

README FOR STEREO PLASTIC OXYGEN 6 DATA FILES

Last Update: Jan. 7, 2011 (YC-ML, ABG, LBE)

Data Usage:

Data provided by the PLASTIC team at the University of New Hampshire are under NASA contract NAS5-00132.

Oxygen-6 data provided here are courtesy of Y. Liu, A. Galvin and L. Ellis.

These data are delivered to the public domain as soon as possible. Efforts are made to include the latest known calibrations; however, these are expected to undergo revision. We therefore suggest that users regularly return to this page and check the “Modification History” at the end of this “Readme” file.

If used in presentations or publications:

We strongly suggest that Dr. Galvin (toni.galvin@unh.edu) and Dr. Liu (yong.liu@unh.edu) be contacted to ensure that you are working with the latest release.

Please acknowledge STEREO PLASTIC Investigation (A.B. Galvin, PI) and NASA Contract NAS5-00132.

For reporting purposes, we request bibliography information for any publication, etc., using these data. Please send information on the use of these data to the PLASTIC PI:

Dr. A.B. Galvin
toni.galvin@unh.edu

If you have questions regarding data formats, please contact the PLASTIC Data System Manager:

Dr. Lorna Ellis
lorna.ellis@unh.edu

File Format:

ASCII files are tab-delimited text.

File Naming convention:

STx_L3_PLA_O_1hr_YYYY_Vxx.txt

Where:

“STx” is given as “STA” or “STB” for STEREO A and STEREO B, respectively.

“L3” indicates Level 3 data in the STEREO PLASTIC convention.

“Unvalidated” indicates that the data is not yet fully validated.

“PLA” indicates Plasma and Suprathermal Ion Composition (PLASTIC) Investigation.

“O” indicates Oxygen data.

“xhr” indicates the accumulation interval (instrument cadence is 1 minute).

“YYYY” represents the year.

“Vxx” indicates Version number, with the processing version given by the xx.

“txt” indicates ASCII file.

STEREO PLASTIC OXYGEN 6 PARAMETERS:

Oxygen-6 parameters provided here are derived from a 1D Maxwellian fit of data summed over an hour.

The instrument’s one minute measurement cycle consists of 128 logarithmically spaced energy-per-charge (E/Q) steps from ~80 keV/e down to ~0.3 keV/e. These are called ESA steps. Within each cycle, the instrument changes from the “main channel” aperture to a “small channel” aperture. The ESA step at which this change happens is called the `sechan_switch`. At this time, only the main channel values are included in the oxygen calculation.

Missing data are given as -1E+31 (for floats) and -1 (for integers).

Parameters provided are:

1. Year: Year of the cycle start time for first cycle in hour accumulation
2. Day: Day of year of cycle start time for first cycle in hour accumulation
3. Hour: Hour of cycle start time for first cycle in hour accumulation
4. date and time: Cycle start time for first cycle in hour accumulation, truncated to nearest minute (format yyyy-mm-dd/hh:mm:ss)
5. O6 density: Oxygen-6 density (per cubic centimeter)
6. O6 speed: Oxygen-6 speed (s/c frame) in kilometers per second
7. O6 thermal speed: Oxygen-6 thermal speed in kilometers per second, defined here as $\sqrt{2kT/m}$

8. Quality Flag: 0 = no known issues
 1 = reduced $\chi^2 > 10$, use with caution
 4 = the oxygen peak is too close to the channel switch, density and thermal speed removed
 5 = data removed
9. PeakFromSwitch: This value gives the maximum number of ESA steps between the oxygen-6 peak for the hour (as determined by the maximum number of counts) and the schan_switch that occurs for each minute. If this value is 1, the data are thrown out. In general a small number means that less of the range of data has been used in the fit because only data before the schan_switch are used. Note, however, that a large number only indicates that some of the hour had a larger distribution, not necessarily the whole hour.
10. Cycles: This indicates the number of 1-minute cycles within the hour for which there were main channel data at the ESA step of the oxygen-6 peak for the hour (as determined by the maximum number of counts).

Modification History

Dec 2009	V01	First issue of 1-hour data sets for STEREO A, from internal version 1.21. Only main channel provided.
Mar 2010	V02	Retrieved data close to s-channel switch. Using new efficiency curve.
Mar 2010	V03	Reissued STB data with minor changes.
Nov 2010	V04	Add error code 4.
Jan 2011	V05	Data have been removed from times when the spacecraft is rolling.