UNDERSTANDING THE CORRELATION OF LIBS AND ACOUSTIC MEASUREMENTS OF ROCKS AND SOILS FOUND IN THE TRAVERSE OF THE PERSEVERANCE ROVER ACROSS THE JEZERO CRATER, MARS

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The SuperCam instrument of the NASA MARS 2020 Perseverance rover combines a suite of atomic and molecular spectroscopies intended for an extensive description of rocks, soils and minerals in the surroundings of the landing site of the mission – the Jezero crater. The microphone installed on the SuperCam instrument allows the acquisition of acoustic signals resulting from the expansion of laser-induced plasmas towards the atmosphere. Apart from being affected by the propagation characteristics of the Mars atmosphere, the acoustic signal has an additional component related to the properties of the target including surface morphology, hardness, deformation parameters, and elasticity, among others. This information is currently being investigated as a complementary resource for characterization of the ablated material and may well supplement the LIBS data gathered from coincident laser shots. This talk will present SuperCam acoustic data of rocks and minerals found in the traverse of the Perseverance rover and will discuss its correlation with LIBS spectra.

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