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## ***Interactive comment on “Radon signals at the Roded site, Southern Israel” by G. Steinitz and O. Piatibratova***

**Anonymous Referee #2**

Received and published: 3 September 2010

Radon signals at the Roded site, Southern Israel  
G. Steinitz and O. Piatibratova.

### General comments

The authors present radon data collected in southern Israel over some 10 years, and perform time- and frequency- analysis on them. The authors have recently published data from related studies at several other sites in the region, and the analysis and conclusions reached in this paper are very similar. The data presented in this paper appears to be new, however, and illustrates some signal properties not observed in the other studies.

The language used in the paper is generally clear, but parts of the introduction will

benefit from revision. There is also some repetition in the introduction (e.g. around lines 93-98 and lines 105-108) and section 2 (lines 139-140, lines 147-148).

#### Specific comments

1. It is not clear to me that figure 4 helps in any way; I think figure 3, even though showing a larger data-set, shows more clearly the nature of the radon signal variation. The use of circles in figure 4 is probably not helpful.
2. I do not think that a semi-annual variation is particularly evident in 2006/2008 in Figure 4. If the authors feel that this is the case, perhaps they can illustrate it in a more convincing manner.
3. The authors state that applying a radioactive decay correction does not account for the observed asymmetry. In the figure they have a "decreasing flank" (blue), then a "decreasing flank plus decay deflection" (should this be "correction"?) (red), which matches closely the observed flank. Has the decay correction been applied to the symmetric decreasing flank, or applied in the opposite sense to the observed decreasing flank? I would suggest that the authors clarify what has been done here.

#### Technical comments.

Abstract, line 18: suggest "illustrate" instead of "emphasize".

line 20: suggest "placed" instead of "lowered"

line 21: suggest "manifested as" instead of "manifesting".

line 22: suggest use "sub-diurnal" as this has been used elsewhere in the text.

line 32: define CWT here.

line 34: replace "shows" with "showing".

line 38: replace "are reflecting" with "reflect" and "solar" with "the solar".

#### Introduction

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line 41: replace "Rn" with "Radon".

line 52: suggest "potential use as a" instead of "being an eventual".

line 83: insert "the" before "Israel..."

line 92: presumably this reference should be Steinitz and Piatibratova 2010?

In general much of lines 83-112 could benefit from re-phrasing.

Geographic and geological setting

line 128: define DST

line 128. replace "Massif Roded" with "The Roded massif".

There is some repetition between lines 139/140 and lines 147/148. This could benefit from clarification.

Figure 1. Insert "An" before "alpha detector".

Methods

Line 150: replace "a nuclear alpha" with "an alpha detector"

Line 154: replace "are" with "were".

Line 157: replace "in order of" with "of the order"

Line 158: replace "The alpha" with "Alpha".

Results

Line 226: replace "more ever" with "moreover".

Figure 5 (caption) 0.002839... should be 0.002739....

Line 314: remove "major and the"

line 322: hours.

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line 324: remove "already"

line 347: replace "analyzing the" with "analysis of"

Figure 12 (caption) replace "felled" with "filled".

line 522: replace "relatively" with "relative".

line 541: "The Roded site is located between these sites" - this is presumably an error, and is inconsistent with the information presented on the map in figure 1.

lines 542-545 Rephrase this sentence.

line 548: insert "nature" between "systematic" and "of".

line 570: remove "would"

line 571: remove "but".

line 594: remove "exist".

line 605: remove "proffered"

line 610: remove the first occurrence of "a common".

line 637: replace "communal" with "common".

References:

Garfunkel not cited in the text.

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Interactive comment on Solid Earth Discuss., 2, 161, 2010.

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