Targeted GCN Circulars & Alert Lists

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Outline

- Circulars we could/should send
  - HETE/IPN – known z/unknown z
- Alert lists
  - Estimated Annual Rate stuff
    - Recalibrating
    - Fake grbs
    - Other issues
  - Public webpage

Potential Circulars

- HETE GRBs
- IPN GRBs
- Swift

HETE

- How often to send out circulars?
  - If no measured redshift: collect a few in one circular
  - If measured redshift, send out immediately (if nearby)
- What has been in our fov?

HETE Circulars

- Last Circulars sent for GRB021104, GRB021112, GRB021113 (three in one circular) and GRB021211 (z=1.01).

- Since then GRB030823 (33.46 °)
  GRB031026 (33.02 °)

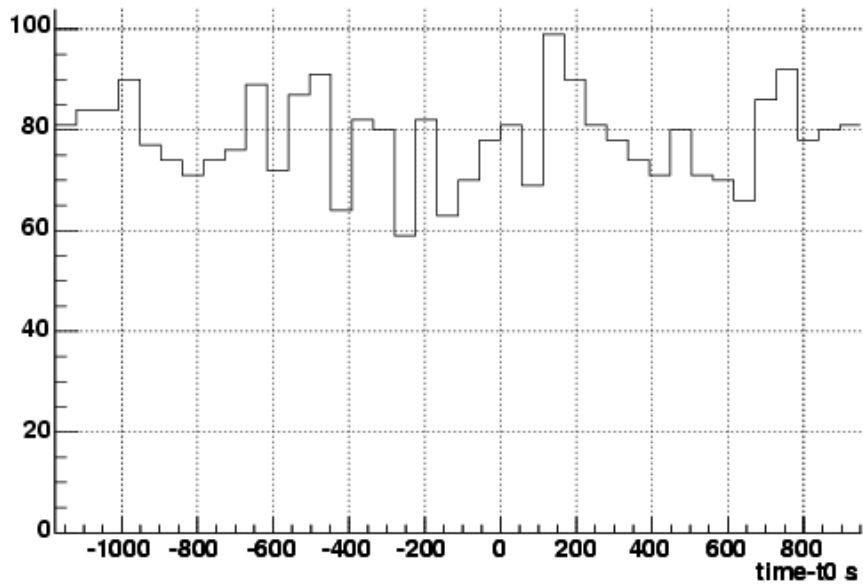 have been in our field of view. No redshift for either burst.

Upper limits

- GRB030823: 56 sec duration
  sig: bkg: prob:
  upper limit: cnts
  effective area:
  fluence limit:

- GRB031026: 114.2 sec duration
  sig: 208 bkg: 175.71 prob: 2.359e-2
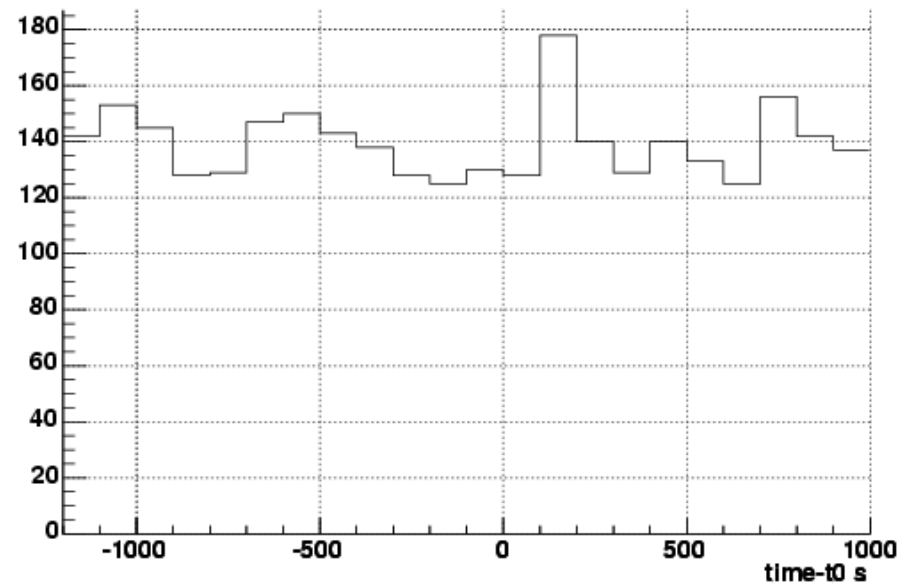 upper limit:
  effective area:
  fluence limit:

