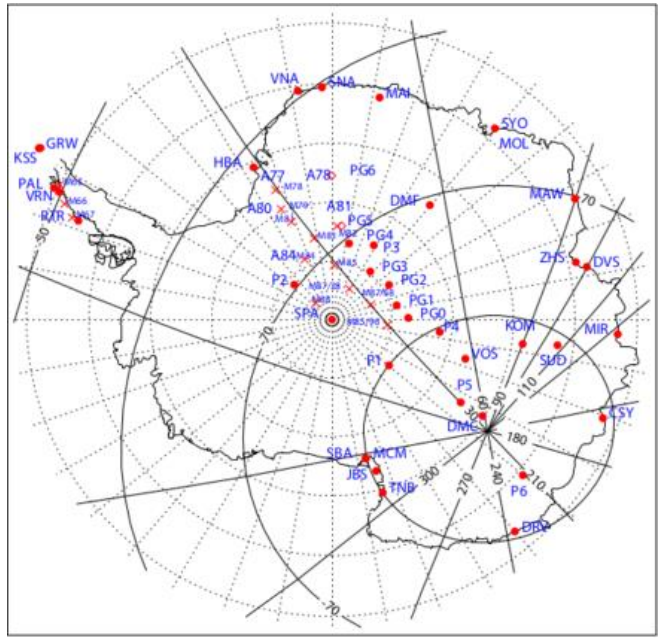
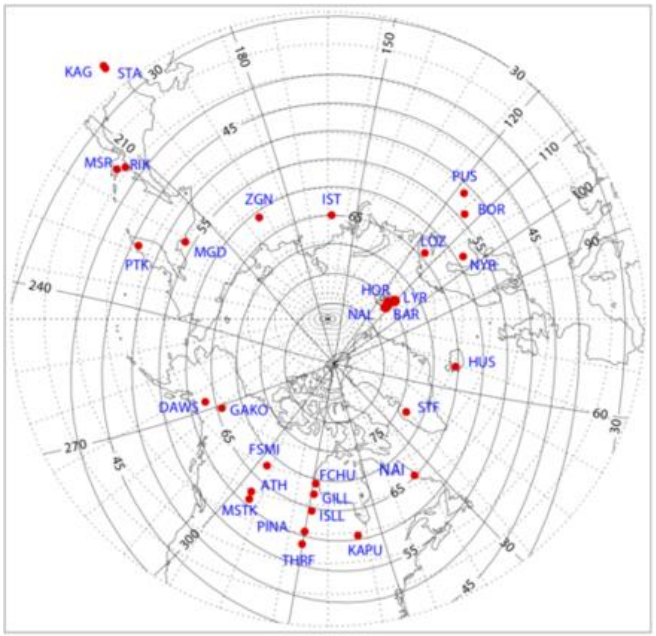
