EPSC Abstracts
Vol. 13, EPSC-DPS2019-235-1, 2019
EPSC-DPS Joint Meeting 2019

EPSC
EPSC-DPS Joint Meeting 2019
15–20 September 2019 | Geneva, Switzerland

The PanCam instrument for the Rosalind Franklin (ExoMars 2020) rover

Andrew Coates, and the ExoMars 2020 PanCam team*
Mullard Space Science Laboratory, University College London, Holmbury St Mary, Dorking, RH5 6NT, UK
(a.coates@ucl.ac.uk)

Abstract

The scientific objectives of the ExoMars Rosalind Franklin rover [1] are designed to answer several key questions in the search for life on Mars. In particular, the unique subsurface drill will address some of these questions for the first time, such as the possible existence and stability of sub-surface organics. PanCam [2] will establish the surface geological and morphological context for the mission, working in collaboration with other context instruments. Here, we describe the Pan-Cam scientific objectives in geology, atmospheric sci-ence and 3D vision. We discuss the design of Pan-Cam, which includes a stereo pair of Wide Angle Cameras (WACs), each of which has an 11 position filter wheel, and a High Resolution Camera (HRC) for high resolution investigations of rock texture at a dis-tance. The cameras and electronics are housed in an optical bench that provides the mechanical interface to the rover mast and a planetary protection barrier. The electronic interface is via the PanCam Interface Unit (PIU), and power conditioning is via a DC-DC converter. PanCam also includes a calibration target mounted on the rover deck for radiometric calibration, fiducial markers for geometric calibration and a rover inspection mirror.

* A.J. Coates,[1,2] R. Jaumann,[3] A.D. Griffiths,[1,2] M. Carter,[1,2] C.E. Leff,[1,2] N. Schmitz,[3] J.-L. Josset,[4] G. Paar,[5] M. Gunn,[6] E. Hauber,[3] C.R. Cousins,[7] P. Grindrod,[8] J.C. Bridges,[9] M. Balme,[10] S. Gupta,[11] I.A. Crawford,[2,12] P. Irwin,[13] R. Stabbins,[1,2] D. Tirsch,[3] J.L. Vago,[14] M. Caballo-Perucha,[5] G.R. Osinski,[15] and the PanCam Team

[1]Mullard Space Science Laboratory, University College London, Dorking, UK (a.coates@ucl.ac.uk)

[2]Centre for Planetary Science at UCL/Birkbeck, London, UK.

[3]Institute of Planetary Research, German Aerospace Centre (DLR), Berlin, Germany.

[4]Space Exploration Institute, Neuchâtel, Switzerland.

[5]Joanneum Research, Graz, Austria.

[6]Department of Physics, Aberystwyth University, Aberystwyth, UK.

[7]Department of Earth & Environmental Sciences, University of St Andrews, St Andrews, UK.

[8]Natural History Museum, London, UK

[9]Space Research Centre, University of Leicester, Leicester, UK.

[10]Department of Earth Sciences, Open University, Milton Keynes, UK.

[11]Department of Earth Science and Engineering, Imperial College London, UK.

[12]Department of Earth and Planetary Sciences, Birkbeck, University of London, London, UK.

[13]Department of Physics, University of Oxford, Oxford, UK.

[14]European Space Agency, Noordwijk, the Netherlands.

[15]Centre for Planetary Science & Exploration, U. Western Ontario, London, Canada

References: [1] Vago, J.L., F. Westall, A.J. Coates, et al., *Astrobiology*, 17(6-7), 471-510, doi:10.1089/ast.2016.1533, Jul 2017. [2] Coates, A.J., R. Jaumann, A.D. Griffiths, et al., *Astrobiology*, 17 (6-7), 511-541, DOI: 10.1089/ast.2016.1548, Jul 2017.