

## ***Interactive comment on “Irrigated plantations and their effect on energy fluxes in a semi-arid region of Israel – a validated 3-D model simulation” by O. Branch et al.***

**Anonymous Referee #2**

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This paper simulated irrigated plantations and their effect on regional climate in a semi-arid region, with comparisons between plant areas and desert. The work is valuable and interesting.

Major comments: 1. The major comment is about the evapotranspiration. It may be not very convincing if ET are estimated using Penman-Monteith or FAO methods without calibration. There are many other methods on ET estimates, such as complementary relationship model with only meteorological data, method using remote sensing data, etc. If possible, please pay more attention on ET estimates, or even give direct measure in the future.

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2. “low Bowen ratios should not necessarily be assumed when irrigated plantations are implemented in” is a major conclusion. However, only latent heat and sensible heat are presented. Why not give the Bowen ratio results directly? This was only concluded from that the HFX over the plantations is higher than over desert surface. Please compare the bower ratio directly. If it is possible, please compare the Bowen ratio over the plantations during the irrigated and non-irrigated periods. If so, the conclusions on lower Bowen ratios or not would be more convincing.

3. The comparisons were conducted on the mean diurnal cycle. Why not give some results on the daily variation of ET<sub>c</sub>, HFX, Bowen ratios? Because the irrigation may be different, some results about the comparison between the irrigated or non-irrigated periods may be more interesting.

Specific comments to the authors: 1. P13899 Ln3, please give the meaning of HFX when it first appears.

2. Please introduce the observations about the meteorological data, albedo, etc.

3. Fig. 8, “the model wind speeds are at 10m height, whilst the observations are measured at 6 m.” The model or observed wind speeds can be transformed to the same height using the boundary layer method.

4. Please give more introductions on the irrigation, such as irrigation amount.

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