Article Title:

Formation and Topology of Foreshock Bubbles

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Total Data Size: 583 Mb

Data Description:

Data from 17 runs (described in the paper) are included here. Data from each run is in a separate directory containing 2-D data for the 3 components of the magnetic field "bx", "by", "bz"; density "dns" and ion temperature "temp" at the time in the run corresponding to that in the Figures in the paper. Note that Runs #11 and 17 have additional "bz" and "temp" data for the times shown in Figures 12 and 13 in the paper. The data are in "Direct Access" (.gda) format (readable by visualization packages such as IDL). For each run a text file named "any" is provided which indicates the size of the data in X and Y directions. The top number in the file corresponds to the size of the files in X direction and the 2nd number from top corresponds to the size in the Y direction.

Information on Units:

The data are in the following units:

Magnetic field is normalized to the magnetic field strength in the solar wind.

Density is normalized to solar wind density.

Temperature is normalized to the temperature of solar wind ions.

Generic Code for Reading 2-D Data (e.g. bx.gda):

```
RecordLength (in bytes) = 4 x (size_in_X x size_in_Y)

OPEN (10,file='bx.gda',form='unformatted',access='direct',status= &
      'unknown',recl= RecordLength)
```

Note: 10 is arbitrary I/O unit ID number chosen here for example. This number is used when reading 'bx.gda' file as shown below.

```
READ (10,rec=1)  (((bx(i,j),i=1, size_in_X),j=1, size_in_Y)
```

Note: Here rec=1 since data is shown at 1 time.