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Press release

NASA selects SuperCam instrument for Mars 2020 mission

NASA, the U.S. space agency, announced today that SuperCam has been selected as part of the suite of scientific instruments to equip the rover for the Mars 2020 mission, of similar design to the Curiosity rover and its ChemCam instrument currently operating on the surface of the red planet.

This new SuperCam instrument is the result of close scientific cooperation between teams led by Dr Roger Wiens at the U.S. Los Alamos National Laboratory (LANL) and Dr Sylvestre Maurice at the IRAP astrophysics and planetology research institute in Toulouse, France, with a contribution from the team of Professor Fernando Rull at Valladolid University, Spain.

Overseen by CNES, the French contribution to this mission will be designed and built by IRAP (CNRS, Paul Sabatier Toulouse III University) in partnership with numerous other French laboratories*.

The instrument will be delivered in December 2018 to NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California, where it will be mounted on the rover largely based on the same design as Curiosity. It follows on from the joint construction by JPL and CNES of the ChemCam instrument operating on the Curiosity Mars rover for two years now. The Mars 2020 mission will launch in July 2020 and land on Mars in February 2021. Surface operations are then scheduled to last until August 2023.

SuperCam is a planetology instrument that will be placed atop the rover's mast to analyse the chemistry of Martian rocks remotely. It combines a number of complementary subsystems:

- a laser-induced breakdown spectrometer (LIBS) to analyse the elemental composition of target rocks
- Raman and infrared spectrometers to identify mineral phases and detect any organic matter
- a colour camera capable of acquiring very-high-definition imagery to identify rock texture and provide context for spectrometry analyses

SuperCam will be a vital instrument for studying the surface of Mars in all its geological diversity and detecting any 'biosignatures' that would indicate traces of past life.

The rover will be equipped with a 'caching' system to collect and conserve samples of Martian soil. SuperCam will also be one of the key instruments used to characterize and select samples for retrieval by later missions and return to Earth.

* French laboratories contributing to the SuperCam project

- Midi-Pyrenees Observatory (Paul Sabatier Toulouse III University / CNRS / CNES / IRD / Meteo France
- IRAP astrophysics and planetology research institute (CNRS / Paul Sabatier Toulouse III University)
- LESIA space and astrophysics instrumentation research laboratory (CNRS / Paris Observatory / UPMC / Paris-Diderot University)
- LAB astrophysics laboratory, Bordeaux (CNRS / Bordeaux University)
- LATMOS atmospheres, environments and space observations laboratory (CNRS / UVSQ)
- IAS space astrophysics institute (CNRS / Paris Sud University)
- IPAG planetology and astrophysics institute, Grenoble (CNRS / Joseph Fourier University)
- ISTerre Earth sciences institute (CNRS / Savoie University / Joseph Fourier University / IRD / IFSTTAR)
- CEA, the French atomic energy and alternative energies commission
- IMPMC mineralogy, materials physics and cosmochemistry institute (CNRS / French Natural History Museum, UPMC / IRD)
- LPGN planetology and geodynamics laboratory, Nantes (CNRS / Nantes University / Angers University)
- LGLTPE Earth, planets and environment geology laboratory, Lyon (CNRS / Claude Bernard Lyon I University / ENS Lyon)
- LOMA waves and materials laboratory, Aquitaine (CNRS / Bordeaux University)
- Georesources Laboratory (Lorraine University / CNRS / CREGU)

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