

# Escape of CO<sub>2</sub> ions from the Martian ionosphere

**A. Fedorov, E. Budnik, J.A. Sauvau**

*CESR, Toulouse, France*

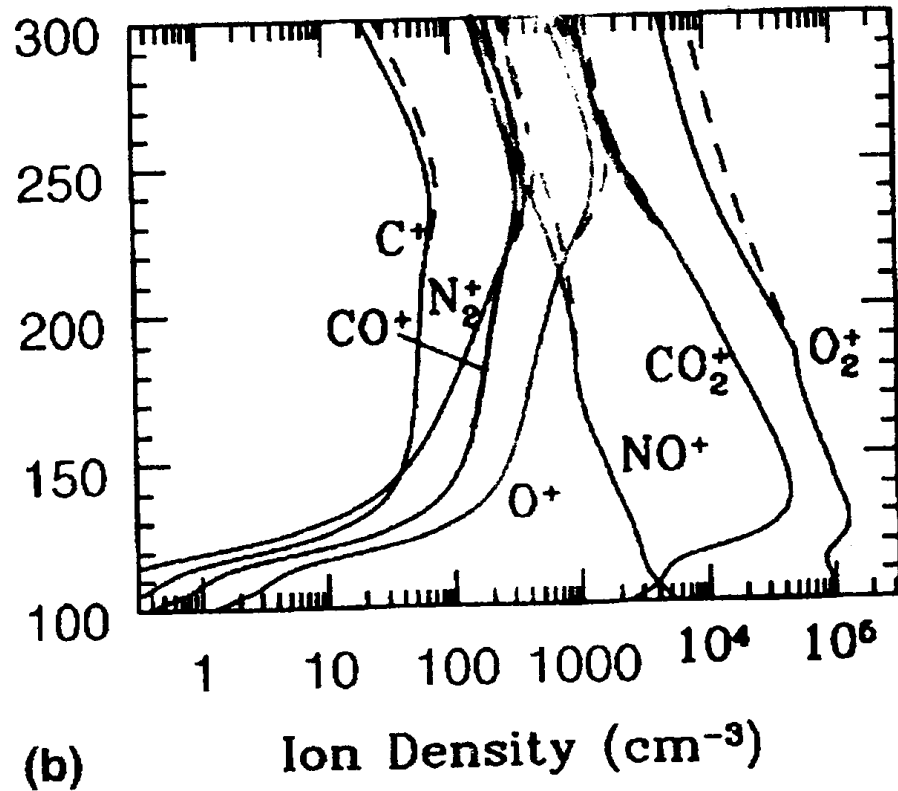
**E. Carlson, S. Barabash, R. Lundin**

*IRF, Kituna, Sweden*

