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Geometry and topology of a lineament network in selected areas of Meridiani Planum, Mars – – preliminary results

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[POSTER]

In the vicinity of the Opportunity Rover traverse on the Meridiani Planum HiRISE photos reveal areas of extensive lineament networks. We manually digitized these networks in four selected sectors and performed geometrical and topological analysis with the NetworkGT QGis toolbox. In total, 4046 line features were traced in 4 sectors. The analyze sectors were: A1 - around and to the east of Eagle Crater, A2 - on the easter side of A1, B – central part of the Rover traverse, C – ca. 8 kilometers south from the end of the traverse. These sectors were selected with visual inspection of the different style of lineament network. The measured geometrical and topological parameters suggest different processes responsible for the formation of the analyzed networks, or what is more likeable overprinting of different processes. In particular, the A1 network shows radial features, which can be related to impact processes. The radial system overprinting is also visible in A2 and B systems; however, these two also show bimodal direction characteristics, related probably to conjugate faulting. The last one, the C system, comprises intensive two sub-perpendicular sets of high interconnectivity, probably of tectonic genesis with no later processes.



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