

Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, P. R. China Graduate School of the Chinese Academy of Science, Beijing 100049, P. R. China Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, Wuhan 430071, P. R. China High Altitude Observatory, National Center for Atmospheric Research, Boulder, CO 80301, USA

i'11.'t

Ab ac

1



. - 1 1 - -1 . 1 . Ι ŀ -1 χ -•1 1 . 1. ! -. . %. . . .1 1 11 . . . 1 <u>-</u> _ , . . -. 1 1 .1... 1 --......





..... 1 • • I. • -, i1. ··· · · · . .l.. 1. . . $a_{i} + b_{i} + b_{i$ l. t *i* α

$$\alpha_i(t) = \begin{cases} \alpha_i(t)A_i/A & . & i \leq \ ,\\ \alpha_i(t)A_i/A & . & i > \ . \end{cases}$$

 $A_i \quad i = \dots$





3.1. Case study: October 28, 2003 flare





























3.2.2. The TEC variations









l

4. C c di g e a





Ac edge e

I I . - . . | . . ۱. -. . 1. ----. 1 - -. . . -. . 1 -. . . . -

Refe e ce

]]	
_	
 L.I	