*and*

**ASPERA Team**

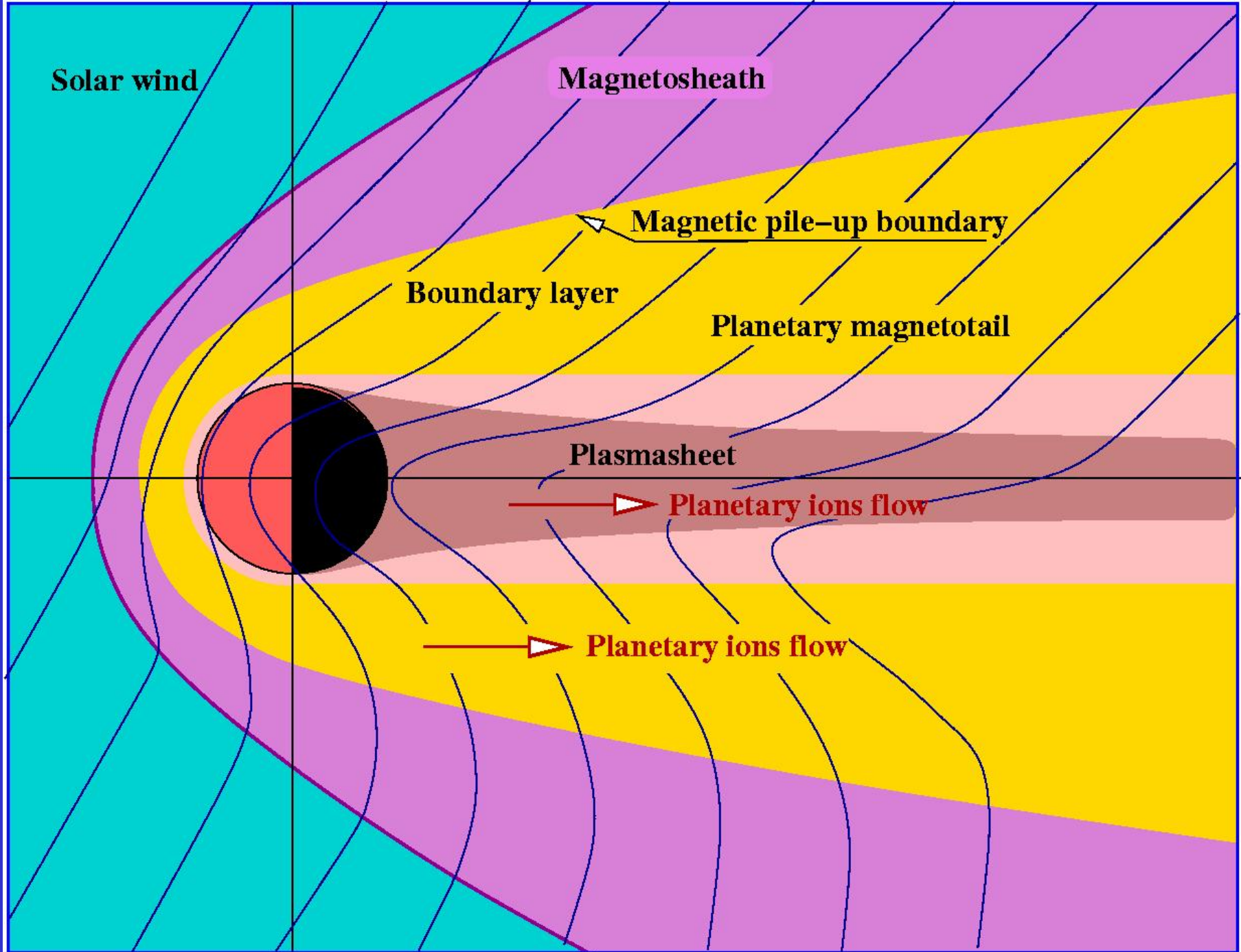
# Upward flux from the ionosphere



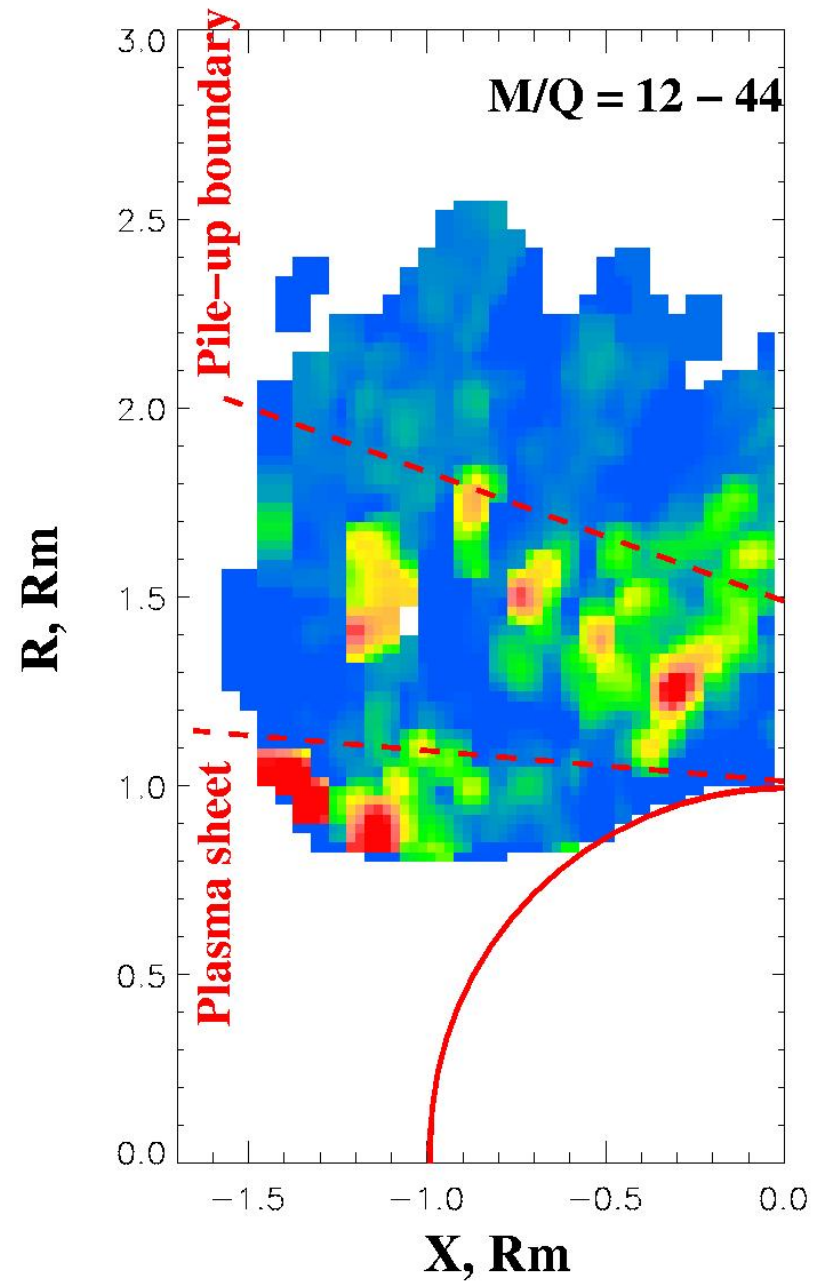
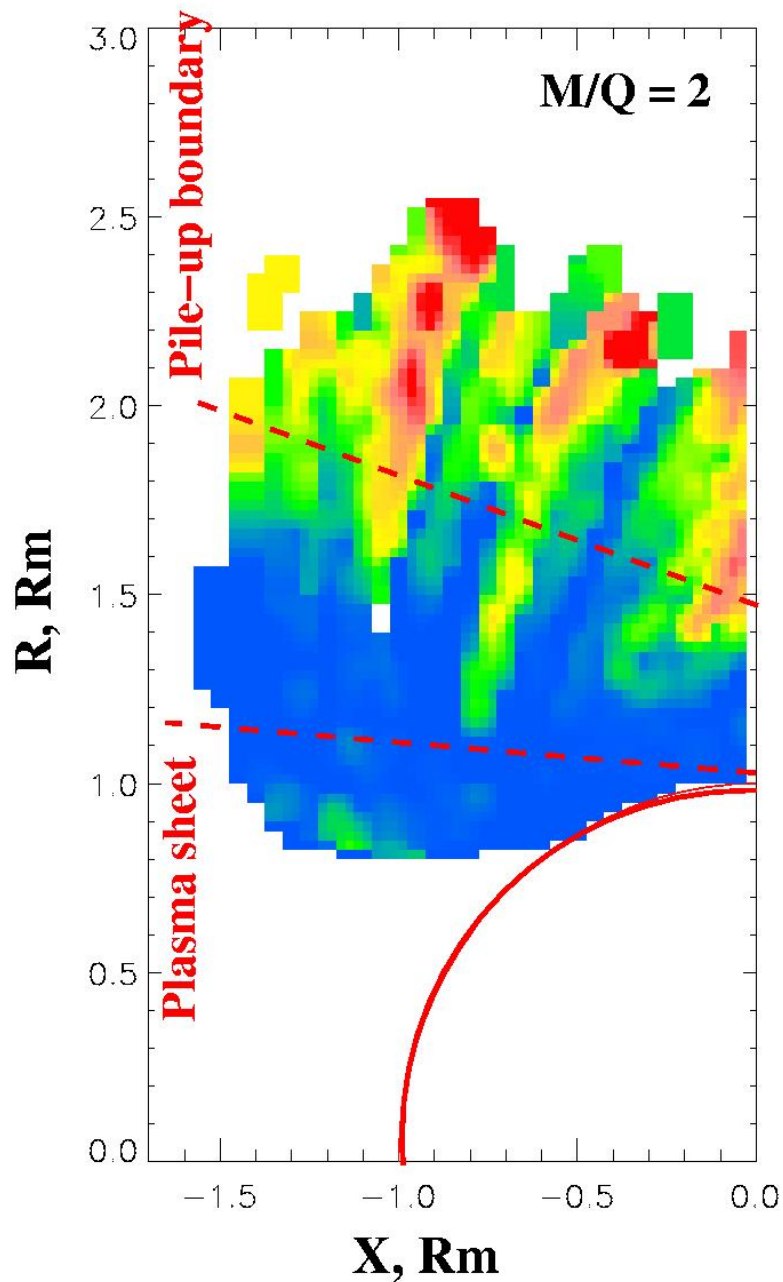
J.L. Fox , 2004

