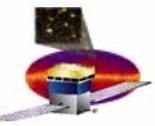


# Purposes of the Data Challenges

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- “End-to-end” testing of analysis software.
  - define the ends
  - define the tests (what is success?)
- Familiarize team with data content, formats, tools and realistic details of analysis issues (both instrumental and astrophysical).
- Develop additional methods for analyzing GLAST data, encouraging alternatives that fit within the existing framework.
- Provide feedback to the SAS group on what works and what is missing from the data formats and tools.
- Re-evaluate sensitivities
  - Uncover systematic effects in reconstruction and analysis.
- Grow the team. Learn how we work together.

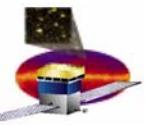
Support readiness by launch time to do all first-year science.



# Data Challenge Planning

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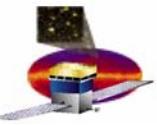
- **Discussions thus far with Richard, Seth, and Bill.  
What is shown is a DRAFT.**
- **Develop proposal, take to Peter and SSAC within the  
next two weeks.**
- => Need Analysis Group input.



# Realities

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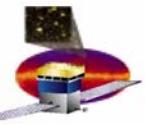
- Still much to do on GLEAM to be ready:
  - geometry review
  - underlying physics review
  - embed onboard filters
  - other infrastructure (move to .NET, etc. **don't dismiss this!**)
  - finish implementing gamma source fluxes
- Still much work to do on analysis to be ready:
  - background rejection
  - performance evaluation and parameterization
  - analysis platform recommendation and validation
- Lots of other work demanding attention:
  - CDR and fallout. Other reviews.
  - EM support
  - Other calibration planning and development
  - Integration!



# Draft Top-level Schedule [UNOFFICIAL!]

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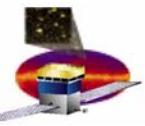
- Use the September collaboration meeting as a major milestone. We need deadline pressure.
- Walk before running: design a progression of studies.
  - Preparation complete by September collaboration meeting:
    - complete geometry review: June 15
    - recon meeting: late June/early July?
    - complete embedding, verification of filter, evaluate: July 1
    - .NET cutover date? Simulation hard freeze date?
    - first new background rejection/performance analysis July & August
    - sky model fluxes implementation complete September 1
  - At Collaboration meeting:
    - first instrument response functions presented
    - DC1 kickoff (see following slide)
    - workshop on using tools



# Data Challenge Progression

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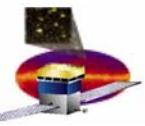
- DC1
  - modest goals:
    - 1 simulated day all-sky survey simulation (3M bkgd+gamma events to ground, => 400M generated events)
    - find flaring AGN, a GRB
    - demonstrate single-day point source sensitivity
    - recognize simple hardware problem(s)
    - a few physics surprises
    - exercise:
      - exposure, data processing pipeline, analysis tools, daily quicklook analysis
    - use existing recon, bkgd rejection and instrument response to show the problem areas that need improvement. secondary goal (not required) is to prototype improvements
  - schedule:
    - Sept-Oct startup problems resolution.
    - Nov-Dec high-level tools beta testing. Finalize irfs.
    - Dec 15 high-level tools release, workshop.
    - mid-January: interim reports
    - Feb 2004 closeout, and plan for DC2 (see following slide).
    - Then, break for I&T prep. Use the time for fixing problems learned in DC1, software advances, etc.



# DC Progression

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- DC2
  - more sophisticated goals:
    - 1 simulated month all-sky survey simulation (100M bkgd+gamma events post-filter. Method TBD) PLUS 1 simulated year of gammas
    - find flaring AGN, pulsars (geminga's)
    - produce a 1-month catalog
    - demonstrate point source sensitivity and localization
    - recognize more subtle hardware problem(s)
    - a few more physics surprises
    - exercise:
      - exposure, data processing pipeline, analysis tools. benchmark processing times, data volume, etc. connect to SSC?
    - use updated recon, bkgd rejection and instrument response to show the problem areas that need improvement. encourage improvements
  - schedule:
    - freeze software version July 04. start generation in September
    - start DC2 October 2004 (beam test analysis ~complete)
    - Dec 15 2004 midterm reports milestone
    - Feb 2005 closeout, and plan for DC3 (see following slide).



# DC Progression

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- “DC3” – Flight Data Challenge!
  - main goal is realism to support running experiment analysis:
    - 1 full simulated year of data (methods TBD)
      - exercise everything: format data as it comes into the IOC. also confirm data storage, backup, processing speed. will be the reference sample for 1<sup>st</sup> year data analysis.
    - connect to SSC
    - demonstrate point source sensitivity and localization
    - recognize a few very subtle hardware problems. recognize a few realistic daily hardware problems -> feed to IOC and FSW.
    - physics surprises
    - use updated recon, bkgd rejection and instrument response. this will be our initial science performance. by this time, physics analysis groups should be up and running.
  - schedule (start after completion of beam test and MC tuning):
    - freeze software version Feb 06. This is the first year flight version! start generation in May.
    - physics groups working
    - launch.