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"Where On Mars?": A Web Map Visualisation of the ExoMars 2018 Rover Candidate Landing Sites

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Abstract

1. Background

The ExoMars 2018 mission will deliver a European rover and a Russian surface platform to the surface of Mars. Armed with a drill that can bore 2 metres into rock, the ExoMars rover will travel across the Martian surface to search for signs of life, past or present.

But where on Mars to land? - The search for a suitable ExoMars rover landing site began in December 2013, when the planetary science community was asked to propose candidates. Eight proposals were considered during a workshop held by the ExoMars Landing Site Selection Working Group (LSSWG). By the end of the workshop, there were four clear front-runners. Following additional review, the four sites have now been formally recommended for further detailed analysis [1]: Mawrth Vallis, Oxia Planum, Hypanis Vallis and Aram Dorsum. Scientists will continue working on the characterisation of these four sites until they provide their final recommendation in October 2017.

2. The "Where on Mars?" project

The "Where on Mars?" project is a short ESAC-based Trainee project conducted in collaboration with the ExoMars LSSWG and the CartoDB team [2].

It is an outreach project generally aiming at drawing the attention and increasing the interest of the general public for the scientific and robotic exploration of Mars in Europe.

We designed and built an interactive web map visualisation of the four recommended ExoMars landing sites relying on modern open source web mapping technology [3], and based on a selection of ESA and NASA planetary imagery data and additional geospatial information used by the ExoMars LSSWG. It has been be designed so that it is engaging for a non-expert public and facilitating the understanding of a few key concepts for the selection of the landing sites, including scientific and engineering constraints.

We will present the final visualisation that we aim to make available on ESA web site. We hope collecting feedback and engaging discussions around the topic of web mapping using planetary data.

Acknowledgements

References

[1] The ExoMars 2018 Landing Site Selection Working Group (LSSWG): Recommendation for the Narrowing of ExoMars 2018 Landing Sites, Ref: EXM-SCI-LSS-ESA/IKI-004 Version 1.0, 1 October 2014

[2] CartoBD, http://www.cartodb/com

[3] Mark Zastrow: Data visualization: Science on the map, Nature, Vol. 519, p. 120, 5 March 2015