

Modulation of the energetic electron distribution caused by toroidal mode ULF waves in association with periodic enhancement of whistler-mode chorus emissions

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Introduction

This paper uses data from multi-instruments aboard the ERG (Arase) satellite. These supplementary materials are included to indicate the properties of observed whistler-mode chorus emissions (Figure S1) and the behavior of electrons in the energy range from 12 keV to 553 keV (Figures S2 and S3).

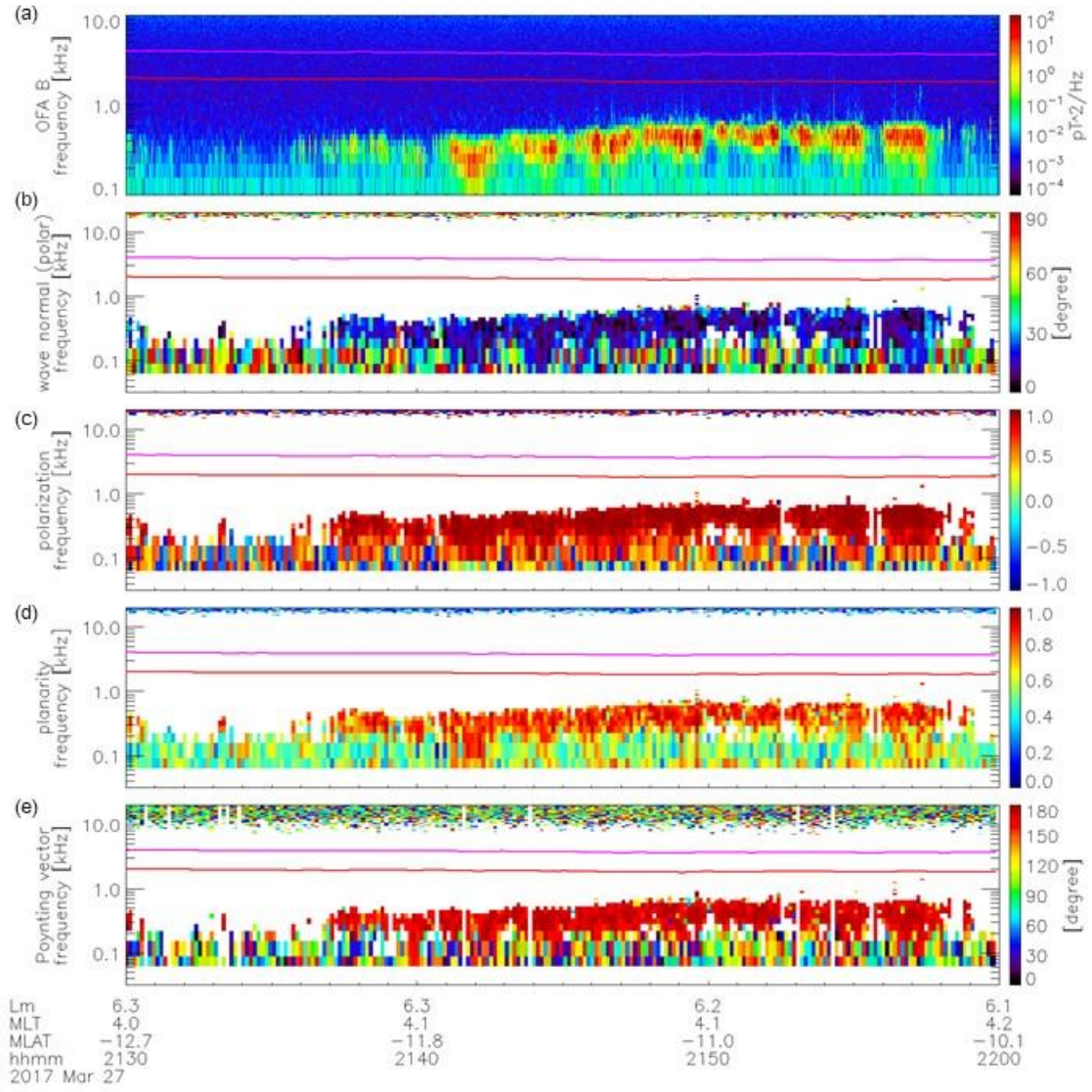


Figure S1. (a) The wave magnetic field spectrum, (b) the wave normal angle direction, (c) the polarization, (d) the planarity, and (e) the Poynting flux direction calculated from the observation results of PWE/OFA.

