NATIONAL AERONAUTICS and SPACE ADMINISTRATION

Goddard Space Flight Center

Laboratory for High Energy Astrophysics - Code 664.2

COSMIC RAY EXPERIMENT

To: Dr. F. McDonald
Univ. of Maryland, IPST
College Park, Md. 20705

Fax No: (301)314-9363

From: P. Schuster
GSFC - Greenbelt, Md.
Bldg. 26, Rm. ~~612~~ 123

Fax No: (301)286-1771
Voice: (301)286-9875

Number of copies including cover page: 3

MESSAGES

Diane –
For Dr. McDonald – fax to him at Woods Hole if he doesn't get this Thursday 6/30/94.

Thanks – Pam

DR. MCDONALD, HAVE ADDED 0.2 OFFSET TO CI+CII. HERE
ARE THE RESULTING NEW ENERGIES:

IF YOU WILL LEAVE SOME TIMES FOR FLUX RUNS
I CAN FAX RESULTS TO DIANE FOR YOU.

PAM

SATELLITENAM SRCE NUCLEUS- MODE GN
PIONEER-F PENC PROTON HPFB
PIONEER-F HPFB FROM RLIST 6/28/94 CI+CII CIII B CHANNELS
DETECTOR RECORD= 4 RESPONSE RECORD= 349
#NUCLI NFIRST PMASS CHARGE #MODES GFACTR IETYPE THRESH CEILNG
resp. channels 6 349 1.00 1.00 8 0.42 2 128.09 734.04
5 12 0 0

CHAN	D1		D2		OLD	NEW ENERGY		
5	4	11	4	11	644.250	734.040	0	0
6	5	11	5	11	409.740	442.284	0	0
7	5	14	5	14	305.870	321.582	0	0
8	6	14	6	14	243.550	254.635	0	0
9	7	16	7	16	203.060	210.900	0	0
10	8	18	8	18	175.320	180.867	0	0
11	9	18	9	19	154.370	157.875	0	0
12	11	20	11	20	138.400	141.278	0	0
13	11	20	11	20	125.730	128.089	0	0

PIONEER-F PENC ALPHA HPFB
PIONEER-F HPFB FROM RLIST 6/28/94 CI+CII CIII B CHANNELS
DETECTOR RECORD= 4 RESPONSE RECORD= 350
#NUCLI NFIRST PMASS CHARGE #MODES GFACTR IETYPE THRESH CEILNG
resp. channels 6 350 3.96 2.00 8 0.39 3 68.39 572.92
21 102 0 0

CHAN	D1		D2		OLD	NEW ENERGY		
21	19	30	19	31	558.275	572.921	0	0
22	21	31	21	33	495.986	507.745	0	0
23	22	34	23	37	447.346	456.881	0	0
24	23	36	25	38	408.201	415.994	0	0
25	24	38	26	40	375.865	382.266	0	0
26	26	40	27	40	348.526	353.799	0	0
27	27	40	28	42	324.864	329.229	0	0
28	28	41	29	42	303.761	307.552	0	0
29	30	41	31	43	285.777	289.186	0	0
30	31	43	33	46	269.794	272.908	0	0
31	32	44	34	46	255.602	258.363	0	0
32	34	45	34	49	242.983	245.375	0	0
33	35	47	36	50	231.550	233.665	0	0
34	36	49	37	51	221.184	223.111	0	0
35	36	49	39	52	211.727	213.477	0	0
36	38	52	40	53	203.095	204.754	0	0
37	39	52	42	56	195.147	196.737	0	0
38	41	52	42	57	187.925	189.366	0	0
39	42	56	42	57	181.244	182.552	0	0
40	42	56	44	59	175.026	176.215	0	0
41	44	59	46	62	169.214	170.290	0	0
42	44	59	46	62	163.834	164.910	0	0
43	46	61	49	64	158.877	159.853	0	0
44	46	61	49	64	154.177	155.062	0	0
45	48	63	52	65	149.754	150.638	0	0
46	48	63	52	65	145.623	146.430	0	0
47	52	67	53	68	141.774	142.513	0	0
48	52	67	53	68	138.143	138.846	0	0

