Summary of work and overall impressions

This article highlights the problems archaeologists face when trying to trace the origins and spread of agriculture. It gives a clear and concise overview of the Aksumite period and gives valuable information about the subsistence strategies used by Aksumite communities. It also gives information on the environmental changes that occurred prior to and during the sites' occupation.

This article explores the use of models which can accurately predict the areas and extent of finger millet and sorghum cultivation at Aksumite sites in the horn of Africa. These models were developed using data from various sources, for example ethnographic fieldwork and literature on modern day farming practices, as well as published GIS environmental data. The authors show the accuracy of the models used for the study and shares new information on factors that influence where crops were cultivated. Phytolith analysis is used to give information about which crops may have been cultivated, as well as give information about whether or not irrigation was used by Aksumite communities.

Overall I find this article to be well written, with simplistic language that makes it easy to read and understand. The goals of the article are clear. The authors are well informed on current literature and methods, and the data is well presented and discussed.

Comments:

A - Is the subject matter:

- **Suitable for publication?**
  Yes
- **Sufficiently significant to warrant publication?**
  Yes
- **Sufficiently original to merit publication?**
  Yes

B - Is the title appropriate?

Yes

C - Is the paper:

- **Well organised?**
  Yes

- **The correct length for the material and information discussed?**
  Yes

- **Clearly and concisely summarised in the abstract?**

Yes

- **Well informed on current research?**
  Yes

- **Are the illustrations necessary?**
  Yes, see notes for additional comments.

- **Are the illustrations of adequate quality?**
  Yes

- **Are the tables necessary?**
  Yes

- **Are the tables well laid out?**
  Yes

- **Is the paper appropriately referenced?**
  Yes, see additional comments.

D - Can the paper be published:

- **As it stands?**
  No

- **With minor revisions? (please specify)**
  Yes, minor additions and fixes specified in comments below.

- **With major revisions? (please specify)**
  No

These items need attention:

- Abstract-Include Scientific names for Sorghum and Finger millet
- Line 52 and 53- Add e.g. before list of references.
- Suggestion- Add a map showing the location of study area in Africa (for people unfamiliar with African geography). Alternatively add an inset in Figure 2 showing the location of the study area within Africa.
- Line 122- Define masl for people unfamiliar with the term.
- Line 134- Replace “the” with “a”.
- Line 135- Replace “Whereas” with a more appropriate word.
- Line 220- “Larger buildings”. Please rephrase for clarity.
- Line 245- “De” should not be capitalized. Check throughout article. It’s capitalized in some places and not capitalized in others.

- Line 250- Define casual, extensive and intensive agriculture for clarity.
- Line 267- Fix spelling of Nenzen.
- Line 337- Define topsoil.
- Line 388- Explain why length of growth cycle was used as a significant variable for SB but not FM.
- Suggestion- Define terms extensive rainfed and intensive rainfed. It is unclear what the difference is between the two.
- References- The referencing needs extensive work. Breton 2018; D'Andrea et al. 2008; Harrower et al. 2019; Lucarini et al. 2016; Gonzalez-Rabanal et al. 2022 are included intext, but not in the reference list.
- Several sources are included in the reference list, but not intext. This includes Cantor et al. 1999; Fick and Hijmans 2017; Lancelotti et al. 2019; Oliver 1980; Manel et al. 2001; Shangguan et al. 2014 and Young and Thompson 1993.
- Other referencing issues- De Contenson is referenced Contenson, H.de. Hagos et al. is references as 2021 in the reference list, but 2019 intext. Intext Vavilov is referenced as 1925 and in the reference list it is referenced as 1926.