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Ionospheric Response to Geomagnetic Activity during 2007–2009 Solar Minimum

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The significant effect of weaker geomagnetic activity on ionospheric day-to-day variability during 2007–2009 solar minimum was highlighted by investigating the response of global electron content (GEC) to geomagnetic activity index Ap. A case distinctly manifests the modulation of recurrent weaker geomagnetic disturbance on GEC during the solar minimum. Statistical analyses indicate that the effect of weaker geomagnetic activity on GEC day-to-day variability is significant during 2007–2009, even under relatively quiet geomagnetic activity condition, while geomagnetic activity effect on GEC is not prominent during 2003–2005 solar cycle descending phase except under strong geomagnetic disturbance condition. Nevertheless, statistically the most important effect on GEC day-to-day variability during 2007–2009 comes from the factors other than geomagnetic activity and solar EUV irradiance.