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## Data Base of Distant Universe Events

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Group : PERG

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# Agenda

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- Introduction
  - „Pi of the Sky” experiment
  - Data sources
- Project goals
- Concept of the project
- Realization
- Summary and future plans

# Pi of the Sky

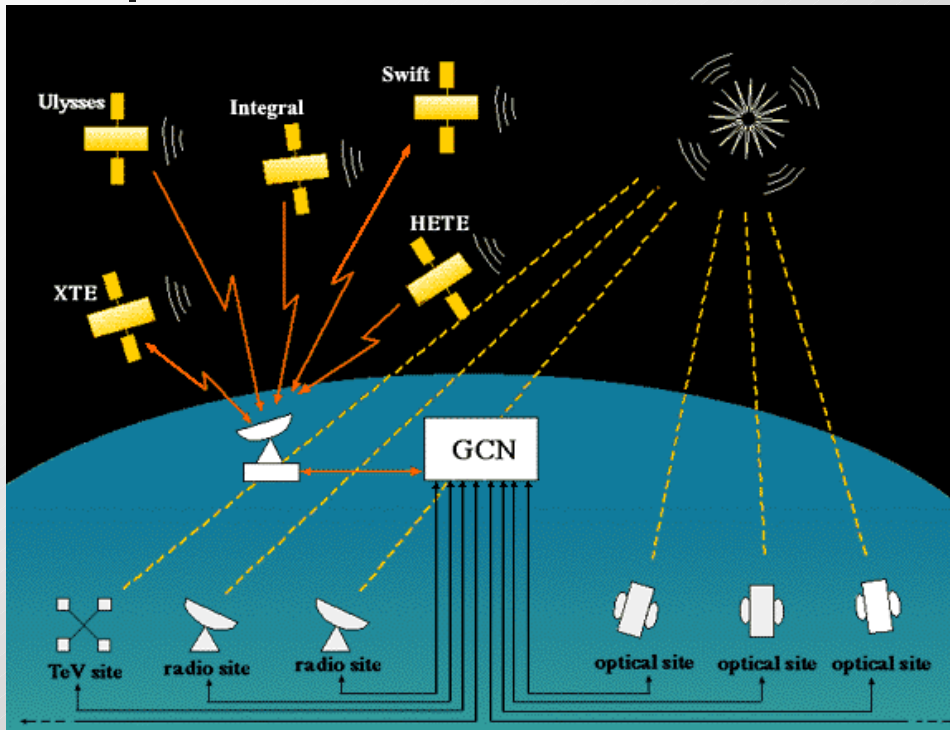
- **Motivation**

- Search for optical counterparts of Gamma Ray Bursts
- Investigate previously undocumented observations of point-like flashes in the sky
- Open a new window on the Universe - short time scale observations

- **Goals**

- Observe non-stop almost all visible sky with a few s time resolution
- Record sky images 15s before and after GRB satellite trigger
- Search for point-like flashes

# Data sources



- „Pi of the Sky” electronics, software and algorithms
- GCN
- HETE
- INTEGRAL
- IPN
- WWW

