

Interactive comment on “Proximal sensing for soil carbon accounting” by Jacqueline R. England and Raphael Armando Viscarra Rossel

Anonymous Referee #2

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The authors review the current state of proximal sensing for measuring soil organic C stocks and monitoring changes therein, subsequently discuss use of proximal sensors in support of new soil organic C accounting methodologies with linkages to national and international requirements for measurement, reporting and verification (e.g. UNCCD-LDN). Key literature and novel developments have been critically reviewed, showing that many of these studies still relate to ‘proof-of-concepts’ rather than widely applicable solutions for widespread (and uniform) soil carbon accounting. With minor changes this review should be of wide interest to the readership of SOIL.

Comments:

p.2, line 9: soil organic matter should be: soil organic carbon

C1

p. 2, line 20: rephrase as “over periods longer than 5 to 10 years . . .”

p. 3, line 2 and elsewhere: remove initials R.A. from citation

p. 4, line 9: increases in net carbon stocks

p. 4, line 11 to 35: This section/example could be incorporated in section in section 5.3. Further, whenever possible, reference should be made to similar initiatives/activities in other countries or continents.

p. 9, line 5: electromagnetic (a word is missing here, spectrum), are due to . . .

p.9, 4.1.2: should also discuss recent innovations concerning new hand-held sensors (e.g. SoilCares and other groups), and their possible limitations, issues with calibration.

p. 9, 4.1.3: LIBS should be referred to as an emerging technique for estimating SOC.

p. 10, line 23: NaI (spell out in full, clarify)

p. 13, line 3: rephrase: to rapidly estimate (or predict) soil bulk density

p. 14, line 33: in situ ; ex situ (add a space or -)

p. 15, Table 3. Please note the double lines at top resp. bottom of some tables

p.16, Table 4: This table essentially should provide the crux of the review. The underpinning references should be provided here in a footnote.

p. 19, line 12: an independent assessment (see typo)

p. 20, line5: . . . was selected . . . was not used

p.26, Section 6: This concluding section could be reworked into a number of concise, bullet points, focussing on aspects of practical applicability.

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C2