He Data Count Files

Data rate files are listed by orbit number:

IBEX\_Lo\_o00XX\_Y\_HB\_and\_DE\_report.csv

where XX corresponds to the orbit number and Y to the sequence number of separately listed time periods in the respective orbit. The format in the file is listed below.

The data are given accumulated over 512 spins each (≈ 2 hours) in time blocks separated by dashed lines.

Provided are the data for the “Good Times for Angular Distributions” given in Table 1 by Möbius et al. (2012, ApJ Suppl, 198, 11, doi:10.1088/0067-0049/198/2/11). The description of the data selection is found in the file Möbius\_etal\_2012-ApJ-Suppl\_Data-Description.pdf.
These data were released as aggregate data for the entire time periods listed along with the publication of the 2012 ApJ Suppl publications.
See IBEX Data Release 3: <http://ibex.swri.edu/researchers/publicdata.shtml#dr3>

In the current compilation, the time periods have been sub-divided into 512-spin time periods and thus synchronized with the internal accumulation periods of the onboard Histograms reported here and with the prescribed 512-spin accumulation. Therefore, some of the periods have slightly different start times and truncated to match the last complete 512-spin period at the end.
Orbit 13 was omitted from the current compilation because several data gaps due to still ongoing commanding during that orbit cut into the prescribed 512 spin cadence.
Also, in Data Release 3, the start and end times were slightly different from Table 1 to match the cadence chosen for the data.

As used in the 2012 ApJ Suppl publications, Golden Triple Hydrogen counts detected in IBEX-Lo energy step 2 in 6o resolution are reported, which reflect H sputtered off the IBEX-Lo conversion surface by incoming interstellar He, as described in Möbius et al. (2012).

The data rate files are organized as follows:

The first line in the header contains column labels for 6 data columns, as listed below

The next header line includes the start time (in GPS), end time (in GPS), and accumulated time (in seconds). This line is repeated for each 512-spin time period.

Column 1 : The center of each 6 degree angular bin in NEP as calculated using the phase in the HB file.
0 – 354 Degrees corresponds to the spin-angle counted from the North Ecliptic Pole (NEP). The spinning spacecraft moves both sensors from 0 to 360 in a great-circle where the spin-axis is directed with RA and DEC coordinates given in the  inertial pointing file. Spin angle 0 corresponds to the spin sector whose center in spin angle points exactly to the North Ecliptic Pole (NEP).

Column 2 : Start time of the 512 spin bin in GPS

Column 3 : Start time of the 512 spin bin in YYYY/MM:DD:HH:MM:SS format

Column 4 : Counts in the Hydrogen histogram bins (HB-Counts)

Column 5 : Same as column 1 except this was determined from the DE file, here as a check to make sure there were no missing bins in the HB file

Column 6 : Counts listed as GOLDEN HYDROGEN in the direct events (DE\_Counts)

Note: The HB\_Counts are used in the analysis to normalized DE\_Counts for digital buffer and telemetry limitations during high count rate time periods, as they occur during the interstellar flow observations.

Usually, HB\_Counts ≥ DE\_Counts. However, during times when the count rates do not exceed the telemetry capability or not by much, occasionally DE\_Counts > HB\_Counts due to the finite digital angular binning by time increments of 4.1 ms, equivalent to ≈ 0.075o in spin angle, which can lead to different binning in DE and HB at the boundaries of the 6o angular bins. Still, the HB\_Count normalization should be used. The related angular uncertainty of the accumulated counts is ≤0.075o and thus smaller than the overall pointing accuracy as reported by Hlond et al. (2012, ApJ Suppl, 198, 9, doi:10.1088/0067-0049/198/2/9)