	$\text{s}^{-1} \text{ cm}^{-2}$	
$\text{CO}_2^+$	$4.0\text{e}+7$	1.63
$\text{O}^+$	$2.5\text{e}+6$	1.00
$\text{O}_2^+$	$1.3\text{e}+8$	9.5

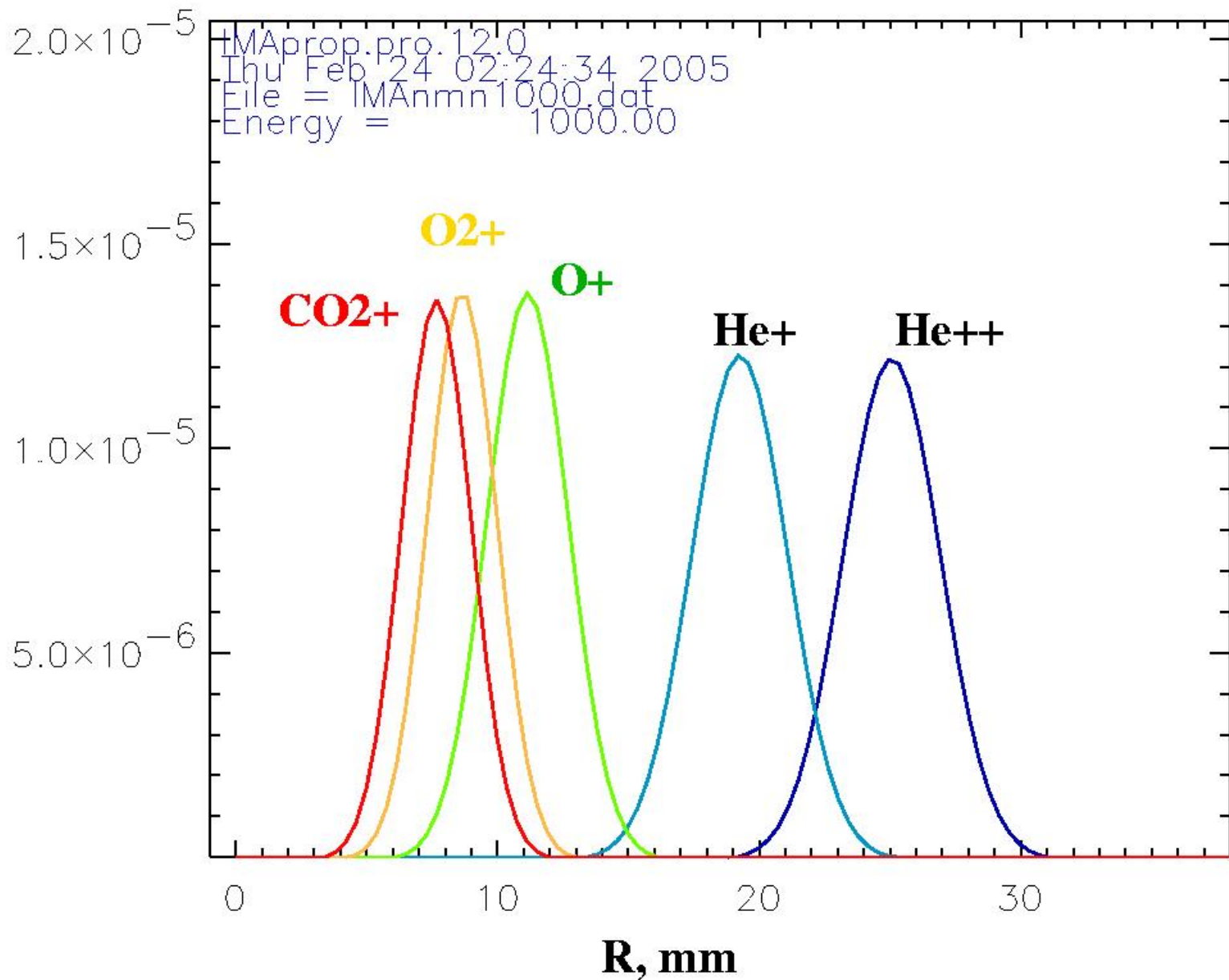
