AGILE Data Center: Scientific Analysis and First Year Overview

Carlotta Pittori

5th Science AGILE Workshop, ASDC 12-13 June 2008

ASDC
ASI Science Data Center

➢ **The AGILE Data Center (ADC)** is the scientific part of the AGILE Ground Segment based a ASDC/ESRIN

➢ **ADC** is composed by:
- the AGILE Team Processing Group (AGILE Team personnel)
- the AGILE Science Support Center (ASDC personnel)

➢ **ADC** is in charge of all scientific activities related to the analysis, archiving and distribution of AGILE data

AGILE Data Center

Science Support Center group at ASDC:

Paolo Giommi
ASDC Director

F. Tamburelli

(AGILE in calibrazione @ LNF)

A. Antonelli , G. Fanari, B. Preger, C. Pittori, F. Verrecchia, D. Gasparrini, F. Acerra, S. Stellato

M. E. Pennisi, S. Cutini, P. Santolamazza, R. Primavera (not in phot.)

(ASDC-INAF + DATASPAZIO)

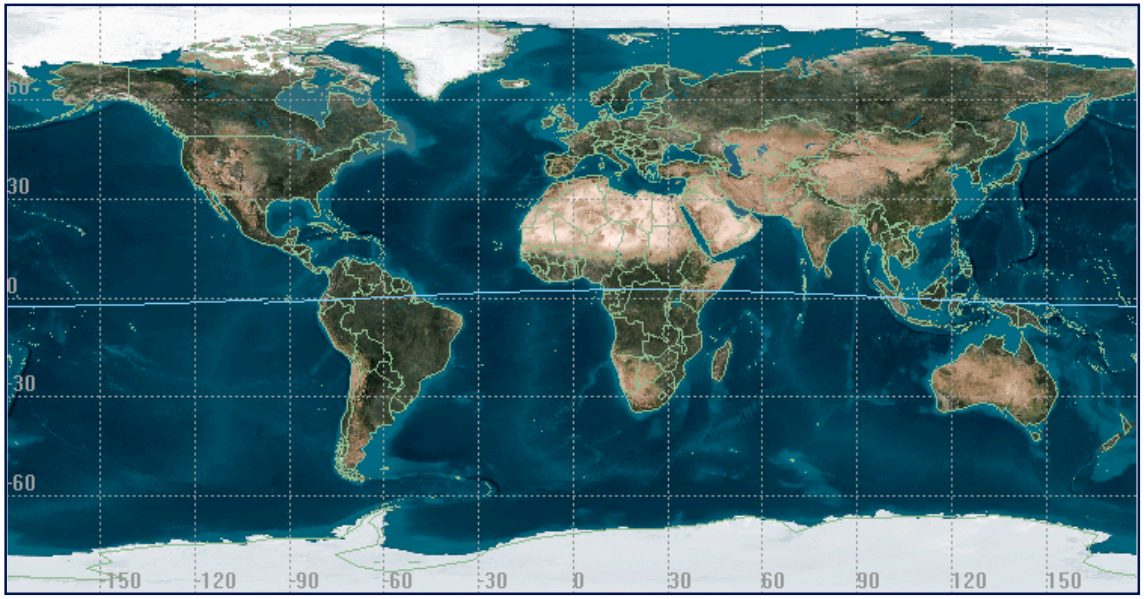
AGILE orbital parameters

Baseline equatorial orbit: 550 Km, 3º inclination

Semi-major axis: 6922.5 km (± 0.1 km)
Requirement: 6928.0 ± 10 km

Inclination angle: 2.48° (±0.04°)
Requirement: < 3°

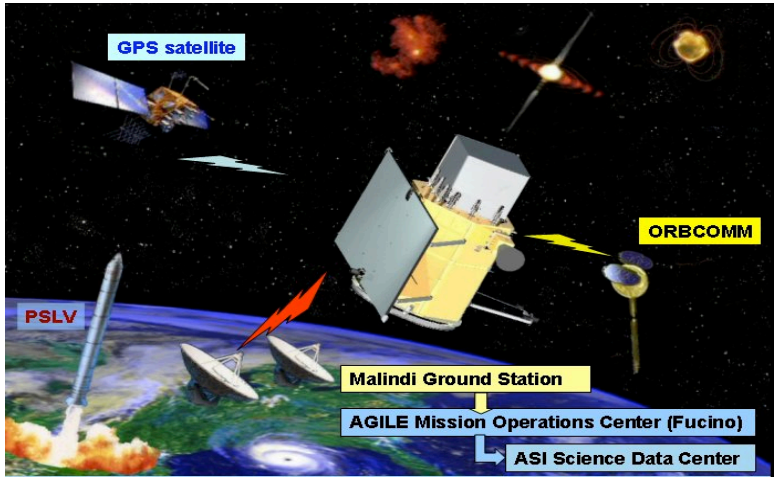
Eccentricity: 0.002 (±0.0015)
Requirement: < 0.1°



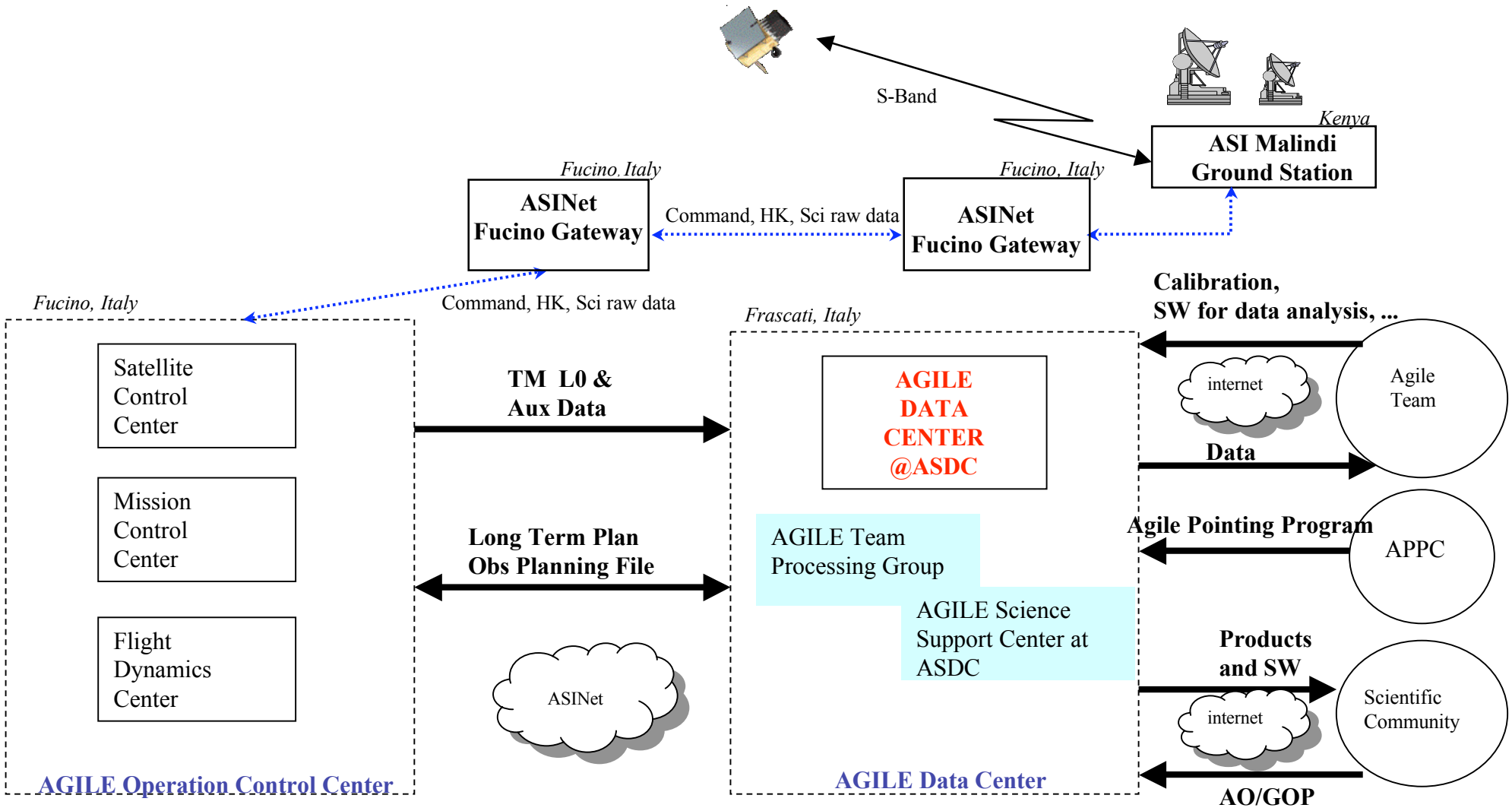
ASI Malindi Ground Station:

~ 10 minutes ground contact every ~ 90 min

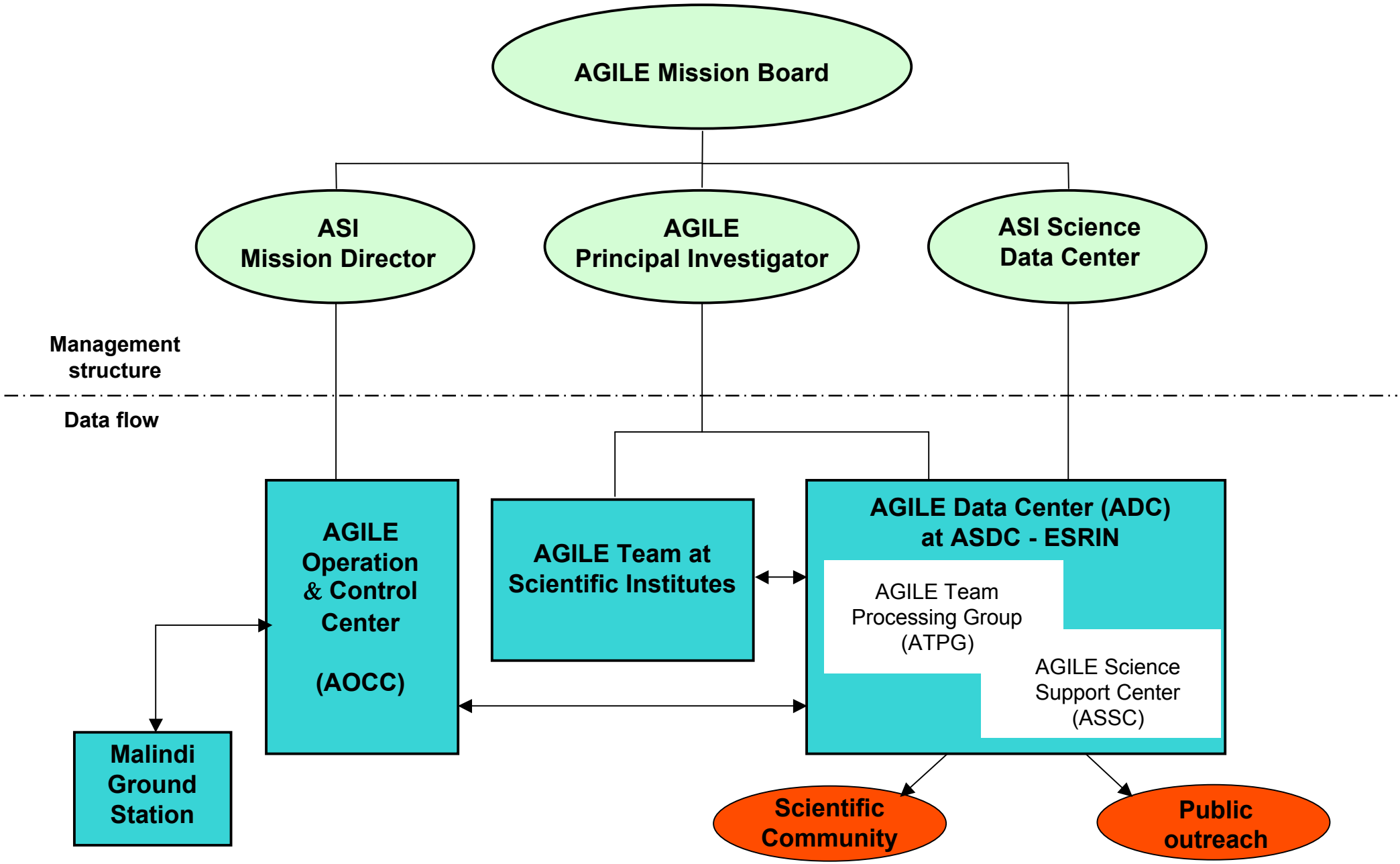
ASINet: Malindi ⇒ TPZ Fucino ⇒



AGILE GS Architecture



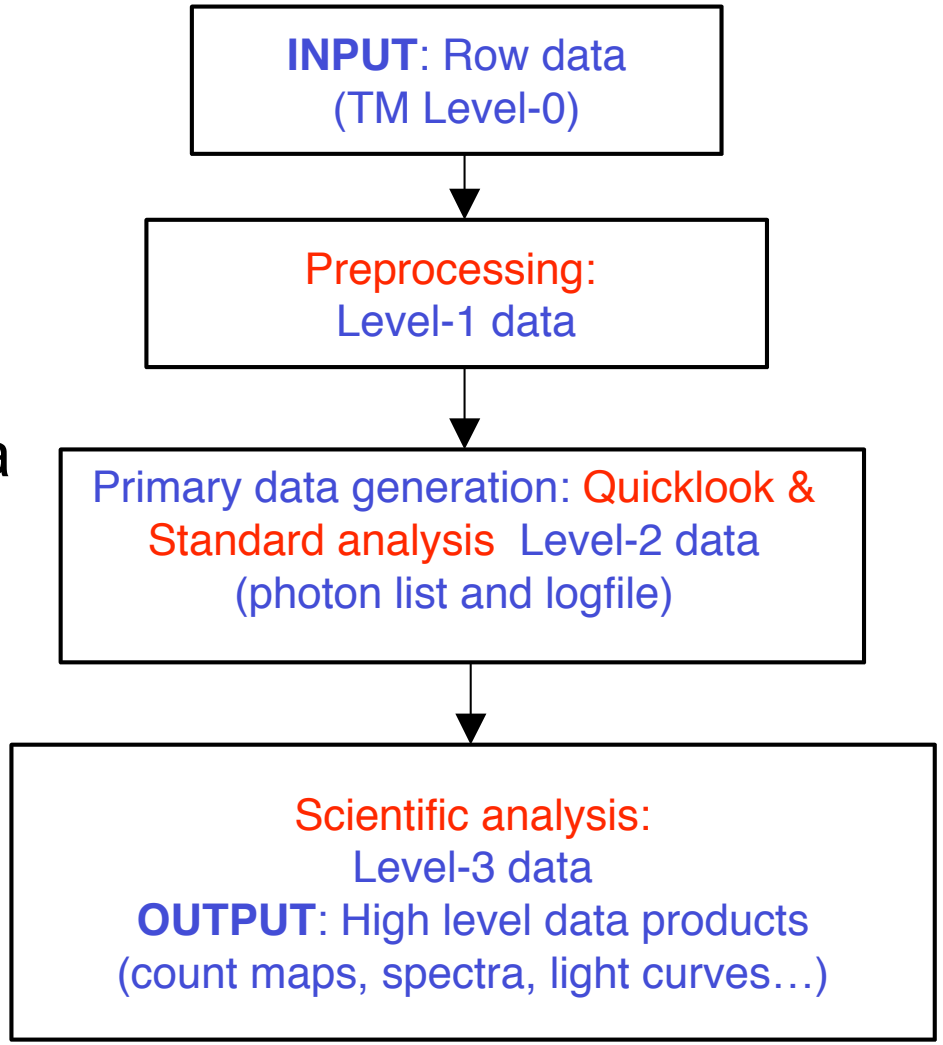
AGILE data flow and Ground Segment organization (from Agile Science Management Plan)



ADC scientific analysis and archiving of AGILE data

From scientific telemetry (TM) Level–0:

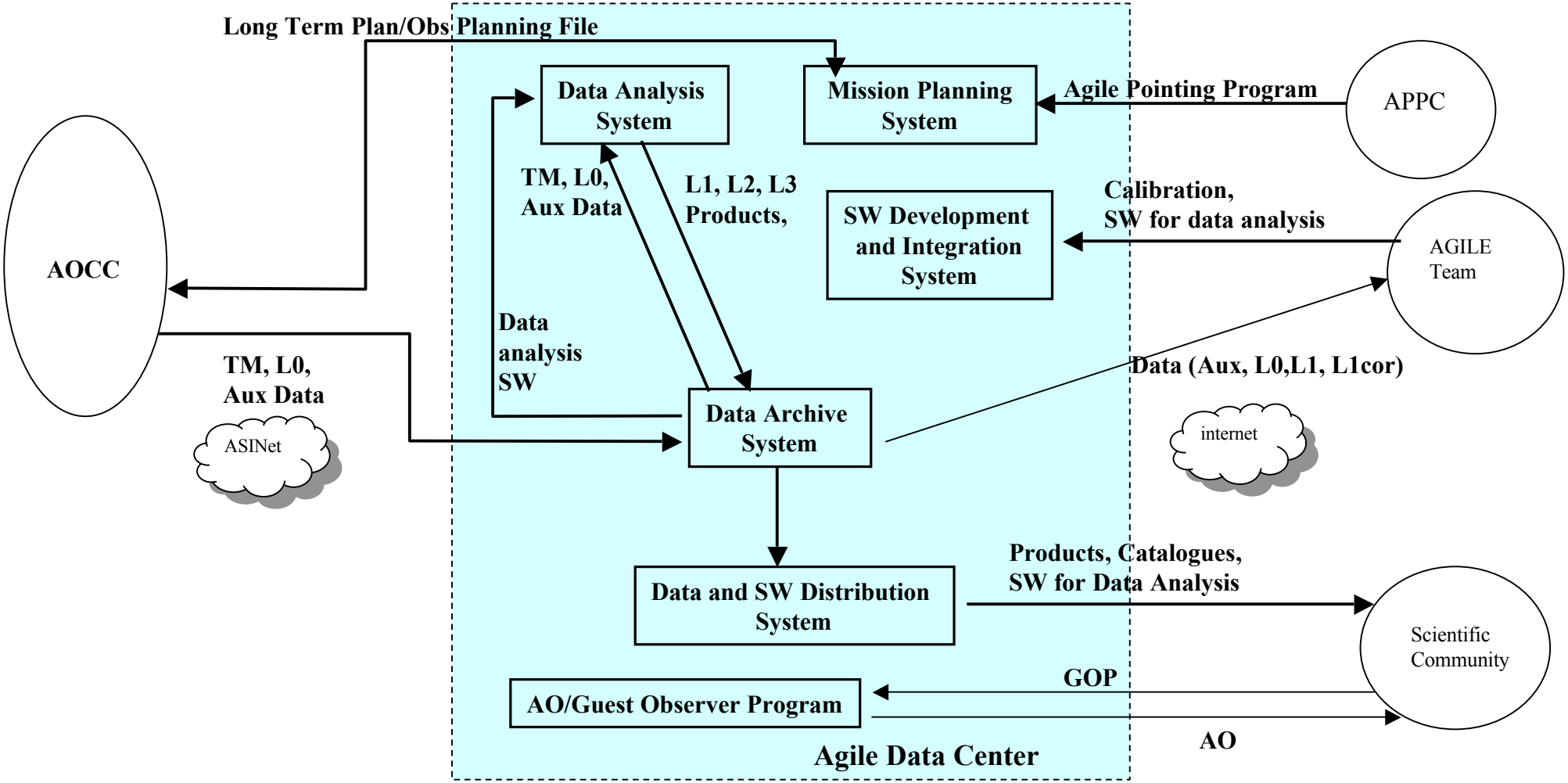
- ✓ Preprocessing → Level-1 data
- ✓ Quick-Look Analysis
- ✓ Standard analysis → Level-2 data (photon list, logfiles)
- ✓ Scientific analysis (source detection, diffuse gamma-ray background)
- ✓ Archiving and distributing all scientific AGILE data