GRB030823

- T90: 56 sec

- 100 sec duration, 100 sec delayed:
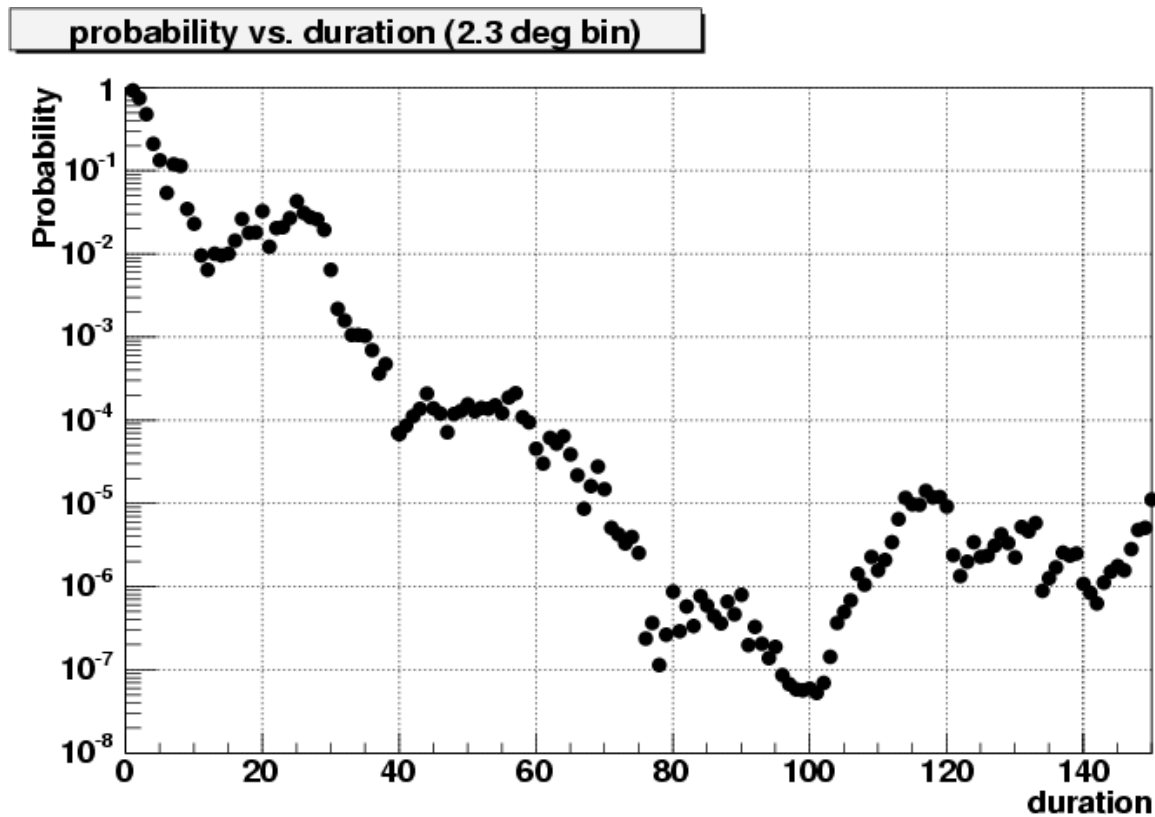