

***Interactive comment on “High-latitude crochet:  
solar flare-induced magnetic disturbance  
independent from low-latitude” by  
Masatoshi Yamauchi et al.***

**Anonymous Referee #1**

Received and published: 4 August 2020

High-latitude crochet: solar flare-induced magnetic disturbance independent from low-latitude By Yamauchi et al.

The paper presents a new type of the solar flare effect on the dayside ionospheric current at high latitudes equatorward of the cusp during quiet periods. Right after the X9.3 flare on 6 September 2017, magnetic stations at 68–77° geographic latitudes near local noon detected northward geomagnetic deviations ( $\Delta B$ ) for more than 3 hours, with peak amplitudes  $>200$  nT, without any accompanying substorm activities.

The paper is interesting and may be accepted for publication after addressing the minor comments below.

C1

There could be many solar flares of this type. Then how this particular one produced such a large ionospheric current lasting over 3 hours and producing peak  $\Delta B >200$  nT?

Title says ‘independent from low-latitudes’. But the effect is also observed in ASY indices (Figure 2a), is it consistent with the title?

Figures 1–3 are included with the text and other Figures are put at the end. It would be easy if all Figures go with the text.

---

Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2020-48>, 2020.

C2