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# Subject of work

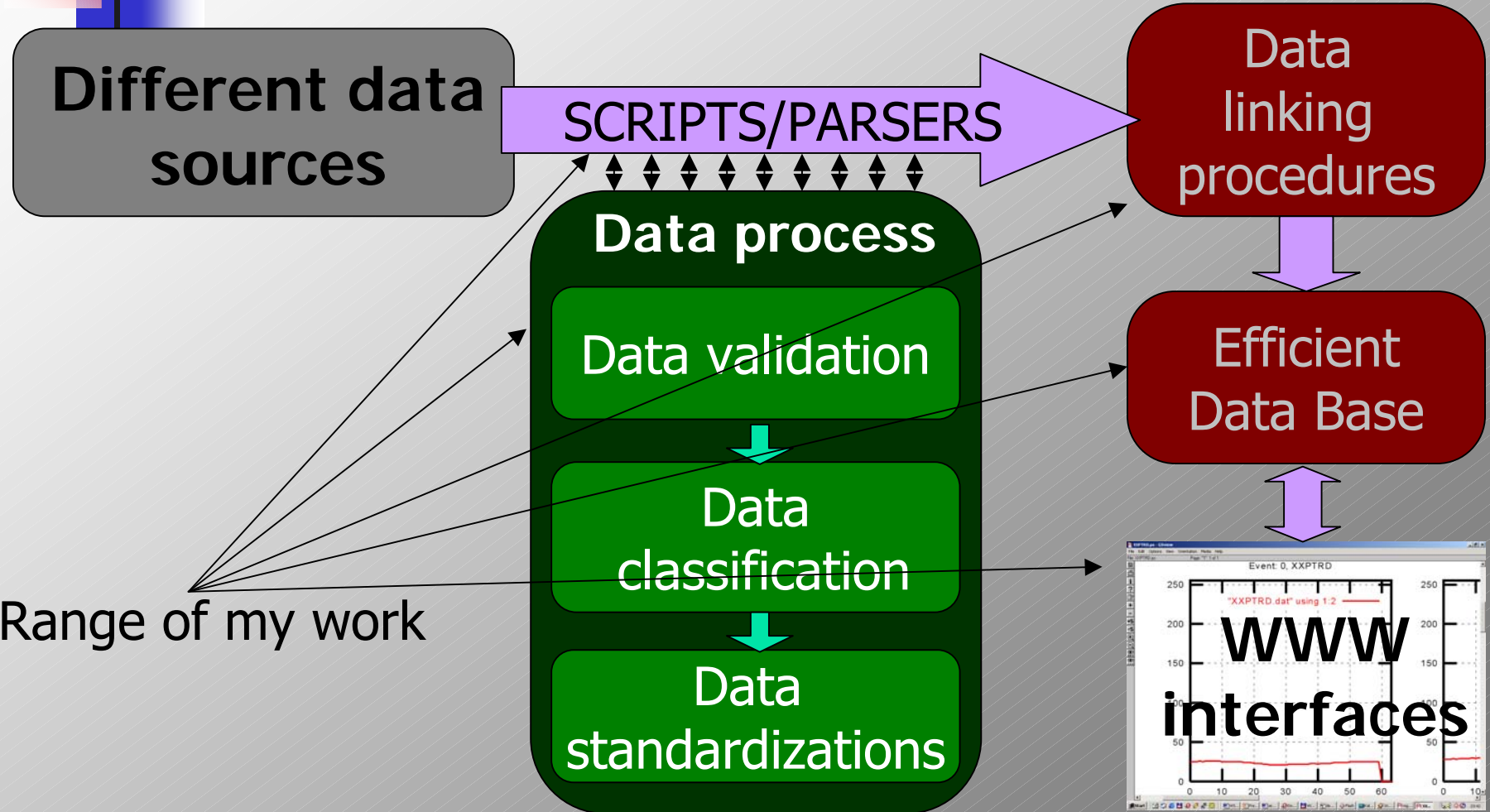
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Design and write software to:

- collect
- classify
- record in data base
- present

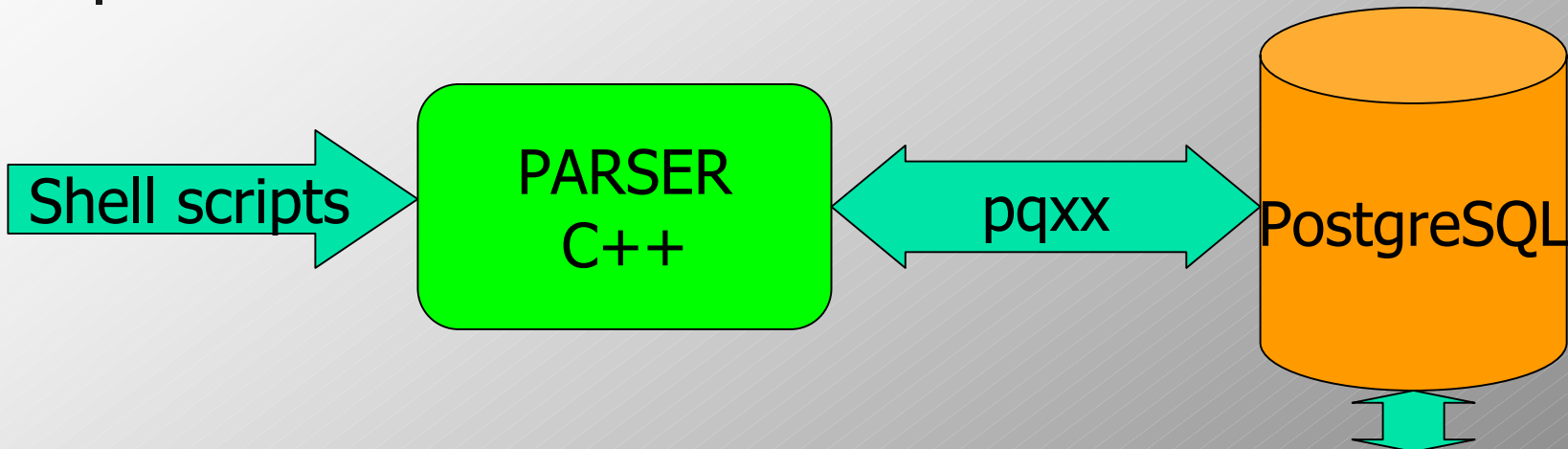
data related to distant Universe events.

