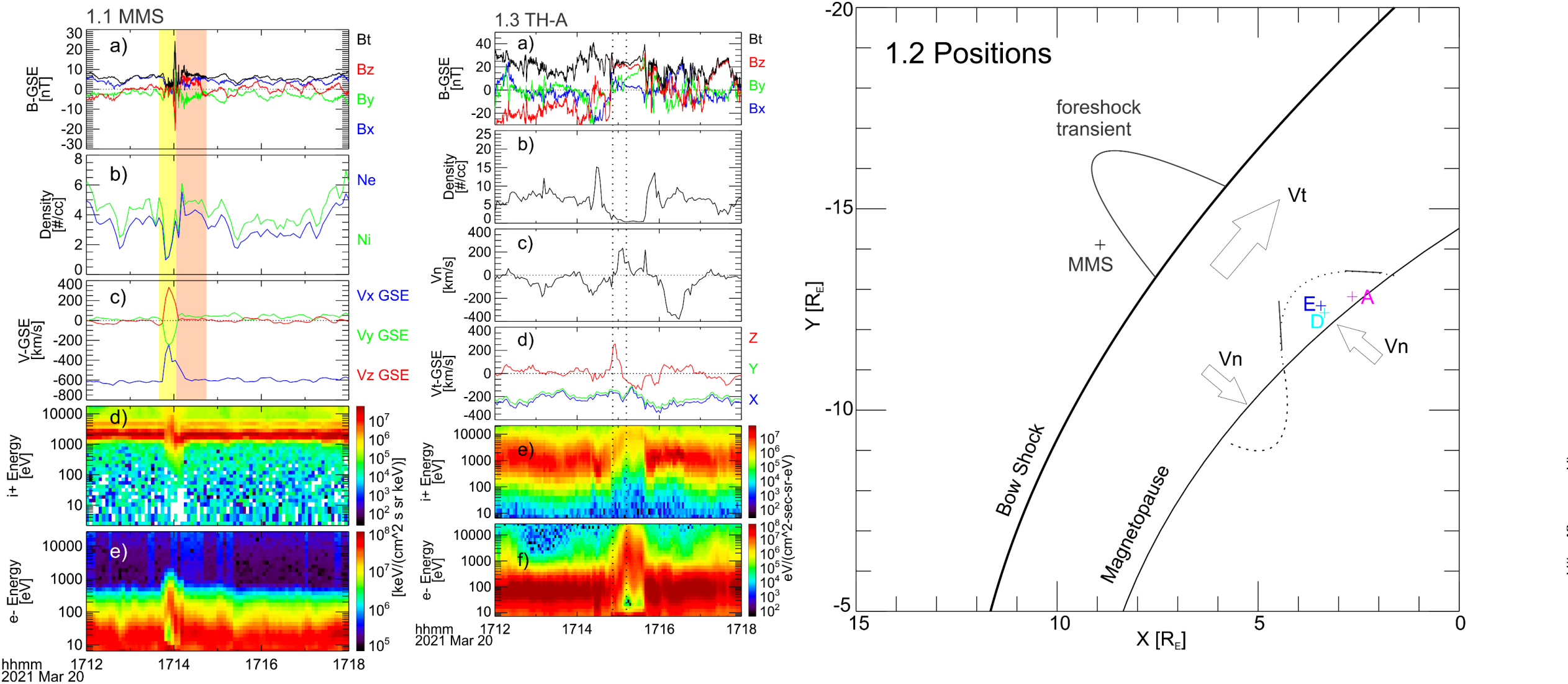
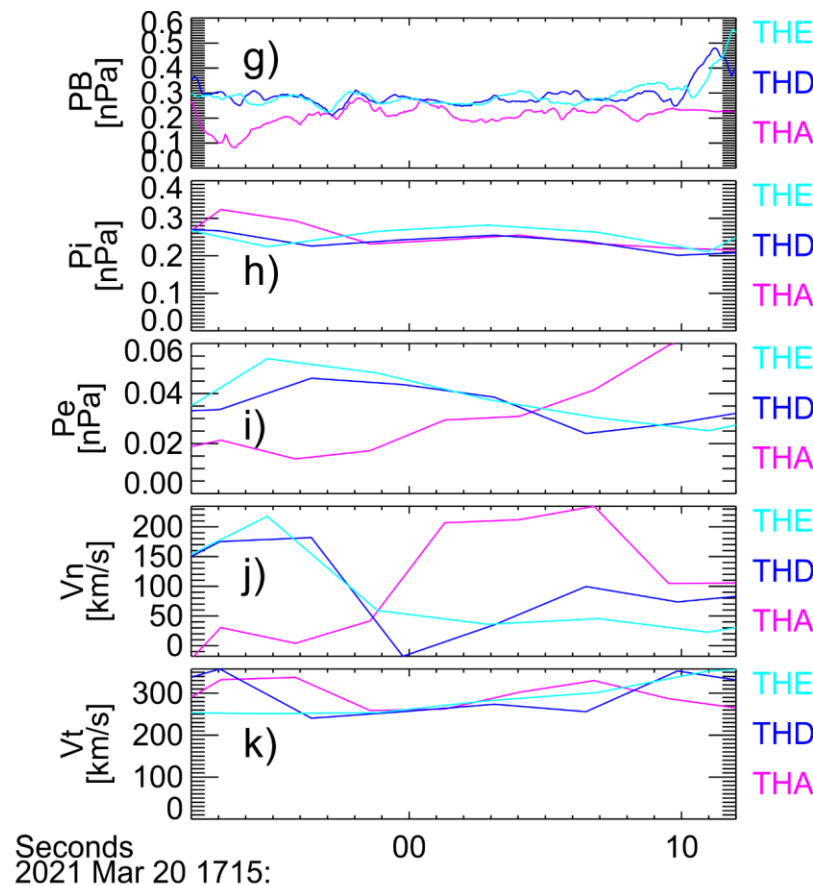