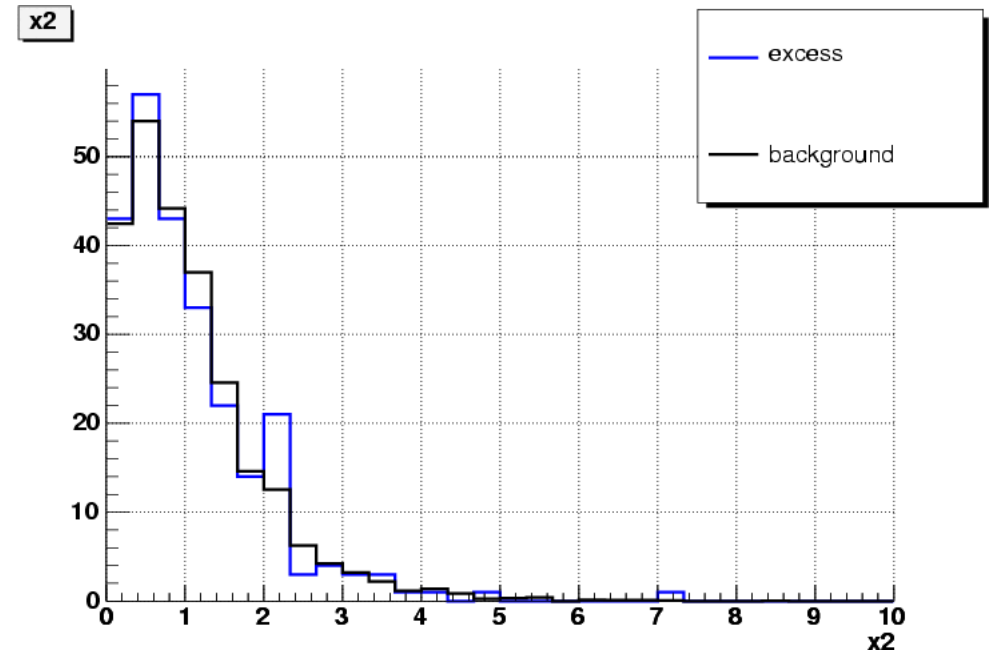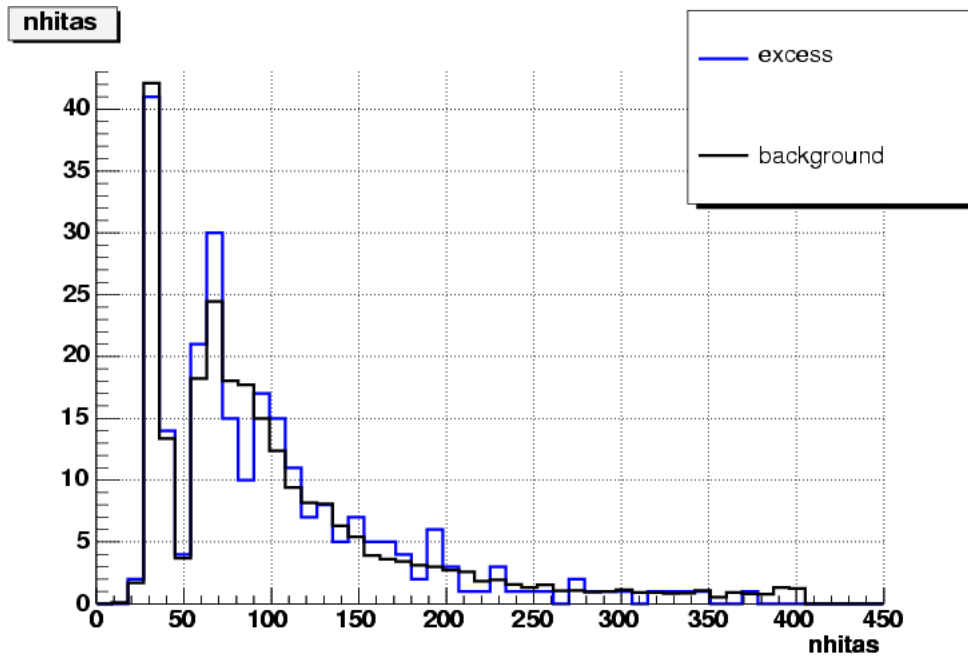 signal: 178 bkg: 137.38 prob: 5.06e-4

