

NASA Selects Ball Aerospace for ECCCO Mission Concept Study

BROOMFIELD, Colo., Dec. 18, 2023 [/PRNewswire/](#) -- Ball Aerospace was selected to conduct a Phase A study for NASA's proposed Extreme ultraviolet Coronal Mass Ejection and Coronal Connectivity Observatory (ECCCO), a mission that would provide astronomers with a better understanding of the sun's coronal structure and its relationship with solar wind and eruptive events.

The proposed mission would use a wide-field extreme ultraviolet (EUV) imager (ECCCO-I) and a pair of imaging EUV spectrographs (ECCCO-S) to provide the first continuous, high-contrast observations of the middle corona, the outermost layer of the sun's atmosphere. While there is instrumentation in place to observe the inner and outer corona, the middle corona — and how eruptive phenomena shape within it — remains largely a mystery for researchers.

Through a combination of advanced imaging and spectroscopy, the ECCCO mission seeks to uncover new insights into the physical transitions occurring within the middle corona to determine the sources, release, dynamics and acceleration of outward streaming solar wind and major eruptions like coronal mass ejections.

"The middle corona is one of the least explored and little understood regions of the solar atmosphere," said Dr. Alberto Conti, vice president and general manager, Civil Space, Ball Aerospace. "The ECCCO mission would finally fill a major observational gap for the scientific community, expanding our knowledge about the transformations of matter and energy taking place within the sun's middle corona."

Katharine Reeves, a solar astrophysicist with the Smithsonian Astrophysical Observatory (SAO) — part of the Center for Astrophysics | Harvard & Smithsonian — will serve as the principal investigator for the study. If the mission moves forward, Ball Aerospace will design and build the spacecraft in addition to leading integration and environmental testing. SAO will be responsible for designing and delivering the imager and spectrometers, in addition to leading science planning for the mission, supporting payload operations and archiving flight data among other tasks.

In addition to ECCCO, Ball Aerospace was also selected to conduct a concept study for NASA's Chromospheric Magnetism Explorer (CMEx) mission, which seeks to determine the influence of the sun's magnetic field on eruption events. Both the ECCCO and CMEx studies are part of NASA's Small Explorers (SMEX) program. If NASA chooses to pursue either project after the studies, they would join the administration's [heliophysics mission fleet](#).

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