# Conception of work



Range of my work

# Technology



## Interface WWW

**GRB/Per Month**

MONTH	COUNT
1	3
2	5
3	7
4	6
5	4
6	3
7	6
8	10
9	2
10	4
11	6
12	3

Drawing graphs (jpGraph)

"Pi of the Sky" Data Base  
Simple search

You are not logged in.

**Services**

- [GRB Viewer](#)
- [GRB Classifiers](#)
- [News](#)
- [Data Sources](#)
- [Advanced](#)
- Links**
- [HETE](#)
- [IBEX](#)
- [INTEGRAL](#)
- [OSIRIS](#)

Date START: 2003-01-01 (YYYY-MM-DD)  
Date END: 2004-06-30 (YYYY-MM-DD)

GRB Source:  HETE [http://www.pi.su.se/~hete.html](#)  
 INTEGRAL [http://www.pi.su.se/~integral.html](#)  
 IBEX [http://www.pi.su.se/~ibex.html](#)  
 OTHER [http://www.pi.su.se/~pi/~circles.html](#)

Search logical function:  AND  OR

Detailed view  
To sort data click on the column header.  
To see details click on the row.

[Advanced search](#)

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Connection to Data Base (PHP)

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# Scripts and Parsers

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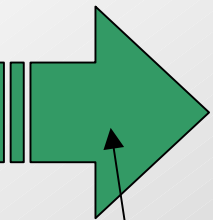
- updating of data base with no human interaction
- optimize updating data process (getting only new data)
- full log information
- monitoring system
- very short system reaction time to new information



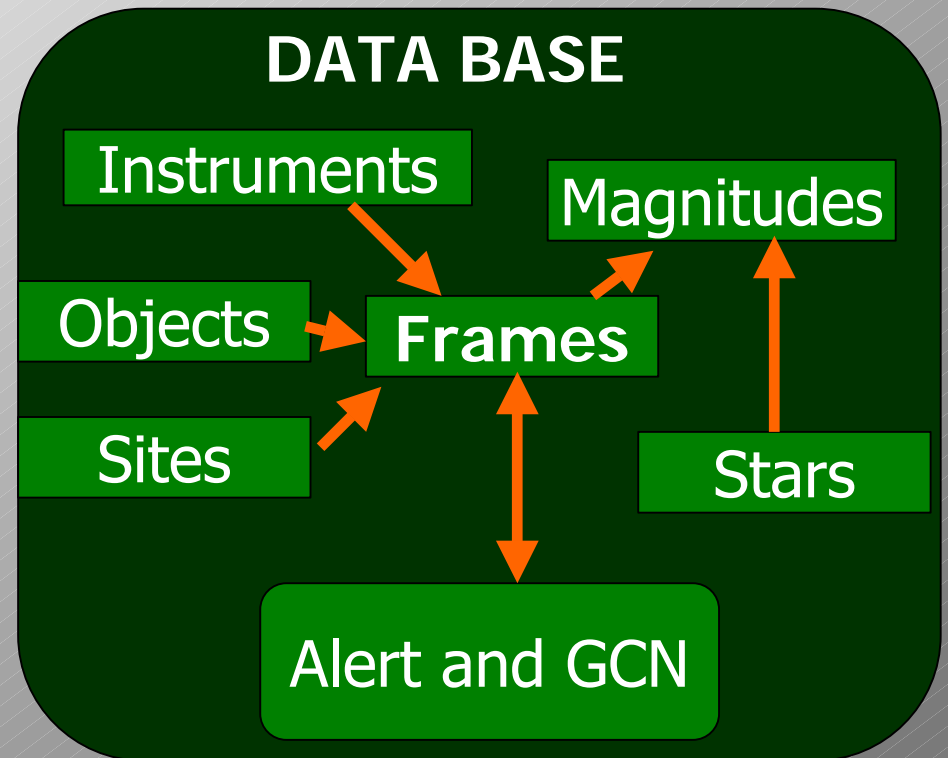
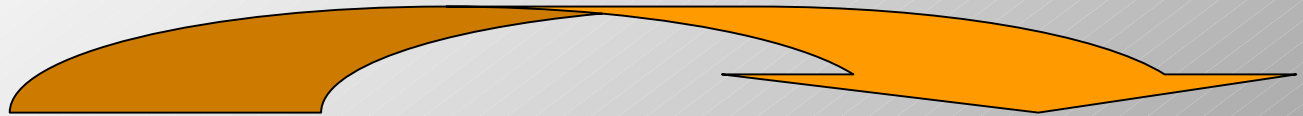
# Data Base