49	53	70	57	74	134.717	135.384	0	0
50	53	70	57	74	131.484	132.117	0	0
51	55	73	58	76	128.430	129.029	0	0
52	55	73	58	76	125.537	126.106	0	0
53	57	75	59	79	122.798	123.337	0	0
54	57	75	59	79	120.202	120.712	0	0
55	58	78	63	84	117.738	118.220	0	0
56	58	78	63	84	115.395	115.851	0	0
57	72	82	64	73	113.163	113.595	0	0
58	72	82	64	73	111.035	111.443	0	0
59	74	85	66	77	109.004	109.405	0	0
60	74	85	66	77	107.080	107.465	0	0
61	75	91	69	80	105.245	105.608	0	0
62	75	91	69	80	103.485	103.827	0	0
63	78	94	70	81	101.795	102.117	0	0
64	78	94	70	81	100.186	100.508	0	0
65	82	100	73	83	98.654	98.957	0	0
66	82	100	73	83	97.174	97.459	0	0
67	83	101	74	83	95.753	96.037	0	0
68	83	101	74	83	94.408	94.675	0	0
69	88	105	75	86	93.100	93.350	0	0
70	88	105	75	86	91.850	92.100	0	0
71	95	108	78	89	90.655	90.889	0	0
72	95	108	78	89	89.485	89.719	0	0
73	95	108	78	89	88.392	88.611	0	0
74	95	108	78	89	87.315	87.519	0	0
75	100	122	82	94	86.297	86.501	0	0
76	100	122	82	94	85.303	85.493	0	0
77	100	122	82	94	84.355	84.545	0	0
78	100	122	82	94	83.433	83.609	0	0
79	106	127	83	98	82.552	82.729	0	0
80	106	127	83	98	81.693	81.856	0	0
81	106	127	83	98	80.878	81.041	0	0
82	106	127	83	98	80.071	80.225	0	0
83	120	136	88	100	79.318	79.469	0	0
84	120	136	88	100	78.565	78.715	0	0
85	120	136	88	100	77.862	78.001	0	0
86	120	136	88	100	77.168	77.307	0	0
87	126	145	89	103	76.497	76.625	0	0
88	126	145	89	103	75.860	75.987	0	0
89	126	145	89	103	75.223	75.350	0	0
90	126	145	89	103	74.630	74.747	0	0
91	138	158	93	104	74.047	74.164	0	0
92	138	158	93	104	73.467	73.581	0	0
93	138	158	93	104	72.936	73.043	0	0
94	138	158	93	104	72.406	72.512	0	0
95	150	169	97	106	71.879	71.982	0	0
96	150	169	97	106	71.398	71.494	0	0
97	150	169	97	106	70.918	71.014	0	0
98	150	169	97	106	70.438	70.534	0	0
99	163	184	98	108	69.998	70.085	0	0
100	163	184	98	108	69.566	69.653	0	0
101	163	184	98	108	69.134	69.221	0	0
102	163	184	98	108	68.712	68.793	0	0
103	163	184	98	108	68.314	68.392	0	0

NATIONAL AERONAUTICS and SPACE ADMINISTRATION

Goddard Space Flight Center

Laboratory for High Energy Astrophysics - Code 664.2

COSMIC RAY EXPERIMENT

To: Dr. F. McDonald
Univ. of Maryland, IPST
College Park, Md. 20705

Fax No: (301)314-9363
Voice: (301)405-4861

From: P. Schuster
GSFC /code 664.2 - Greenbelt, Md. 20771
Bldg. 26, Rm. 123

Fax No: (301)286-1771
Voice: (301)286-9875

Number of copies including cover page: 7

MESSAGES

"OLD" and "new" response tables
Testm generated HPFB responses (probably
final unless you modify the detector model) energies,
or offsets,
and the detector model I used.

