Answers for CC1

General comment

Assertively, modeling approaches from vegetation indexes are reported to have failed at Omongwa salt pan. This is an expected result. In addition, not only landsat, but any satellite image that is currently accessible for free and paid cannot detect a salt crystal due to spatial resolution.

Answer:

Yes, this result was expected, and this is the reason way we are showing for remote sensing users that vegetation indices are not appropriate for soil salinity mapping. Indeed, the reasons behind this paper is to show for people who use remote sensing as a tool, and who have received little or no education in remote sensing domain, that vegetation indices do not have the ability to discriminate and predict soil salinity classes.

We can create the polynomial model in Microsoft excel. When applying this model spatially in a raster environment with commercial software such as PCI, it becomes difficult to understand in text. At least I struggled.

Answer:

Many models and algorithms exist in the literature. The semi-empirical models used in this study are based on spectral indices, easier to transfer between sensors and can be used as a robust alternative compared to the revolutionary and complex modelling methods. They are based on the knowledge of spectral absorption features that characterize specifically the target under investigation. They were developed based on modeling, laboratory analysis and spectral measurements in Excel or Matlab environments. Then, they were applied and validated using image processing system such as PCI, ENVI or ERDAS. This process is well known and very easy to understand by the remote sensing scientific community.

Specific comments and technical corrections

A detailed literature review on the subject of the study, in which the literature is abundant, is given.

Section 2.3, L283-285

I calculated this part myself.

α, the measuring wieving angle

A, Field of view

r, Field of view radius

According to your data, when I calculate it, I get 554.99 cm2. Saying about 700 would lose precision.

Answer:

Your calculation is valid for a circle measurement in 2D, and some people who us remote sensing as a tool apply this equation to have an idea about the observed surface. However,

the remote sensing measurements are acquired in 3D dimensions, following a solid in $W/m^2/\mu m/Sr$. The measured electromagnetic energy (EME) pass through a specific FOV and recorded by CCD array, which is not circular but a linear array. Obviously, the ASD simulate the satellite measurements that record the reflected EME by the CCD array following the across-track or along-track modes that are not circular. For instance, the acquired images by Landsat (MSS, TM, ETM+, and OLI), Sentinel, etc. are not circular. Please, for more details see the ASD manual: http://www.gep.uchile.cl/Biblioteca/radiometr%C3%ADa%20de%20campo/TechGuide.pdf.

You made the resampling function in Section 2.5., L326 using "CAM5S radiative transfer code (RTC)". Was this process performed in an open source software or with a commercial software? Readers may want to know about it. There is one that I know of. The "hsdar" package can do these things in R. **hsdar**: Manage, Analyze and Simulate Hyperspectral Data. https://cran.r-project.org/web/packages/hsdar/index.html

For multispectral remote sensing, the professional and most used RTC by NASA, ESA, CSA, etc., are 5S (Tanre et al., 1990), CAM5S (Teillet and Santer, 1991), 6S (Vermote et al., 1997). MODTRAN (Berk et al., 1989) versions are also used in Hyperspectral.

- Tanre, D., Deroo, C, Duhaut, P., Herman, M., Morcrette, J.1., Perbos, J. and Deschamps, P.Y. (1990). *Simulation of the Satellite Signal in the Solar Spectrum (5S).* Laboratoire d'Optique Atmospherique, Universite des Sciences et Techniques de Lille, Lille, France, 320 pages.
- Teillet, P.M., and Santer, R.: Terrain Elevation and Sensor Altitude Dependence in a Semi-Analytical Atmospheric Code". Canadian J. of Remote Sens. 17, 36-44, 1991.
- Vermote, E., Tanre, D., Deuze, J.L. et al. (1997) Second simulation of the satellite signal in the solar spectrum, 6S: An overview," IEEE Transactions on Geo-science and Remote Sensing, 1997, 35(3): 675-686.
- Berk, A., Bernstein, L.S., and Robertson, D.C. 1989. *MODTRAN: a moderate resolution model for LOWTRAN 7.* Air Force Geophysics Laboratory (AFGL), Hanscom Air Force Base, Md., Final Report GL-TR-0122. 42 pp.

L1301,Figure 1, It's really hard to follow the arrows in the flowchart.

Answer:
After revision, we find that the flowchart is clear and easy to follow.

L1420, Table 1 and Table 2, Wouldn't it be more appropriate to give descriptive statistics in general terms? For example, it may be important to know the salt content of the soils taken from the A, B, C, D, E and F regions in Table 1 Kuwait.

Answer:
Descriptive statistics are not relevant for this research analyses.

Dear Sir many thanks for your interest to our research

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https://www.researchgate.net/profile/Bannari-Abdou
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