J.L. Fox , private communication



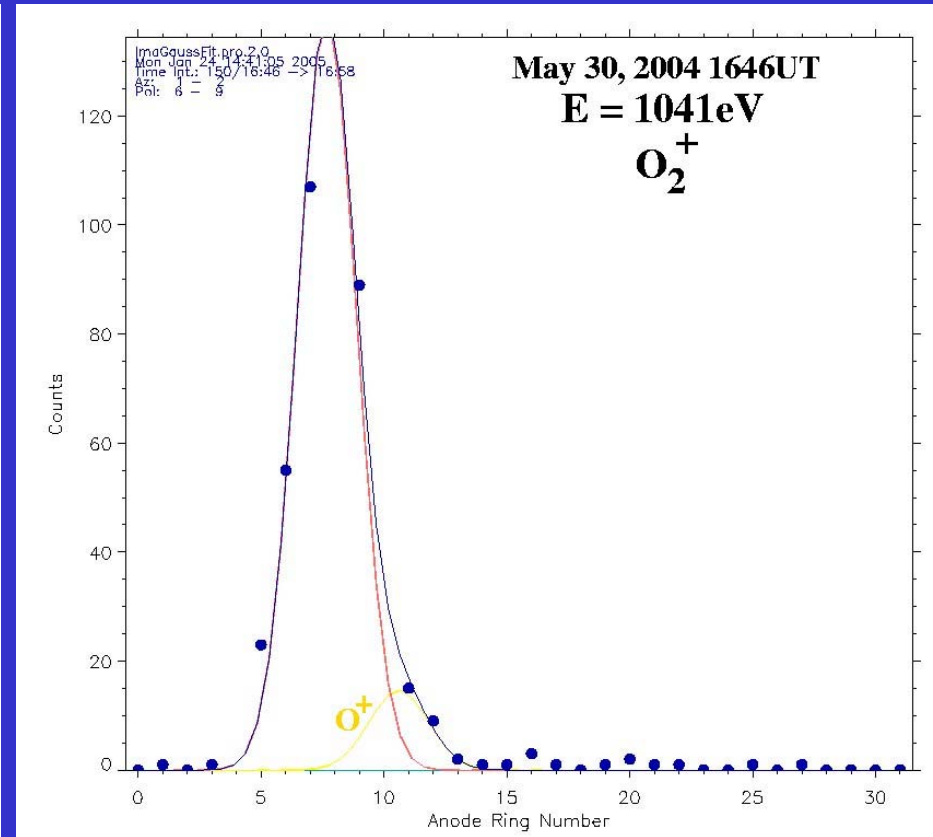
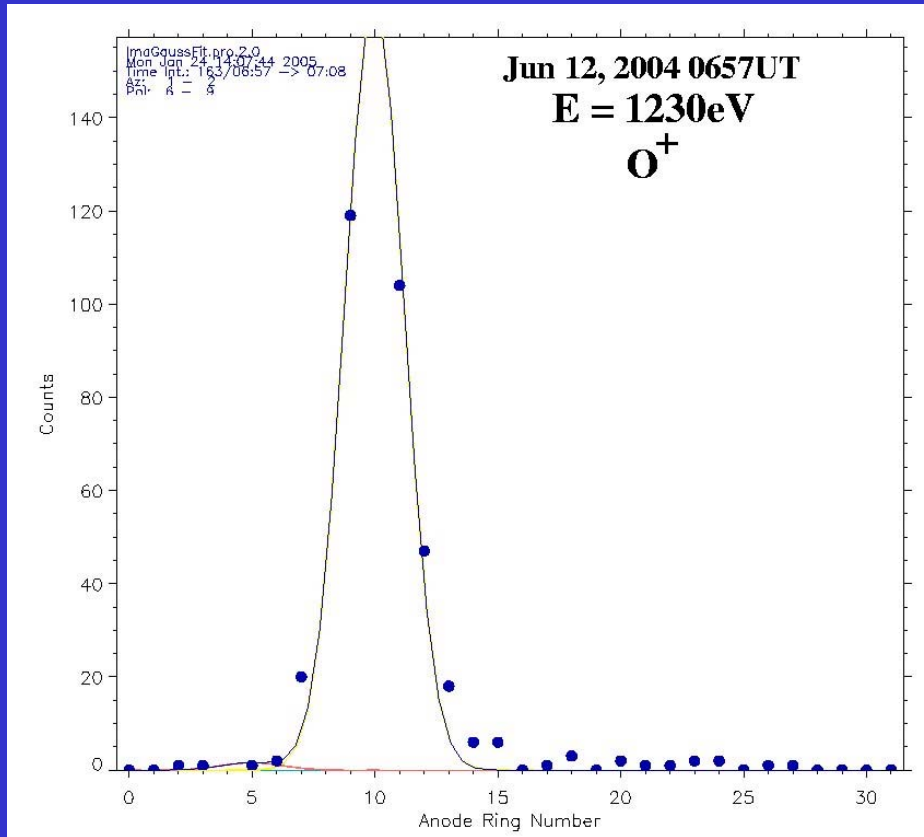
# Solar wind and planetary ions statistics



