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*CORRESPONDENCE
Ewan S. Douglas,
douglase@arizona.edu

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Corrigendum: Practical limits on nanosatellite telescope pointing: The impact of disturbances and photon noise

Ewan S. Douglas[1]*, Kevin Tracy[2] and Zachary Manchester[2]

[1]Department of Astronomy/Steward Observatory, Tucson, AZ, United States, [2]The Robotics Institute, Carnegie Mellon University, Pittsburgh, PA, United States

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A Corrigendum on
Practical limits on nanosatellite telescope pointing: The impact of disturbances and photon noise

by Douglas ES, Tracy K and Manchester Z (2021). Front. Astron. Space Sci. 8:676252. doi: 10.3389/fspas.2021.676252

In the original article, there was an error in **Figure 6**, page 5, as published. The arcsec of the pointing error was much higher for each aperture as a function of the sampling rate. This is because the figure included a 10× larger number of pixels contributing noise and a more conservative numerical approach to calculating the centroid error, which also includes sampling errors, resulting in generating the erroneous figure. The figure was inconsistent with the published, analytic approach and the released code (Douglas et al., 2021a). However, the figure is correct in the arXiv preprint (Douglas et al., 2021b). The corrected figure appears below.

In the original article, the area of the telescope was erroneously printed as $(Dx/2)^2\pi$. It should be given as $\pi(D_x/2)^2$, with x as a subscript and not a variable.

A correction has been made in section **2 METHODS**, 2.3. Sensing, paragraph 4, page 5. This sentence previously stated:

"The *étendue* is defined as the product of the collecting area, $\pi(Dx/2)^2$, and the solid angle, Ω, subtended by the instrument."

The corrected sentence is as follows:

"The *étendue* is defined as the product of the collecting area, $\pi(D_x/2)^2$, and the solid angle, Ω, subtended by the instrument."

In the original article, the Nancy Grace Roman quote was mis-transcribed.

A correction has been made in section **5 CONCLUSION**, first paragraph, page 7. This sentence previously stated:

'In 1980, Nancy Grace Roman said "pointing has been the (pacing item) that has really controlled what we've been able to do in space astronomy as the field has developed" (Roman and DeVorkin, 1980).'

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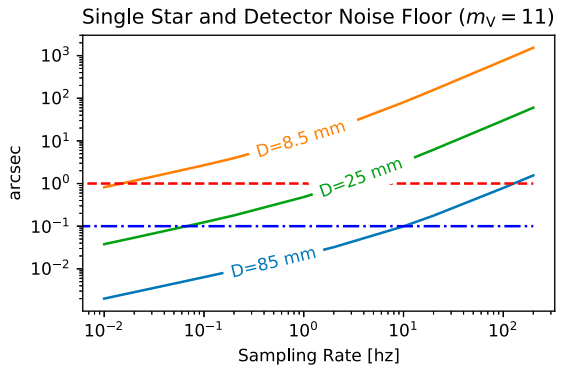

FIGURE 6
Attitude sensing limit curves assuming centroiding noise due to photon statistics and detector noise from the TRL-9 MT9P031 CMOS detectors widely used on nanosatellites. For an 85-mm space telescope, sub-arcsec sensing is readily achieved at 100 s sampling or slower rates, implying that ~10 Hz bandwidth controllers are as fast as is feasible on dim stars.

The corrected sentence is as follows:

'In 1980, Nancy Grace Roman said "pointing has been the pacing team that has really controlled what we've been able to do in space astronomy as the field has developed" (Roman and DeVorkin, 1980).'

The authors apologize for these errors and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

Publisher's note