## Data validation and linking module:

- Stored procedures
- Triggers
- Checks



Data from  
parsers and  
scripts



# Interface WWW

## Alert and GCN search module:

- Two modes of searching (Simple and advanced)
- Searching many data sources
- Authorization needed to see all information about search result
- All data available including original data source

### Advanced search

Date START :  (YYYY-MM-DD)

Date END :  (YYYY-MM-DD)

GRB Source :  HETE <http://gcn.gsfc.nasa.gov/hete.html>  
 INTEGRAL <http://gcn.gsfc.nasa.gov/integral.html>  
 IPN <http://gcn.gsfc.nasa.gov/ipn.html>  
 OTHER [http://gcn.gsfc.nasa.gov/gcn3\\_circulars.html](http://gcn.gsfc.nasa.gov/gcn3_circulars.html)

Search logical function :

STATUS :

FLUX min :

DURATION min [ms]:

DURATION max [ms]:

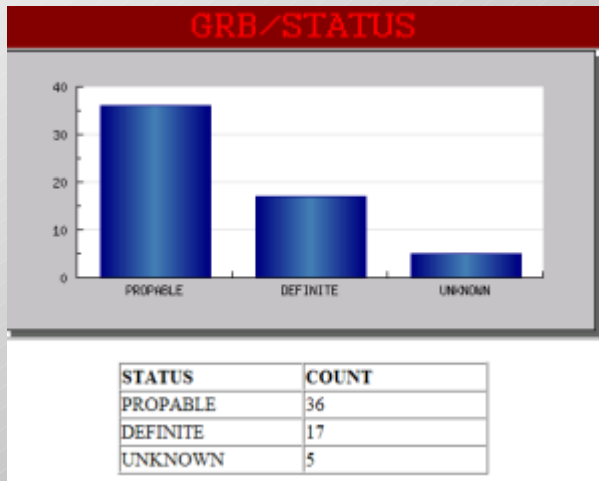
Detailed view Causes that table is show with small font.

To sort data click on the column header. [Simple search.](#)  
 To see details click on the row.

# Interface WWW

## Statistic module:

- Advanced statistical information about alerts and GCN
- Different visualization modes



**GRB031203B**

NUM	SEQ	SRC	TYPE	INSTR.	STATUS	DATE	TIME	RAYS	FLUX	DURATION	GAMMA	C1	C2	C3	C4
2951	1	HETE	ALERT	UNKNOWN	PROPABLE	2003-12-03	3820940	25-400 keV	0	5200	188	0	0	0	0
2951	2	HETE	LAST	UNKNOWN	PROPABLE	2003-12-03	3820940	25-400 keV	0	5200	188	0	0	0	0

**ALERT DATA**

```

////////////////////////////////////
TITLE:          GCN/HETE BURST POSITION NOTICE
NOTICE_DATE:    Wed 03 Dec 03 10:36:57 UT
NOTICE_TYPE:    HETE S/C Alert
TRIGGER_NUM:    2951,   Seq Num: 1
GRB_DATE:       12976 TJD: 337 DOY: 03/12/03
GRB_TIME:       38209.40 SOD (10:36:49.40) UT
TRIGGER_SOURCE: Trigger on the 25-400 keV band.
GAMMA_RATE:     188 [cnts/s] on a 5.200 [sec] timescale
SC LONG:        278 [deg East]
SUN_POSIN:      249.26d (+16h 37m 03s) -22.07d (-22d 04' 10")
MOON_POSIN:     12.49d (+00h 49m 57s)  +1.76d (+01d 44' 35")
MOON_ILLUM:     76 [%]
COMMENTS:       No s/c ACS pointing info available yet.
COMMENTS:       Probable GRB.
////////////////////////////////////
TITLE:          GCN/HETE BURST POSITION NOTICE
NOTICE_DATE:    Wed 03 Dec 03 10:41:25 UT
  
```

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# Schedule of further work

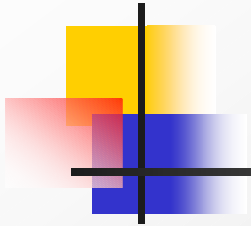
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## **Up and running:**

- Parsers
- Alerts and GCN module of database
- Data validation and linkers
- Parsing online data
- Web interfaces

## **To do:**

- Stars, instruments and menstruation database modules
- Parsing data from "Pi of the Sky" electronics, software and algorithms
- Further testing



Thank you for your attention.