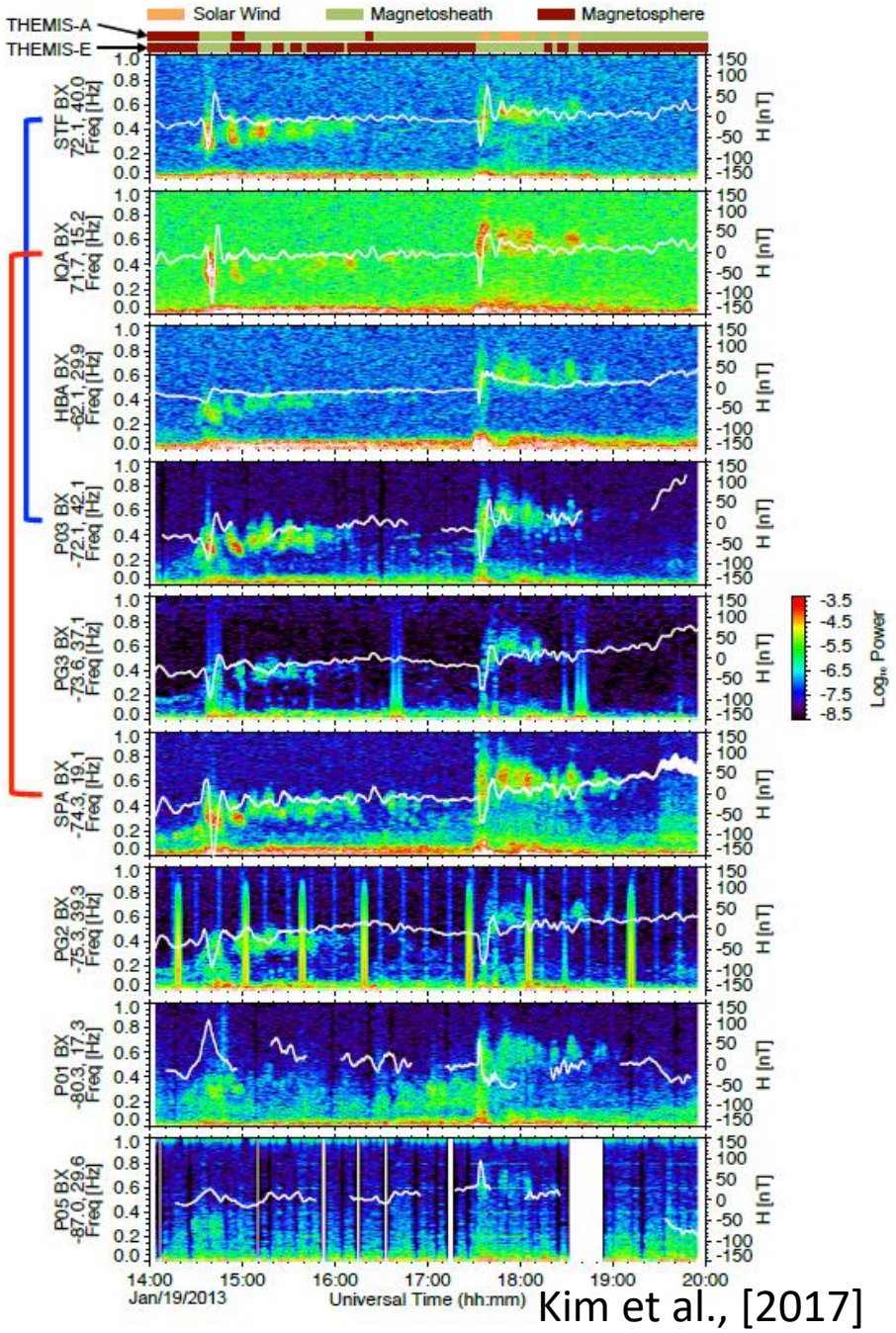
Magnetic Induction Coil Array (MICA)

