Geosci. Instrum. Method. Data Syst. Discuss.,
https://doi.org/10.5194/gi-2019-11-RC1, 2019

Geoscientific Instrumentation Methods and Data Systems Discussions

Interactive comment on "Creating HiRISE digital elevation models for Mars using the open-source Ames Stereo Pipeline" *by* Adam J. Hepburn et al.

Anonymous Referee #2

Received and published: 18 July 2019

The manuscript of Hepburn et al. presents a modified workflow (they call it "pipeline") for the use and handling of the still published and accessible "open-source Ames Stereo Pipeline (ASP)" from the Nasa which was created to obain high resolution Digital Elevation Models (DEM's) of the Mars surface. The modifications of the authors may enable to produce faster and better evaluated high resolution DEM's. However, it is not so clearly stated, what are the benefits of the new handling concept of the still existing ASP for users and which probably are only a few specialists worldwide. Thus the authors should state more clearly who much faster and what improvements their modified pipeline will enable concerning DEM qualities.

In the Chapter 1.0 they give an introduction concerning the existing data basis (types of remote sensing images from Mars and their resolutions) as well as various methods to

Printer-friendly version

Discussion paper

calculate high resolution DEM's. This includes probably all appropriate references. Afterwards and within the Introduction chapter the authors presents an extended review (4 pages!) concerning the existing methods to calculate and produce high resolution DEMs from Mars (Chapters 1.1 to 1.3). This may be partly something to which can be introduced within a Chapter "Methodology", but not in such an extended way, since these methods are still published. Otherwise the presented manuscript should be renamed "Review of methods to create high resolution DEMs of Mars".

As a no an specialist in the details in processing new DEM's form Mars, the paper is hard to read: In the Methodology Chapter it appears often more like a user manual with many details concerning the data handling and it also contains hundreds of abbreviations, also in the figure legends where they should not be. The chapter 3 "Quality assessment: DEM comparison" sounds interesting. However, it is difficult to understand how far this is again something like a review of the authors or how far these are new results from their modified data processing. In the latter case this should appear in the Results Chapter.

The chapter 4 "Results and discussion" includes just 4 pages (2.5 pages text and a table of one page) compared to the > 5 pages chapter 1 Introduction. Both topics (results and discussion) are normally an important part of a manuscript, but here they a comparatively short. It is likely that some results of the paper are presented in the Chapters 2 and 3, but than it has to be reorganized. Furthermore, in the whole chapter 4 there is only given one reference (Beyer et al., 2018 which concerns the used NASA ASP program). This documents no or little discussion within the State of the Art. Thus this chapter again leaves the impression that the manuscript predominantly represents more a review of methods to create Martian DEM (given in Chapters 1 and 2) than important new results.

In general it is suggested that the paper requires at least major revisions. The chapters "Introduction", "Methodology" and "Results" should be reorganized. Some parts which sound like a user manual should be moved to the appendix. The review-like sec-

tions should be significantly shortened and the paper and abstract should state more clearly, what is the benefits from the modified workflow with respect to ASP handling. Otherwise the paper should become and/or state more clearly that this is a review concerning processing of Martian DEMs. Most figures and figure legend are important, but should be improved.

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., https://doi.org/10.5194/gi-2019-11, 2019.