GRB030823 56 sec bins

GRB030823 100 s bins

GRB030823

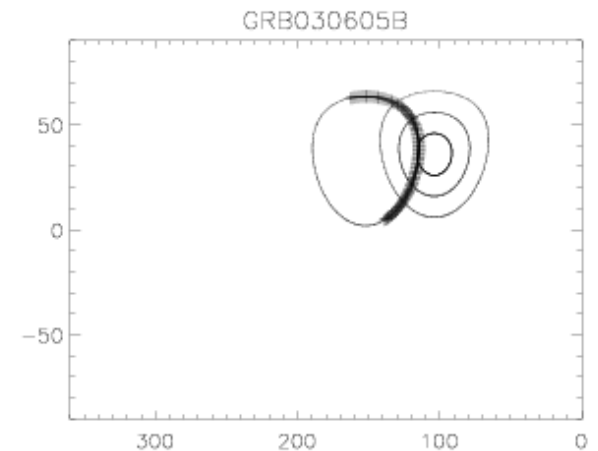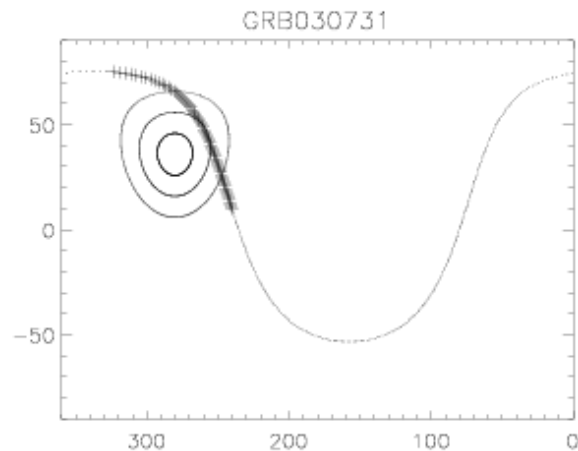- Bigger bin, searching in duration
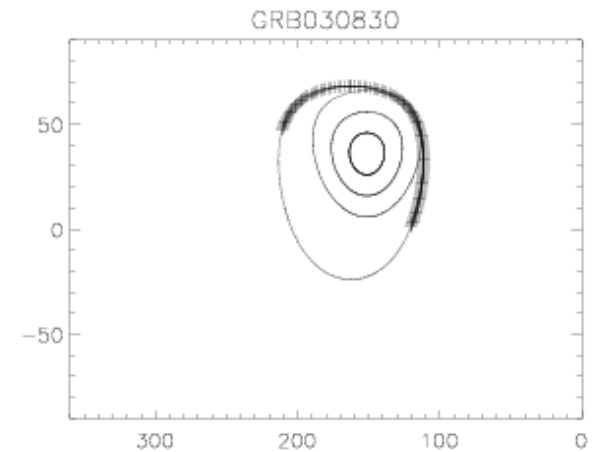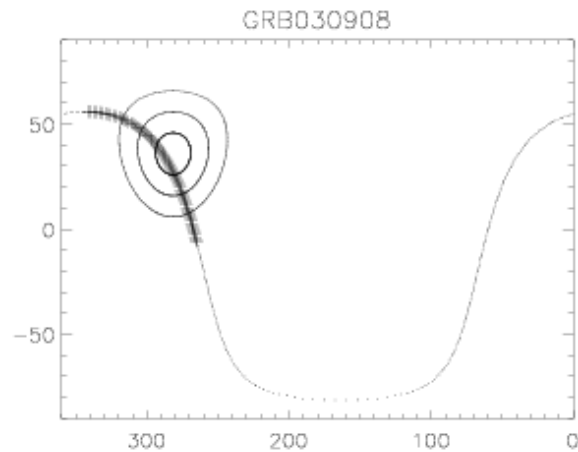

probability vs. duration (2.3 deg bin)

