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Geoscientific Model Development Discussions

Interactive comment on "System for Automated Geoscientific Analyses (SAGA) v. 2.1.4" *by* O. Conrad et al.

Anonymous Referee #1

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The paper by O. Conrad et al. presents general structure and capabilities of the open-source GIS, SAGA. This software has become an important contribution to a healthy and ever growing free and open-source software ecosystem for geographic information analysis. A paper summarizing SAGA's structure and features has therefore been overdue and is likely to be cited very often.

While the paper's description of software history, structure and philosophy and the general overview of its capabilities is very welcome, I feel that the review of SAGA applications in section 3 could be substantially shortened. To showcase the diversity of applications in which SAGA has been used, perhaps one or two (page-filling) tables and a brief textual summary would prove more useful.

Other aspects, however, that would add to the relevance of this paper, are currently

missing. In particular, a general comparison of SAGA's capabilities and features to other commercial as well as open-source GIS would give the reader a better idea as to what to expect from this software, and it would help to situate SAGA within the open-source GIS ecosystem. This could again partly be presented in tabular form, and/or it could involve references in the text to comparable (or not so comparable) features in well-known software, e.g. SAGA tool chains seem to be similar to ArcGIS ModelBuilder, and Python geoprocessing in ArcGIS is comparable to Python or R scripting with SAGA (is it?). These comparisons would (likely) reveal sets of GIS functions that are currently not available in SAGA tools (e.g. address geocoding or vehicle routing?), inspiring the reader to consider contributing to SAGA development.

Overall, I believe that this publication will be a valuable contribution to documenting the current state of free and open-source geographic information analysis, but I recommend major modifications based on the above comments.

Additional detailed comments and editorial changes:

P2272L8 "modular organized" - omit "organized"

P2272L10 "easily approachable" - change to "user-friendly"

P2272L11 "scripting and low level programming languages like R and Python" - neither of these is "low level", and instead of "scripting language", "interpreted language" would be more accurate; omit "scripting and low level"

P2272L21 Provide some context on free and open-source software for the geosciences / geography / geographic data analysis before focusing on SAGA.

P2272L5 change "in behalf" to "on behalf"

Much of the current Introduction should better be placed in a separate section giving a brief history of SAGA; I noticed some overlap with the current section 2

First paragraph of the current introduction is too long. In general throughout the

manuscript, paragraphs tend to be rather long - consider splitting them into shorter paragraphs

P2273L21 “SAGA got a growing global user community” - rephrase: “SAGA’s global user community has been growing”

P2273L28 “raised” - change to “rose”

P2274 “by a review of” - change to “by reviewing”

P2274 SAGA as FOSS - Free software and open-source software are overlapping concepts with different philosophical motivations. My feeling is that SAGA is “free” rather than (just) “open-source”. Use proper academic reference when introducing the concepts of free and open-source software.

P2274L24 “base” - change to “basis”

P2275L2 “discussion” - change to “comments”; L4 “widespread and effective” seems redundant

P2276 and elsewhere: change “meta data” to “metadata”, “data base” to “database”

P2277L24 Is there any academic reference that could be used when referring to GDAL?

P2279L11 “Summarizing” - change to “In summary,”

P2279 Section 2.4 Perhaps a small table would be suitable for summarizing which software uses SAGA modules or API and how

Section 3 - Much of this could be summarized in one or two (large, page-filling) table in order to make the text more readable and the breadth of applications more accessible to the reader. E.g. the long paragraph that makes up most of section 3.1.4 is very difficult to digest by the reader, and most other subsections of section 3 follow a similar style of briefly mentioning numerous studies that used SAGA

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