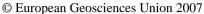
Geophysical Research Abstracts, Vol. 9, 10357, 2007

SRef-ID: 1607-7962/gra/EGU2007-A-10357





Low Energy ($>\sim$ 40 keV) Ions and Electrons of possible Jovian origin in the outer Heliosphere (Ulysses) and near Earth (ACE) between days 290/2003 – 90/2004.

G.C. Anagnostopoulos (1), I. Louri (1), P. Marchavilas (1), G. Fronis (1) and E.T. Sarris (1)

(1) Space Research Laboratory, Democritus University of Thrace, Greece (ganagno@ee.duth.gr)

Low energy ion flux / spectral modulation and magnetic field directional variations with the Jupiter rotation period (\sim 10 hours) were observed by Ulysses during its Distant Jupiter Encounter, as long as Ulysses moved from north to south heliolatitudes, between days 290/2003 - 90/2004. In general this ~ 10 hour ion modulation was found to be more evident around times of passage of CIRs and was observed by Ulysses after the detection of Jovian bKOM and nKOM ~10 hours emissions. In addition, characteristic ~ 40 min periodic variations were often seen superimposed on the ~ 10 hour flux increases (for example days 348-352/03). However, a more surprising ion phenomenon could be seen observed in the heliosphere between days $\sim 320-332/03$. Previous studies have already shown that Ulysses observed the passage of a coronal mass ejection (CME) between d. ~320-324 / 03 (Koning et al. [2005]) and that Jovian $> \sim 3$ MeV electrons werw ejected within the CME (McKibben et al. 2005). On days 329-331 / 03 (25-27, November 2003), a series of \sim 10h separated short (\sim 1-3 hours) duration low energy ($\sim 0.05 - \sim 2.00$ MeV) ion bursts were observed by the spacecraft ACE, which were accompanied by ~10 hour spectral variation of low energy (\sim 40 - \sim 100 keV) electrons and \sim 10/5 hour quasi-periodic IMF directional variations. At those times, ACE was at a distance of \sim 240 R_E from Earth and located near IMF lines connecting Sun with Jupiter. The analysis of energetic ion pitch angle distributions suggest that a large scale particle layer was "near" ACE for a long time $(\sim 2.5 \text{ days})$ and approached / removed quasi-periodically $(\sim 10 \text{ hours})$ from the ACE spacecraft. During the main phase of ACE ion bursts, field aligned flows from the antisunward direction were observed, but a comparison of simultaneous observations at ACE, Goetail, IMP-8 and geostationary spacecrafts (LANL-01A, LANL-02A, LANL-97A, 1994-084, 1991-080, 1990-095) rather suggest that the Earth's magnetosphere / bow shock was not the source of the $\sim\!10$ / 5 quasi-periodic ion flows. We believe that the Jovian magnetosphere triggered by the impact of the CIRS (CME) was most probably the source of the $\sim\!10$ quasi-periodicities in low energy ion observations in the outer (inner) heliosphere during the time period examined in this study.