# IMA mass resolution for 1000 eV ions

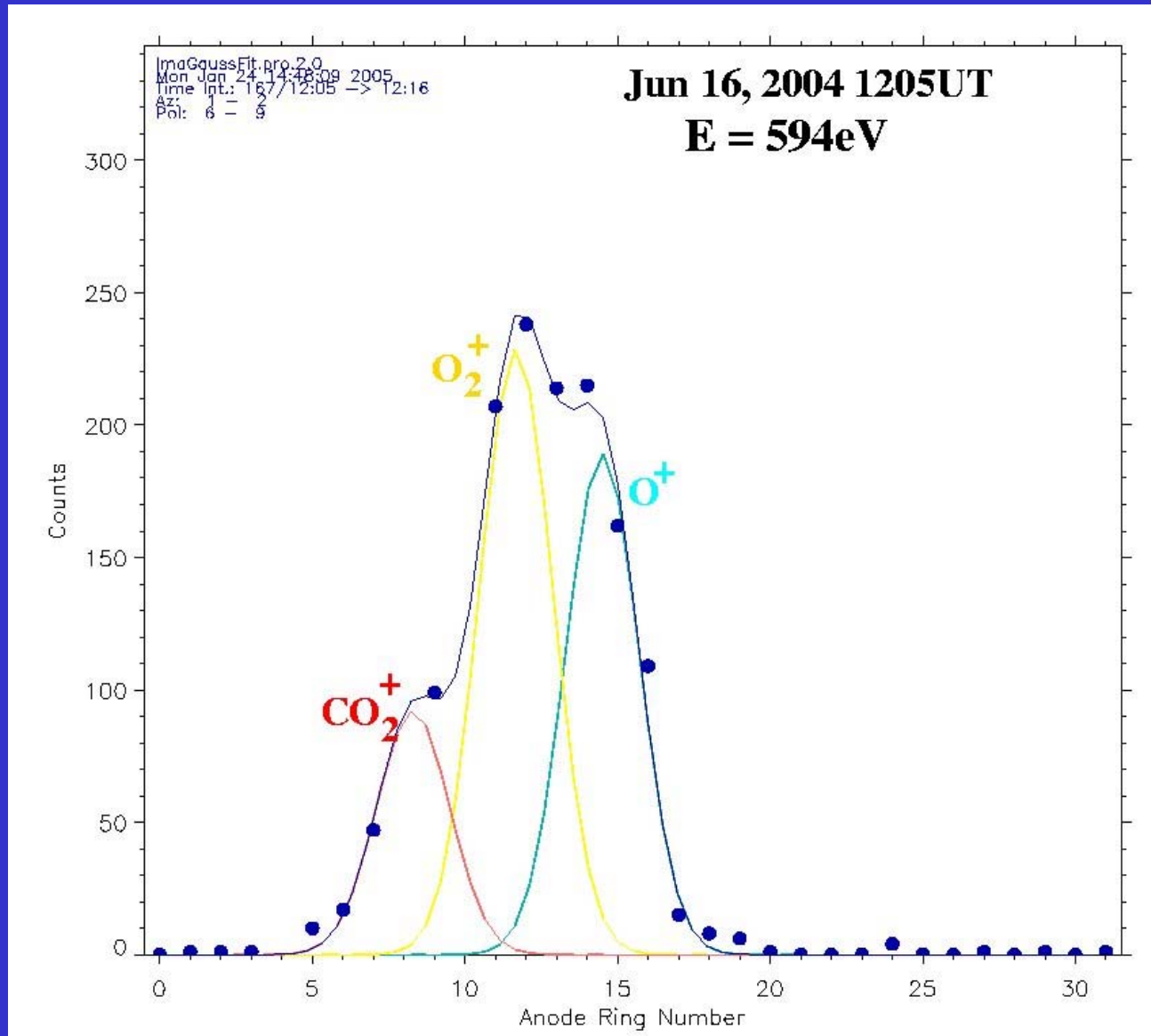


# Monopeaks of $O^+$ and $O_2^+$

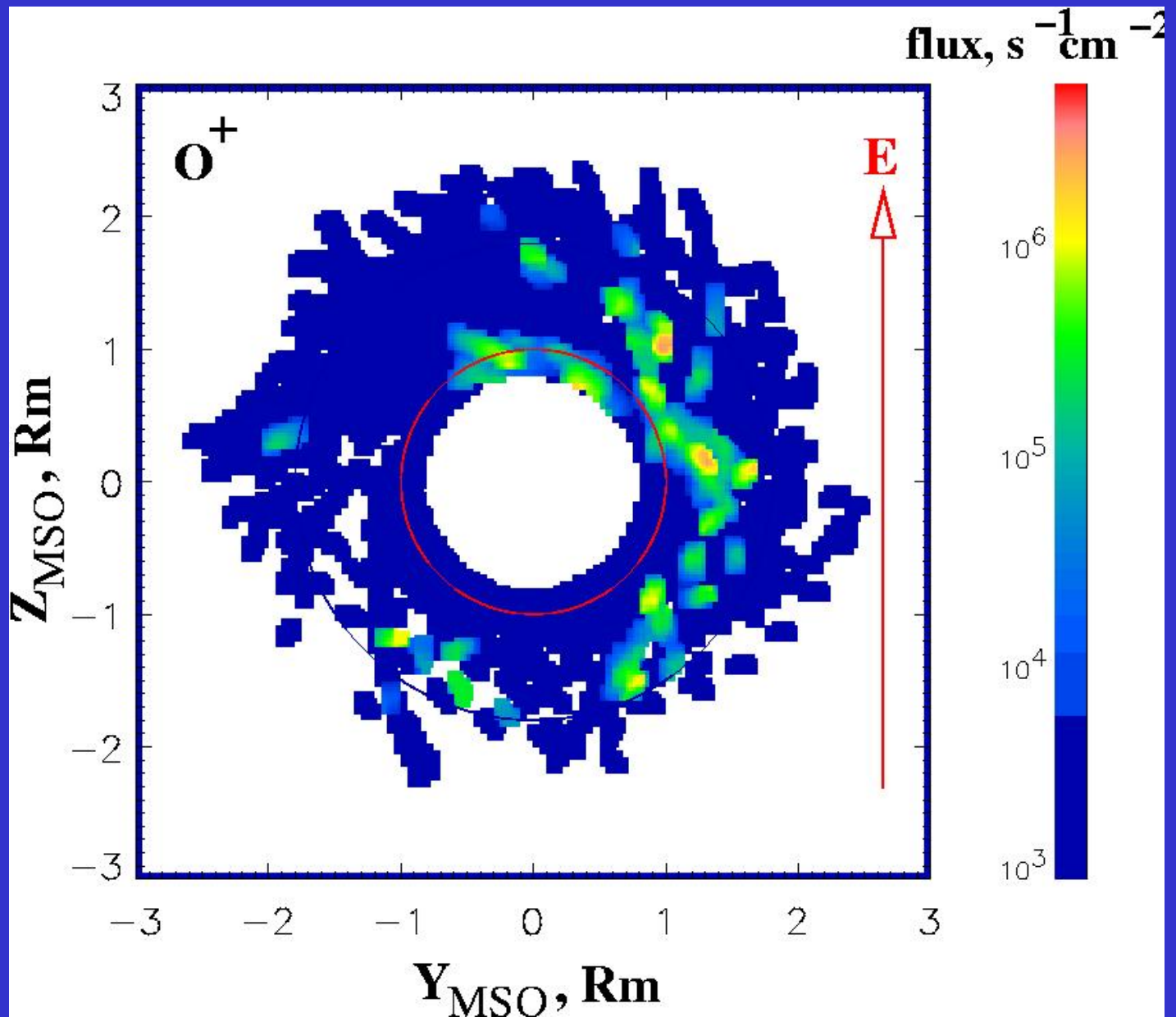




# Combination of several species

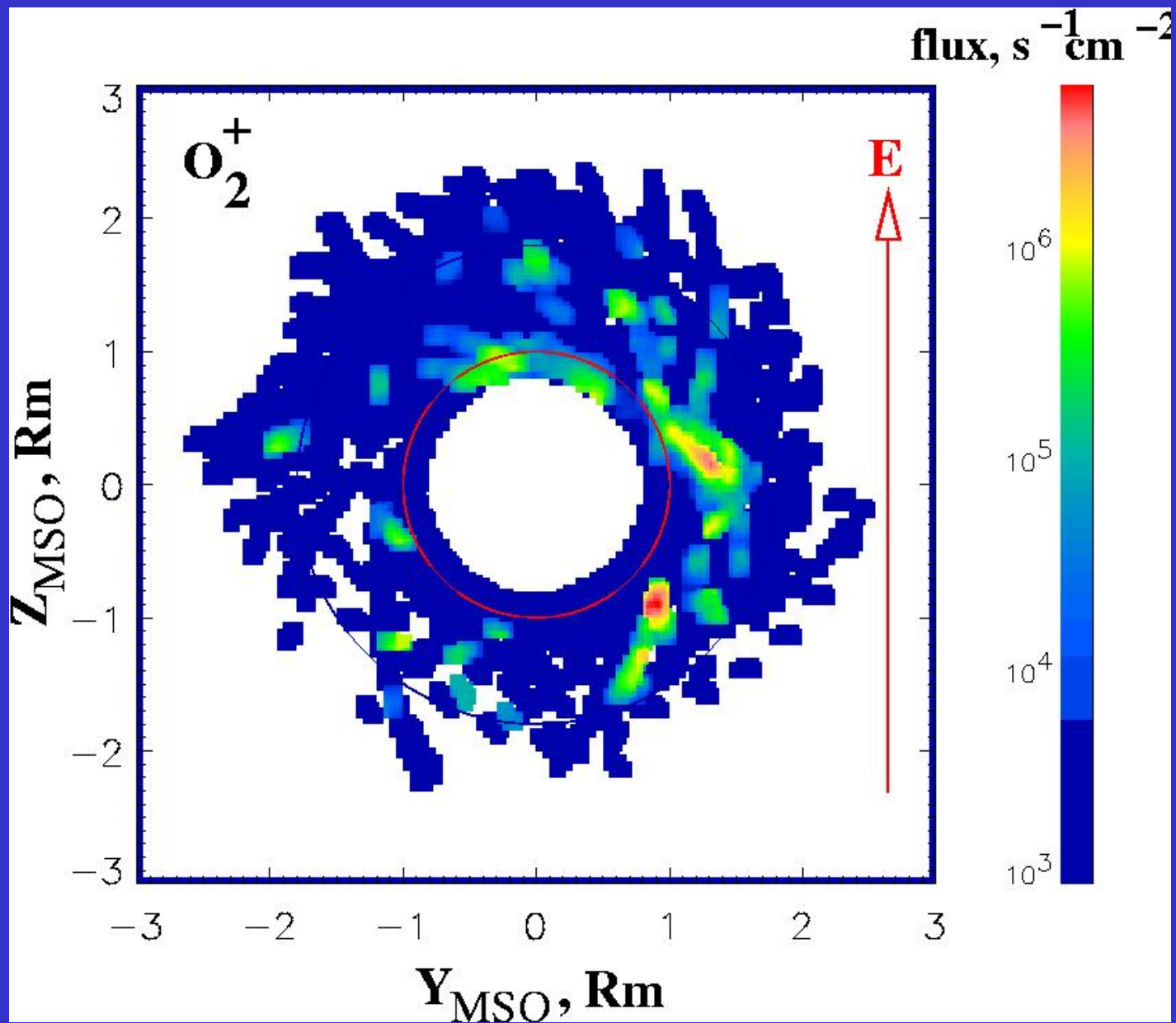