The HS3 (A end entry) H + He were right
on the money) both with energy calibration
and relative track locations, when
compared with existing response tables.

```
HET   Pioneer-10  detector file
C     p10b.det  BST modes will be invalid, and low gain 6/28/94
C  Output: energies in MeV   spacings not right
C
C     Modes      Gains
          4          2
C
C Elem    No. Thick Amp-Ast  BST   Pen Thresholds Spacing  Radius Curv
              0    00     7    7     7                0    8920    1
     A1       1  2500     1    7     7    2.0   .20 40000    8920    1
     B1       2  2500     2    6     2     .0   .20  1851    8920    1
              0    10     7    7     7     .0   .00    10   16449    1
              0    10     7    7     7                10   16449    1
   2          3  2500     3    5     5  0.00    1.0  1851   16449    1
              0    10     7    7     7                10   16449    1
   2          3  1250     3    5     5  0.00    0.0    10   16449    1
   3          4  1250     4    4     4  0.00    0.0   900   16449    1
              0    10     7    7     7                10   16449    1
   3          4  1250     4    4     4  0.00    1.0    10   16449    1
   4          5  1250     5    3     3  0.00    .00   900   16449    1
              0    10     7    7     7                10   16449    1
   4          5  2500     5    2     3  0.00    .00  1851   16449    1
              0    10     7    7     7                10   16449    1
              0    10     7    7     7  0.00     .0    10   16449    1
     C3       6  2500     6    1     1  0.00     .2     0   16449    1
              0    10     7    7     7                 0   16449    1
              0    05     7    7     7                 0   16449    1
C
C              Low Gain                 High Gain
Channels    Offset     FSMEV        Offset     FSMEV
   4096       0.00      868.          0.0      787.7      AST  A1
   4096       0.00      868.         0.00      757.7      AST  B1
   4096        .00    17610.         0.00     4000.      AST  2
   4096        .00    17610.          0.0     4000.      AST  3
   4096        .00    17610.          0.0     4000.      AST  4
   4096       0.00     2191.         0.00      800.      & BST C3
   4096       0.00     4384.          0.0      800.      BST  4
   4096       0.00    16752.         0.00     4000.      & BST 4
   4096        .00    16752.           0.     4000.      & BST 3
   4096       0.00    16752.          0.0     4000.      & BST 2
   4096       0.00     5120.         0.00     1024.      PEN  B1
C
C                        Slant 1                          Slant 2
C   1    2 Both  GN    Ch1    Ch2    Ch3    Sum    Ch1    Ch2    Ch3    Sum
  SA1  SA2    SA    1     1.     .6   .375   -39.     1.     .6   5.43 -105.
       SB    SB    1                                 1.     1.   1.00  -60.0
       SB    SB    2                                 1.     1.   1.00  -60.0
C
C            Number of species
C    Modes   Lo Gain   Hi Gain
          4         01         2
C
C   Low Gain:
C Name      Z          A
  He4-      2       4.00
C
C  High Gain:
  Prot      1     1.0000
  He4-      2     4.0000
```

CI+CII

this is how I segmented CI+CII

guesses (not relevant)

calculated from 3cm² & 8.5cm²

no offsets used

gotten from consistency run of MATRIX program

Should not matter since HPFB came from A end entry

Slants not set for my runs - need to figure out how to put them in this useage for other potential responses ?

RESPONSES FROM SB#PR.FLUXCAT.DATA BEFORE JUNE 94 HPFB WORK

PIONEER-F PROTON HPFB F F T F 0 0 1 1
PENETRATING MODES
FLUX CATALOG:
SB#PR.FLUXCAT.DATA

PROTON HPFB

DETECTOR RECORD= 4
THRESHOLD 120.70
CEILING 650.00
EVENT TYPE 2
GFACTOR 0.42

CHANNELS 3- 12
RECORDS 222- 222

CHANNEL	DETECTOR1 LOW	DETECTOR1 HIGH	DETECTOR2 LOW	DETECTOR2 HIGH	ENERGY	SIGMA1	SIGMA2
3	3	10	3	10	******	0.0	0.0
4	3	10	3	10	******	0.0	0.0
5	4	11	4	11	650.00	0.0	0.0
6	5	11	5	11	413.00	0.0	0.0
7	5	14	5	14	279.60	0.0	0.0
8	6	14	6	14	227.30	0.0	0.0
9	7	16	7	16	192.30	0.0	0.0
10	8	18	8	18	166.80	0.0	0.0
11	9	18	9	19	147.60	0.0	0.0
12	11	20	11	20	132.80	0.0	0.0