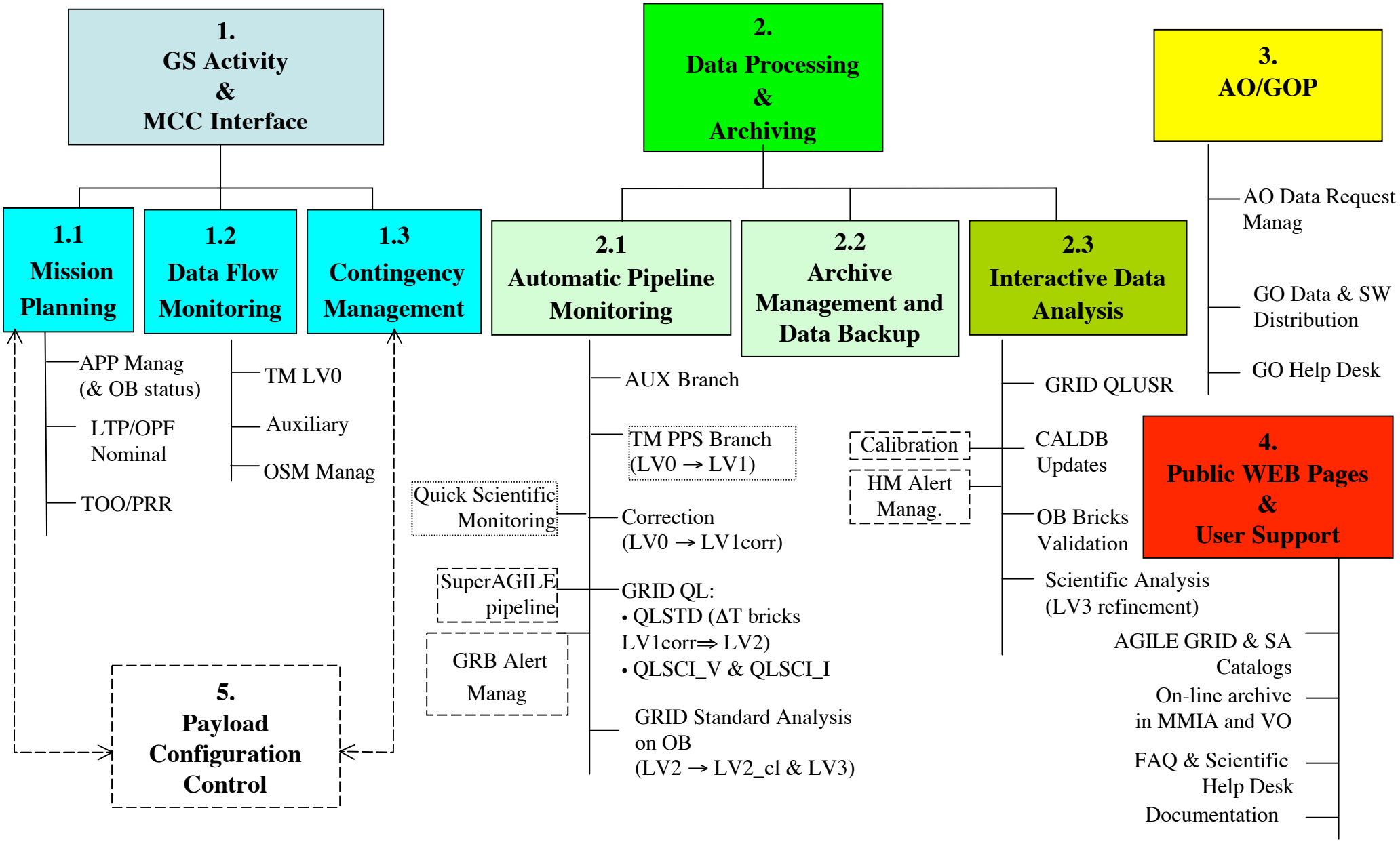
Summary of ASDC activities for AGILE:
(from Agile Science Management Plan)

- Running the Quick Look Analysis
- Running the standard data reduction Analysis
- Performing, when necessary, the Interactive data Analysis
- Managing Announcement of Opportunities
- Contributing to the management of the AGILE Pointing Program
- Archiving all the data (raw, cleaned and calibrated, scientific)
- Distributing the data to the scientific community
- Providing scientific support to the users community
- Officially interface the project for both data and proposals via dedicated web pages
- Providing the standard software support for the data analysis

AGILE Data Center

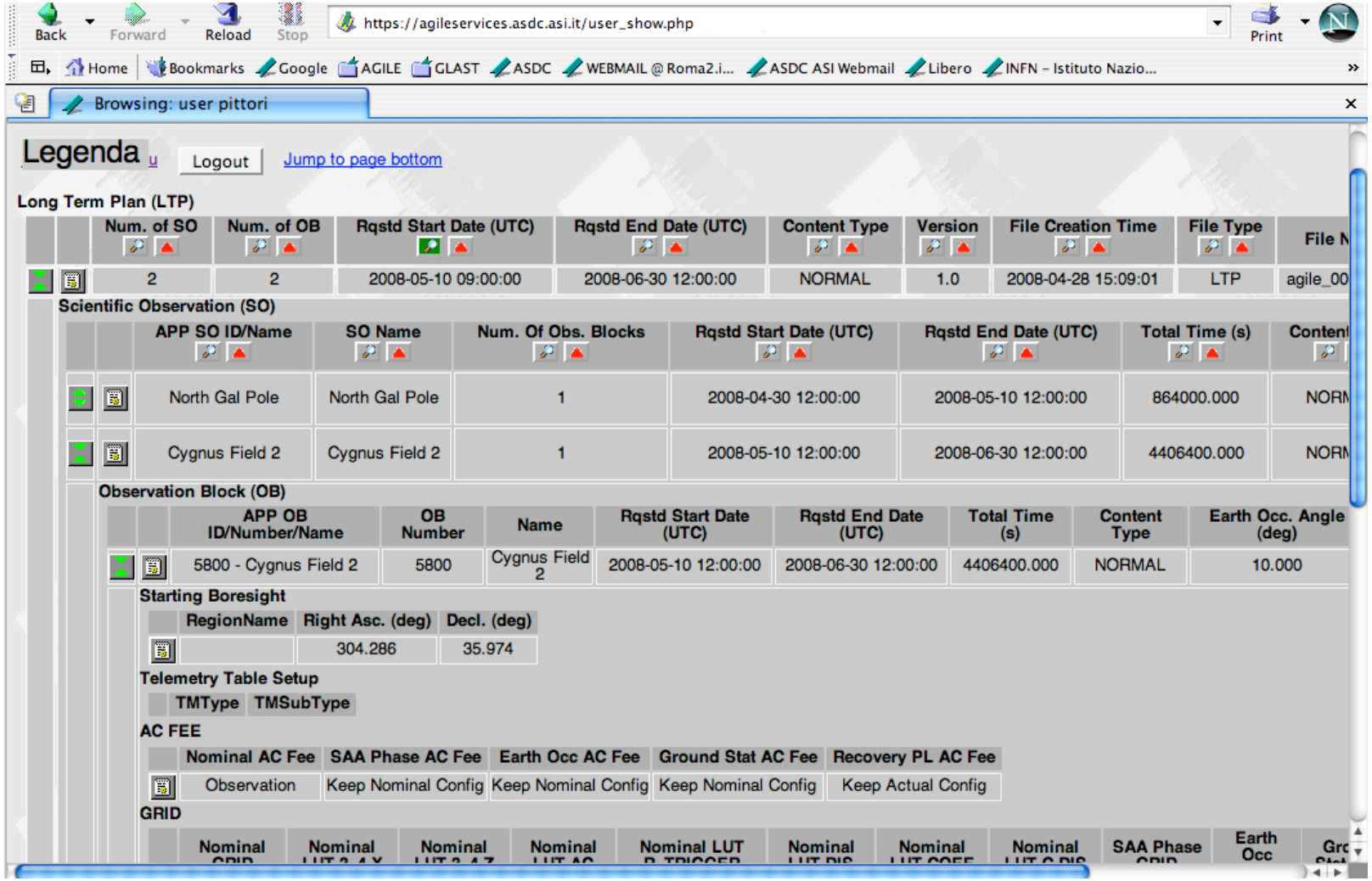


ADC operation scheme:

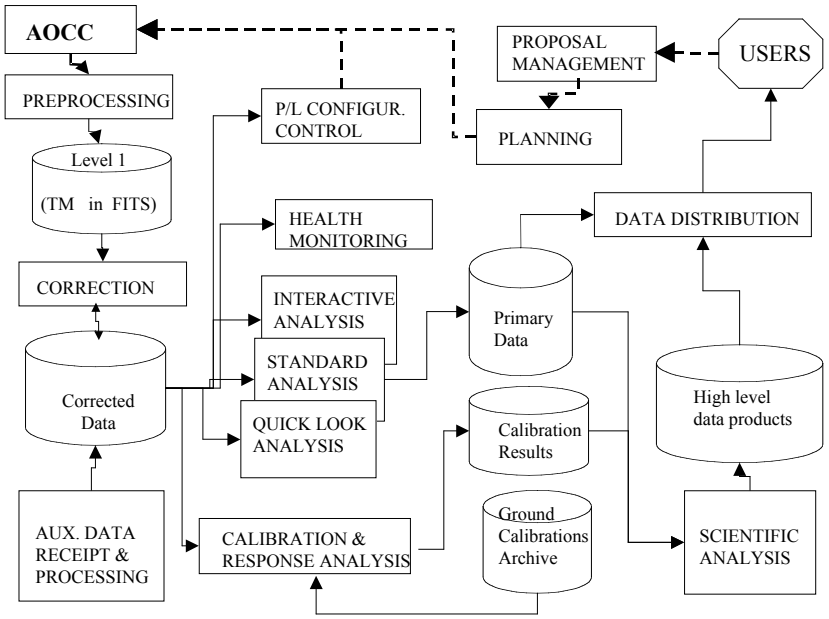


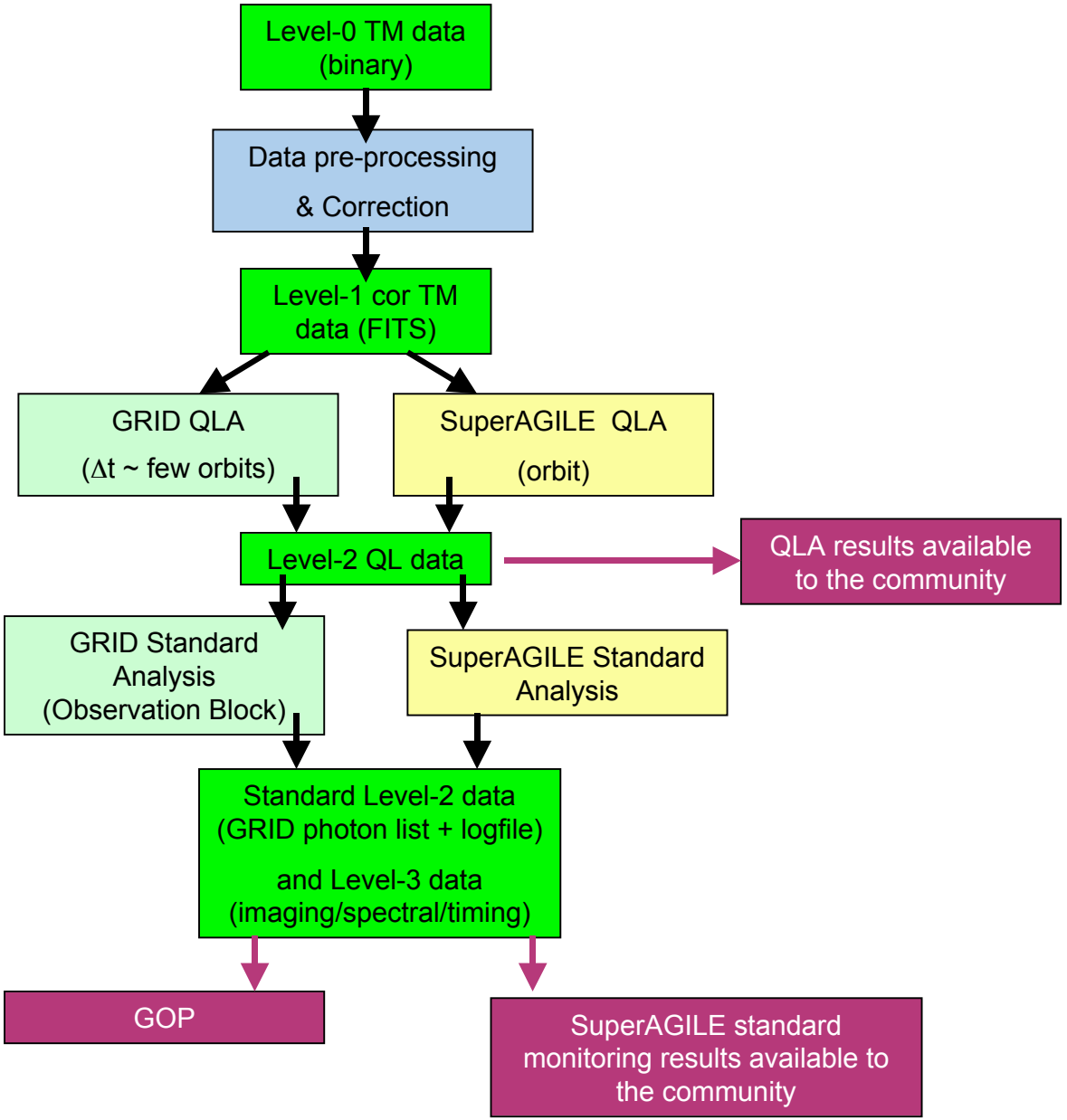
AGILE Mission Planning:

- 30 Long Term Plans - 8 TOO/PRR
- 5860 orbits, June 11 2008 (~ 94% Fine Pointings)
- 17 Cycle-1 Observation Blocks completed from Dec 1 to May 10

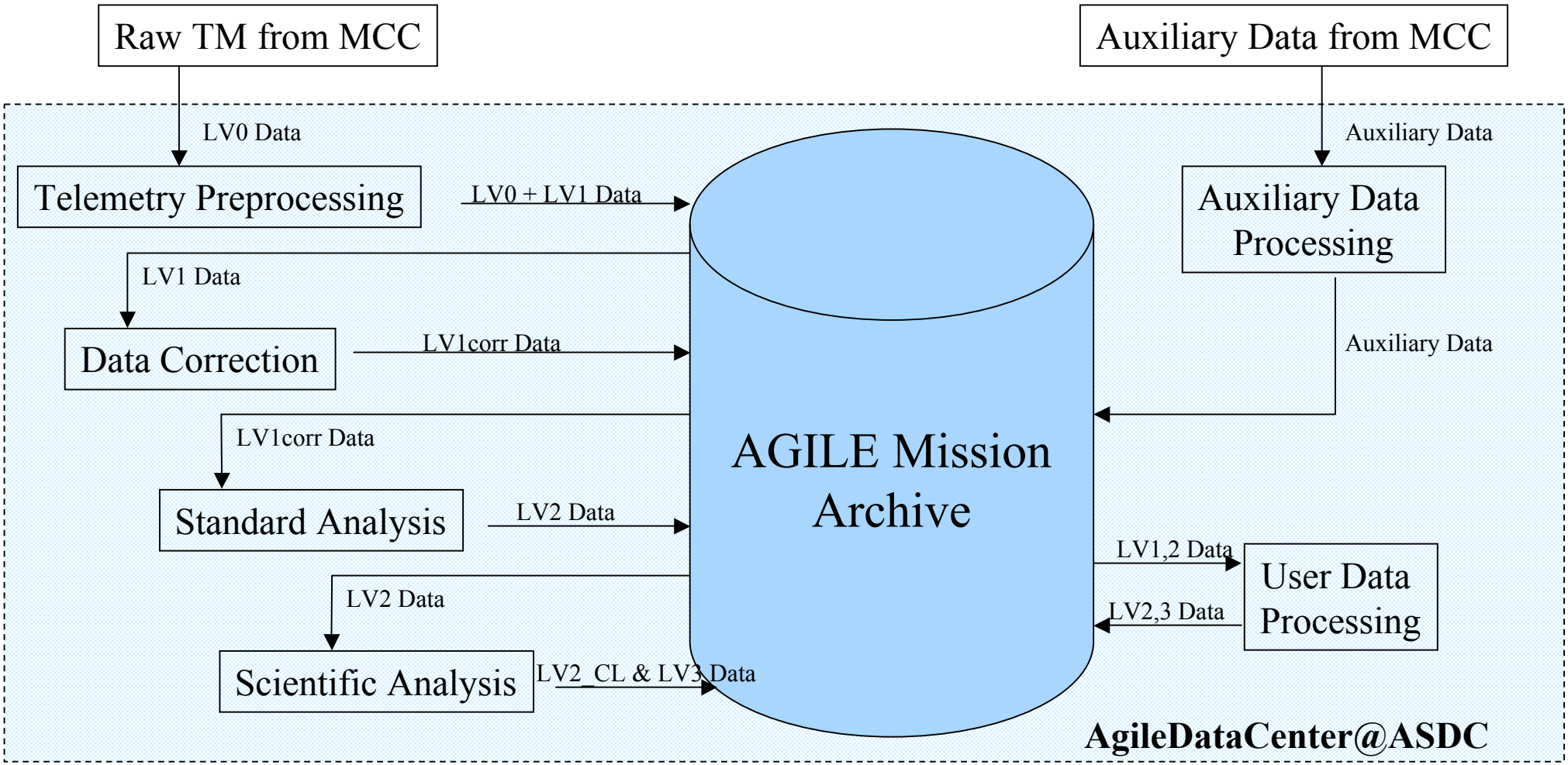


AGILE data analysis SW Structure & Data Flow:





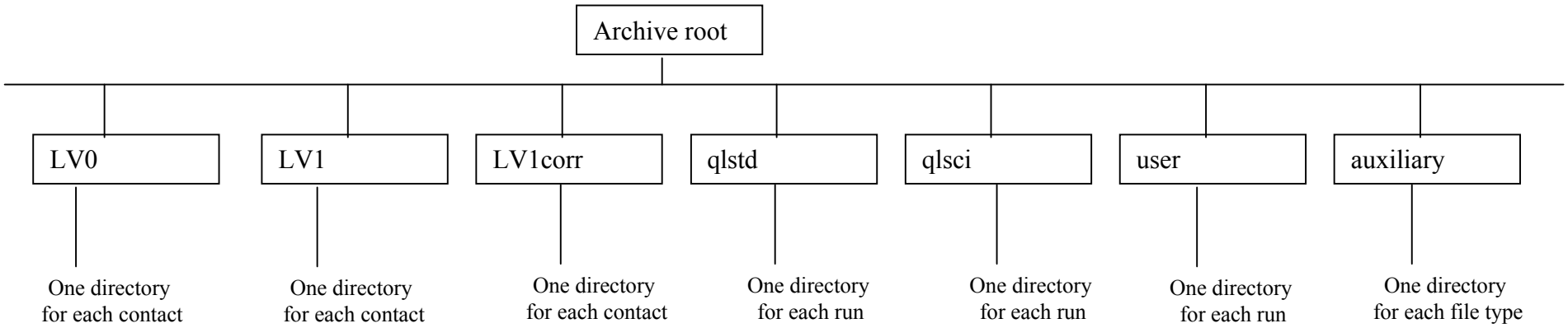
AGILE SW structure & Data Flow



AGILE Scientific Data Archive

AGILE Archive at ASDC includes:

- data from LV0 up to LV3
- storage area for auxiliary data



AGILE Data Archive Size

First 13 months:

LV0 LV1 and LV1corr archives are updated on contact basis.

For each contact, ~ 14MB of LV0 Data is delivered to ASDC

→ **62 GB LV0** data archived up to now

→ **165 GB LV1** data archived up to now

→ **175 GB LV1corr** data archived up to now

QL Standard Analysis is executed on a basis of 3 hours time slots

→ **24 GB of QL LV2** data archived up to now

Scientific Analysis is executed on regular time basis (i.e. once, twice a day, and on Observation Blocks). User analysis is asynchronous

→ **25 GB of LV2 and LV3** data archived up to now

Auxiliary data are received on different time slot basis (contact, once a day, twice a week…)

→ **6 GB of Auxiliary data** archived up to now

→ Estimate for next years: **~ 1 TB/year**

AGILE, Astro-rivelatore Gamma a Immagini Leggero – Netscape

Back Forward Reload Stop http://agile.asdc.asi.it/ Print

← AGILE homepage at ASDC

Home Bookmarks Google AGILE GLAST ASDC WEBMAIL @ Roma2.i... ASDC ASI Webmail Libero INFN – Istituto Nazio... Dipartimento di Fisi...

AGILE, Astro-rivelatore Gam...

agenzia spaziale italiana

AGILE

ASDC ASI Science Data Center

Astro-rivelatore Gamma a Immagini Leggero

Agile News | Agile Pointings | Mission Overview | Selected Results | Restricted Area | Guest Observer Program | Agile Team Home Page | Agile Helpdesk

Welcome to the Agile Home Page at ASDC

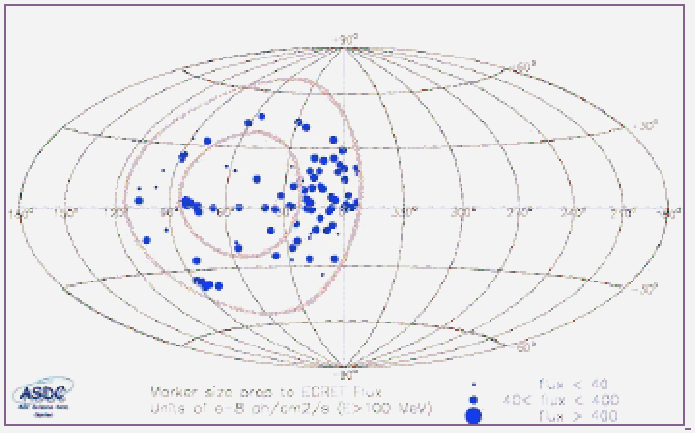
These pages provide updated information and services in support to the general scientific community for the mission AGILE, which is a small Scientific Mission of the Italian Space Agency (ASI) with participation of INFN, IASF/INAF and CIFS .

AGILE is devoted to gamma-ray astrophysics and it is a first and unique combination of a gamma-ray and an hard X-ray imager. It will simultaneously detect and image photons in the 30 MeV - 50 GeV and in the 20 - 60 keV energy ranges.

Latest News

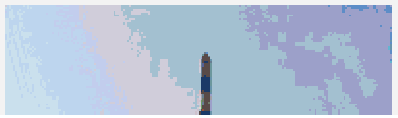
- **(April 10, 2008)** GRB 080408: GRB Localization by SuperAGILE
- **(March 27, 2008)** SuperAGILE detects an X-ray burst from a position consistent with IGR J17473-2721
- **(March 26, 2008)** GRB 080319C: AGILE-MCAL observation of the prompt emission
- **(March 26, 2008)** AGILE detection of a gamma-ray source coincident with Blazar PKS 1510-08
- **(February 29, 2008)** AGILE AO-1 News

Current Agile Pointing

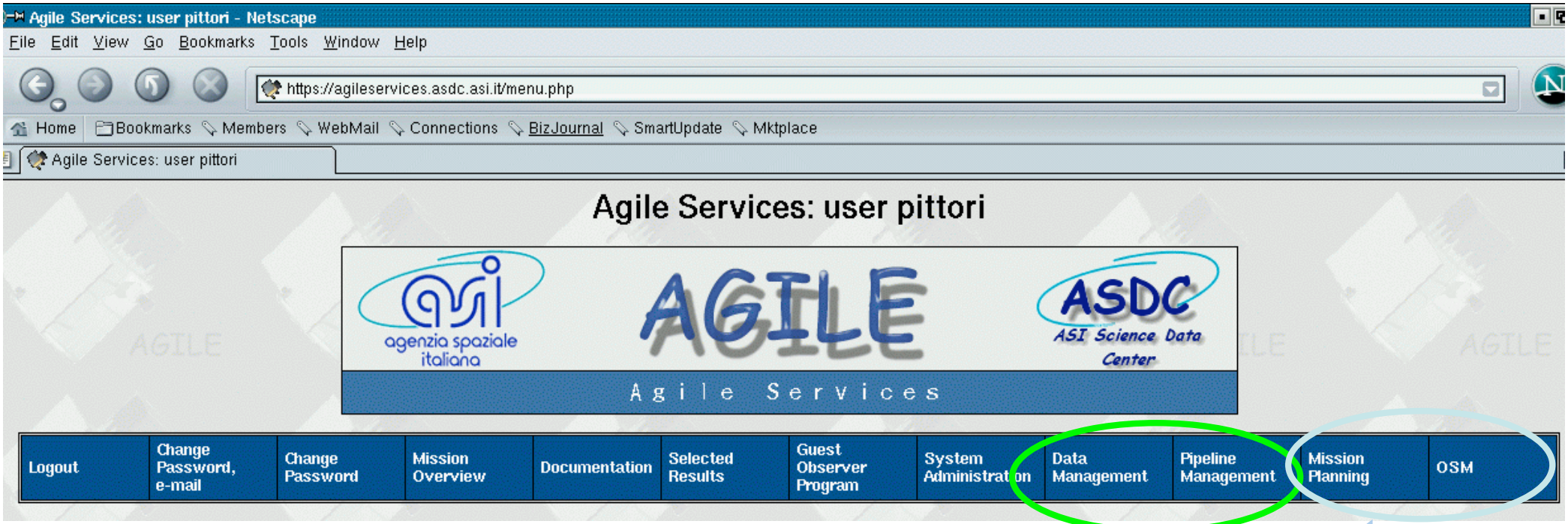


(Click for pointing details)

AGILE succesfully launched!