# 80 orbits O<sup>+</sup> statistics

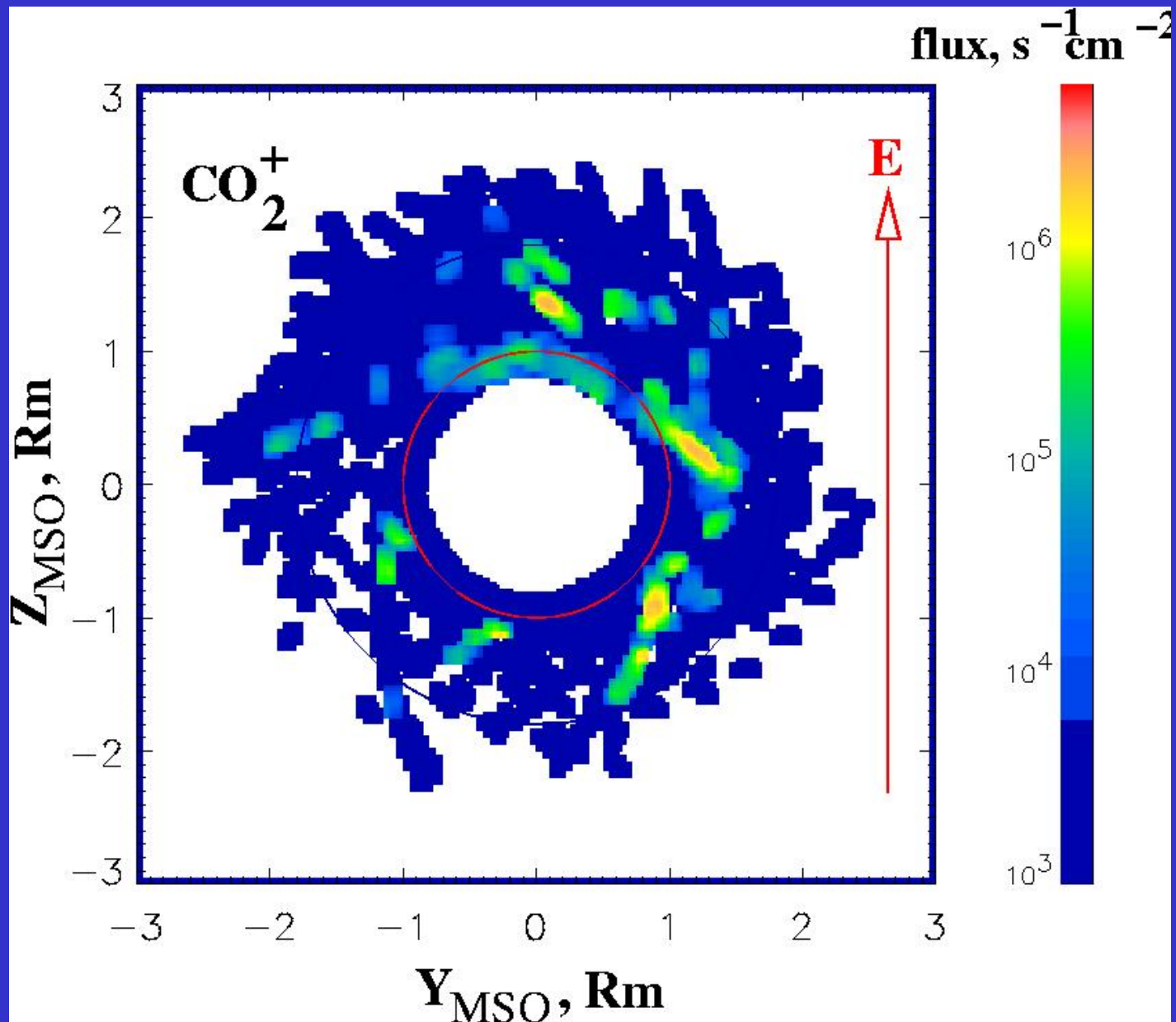


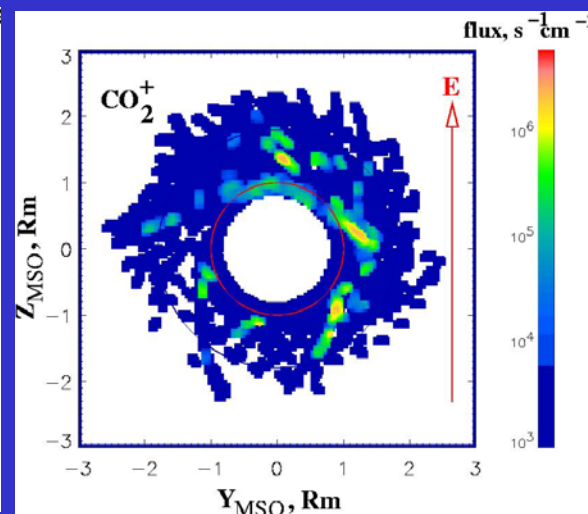
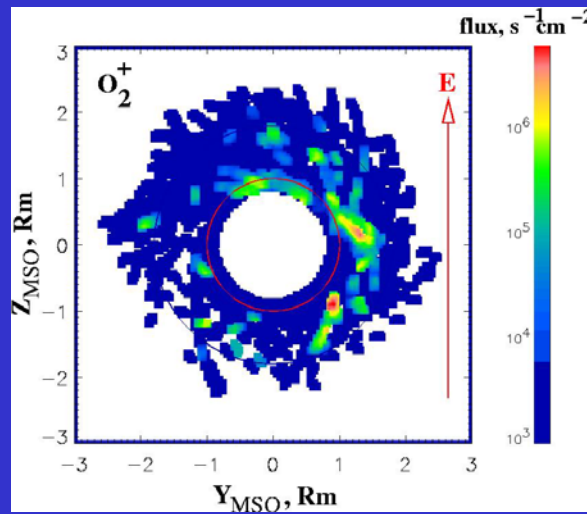
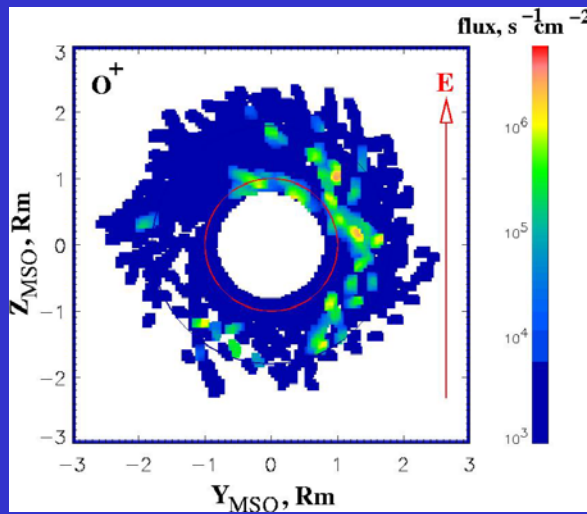


