

Time Series Analysis of Particles and Fields data: SST corrections

- In the tail or near Earth or during high speed flows, SST contribution to can be significant:
 - Velocity, pressure corrections from SST

Materials in:

<http://www.igpp.ucla.edu/public/vassilis/ESS265/20080602>

class_notes_V_P_corr_SST.ppt

joint_esa_sst_mom_v02.pro

fix_dat.pro

Pressure Correction

- Remove SST noise
- Interpolate pressures
- Then add

```

.
.
.
;
.
; SST now
.
; SST now
.
thm_load_sst,probe=sc,lev=1
.
thm_part_moments,probe = sc, instr= ['ps?f'], $
.
moments = ['density', 'velocity', 't3'], $
.
mag_suffix='_peir_magt3', $
.
scpot_suffix='_peir_sc_pot';,/median
.
; ...interpolate
.
; ... add
.
; ...pressure
.
; ...SST: perpendicular temperature only
sst_Tperp = .5*(sst_i_t3.y[*],0)+sst_i_t3.y[*],1)
sst_i_p_nPa = 0.16*.001*sst_i_n.y * sst_Tperp
.
; perp. pressure in nPa
store_data, 'th'+sc+'_psif_p_perp_nPa', $
data={x:sst_i_n.x, y:sst_i_p_nPa}
.
options, 'th'+sc+'_psif_p_perp_nPa', $
.
'ytitle', 'sst Pi !C!CnPa'

.
; ...ESA: scalar temperature
esa_Ti = total(esa_i_T.y,2)/3.
store_data,'Ti_th'+sc+'_peir', $
data={x:esa_i_n.x, y:esa_Ti}
.
; ...ESA ion pressure:
esa_i_p_nPa = 0.16 *.001 * esa_i_n.y*esa_Ti
.
; scalar pressure in nPa
store_data, 'th'+sc+'_peir_p_nPa', $
data={x:esa_i_n.x, y:esa_i_p_nPa}
.
options, 'th'+sc+'_peir_p_nPa', $
.
'ytitle', 'esa Pi !C!CnPa'

.
; ...Total ion pressure
totPi = sst_i_p_nPa + esa_i_p_nPa
store_data, 'th'+sc+'_i_p_nPa', $
data={x:esa_i_n.x, y:totPi}
.
options, 'th'+sc+'_i_p_nPa', 'ytitle', 'Pi !C!CnPa'

```

ESS 265

Ti

