We would like to thank the reviewer for the constructive comments and suggestions. Our detailed replies are provided below.

Reviewer #2 - G. Pegram

General Comments

All in all, a very interesting and well-presented paper, which describes an appropriate methodology for determining the response of small arid catchments in Israel to possible changes in climate. The technique of selecting synoptic systems which drive the rainfall is appropriate and the method of downscaling GCM outputs via the link between reanalysis output and local radar rainfall records is intelligently done. I liked the application of the weather generator, but had to read the authors' paper before I could understand how it was done – a few paragraphs giving more detail of that technique would improve the paper in my mind. There are a few places where I recommend minor modifications to the text, which are detailed below, however there is one section that the authors should consider rewriting – the Discussion and Conclusions because, in my opinion, there is too much new discussion material presented in this section. I found that it detracted from the clean results offered in the body of the text. I recommend that the authors consider resiting the newly referenced material, found in this section, in appropriate earlier parts of the paper to set the stage for their methodology. I recommend acceptance of the paper for publication after moderate review.

We thank the reviewer for his general and specific comments. Regarding the WG, in order to keep the paper at an appropriate length we feel that the short description given in section 3.4 is sufficient; especially since (as the reviewer mentioned) the WG is explained in details by Peleg and Morin (2014). Regarding the discussion and conclusion section, we only discuss 6 major points; we believe that all these points are important and are concisely discussed. We therefore prefer to maintain the current structure of the discussion section.

Specific Comments

In detail, some suggestions and questions, my suggested changes in UPPER CASE:

1. 10554, 15: (range of 2-23%) - is that outer range or interquartile range or other?

This is the outer range. It is now clarified in the text.

2. 10558, 3-4: the hydrologic regime to MODELLED climate change.

Thanks, the text was corrected as suggested.

3. 10558, 25: show the location and range of Shacham–Mekorot radar?

The location and range of the radar are mentioned in section 3.2 (P. 10562). A location map was given in Peleg and Morin (2012) paper (reference for this paper was also given in the text).

4. 10561, 5: whose cell tracking algorithm is used – it reads like Mike Dixon's TITAN?

We used an algorithm that was developed by the authors. A reference was added to the text to avoid confusion:

"The convective features were spatially determined using a segmentation method and temporally analyzed using a rain cell tracking algorithm **(Peleg et al., 2012)**".

5. 10561, 22: it would be instructive and interesting to see a couple of quantile-quantile plots.

A detailed analysis of the GCMs and a quantile-quantile example figure was published in Peleg et al. (2014), as referenced in the text.

6. 10562, 1: It was found that THE FOLLOWING ARE LIKELY:
The text was corrected as suggested.

7. 10563, 22: the locations of the hydrometric stations are not shown on Figure 1 – assumedly, they are at the outlets of the catchments? Also, could the rain gauge locations be marked, or is the figure already too busy?
The hydrometric stations are indeed at the outlet of the catchments. Their locations were added to Figure 1. There are many rain gauges in the basins and their detailed analysis and a location plot is in Peleg and Morin (2012) – We believe that adding a plot that indicates the location of the raingauges is not warranted for this manuscript.

8. 10566, 4: Referring to Figure 6, the three boxes illustrating the limits of the means and stdvs is a neat and informative idea.
Thank you.

9. Fig 1: presumably, the small blue cross in each of the upper right images locates the catchments.
This is correct. It was an oversight that is now corrected – thank you.

10. Fig 3: "Panels (a) and (b) present observed (from hydrometric stations) vs. calculated..." this is confusing as the labelling is not standard - should be reversed: calculated (ordinate) vs observed (abscissa)
As suggested, the text was corrected.

11. Fig 4: If one believes in linear streamflow responses, then an event starts and ends at the same flow level, e.g. the major one on this figure starting at 18.5 days and ending at 29.7. It seems to me to be odd to split the hydrograph at day 21 where the flow is near the peak and the volume of the blue rainfall preceding that day is greater than the grey.
Reviewer #1 commented on the same topic. We revised the methodology for the separation and definition of the rainfall and streamflow events. Please refer to the response to comment #5 of Reviewer 1 for more details.

12. Fig 5: Regression lines through the 3 sets would help visualisation - I had to work quite hard to see the comparisons without lines which I inserted and positioned by eye
The radar rainfall (with SAC-SMA and with measured streamflow volumes) data are too scattered (only 12 points with large variability). Therefore, we think that plotting fitted regression lines might mislead the readers that we suggest an over simplistic linear associations.

13. Fig 6: [Caption edited]: The standard deviation of the annual rainfall of each 30 year ensemble SELECTED FROM THE 300-YEAR SIMULATIONS (black .. show the extent [REMOVE "of change"] of annual rainfall .. Taninim catchments COMBINED.
The figure caption was corrected as suggested.

Finally, we thank the reviewer for the comments that helped us considerably in improving the clarity of the paper.