GRB030823

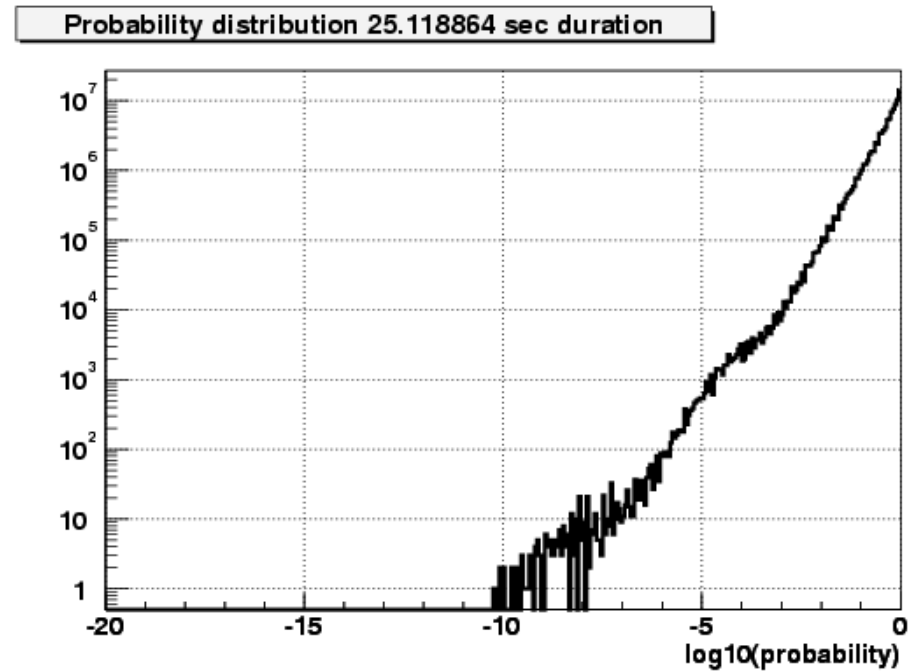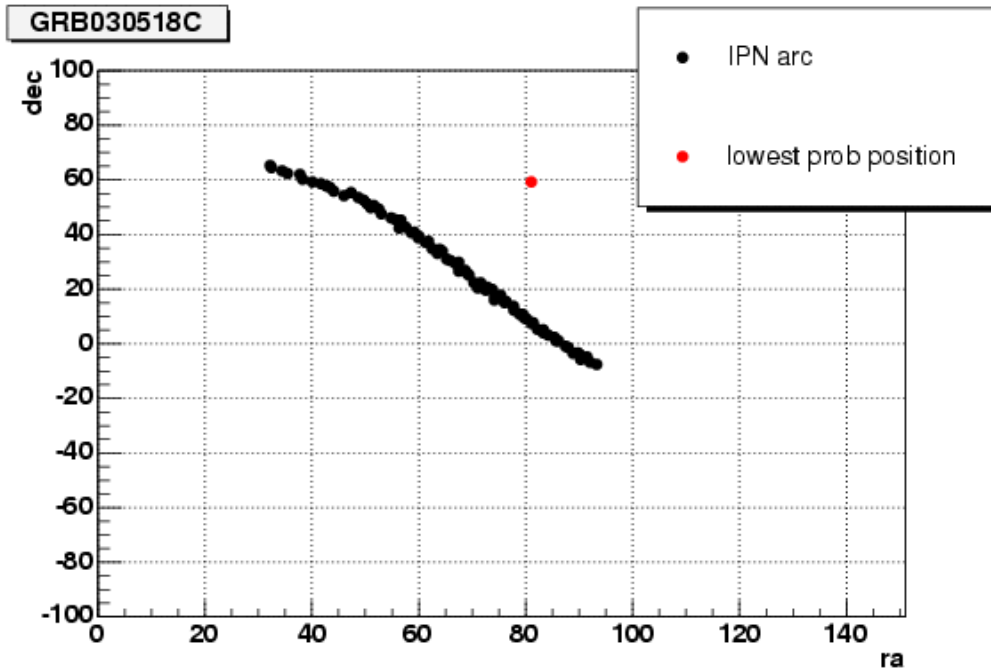- Comparison of excess and background:

IPN bursts

- List of IPN bursts in our fov since 12/03 put together by Brenda

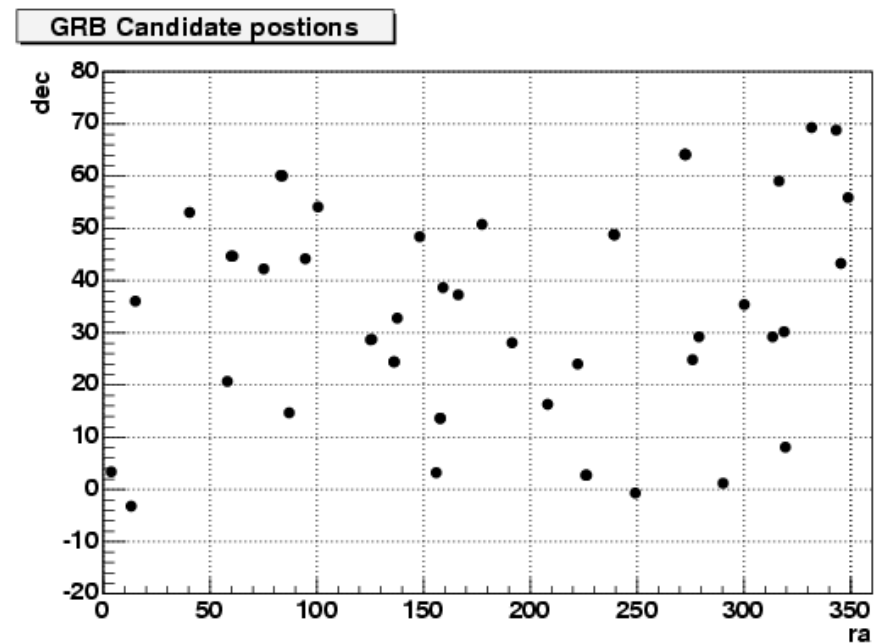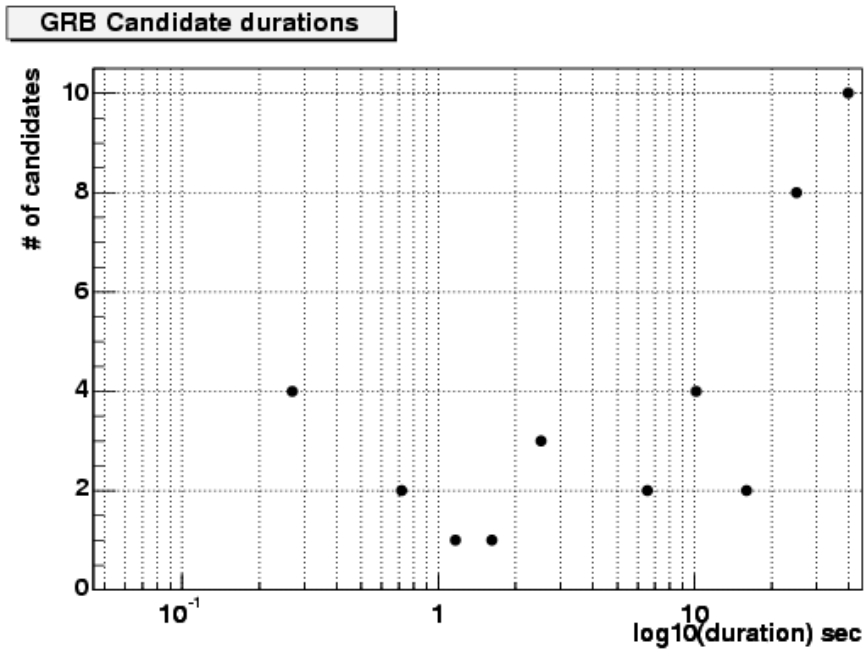- I ran the untriggered search, with a lower probability threshold.