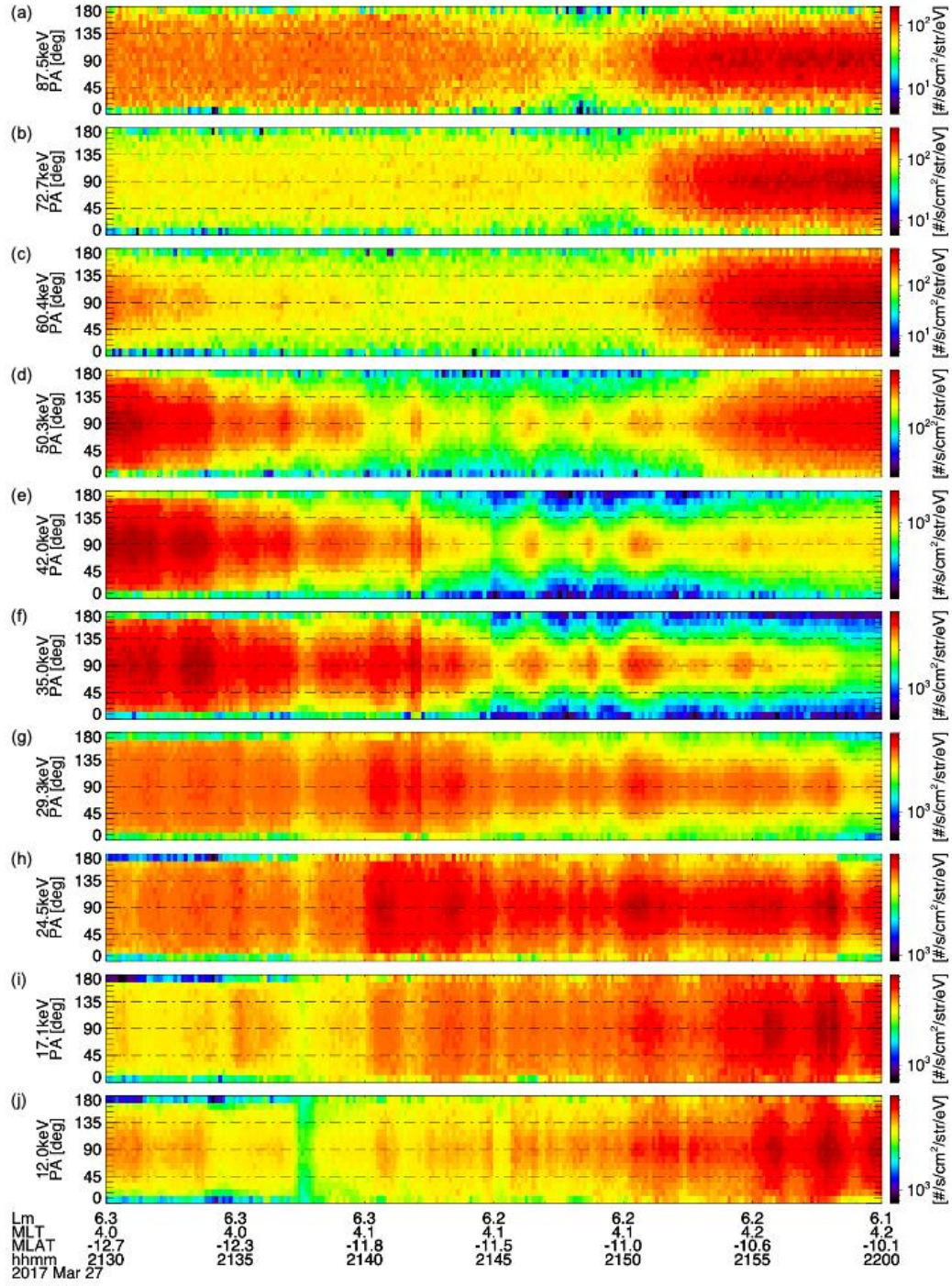


Figure S2. The pitch angle distributions in (a) 87.5 keV, (b) 72.7 keV, (c) 60.4 keV, (d) 50.3 keV, (e) 42.0 keV, (f) 35.0 keV, (g) 29.3 keV, (h) 24.5 keV, (i) 17.1 keV and (j) 12.0 keV energy range observed by MEP-e.