# 80 orbits $O_2^+$ statistics



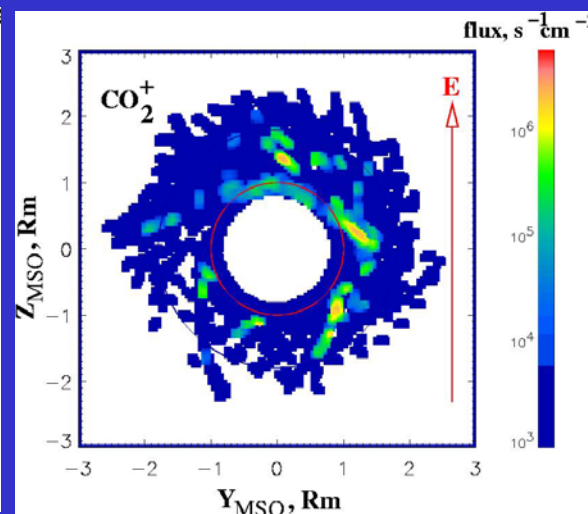
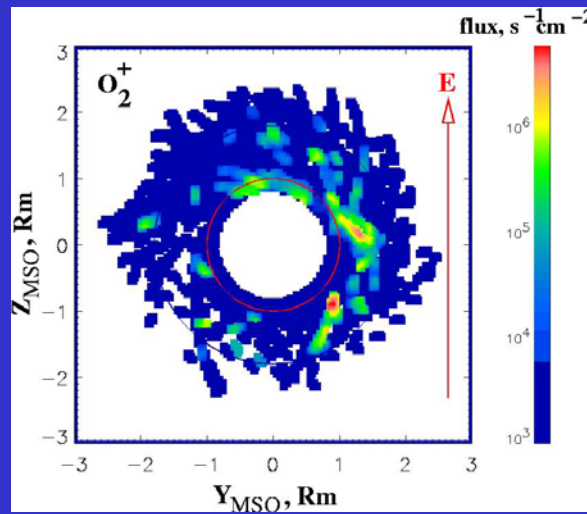
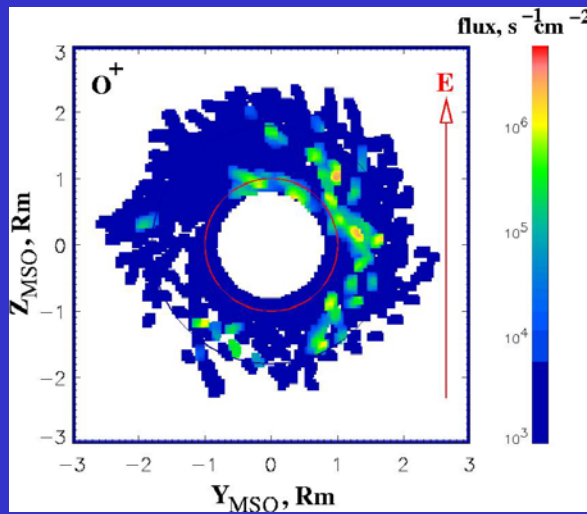
# 80 orbits $\text{CO}_2^+$ statistics





PS	$1.7e+5$	$1.9e+5$	$6.8e+4 \text{ s}^{-1} \text{ cm}^{-2}$
BL	$1.3e+5$	$1.9e+5$	$1.0e+5 \text{ s}^{-1} \text{ cm}^{-2}$

PS	1.11	0.4
BL	1.47	0.77
	O2/O	CO2/O



PS  $1.6e+21$

$6.9e+21$

$2.4e+21 \text{ s}^{-1}$

BL  $3.8e+22$

$5.8e+22$

$3.2e+22 \text{ s}^{-1}$