GRB030908

GRB030830

GRB030731

GRB030605B

Results
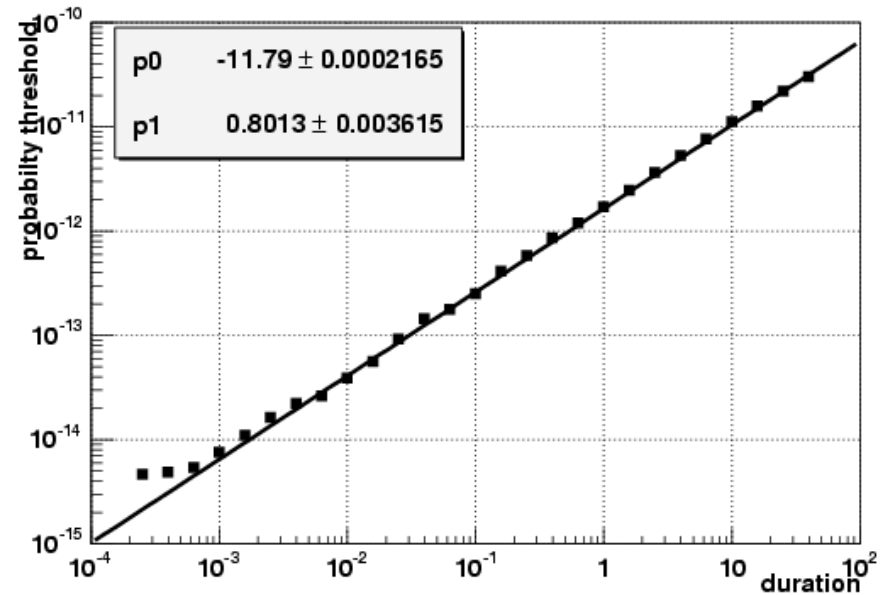
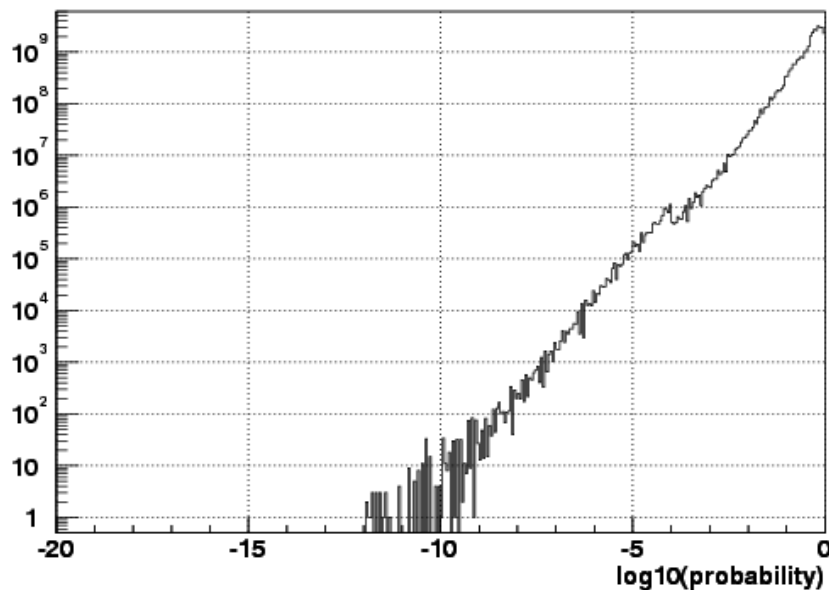- Nothing significant observed.

Alert List

- How often do we want to send out alerts? How often do we get them? In 8 month time period:
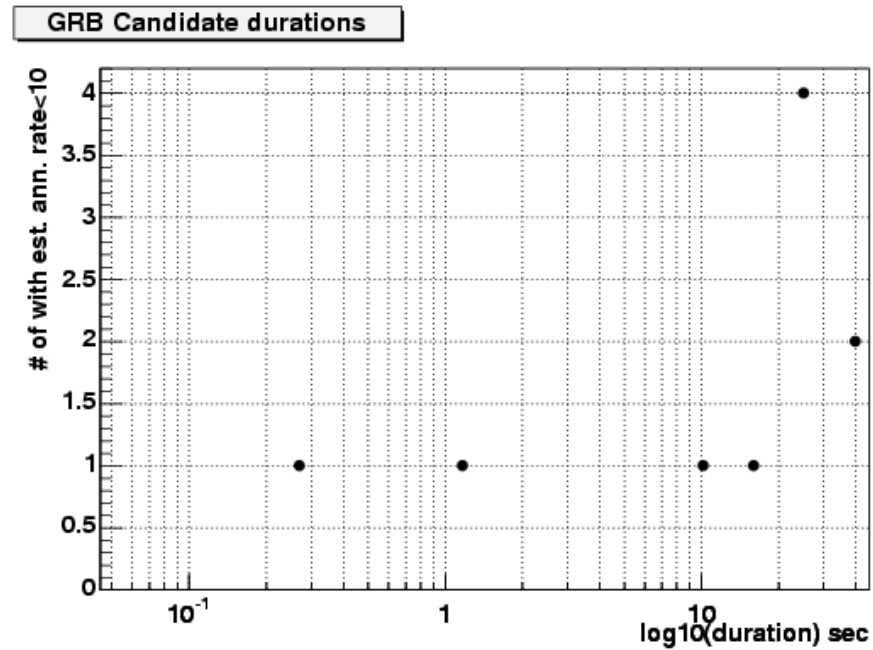
Estimated annual rate calculation

