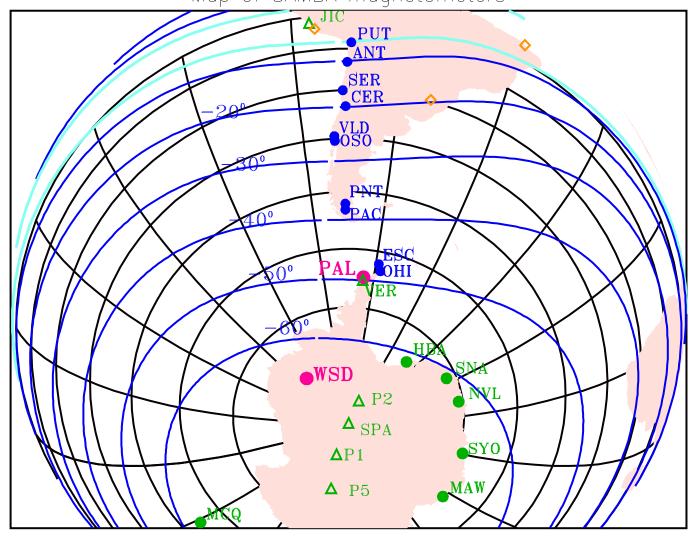
STUDY OF SPECTRA FLUCTUATIONS OF THE GEOMAGNETIC FIELD USING DATA FROM THEMIS SATELLITES AND SAMBA MAGNETOMETERS.

Victor Pinto UCLA

2nd SAMBA-iMAGS Meeting November 4th, 2013 Punta Arenas, Chile

Map of SAMBA magnetometers



FLRs and THEMIS

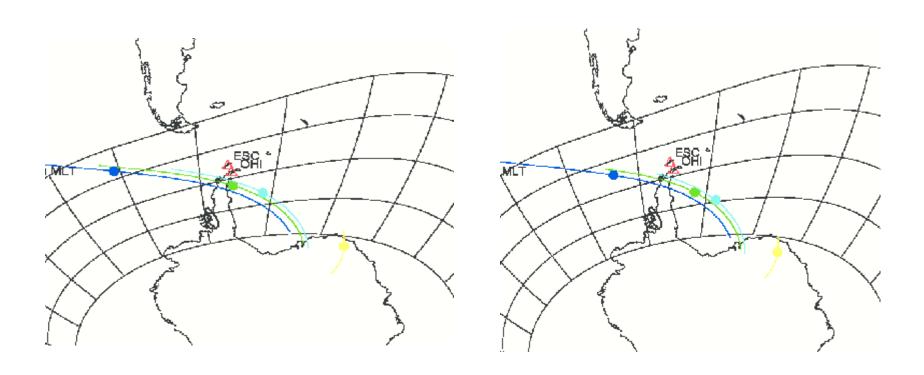
The frequency of the local resonance can be used to determine the equatorial mass density of the resonating flux tube. The assumption is that of a dipole magnetic field and that the mass density, ρ , varies **along** the magnetic field line as

$$\rho = \rho eq (LRE/R)m$$

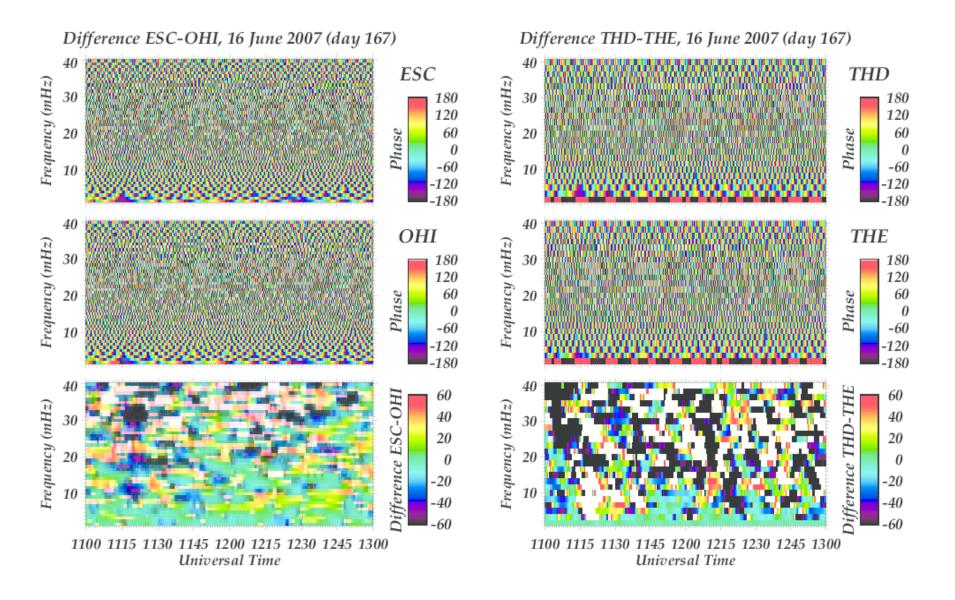
where m is the power law by which the density drops off along the field line.