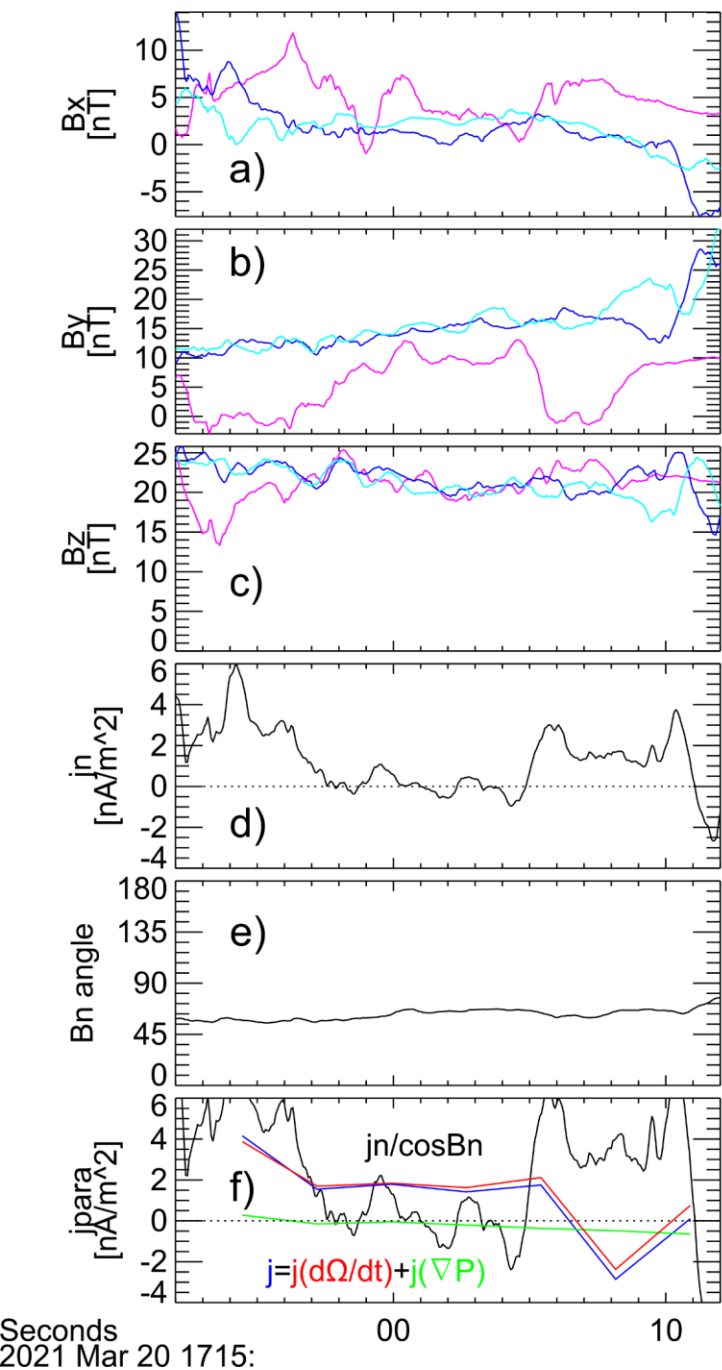


