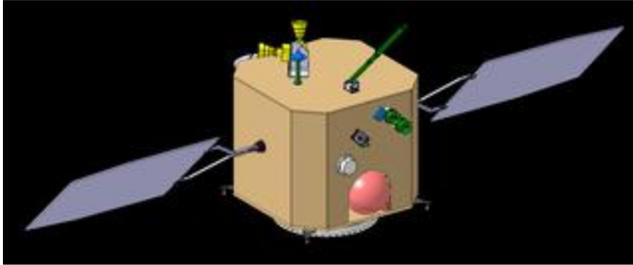


NASA Selects ‘ShadowCam’ to Fly on Korea Pathfinder Lunar Orbiter

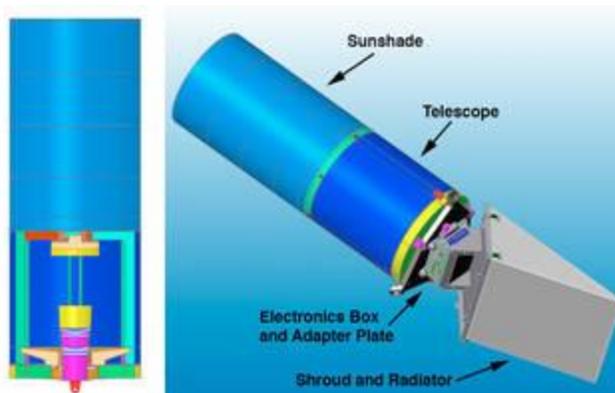


The KPLO spacecraft will carry a total of five instruments to lunar orbit—four from South Korea and one from NASA (developed by Arizona State University and Malin Space Science Systems).

Credits: Korea Aerospace Research Institute (KARI)

NASA has selected an instrument developed by investigators at Arizona State University and Malin Space Science Systems as a U.S. contribution to the Korea Aerospace Research Institute’s (KARI) first lunar exploration mission, Korea Pathfinder Lunar Orbiter (KPLO). ShadowCam will address [Strategic Knowledge Gaps](#), or lack of information required to reduce risk, increase effectiveness, and improve the designs of future human and robotic missions. ShadowCam joins four KARI-developed instruments on KPLO.

KARI, headquartered in Daejeon, South Korea, provided NASA with about 33 pounds (15 kilograms) of payload mass aboard the KPLO, which is scheduled to launch into lunar orbit in December 2018. In September 2016, [NASA issued a solicitation](#) seeking science instruments that could increase our understanding of the distribution of volatiles, such as water, including the movement of such resources toward permanently shadowed regions and how they become trapped there.



The ShadowCam instrument will acquire images of shadowed regions of the moon using a high-resolution camera, telescope, and highly sensitive sensors.

Credits: Arizona State University / Malin Space Science Systems

“Permanently shadowed regions have been a mystery because the perpetually dark interiors are difficult to image and existing research offers varying interpretations regarding the distribution of volatiles within these cold regions,” says Jason Crusan, Director of NASA’s [Advanced Exploration Systems Division](#) at NASA Headquarters in Washington, D.C. “Future missions in deep space will be safer and more affordable if we have the capability to harvest lunar resources, and ShadowCam has the potential to greatly increase our understanding of the quality and abundance of those resources in these regions.”

ShadowCam will map the reflectance within the permanently shadowed regions to search for evidence of frost or ice deposits. The instrument’s optical camera is based on the [Lunar Reconnaissance Orbiter](#) Narrow Angle Camera, but is 800 times more sensitive, allowing it to obtain high-resolution, high signal-to-noise imaging of the moon’s permanently shadowed regions. ShadowCam will observe the PSRs monthly to detect seasonal changes and measure the terrain inside the craters, including the distribution of boulders.

“We are pleased with the addition of NASA’s ShadowCam instrument,” says Dr. Seok Weon Choi, Director of the Lunar Exploration Program Office at KARI. “KPLO is an exciting mission and will reveal much about the moon for us and our spacefaring partners.”

NASA’s Advanced Exploration Systems Division (AES) led the payload solicitation and selection for the NASA instrument on KPLO. A division of the Human Exploration and Operations Mission Directorate, AES uses innovative approaches and public-private partnerships to rapidly develop prototype systems, advance key capabilities, and validate operational concepts for future human missions beyond Earth orbit. Through this partnership opportunity with KARI, AES is addressing key lunar SKGs while complementing KARI’s primary mission objectives and instruments.

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