PIONEER-F ALPHA HPFB F F T F 0 0 1 1
PENETRATING MODES
FLUX CATALOG:
SB#PR.FLUXCAT.DATA

ALPHA HPFB

DETECTOR RECORD= 4
THRESHOLD 68.50
CEILING 526.00
EVENT TYPE 3
GFACTOR 0.39

CHANNELS 13- 102
RECORDS 113- 114

DETECTOR1 DETECTOR2
CHANNEL LOW HIGH LOW HIGH ENERGY SIGMA1 SIGMA2

13	13	22	14	24	******	0.0	0.0
14	14	28	14	27	******	0.0	0.0
15	14	28	16	31	******	0.0	0.0
16	15	28	16	31	******	0.0	0.0
17	15	30	16	31	******	0.0	0.0
18	16	31	16	31	******	0.0	0.0
19	16	33	16	31	******	0.0	0.0
20	16	33	16	32	******	0.0	0.0
21	19	30	19	31	******	0.0	0.0
22	21	31	21	33	502.50	0.0	0.0
23	22	34	23	37	453.00	0.0	0.0
24	23	36	25	38	413.00	0.0	0.0
25	24	38	26	40	380.00	0.0	0.0
26	26	40	27	40	352.00	0.0	0.0
27	27	40	28	42	327.60	0.0	0.0
28	28	41	29	42	306.00	0.0	0.0
29	30	41	31	43	288.50	0.0	0.0
30	31	43	33	46	272.60	0.0	0.0
31	32	44	34	46	258.00	0.0	0.0
32	34	45	34	49	245.00	0.0	0.0
33	35	47	36	50	233.00	0.0	0.0
34	36	49	37	51	223.00	0.0	0.0
35	36	49	39	52	213.10	0.0	0.0
36	38	52	40	53	204.30	0.0	0.0
37	39	52	42	56	196.30	0.0	0.0
38	41	52	42	57	188.40	0.0	0.0
39	42	56	42	57	182.00	0.0	0.0
40	42	56	44	59	175.70	0.0	0.0
41	44	59	46	62	169.80	0.0	0.0
42	44	59	46	62	164.40	0.0	0.0
43	46	61	49	64	159.00	0.0	0.0
44	46	61	49	64	154.50	0.0	0.0
45	48	63	52	65	150.00	0.0	0.0
46	48	63	52	65	146.00	0.0	0.0
47	52	67	53	68	142.00	0.0	0.0
48	52	67	53	68	138.40	0.0	0.0
49	53	70	57	74	134.80	0.0	0.0
50	53	70	57	74	131.55	0.0	0.0
51	55	73	58	76	128.30	0.0	0.0
52	55	73	58	76	125.40	0.0	0.0
53	57	75	59	79	122.50	0.0	0.0
54	57	75	59	79	120.00	0.0	0.0
55	58	78	63	84	117.50	0.0	0.0
56	58	78	63	84	115.10	0.0	0.0
57	72	82	64	73	112.70	0.0	0.0
58	72	82	64	73	111.35	0.0	0.0
59	74	85	66	77	110.00	0.0	0.0
60	74	85	66	77	108.15	0.0	0.0
61	75	91	69	80	106.30	0.0	0.0
62	75	91	69	80	104.65	0.0	0.0
63	78	94	70	81	103.00	0.0	0.0
64	78	94	70	81	101.45	0.0	0.0
65	82	100	73	83	99.90	0.0	0.0
66	82	100	73	83	98.50	0.0	0.0
67	83	101	74	83	97.10	0.0	0.0
68	83	101	74	83	95.70	0.0	0.0
69	88	105	75	86	94.30	0.0	0.0
70	88	105	75	86	93.10	0.0	0.0
71	95	108	78	89	91.90	0.0	0.0
72	95	108	78	89	90.80	0.0	0.0
73	95	108	78	89	89.70	0.0	0.0
74	95	108	78	89	88.60	0.0	0.0
75	100	122	82	94	87.50	0.0	0.0
76	100	122	82	94	86.57	0.0	0.0