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Atmospheric Measurement Techniques Discussions

Interactive comment on "Solar irradiances measured using SPN1 radiometers: uncertainties and clues for development" *by* J. Badosa et al.

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Here we supply responses to the Specific comments raised by the anonymous referee:

Comment: P 8154 L 22: Three SPN1 radiometers have been installed . . . Why only the results of one SPN1 of the Payerne measurements were presented (best or worst case)?

Authors' response: Payerne data - the three SPN1 at Payerne performed in a similar way, so only one was presented in this paper because already there was a large amount of data to be presented, and our focus was to compare SPN1 results in different sites against state of the art measurements. The three sets of SPN1 data will be presented in detail in a separate paper relating to the Payerne DNI comparison study.

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Comment: P8156/8157: Some more sentences about the slope comparison and re-calibration leading to the results presented in Table 4 (P8178), especially the last two columns, would be desirable.

Authors' response: Here are several discussion elements about the slope comparison (section 4.1). - The different GHI slopes will mostly reflect SPN1 calibration differences, so correcting the datasets (GHI, DHI and DNI) for GHI slope gives a clearer comparison, as if all the SPN1s were calibrated on site during the measurement period. - The underestimation of DHI and overestimation of DNI is then fairly consistent for all sites, approximating to -5% for DHI, +5% for DNI. - The graphs in Fig.2 show a curve shape for DNI, and to some extent DHI. Particularly for DNI, the data cloud returns towards the 1:1 line for high values of DNI. Therefore the regression line slope will vary depending on the relative weightings of high and mid-range DNI values, which depends on the clearness distribution of the atmosphere over the measurement period. This sentences can be added in the manuscript to improve the understanding and give more discussion elements.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 8149, 2014.