

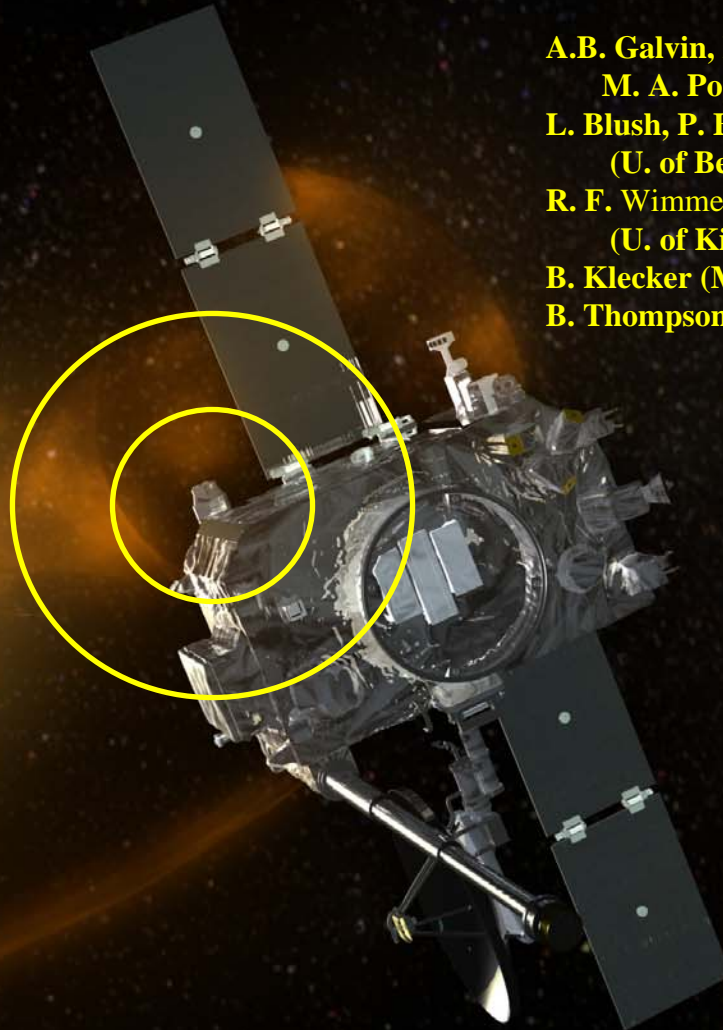


STEREO PLASTIC



PLASTIC: The Plasma and Suprathermal Ion Composition Investigation on STEREO

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PLASTIC STATUS



Both Flight Units are on the Spacecraft. Participation for Aliveness Tests remotely, Functional tests onsite.

Have received very good support from Art Jacques for times we cannot be onsite. Good luck to Art as he moves forward to his new job!

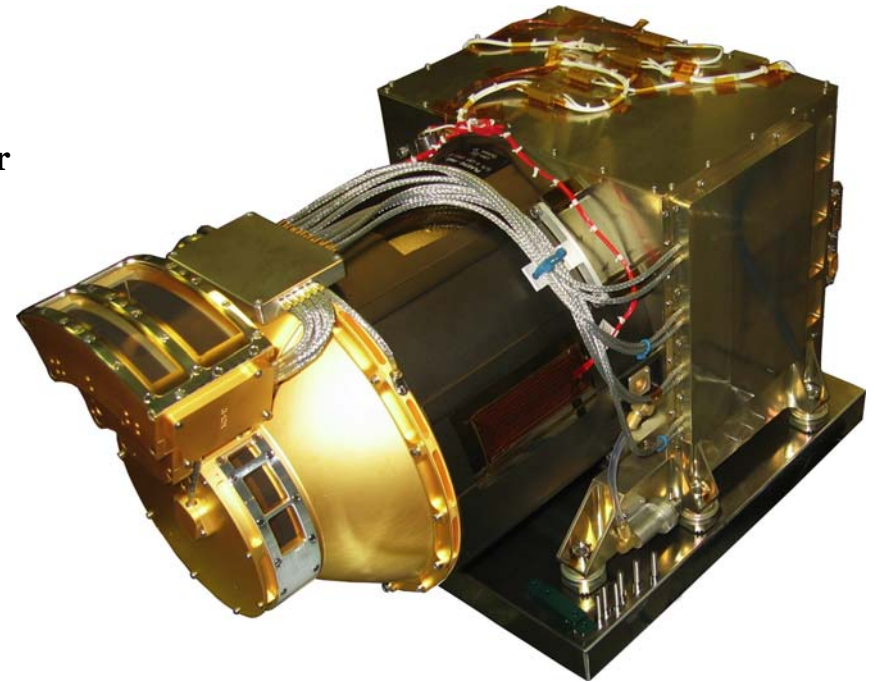
PLASTIC ⇔ IDPU harnesses have been modified to alleviate potential EMI concerns for SWAVES.