- NSF OPP/MAG support to combine induction coil magnetometer measurements from different stations into standard formats, led by Marc Lessard and team at UNH
- Facilitate coordinated investigations with THEMIS, RBSP, ARASE on EMIC waves and other ULF wave modes (e.g., Kim et al., [2017])
- Data are publicly available with SPEDAS plugin available for testing







Kim et al., [2017]

Statistical relationship between ULF wave power and magnetopause location

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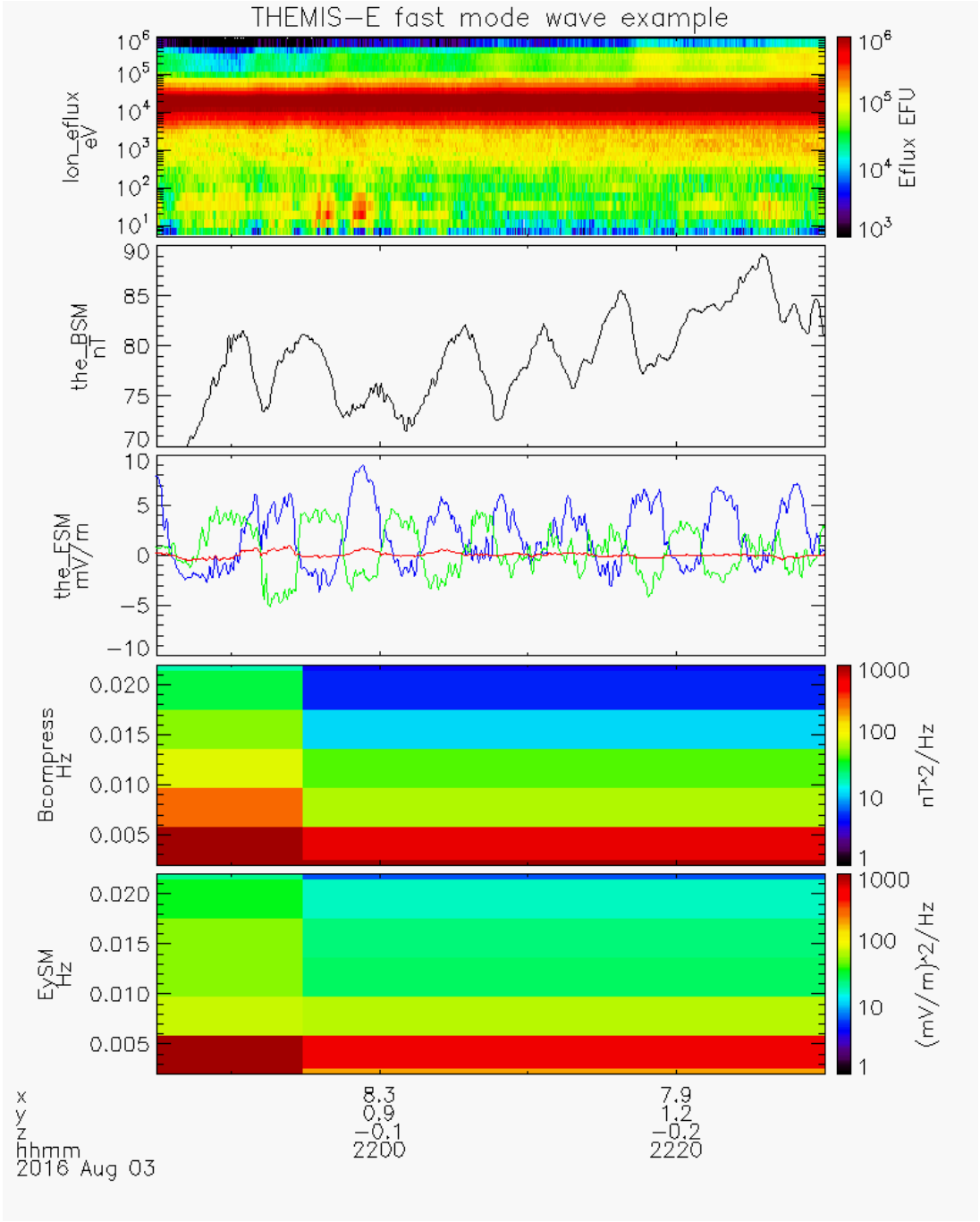
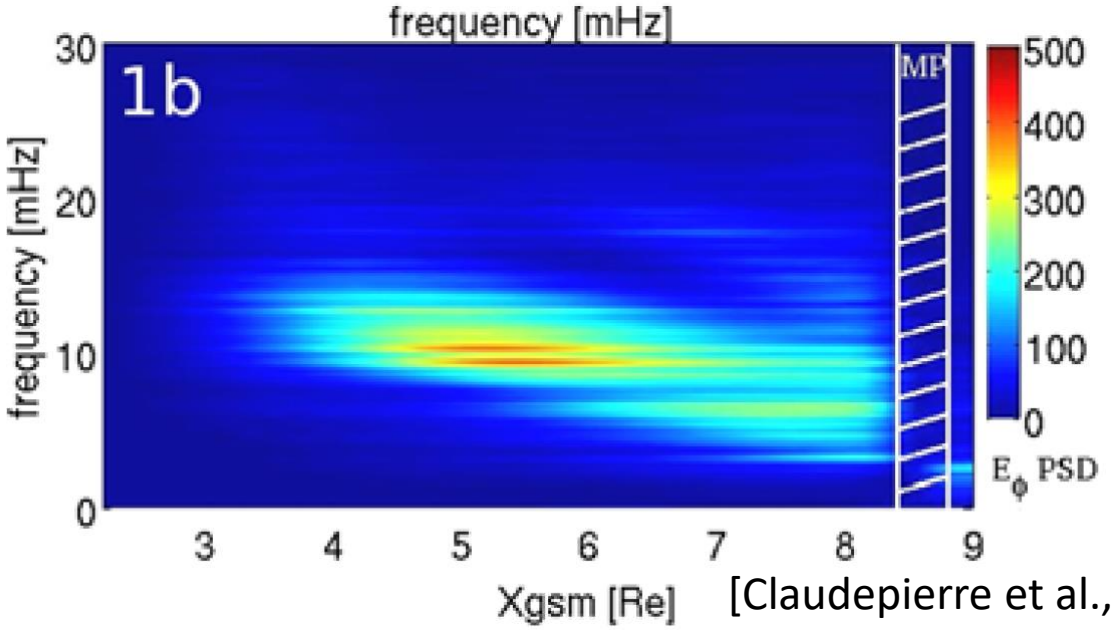
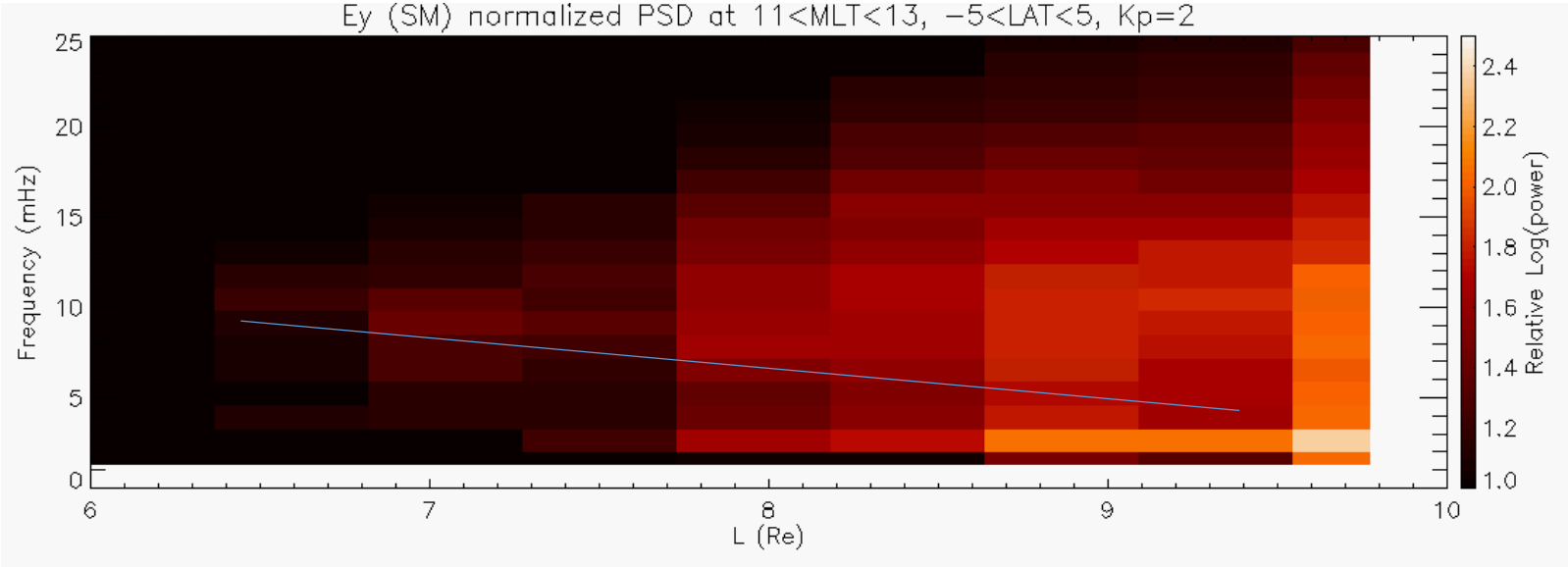
This material is based upon work supported by NASA under Grant 80NSSC19K0127 issued through the Heliophysics Guest Investigator Program

- ULF wave models predict that for external drivers, MHD fast mode wave power generally decreases with distance from the magnetopause, though there are exceptions for some eigenmodes
- We use 11 years for THEMIS-E satellite measurements, similar to figure at right, to characterize ULF wave power in ~2-25 mHz range
- Data are currently being organized by magnetopause location – past work has shown that satellite and ground-based uLF wave measurements are well organized by this parameter





[Claudepierre et al., 2009]



- Top left: LFM numerical simulations of dayside magnetopheric wave power (Ephi) during driving by solar wind dynamic pressure fluctuations with a broadband frequency spectrum [Claudepierre et al., 2009]
- Bottom left: Relative Ephi wave power as a function of L and frequency using the same technique as Takahashi and Anderson, [1992]