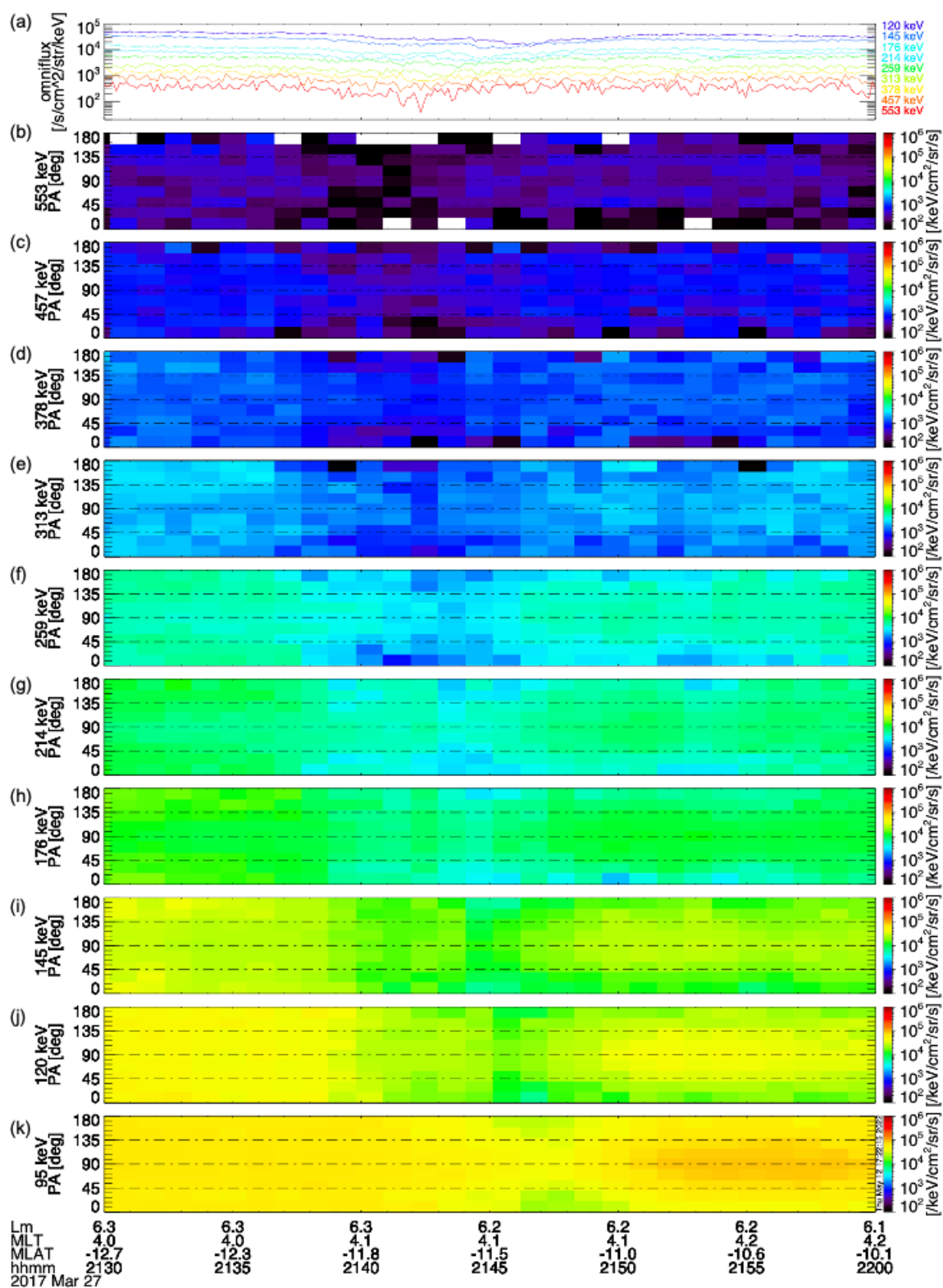


Figure S3. (a) The omni-directional electron differential fluxes in the energy range from 120 keV to 554 keV energy range, and the pitch angle distributions in (b) 553 keV, (c) 457 keV, (d) 378 keV, (e) 313 keV, (f) 259 keV, (g) 214 keV, (h) 176 keV, (i) 145 keV, (j) 120 keV, and (k) 95 keV energy range observed by HEP.