Science Analysis Topics

A. Point Sources

1. Detection of transients - onboard and on the ground
2. Significances (vs. spurious source rate) and confidence regi
3. Variability
4. Spectra
5. Identifications
6. Catalog

B. Extended Emission

1. Distinguishing from point sources
2. Interstellar emission and cosmic rays in the Milky Way and h
3. Spectroscopy of the π^0 bump
4. Extragalactic residual diffuse

C. Gamma-Ray Bursts

1. Detection onboard
2. Pulse profiles
3. Spectroscopy
4. Delayed emission

D. Pulsars
    1. Phase folding
    2. Periodicity searches
    3. Spectroscopy

E. Special Analyses
    1. Multi-gamma events
    2. Polarization
    3. WIMP line search

F. Calibration
    1. Ground-based
    2. In-flight

G. Science Databases
    1. Events
    2. Photons
    3. Exposure timeline
    4. Calibration (instrument response functions)
    5. Source catalog
    6. Other astronomical catalogs

Charges to the Working Group Members

The principal charge is to develop requirements that the analysis tasks outlined above place on the software in each of the subject areas.

Specific additional charges:

A.3 Point Source Variability

a. What is the time profile of the gamma-ray flux of a typical A emission expected, or will most of the detections be made for timescales?

A.6 Point Source Catalog

a. What information should the source catalog contain?

B.2 Interstellar Emission Model

a. To what extent is one needed for the point source analysis?

b. What angular resolution is required?

C.1 GRB Onboard Detection

a. Spatial map of the diffuse gamma-ray background

b. Variation of CR residual background

c. Requirements implied for on-board Level 3 trigger

D. Pulsars

a. Do we need to select candidates for radio timing so that con ephemerides will be available?

E.1 Multi-gamma Events

a. What rate of these events might be expected?

b. Can they be flagged, distinguished from background events processing?

E.2 Polarization

a. Is special analysis required, or can measurement of plane of automatic reconstruction?

E.3 WIMP Line Search

a. Will this be via large-angle calorimeter-only events?

F.2 In-flight Calibration

a. How should calibration be monitored in-flight for the instru

b. How should provision be made for reprocessing event data

G. Science Databases

a. How will they need to interface with instrument team and g analysis software?

c. For extraction of maps of exposure & photons, what coordi should be supported? Moving systems, e.g., for solar system?

d. Are specific data products derived from the databases need investigator support?