**Data Release 9:** Swaczyna et al. 2015, *Interstellar Neutral Helium in the Heliosphere from IBEX Observations. I. Uncertainties and Backgrounds In the Data and Parameter*

*Determination Method*

**File name:** IBEX\_ephemeris.dat

**File description:** Ephemeris of the IBEX in Ecliptic coordinates (origin at Sun).

**File contents:** time [year.frac], distance Sun-IBEX [AU], Ecliptic longitude [deg], Ecliptic latitude [deg], Velocity in (x,y,z) coordinates [km/s].

**Author:** Marzena A. Kubiak, Space Research Centre of the Polish Academy of Sciences, Warsaw, Poland

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**File name:** IBEX\_orbits.dat

**File description:** Pointing of IBEX Spin Axis (+Z Axis) in equatorial coordinates with High Altitude Science Operations (HASO) time intervals.

**File contents:** orbit/arc, HASO time begin [year.frac], HASO time end [year.frac], Spin Axis pointing R.A. [deg], Spin Axis pointing Dec. [deg].

**Author:** Pawel Swaczyna, Space Research Centre of the Polish Academy of Sciences, Warsaw, Poland

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**File name:** IBEX\_goodtimes.dat

**File description:** Good times (GT) intervals over which counts are accumulated. Mostly more than one interval per orbit/arc.

**File contents:** orbit/arc, GT interval start [year.frac], GT interval stop [year.frac].

**Author:** Maciej Bzowski, Space Research Centre of the Polish Academy of Sciences, Warsaw, Poland

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**File name:** data\_vec.dat

**File description:** Counts rates in used spin-angle bins (240-294 deg) for key ISN orbtis. Additionally provided are for each bin: count number, throughput correction [TC] factor, duration of observations, and subtracted Warm Breeze (WB) rate. Negative values of some count rates follow from subtraction of the Warm Breeze and backgrounds, but are consistent with zero if all uncertainties are taken into account.

**File contents:** orbit/arc, spin angle bin [deg], corrected count rate [1/s], counts [1], TC factor [1], duration of observation [s], WB rate [s].

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**File name:** data\_mat.dat

**File description:** Elements of the covariance matrix for all data. Matrix is symmetric. Element in i-th row (with header excluded) and j-th column correspond to covariance between count rate i-th and j-th given in file data\_vec.dat in respective rows.

**File contents:** elements of covariance matrix.

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