Magnetospheric field-aligned current perturbation driven by foreshock transients

Terry Z. Liu, Chih-Ping Wang, Xueyi Wang, Vassilis Angelopoulos, Hui Zhang, Xi Lu, and Yu Lin

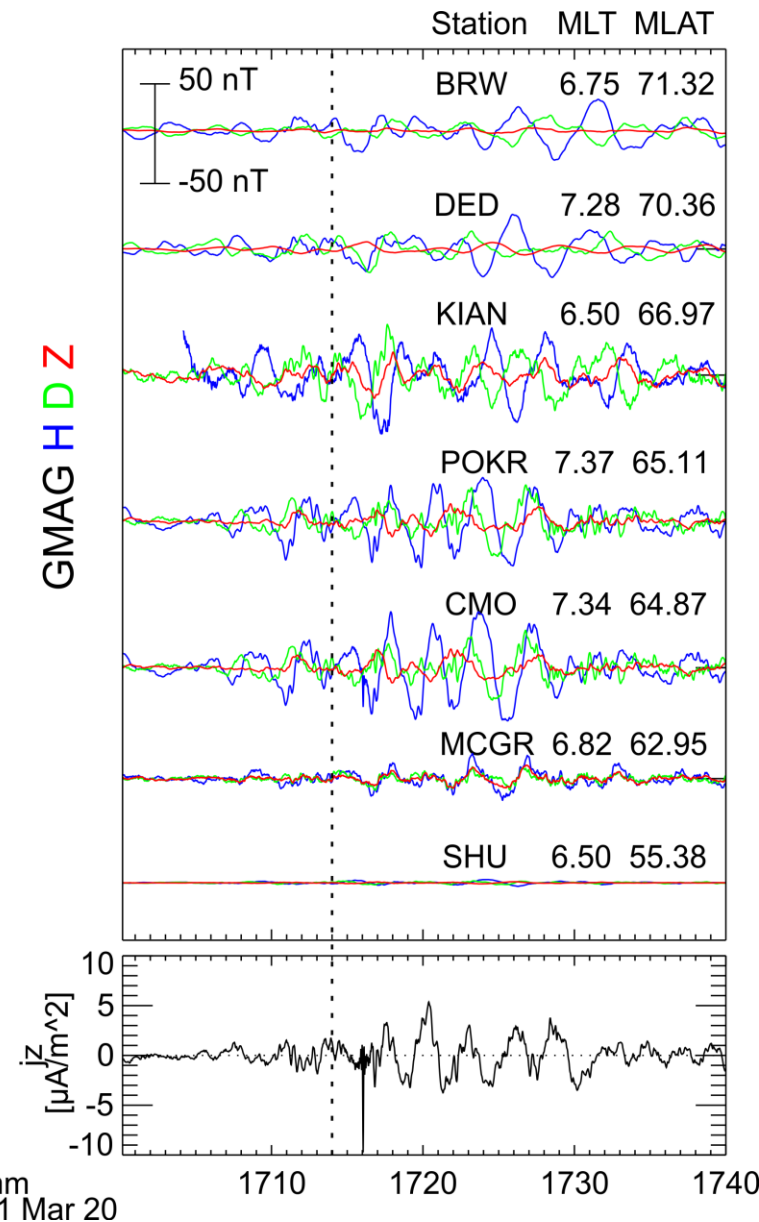




Three spacecraft can calculate $j_n = (\nabla \times B) \cdot n$,
 $\Omega_n = (\nabla \times V) \cdot n$ along sc plane normal and ∇P
 in the sc plane

$$j_{\parallel} = \int \frac{\rho}{B} \frac{d\Omega}{dt} dl_{\parallel} + B \int \frac{2\mu_0}{B^4} \nabla P_{th} \times \nabla P_B dl_{\parallel}$$

Hasegawa and Sato [1979] Vasyliunas [1970]



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