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Correction to "Oxygen and hydrogen ion abundance in the near-Earth magnetosphere: Statistical results on the response to the geomagnetic and solar wind activity conditions"

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1. Introduction

In the article "Oxygen and hydrogen ion abundance in the near-Earth magnetosphere: Statistical results on the response to the geomagnetic and solar wind activity conditions" by E. A. Kronberg et al., (*Journal of Geophysical Research*, *117*, A12208, 10.1029/2012JA018071), we published values and uncertainties of energy density ratios of energetic (>274) ions in Table 3 and the method of their calculation in paragraph 73. The calculation of the energy density ratios for >274 ions was based on the method published in *Kronberg and Daly* [2009], which has since been reconsidered and improved [*Kronberg and Daly*, 2013]. We have repeated the calculations for Table 3 in *Kronberg et al.* [2012] with the improved method and list the revised values in Table 1 of this paper. Now the correction of the energy density ratio due to the wide energy channels has to be only 7% instead of 65% and the corresponding error bars are ±12% instead of ±30%. The new values do not affect the conclusions in *Kronberg et al.* [2012], but the error bars are now significantly smaller. The revised text of paragraph 73 also appears here.

This calculation is based on the assumption that the effective energy is equal to the geometric mean of the corresponding energy thresholds. However, in our case the width of the energetic channel is quite large and this will lead to the deviation of the energy density from the value calculated using the effective energy as the geometric mean. The way to calculate this deviation one can find in *Kronberg and Daly* [2013]. The deviation is estimated to be ~7% and error bar ±12% from the value of the energy density calculated in equation (A1). For these calculations the typical range of γ values derived from our database were taken for O^+ $\gamma = 2–4.5$ and for H^+ $\gamma = 3.5–6.5$. The statistical errors of the energy density and the error due to the large width of the energy channels are added in this case.

Table 1. O^+/H^+ Ratios of Energy Density Depending on the Disturbance Level and the Location

Satellite, Instrument	Energy Range (keV)	O^+/H^+, Energy Density Quiet Time	Disturbed Time
Cluster/RAPID	274 keV to ~955 keV	0.32±0.042[a], 1.02±0.17[b]	1.49±0.87[a], 1.58±0.86[b]
Cluster/CIS	~10 keV	0.038±0.0081[a], 0.034±0.0031[b]	0.083±0.038[a], 0.2±0.12[b]
AMPTE/CCE[c]	1–310 keV	0.03	0.34
AMPTE/CCE[d]	1–310 keV	0.01	0.61
Geotail/EPIC[e]	9–210 keV	0.05–0.1	0.2–0.6

[a]Quiet (AE<100 nT) and disturbed conditions (AE>300 nT) are based on the AE index.
[b]Quiet (Dst~ 0 nT) and disturbed (Dst is between −100 and −30 nT) are determined based on the Dst index.
[c]Measurements taken from *Gloeckler et al.* [1985].
[d]Measurements taken from *Hamilton et al.* [1988].
[e]Measurements taken from *Nosé et al.* [2001].

References

Gloeckler, G., F. M. Ipavich, B. Wilken, W. Stuedemann, and D. Hovestadt (1985), First composition measurement of the bulk of the storm-time ring current (1 to 300 keV/e) with AMPTE-CCE, *Geophys. Res. Lett.*, *12*, 325–328, doi:10.1029/GL012i005p00325.

Hamilton, D. C., G. Gloeckler, F. M. Ipavich, B. Wilken, and W. Stuedemann (1988), Ring current development during the great geomagnetic storm of February 1986, *J. Geophys. Res.*, *93*, 14,343–14,355, doi:10.1029/JA093iA12p14343.

Kronberg, E. A., and P. W. Daly (2009), Calibration report of the RAPID measurements in the Cluster Active Archive (CAA), *Tech. Rep. CAA–EST–CR–RAP*, Max-Planck-Institut fur Sonnensys-temforschung, Katlenburg-Lindau, Germany.

Kronberg, E. A., and P. W. Daly (2013), Spectral analysis for wide energy channels, *Geosci. Instrum. Method. Data Syst.*, *2*(2), 257–261, doi:10.5194/gi-2-257-2013.

Kronberg, E. A., S. E. Haaland, P. W. Daly, E. E. Grigorenko, L. M. Kistler, M. Fränz, and I. Dandouras (2012), Oxygen and hydrogen ion abundance in the near-Earth magnetosphere: Statistical results on the response to the geomagnetic and solar wind activity conditions, *J. Geophys. Res.*, *117*, A12208, doi:10.1029/2012JA018071.

Nosé, M., S. Ohtani, K. Takahashi, A. T. Y. Lui, R. W. McEntire, D. J. Williams, S. P. Christon, and K. Yumoto (2001), Ion composition of the near-Earth plasma sheet in storm and quiet intervals: Geotail/EPIC measurements, *J. Geophys. Res.*, *106*, 8391–8404, doi:10.1029/2000JA000376.