Spare carbon foils are under production at UNH. Currently have enough for half a unit replacement.

Foil inspection may occur before TB/TV.

Refurbishment period must still stay in schedule, as it has always included MCP/SSD changeout contingency.

PLASTIC EM undergoing refurbishment and re-integration for use in flight s/w testing. Some teething pains are being experienced.



PLASTIC Flight Model 2 (FM2)



PLASTIC FLIGHT S/W PROCESSING



Instrument onboard data are processed in two stages:

The PLASTIC Sensor Electronics Composition determination (classification) is done entirely within the PLASTIC Electronics. Actel coding is fixed, but rate boundary definitions are defined by table loads (flexibility).

and the

IMPACT/PLASTIC IDPU.



IDPU S/W Tasks



Current Flight S/W on the spacecraft is version 2.9

Version 3.0 is to be delivered to UNH and installed on the on IDPU ETU today (Friday) for testing with the PLASTIC EM.

Need to have 3.0 in place for TB/TV, as it will include the revised and/or implemented engineering products from version 2.6 task list that are critical for health and safety of instrument under TB/TV CPT.

This looks to be on track.

But it is clear that Version 3.0.0 will not be final flight version.



IDPU S/W Tasks



IDPU Tasks can be divided into 3 sub-sections:

1. Control tasks – highest risk for safety of instrument.

Mostly lacking in version 2.9.

Version 3.0 has this s/w.

Is undergoing testing with PLASTIC EM, beginning today
under vacuum (HV) conditions

2. Data tasks

HK, Monitor Rates, PHA – needed for monitoring status and health of instrument. Not fully functional in v2.9, but expected to be in V3.0

Science Products – not available in v2.9. Version 3.0 will be our first chance to see and test the science products. Excellent progress, but revisions seem likely.

3. Table Generation Tasks

(status unsure)

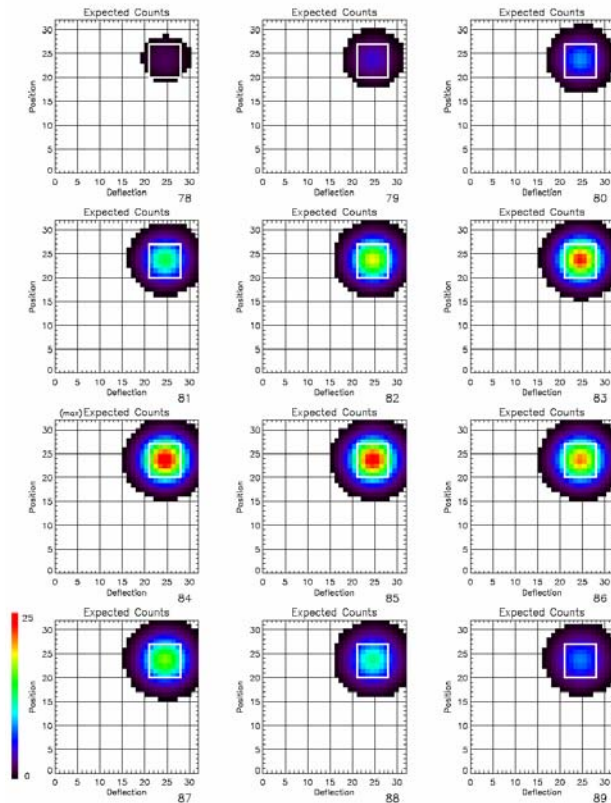


Data Products from the IDPU to ground: Matrix Rates and Moments



MATRIXS RATES DATA

The IDPU provides search for peak, summation over energy steps, position bins, deflection bins and multiple cycles, and rate compression scheme (16 to 8 bits) to reduce the telemetry to 1840 bits/sec



Peak of Distribution search and determination is used to reduce the amount of data sent in the telemetry and is also used for the moment calculations.

SW Proton - moments calculation

There are 2 proton arrays which can be used for determining solar wind moments.

By command, can choose which arrays to use. The moments are calculated over a fixed, but programmable energy range, 8 polar angle bins and 16 azimuthal angle bins.

IDPU Flight S/W for PLASTIC science products is currently under test and continued development.



SW Future Efforts



PLASTIC Flight software is provided by Project via IMPACT (UCB) and Microtel

Microtel involvement is still very much needed on the team effort.

Control Tasks and HK type data have been emphasized because of inherent danger to instrument during TB/TV.

Bill Mocarsky (Microtel) continued at half time through January 2006 has been requested

L1 Science products will need to continue development into next year
Steve Judy (Microtel) at (nearly) full time through at least end of March has been requested

UCB help of course is also needed and much appreciated.

Funding for Bill and Steve comes directly from Project. Project has been most supportive.

Future worry --- It is not unusual for post-launch issues to also arise.