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Thermodynamic fluctuations in solar photospheric three-dimensional convection simulations and observations (Corrigendum)

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We detected an error in the calculation of the stray-light contributions for the different observations which, however, does not affect any other result in the paper. To determine the stray-light contribution corresponding to the different spatial convolution kernels for the respective observations, a two-dimensional (2D) version of the kernel was constructed from the one-dimensional (1D) kernel given by Eq. (5) in Beck et al. (2013, hereafter BE13). By mistake, we normalized the full 1D kernel to unit area, i.e. $\int_{-x_0}^{x_0} K(x)\mathrm{d}x \equiv 1$, instead of normalizing $\int_0^{r_0} K(r)\mathrm{d}r$. A second, conceptual mistake was to use the spatial sampling of the simulation's spectra of $0\farcs13$ instead of re-sampling the values to the actual spatial sampling of the observations (cf. Table 1 in BE13). In addition, the values of the parameter a were given in pixels instead of arcseconds in both Fig. 3 and Table 2 of BE13. The corrected values of a and the stray-light estimates are given in Table 1 below to replace those in Table 2 of BE13. The scale of the y-axes in Fig. 3 of BE13 needs to be multiplied with $0\farcs13$ to obtain the corresponding values in arc-seconds (as given in Table 1 below), e.g., in the case of the SP, $a = 0.16$ pixel, as marked in the figure, which corresponds to $0.02''$.

As a consequence of the changed stray-light estimates, the following sentences in the text have to be modified:

1. Abstract: "The spatial degradation kernels yield a similar generic spatial stray-light contamination of about 30% for all instruments" should be replaced by "The spatial degradation kernels yield a generic spatial stray-light contamination between ∼20% and ∼70%".

2. p. 6, "where $I(x', y', \lambda)$ are the synthetic spectra of the HD simulation at full resolution (HD-FR) and x and y denote the pixel column and row inside the FOV, respectively" should be replaced by "where $I(x', y', \lambda)$ are the synthetic spectra of the HD simulation at full resolution (HD-FR) after re-sampling them and the kernel to the spatial sampling of the respective observation, while x and y denote the pixel column and row inside the re-sampled FOV, respectively".

3. p. 6, "All spectrograph data (SP, POLIS, TIP, Echelle) and the destretched GFPI data yield a value $\gtrsim$30%, with little to no dependence on the spatial resolution" should be replaced by "All spatially under-sampled spectrograph data (SP, POLIS, TIP) yield similar values of about 20–30%, with little to no dependence on the spatial resolution".

4. p. 6, "The only clear reduction of stray light is seen for the deconvolved GFPI spectra, where in the deconvolution process some inverse kernel was already applied" should be replaced by "A clear reduction of stray light by 20% is seen for the MOMFBD GFPI spectra relative to the destretched GFPI data, because in the deconvolution process some inverse kernel was already applied".

References

Beck, C., Fabbian, D., Moreno-Insertis, F., Puschmann, K. G., & Rezaei, R. 2013, A&A, 557, A109 (BE13)

Table 1. *Top row*: "best" degradation kernel parameters a and $FWHM(\sigma)$ for each instrument. *Second row*: average spatial stray-light level α corresponding to each of those "best" kernels.

	SP	GFPI, MOMFBD	GFPI, destr.	POLIS	TIP@1083 nm	TIP@1565 nm	ECHELLE@557 nm
$a/FWHM$ ['']	0.02/0.59	0.09/0.12	0.20/0.19	0.17/0.34	0.04/0.96	0.12/0.59	0.25/1.33
α	17%	46%	66%	24%	31%	28%	73%