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Correction to: Simultaneous observation of auroral substorm onset in Polar satellite global images and ground-based all-sky images

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Correction to: Earth, Planets and Space (2018) 70:73 https://doi.org/10.1186/s40623-018-0843-3

In the original publication of this article (Ieda et al. 2018), some reference lines are missing in the Figs. 5a

and 6b(6). This correction shows the correct figures. The publisher apologizes to the readers and authors for the inconvenience.

The original publication has been corrected.

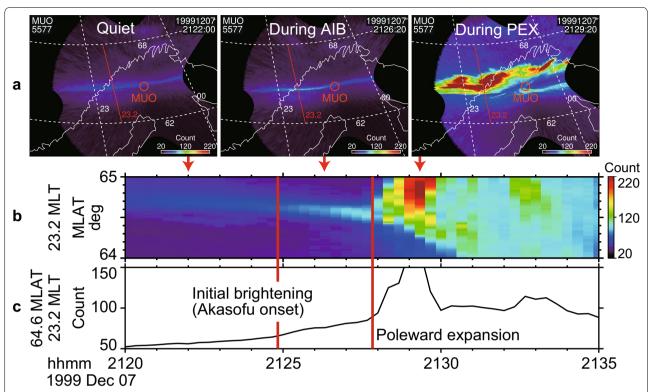
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Fig. 5 Ground-based all-sky images (ASIs) near the substorm onset location on December 7, 1999. Auroral brightness at a wavelength of 557.7 nm (green line) observed at Muonio (MUO) in Finland is shown. **a** Selected images represent three intervals as labeled, shown in the geodetic coordinates. The white reference lines represent MLTs and MLATs. The red line indicates 23.2 MLT, the approximate location of the initiation of the Akasofu initial brightening (AIB) and the poleward expansion. **b** Auroral keograms sliced along the onset meridian (23.2 MLT, ±0.2 h average), which correspond to the red lines in **a**. **c** Time series of auroral brightness near the onset location (23.2 MLT, 64.6 MLAT) averaged over 23.0–23.4 MLT and 64.5–64.7 MLAT. The red vertical lines in **b** and **c** indicate the times of the AIB (2124:50 UT) and the poleward expansion (2127:50 UT) in the ASIs

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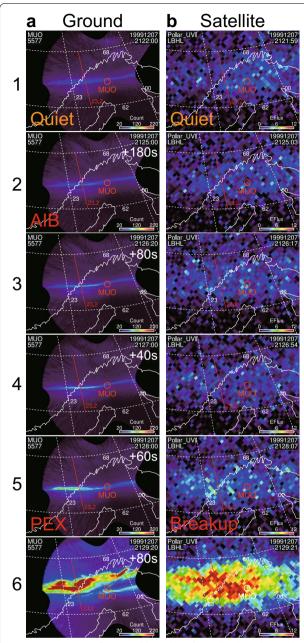


Fig. 6 Comparison of **a** ground-based and **b** satellite-based auroral images on December 7, 1999. The time sequence of selected auroral images is shown from top to bottom. All images are projected to the same area in geodetic coordinates. **a** Ground-based all-sky images (ASIs; 557.7 nm) at the Muonio station (MUO) in Finland. These ASIs were selected to show the observed instances (**a1**) during the quiet interval, (**a2**) at the start of Akasofu initial brightening (AIB), **a3–a4** during AIB, **a5** at the start of poleward expansion, and **a6** during poleward expansion. **b** Global images (170 nm) taken by the Polar satellite ultraviolet imager (UVI). Each image was selected to form a pair with an ASI in **a** within 7 s. A comparison of **a** and **b** reveals that the longitudinally extended brightening (AIB) can be marginally observed in **a2** and is evident in **a3–a4** but not in **b2–b4**. In contrast, the brightening **a5** that corresponds to the beginning of the poleward expansion was simultaneously observed in **b5**

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