The idea is obtain a similar measurement of the FLR using THEMIS satellites passing by the ground stations os SAMBA array used to compute the original FLR

Estimating conjugates

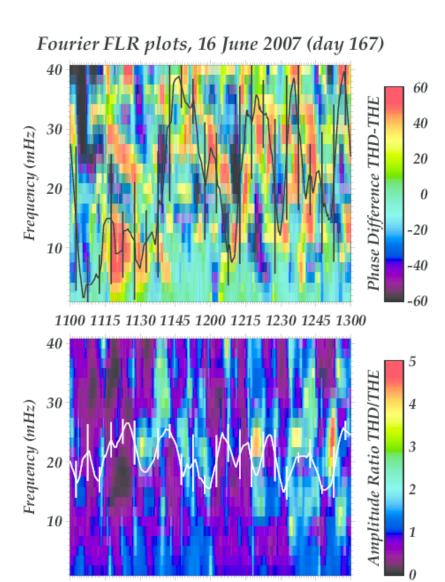


Ratio ESC/OHI, 16 June 2007 (day 167) Ratio THD/THE, 16 June 2007 (day 167) 40 **ESC** THDFrequency (mHz) Frequency (mHz) 30 0.1030 0.40.08 Amplitude Amplitude 0.3 20 0.06 20 0.2 0.040.020.1 0.00 0.0 40 OHITHEFrequency (mHz) Frequency (mHz) 30 0.1030 0.4Amplitude 0.08 Amplitude 0.3 0.0620 0.2 0.040.020.1 0.00Frequency (mHz) Ratio ESC/OHI Frequency (mHz) Ratio THD/THE 30 30 3 20 10 1100 1115 1130 1145 1200 1215 1230 1245 1300 1100 1115 1130 1145 1200 1215 1230 1245 1300 Universal Time Universal Time



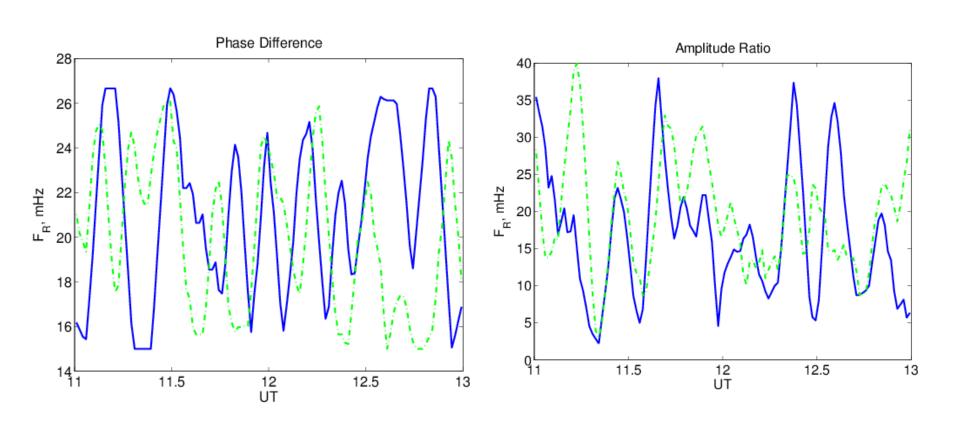
Fourier FLR plots, 16 June 2007 (day 167) 60 Phase Difference ESC-OHI 40 Frequency (mHz) 20 -20 10 1100 1115 1130 1145 1200 1215 1230 1245 1300 Amplitude Ratio ESC/OHI Frequency (mHz) 10

1100 1115 1130 1145 1200 1215 1230 1245 1300 Universal Time



1100 1115 1130 1145 1200 1215 1230 1245 1300 Universal Time

Comparing Phases and Ratios



Thanks