The energetic neutral atom (ENA) imager HENA onboard IMAGE has provided global ENA images of the Earth's ring-current region since May 2000. HENA measures ENAs in the energy range $\sim$ 10-200 (hydrogen assumed) keV. We will focus on an event just before the commencement of a moderate storm the 24 May 2000 where HENA observed an increase of ENAs ($\sim$ 15-60 keV) originating from the afternoon sector associated with the gradual increas in the northward component of the IMF. The ENA fluxes then suddenly dropped a factor of five during approximately 10 min. During the increase the in ENA flux IMF B_z was approximately 15 nT. During the sudden decrease of ENA flux, the IMF B_z dropped to -20 nT and turned northward short thereafter. We have sought to understand this event by comparing the ENA images with a time-dependent ring-current model driven by the IMF [Ebihara and Ejiri, *JGR*, 105, p. 15843, 2000] and found that the sudden decrease of the dayside ion fluxes can be explained by a rapid change in the global electric field when the IMF B_z flips southward. This results in a reconfiguration of the drift trajectories of pre-existing ions, implying the global magnetospheric electric field plays an important role in governing the ring-current formation and deformation. IMAGE/HENA data will be shown as movies from other events as well.