SOLAR ORBITER

WASHINGTON -- NASA and the European Space Agency have selected 10 proposals for science instruments to fly aboard a spacecraft that will study the sun from a unique vantage point in space.

The European-led mission, called the Solar Orbiter, will be positioned about one-fourth the distance Earth is from the sun. The location ultimately will enhance the ability for scientists worldwide to forecast space weather.

Space weather can produce electromagnetic fields on Earth that induce extreme currents in wires, disrupting power lines, causing wide-spread blackouts and affecting communication cables that support the Internet. Severe space weather also produces energetic solar particles and the dislocation of Earth's radiation belts, which can damage satellites used for commercial communications, global positioning and weather forecasting. Additionally, space weather poses risks to astronauts.

"These selections provide the highest scientific value to help answer questions about our life giving star, the sun," said Dick Fisher, director for NASA's Heliophysics Division in Washington. "This collaboration will create a new chapter in heliophysics research and provide a strong partnership with the international science community to complement future robotic and human exploration activities."

The continued development of the selected investigations beyond initial design of the instruments, known as Phase A, will depend on technical feasibility, cost and schedule commitments from the principal investigators. Continuation also will depend on available NASA program funds and ESA's Cosmic Vision mission down-selection process to be completed in early 2010.

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"The announcement of the preliminary payload selection for Solar Orbiter is a positive step toward the realization of a joint mission aimed at collecting unprecedented data about our star," said Marcello Coradini, ESA coordinator for solar system missions in Paris. "We are delighted to continue our tradition of partnership with NASA, which already has enabled us to carry out extraordinary scientific missions."

Of the 10 selected instrument proposals, three will receive NASA funding:

* Solar Orbiter Heliospheric Imager; Russell Howard, principal investigator, Naval Research Laboratory in Washington. This instrument will provide revolutionary measurements to pinpoint coronal mass ejections or CMEs. CME's are violent eruptions with masses greater than a few billion tons. They travel from 60 to more than 2,000 miles per second. They have been compared to hurricanes because of the widespread disruption of communications and power systems they can cause when directed at Earth.

* Spectral Imaging of the Coronal Environment; Donald Hassler, principal investigator, Southwest Research Institute in Boulder, Colo. This instrument will provide an extreme ultraviolet spectrometer or optical instrument that will measure different wavelengths of light emitted from the sun. Data will advance our knowledge of the sun's dynamics to better understand the effects on Earth and the solar system.

* Suprathermal Ion Spectrograph; lead co-investigator Glenn Mason, Applied Physics Laboratory in Columbia, Md. This experiment will measure energetic particles ejected from the sun. Data will be compared to other solar and interplanetary processes to understand solar system space weather. Understanding the connections between the sun and its planets will allow better prediction of the impacts of solar activity on humans, technological systems and even the presence of life itself in the universe.

The investigations are part of NASA's Living with a Star Program. The program is designed to understand how and why the sun varies, how planetary systems respond and the effect on human space and Earth activities. NASA's Goddard Space Flight Center in Greenbelt, Md., manages the program for the agency's Heliophysics Division of the Science Mission Directorate.

For more information about the Living with a Star Program, visit:

<http://lws.gsfc.nasa.gov>