- Count the number of times you see a probability less than P_o in one day, to find the number of times you expect to see it in 1 year.
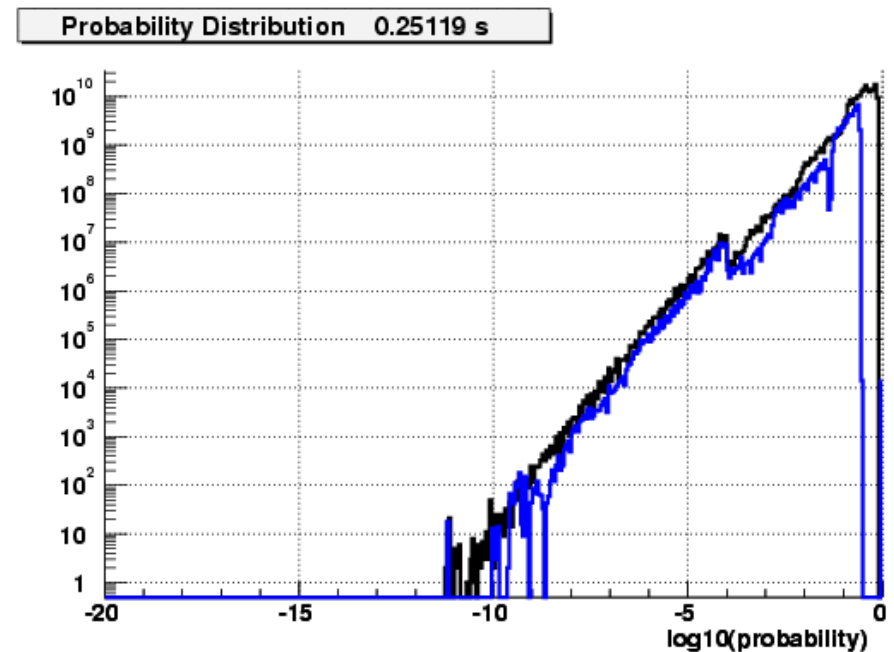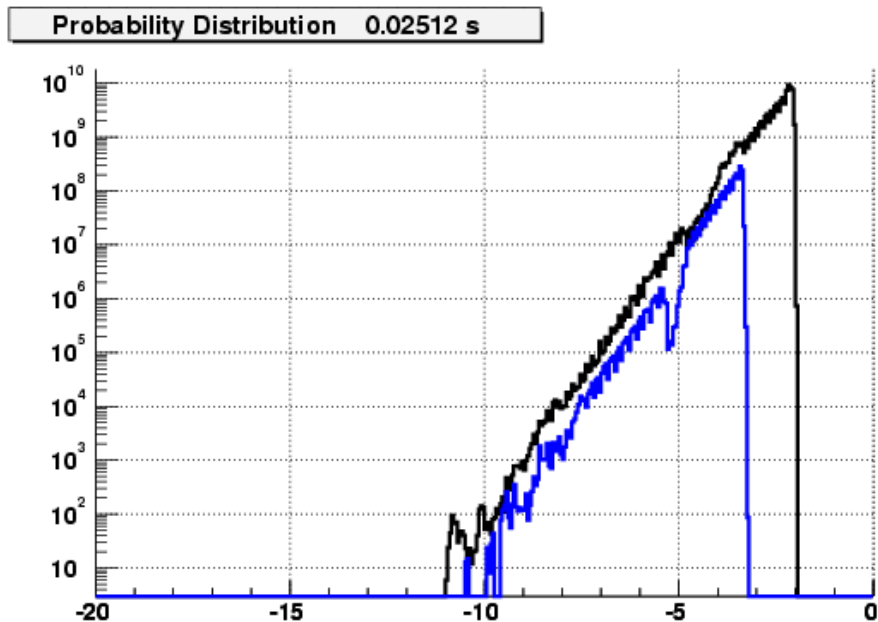

Probability Distribution 1.0 sec duration

p0 -11.79 ± 0.0002165

p1 0.8013 ± 0.003615

Results

- We see fewer than expected...

GRB Candidate durations

Fake Data

- Ran grb search on randomly generated data to compare properties of the probability distributions.

Probability Distribution   0.02512 s

Probability Distribution   0.25119 s
log10(probability)

Probability Thresholds