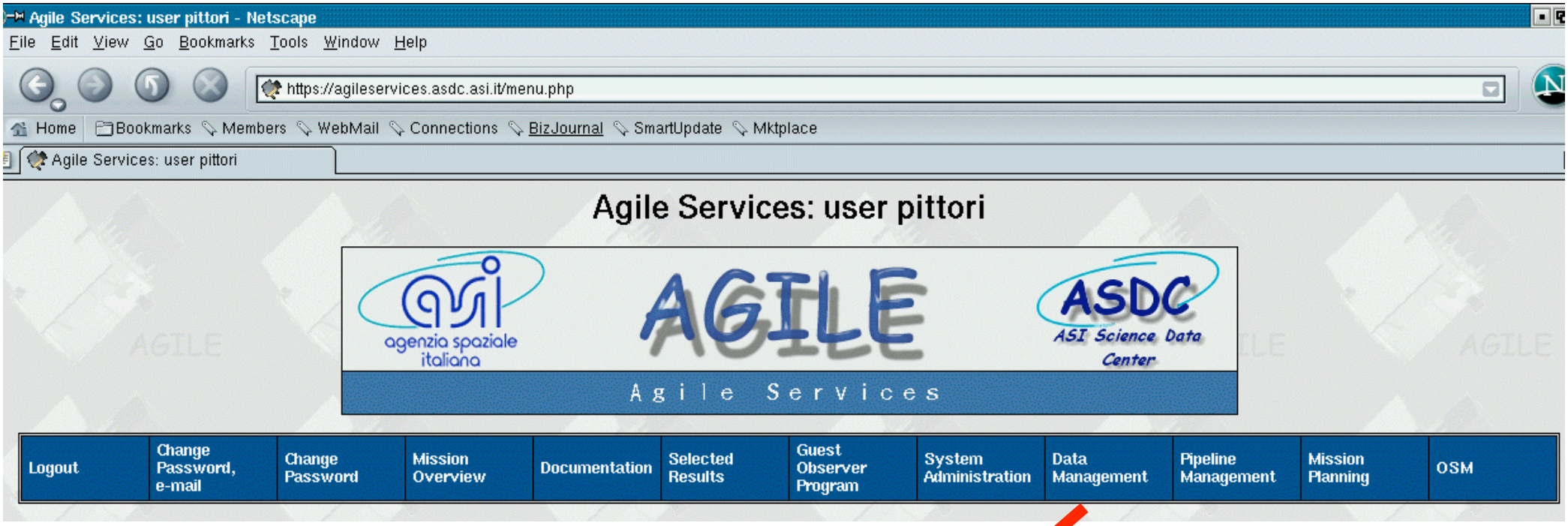
AGILE Services:
ADC internal web I/F to AGILE archive and DataBase:

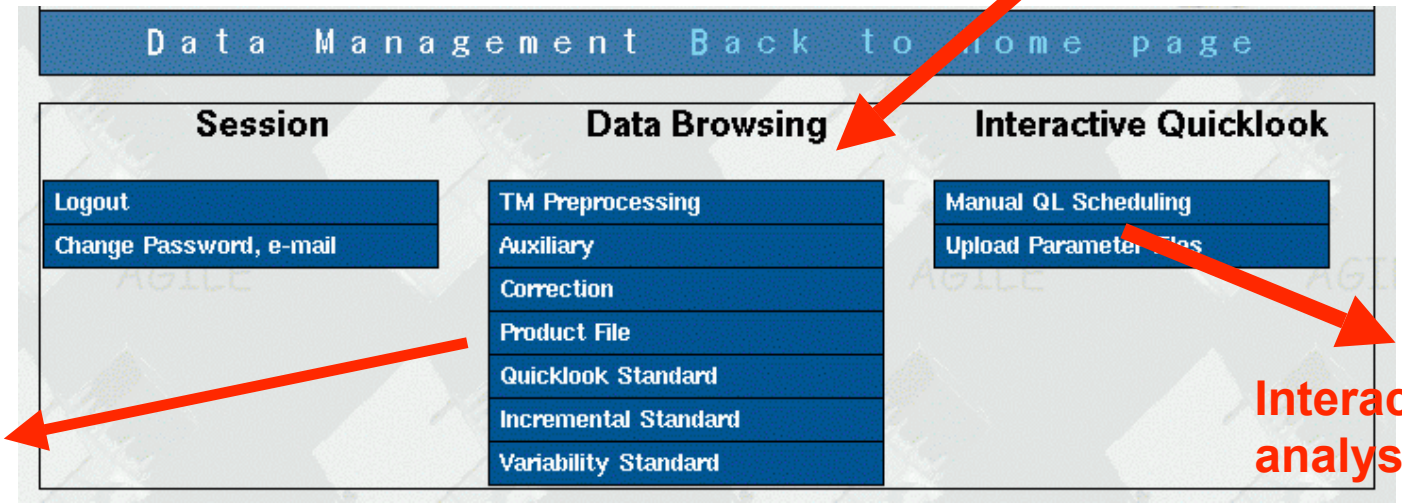


2.
Data Processing
&
Archiving

1.
GS Activity
&
MCC Interface

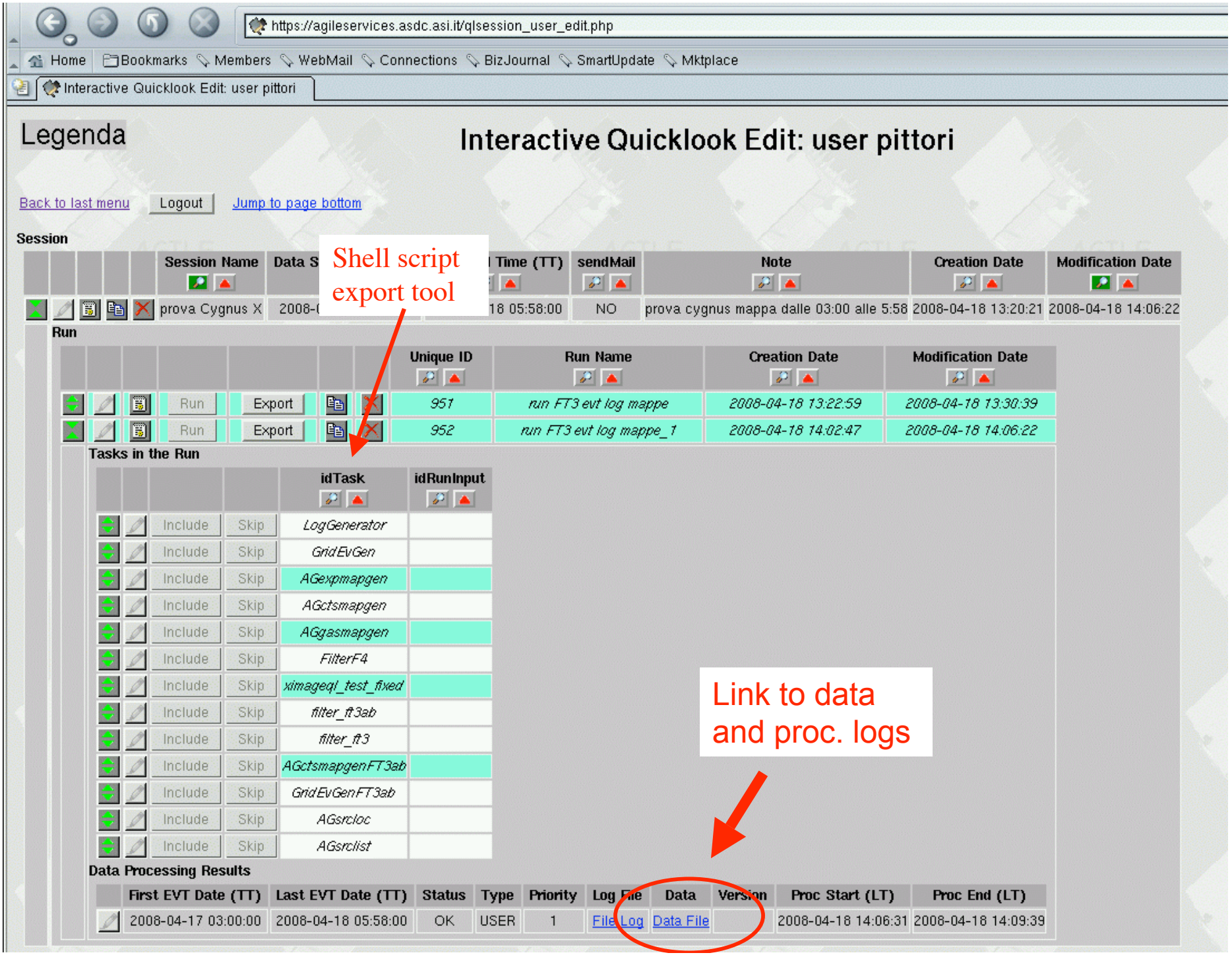
Processing and Data Management @ ASDC:



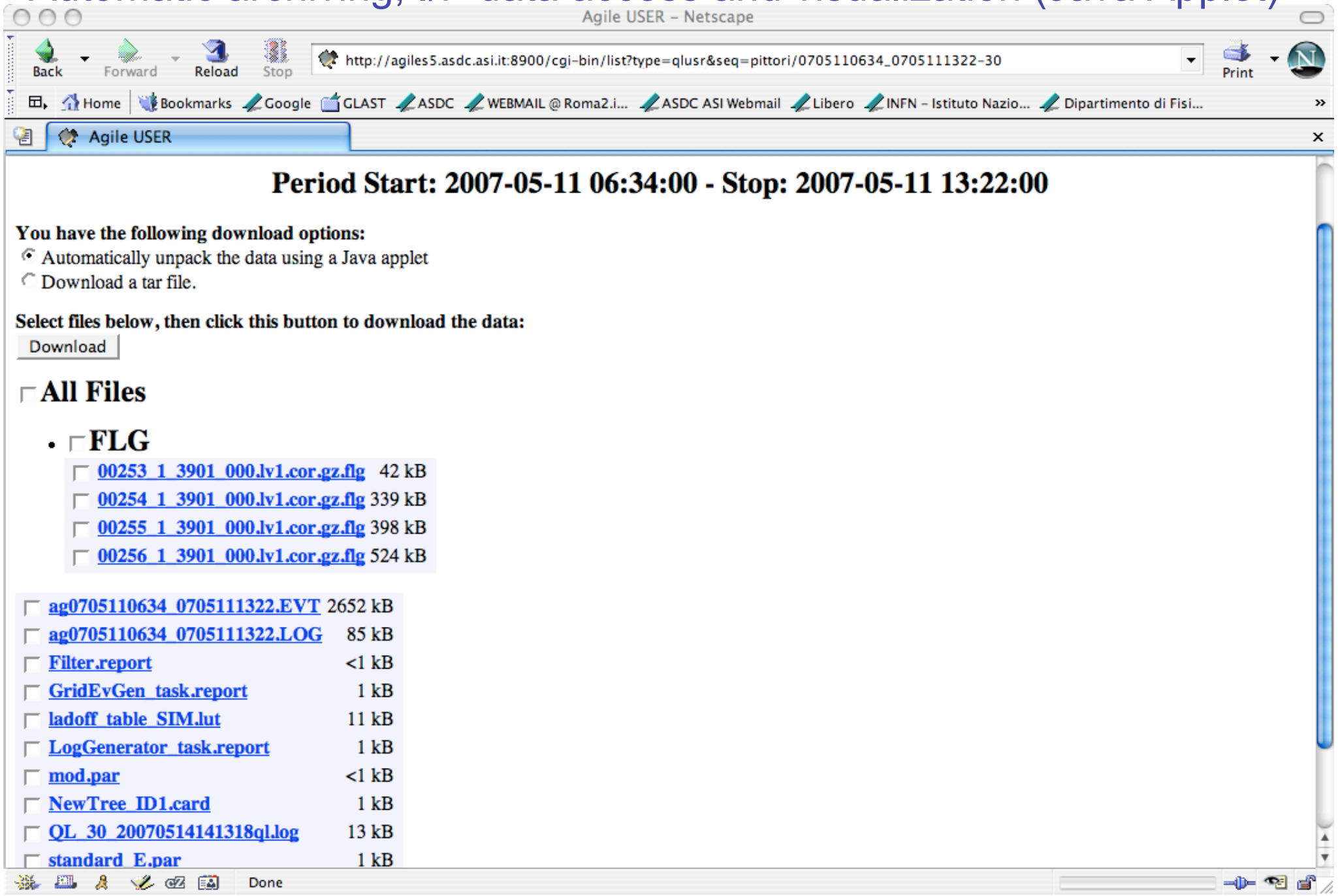


Automatic data processing pipelines

Interactive data analysis sessions


https://agileservices.asdc.asi.it/qlsession_user_edit.php
Home
Bookmarks
Members
WebMail
Connections
BizJournal
SmartUpdate
Mktplace
Interactive Quicklook Edit: user pittori
Legenda
Interactive Quicklook Edit: user pittori
Back to last menu
Logout
Jump to page bottom
Session
Session Name
Data S
Time (TT)
sendMail
Note
Creation Date
Modification Date
prova Cygnus X
2008-
18 05:58:00
NO
prova cygnus mappa dalle 03:00 alle 5:58
2008-04-18 13:20:21
2008-04-18 14:06:22
Shell script export tool
Run
Unique ID
Run Name
Creation Date
Modification Date
Run
Export
951
run FT3 evt log mappe
2008-04-18 13:22:59
2008-04-18 13:30:39
Run
Export
952
run FT3 evt log mappe_1
2008-04-18 14:02:47
2008-04-18 14:06:22
Tasks in the Run
idTask
idRunInput
Include
Skip
LogGenerator
GridEvGen
AGexpmapgen
AGctsmapgen
AGgasmapgen
FilterF4
ximageql_test_fixed
filter_ft3ab
filter_ft3
AGctsmapgenFT3ab
GridEvGenFT3ab
AGsrcloc
AGsrclist
Link to data and proc. logs
Data Processing Results
First EVT Date (TT)
Last EVT Date (TT)
Status
Type
Priority
Log File
Data
Version
Proc Start (LT)
Proc End (LT)
2008-04-17 03:00:00
2008-04-18 05:58:00
OK
USER
1
File Log
Data File
2008-04-18 14:06:31
2008-04-18 14:09:39

Automatic archiving, I/F data access and visualization (Java Applet)

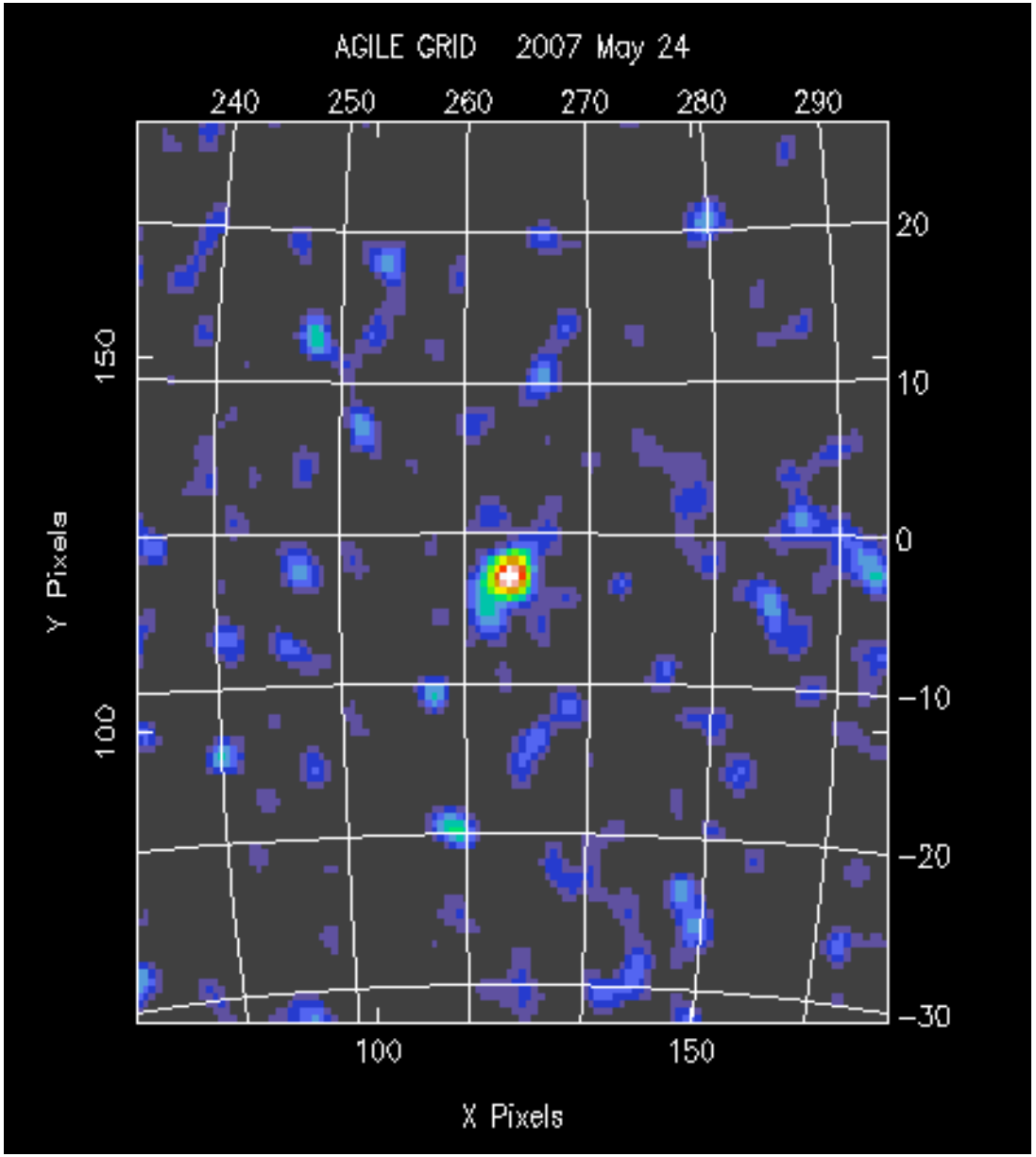


Commissioning Phase:

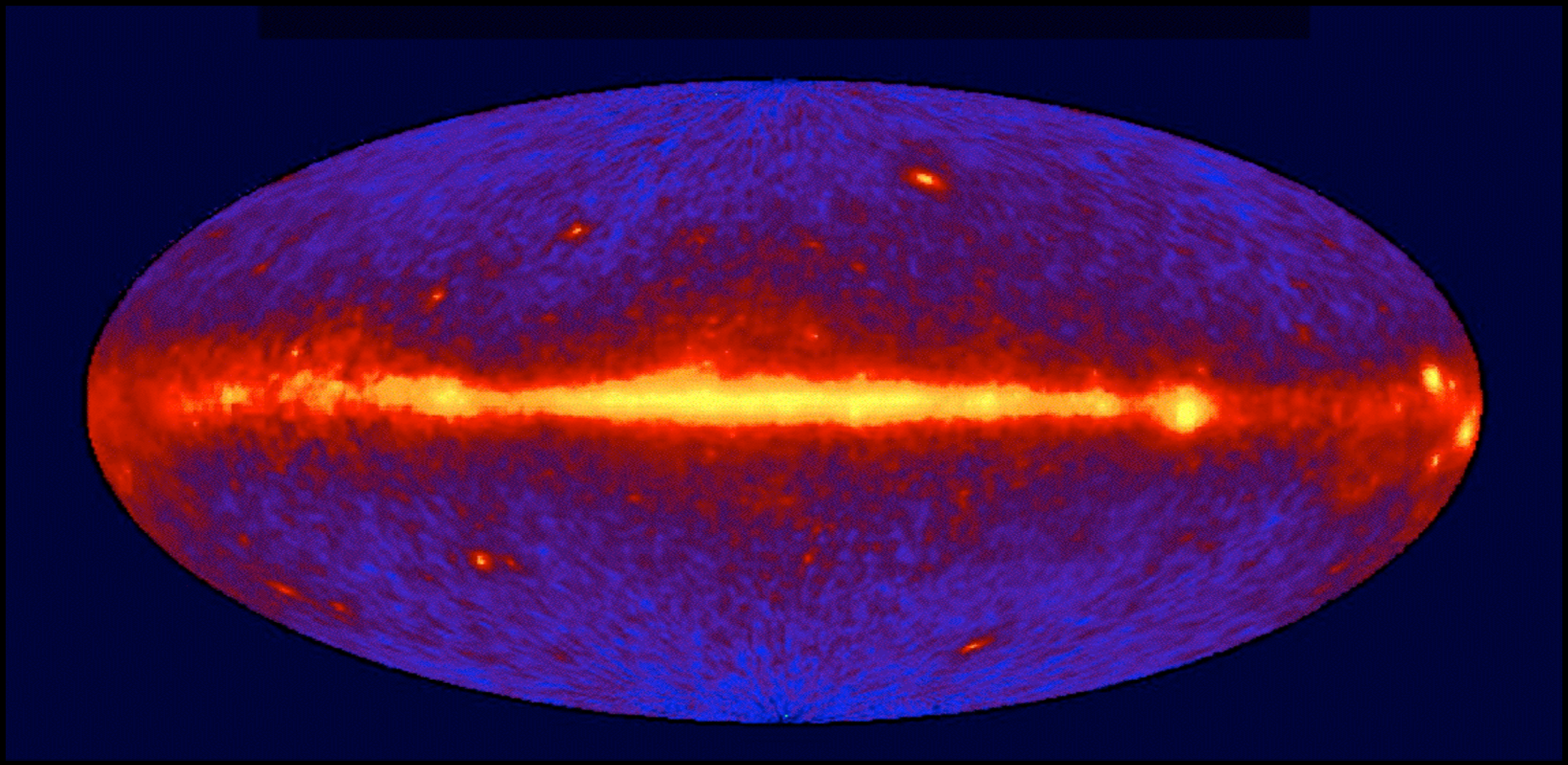
First GRID light

AGILE **Vela PSR** Count Map **by ADC, 24/5/2007**

(~ 20000 s)

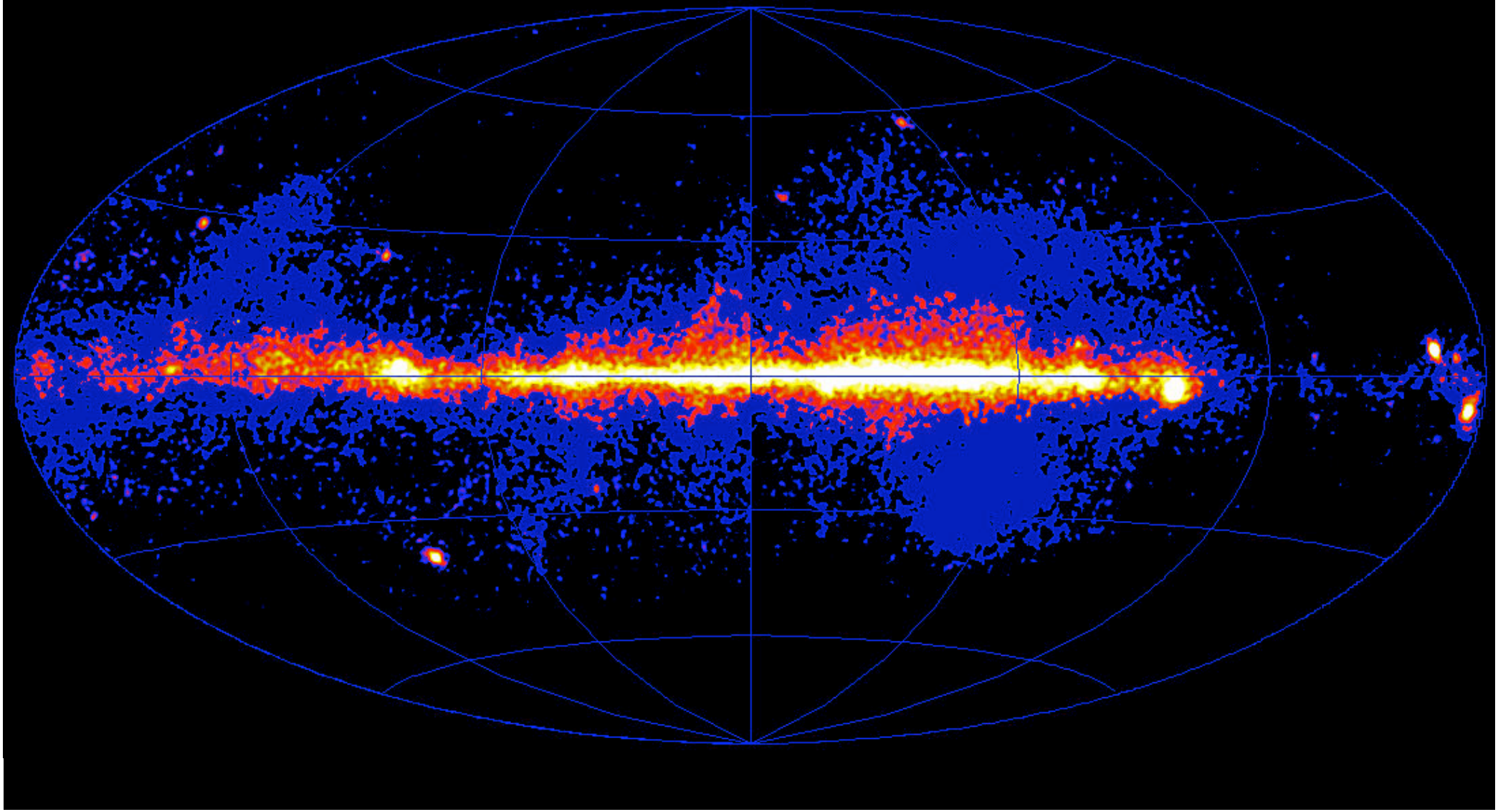


The EGRET gamma-ray sky (E > 100 MeV)
9 years: 1991 - 2000



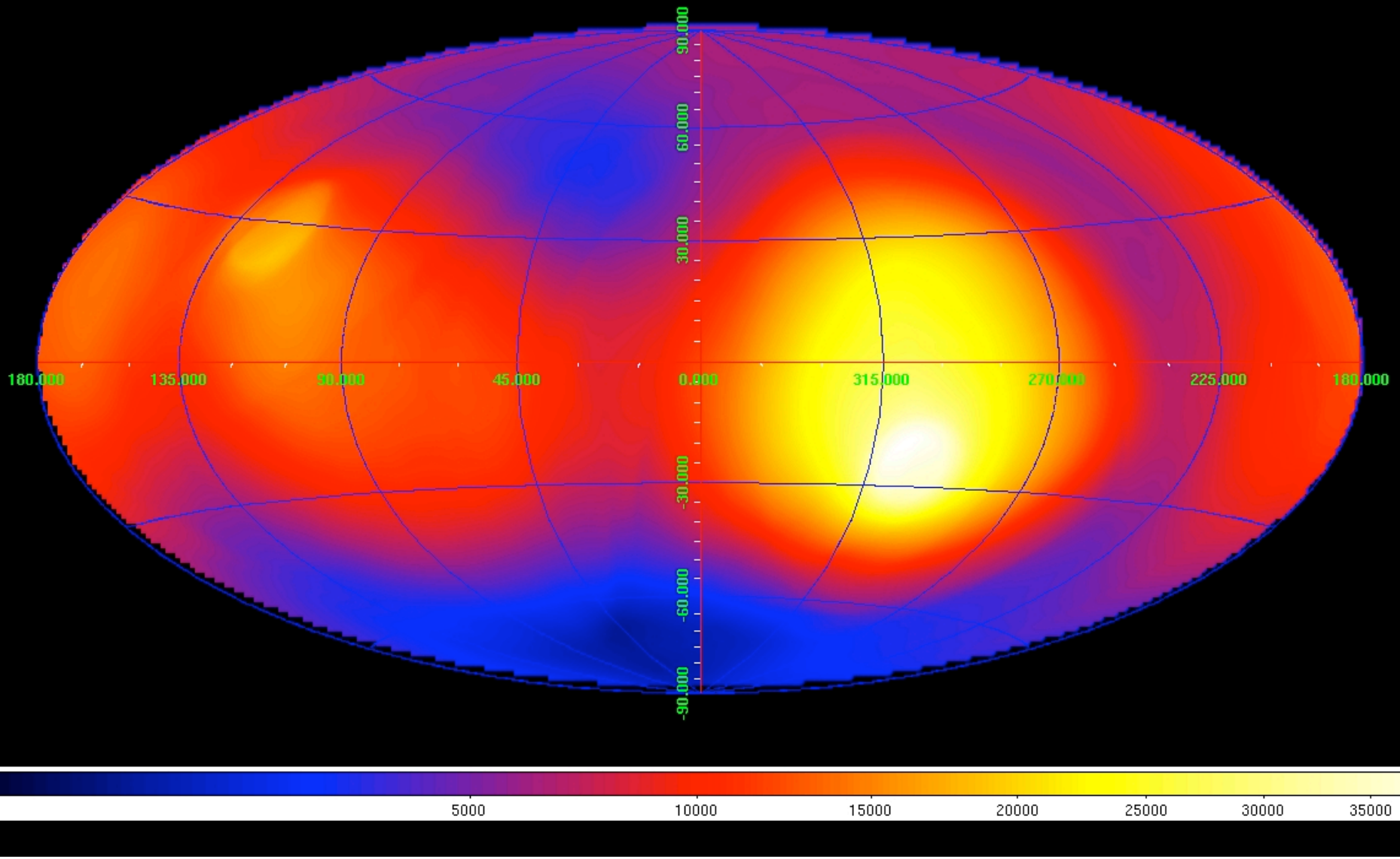
AGILE 9 months COUNT MAP

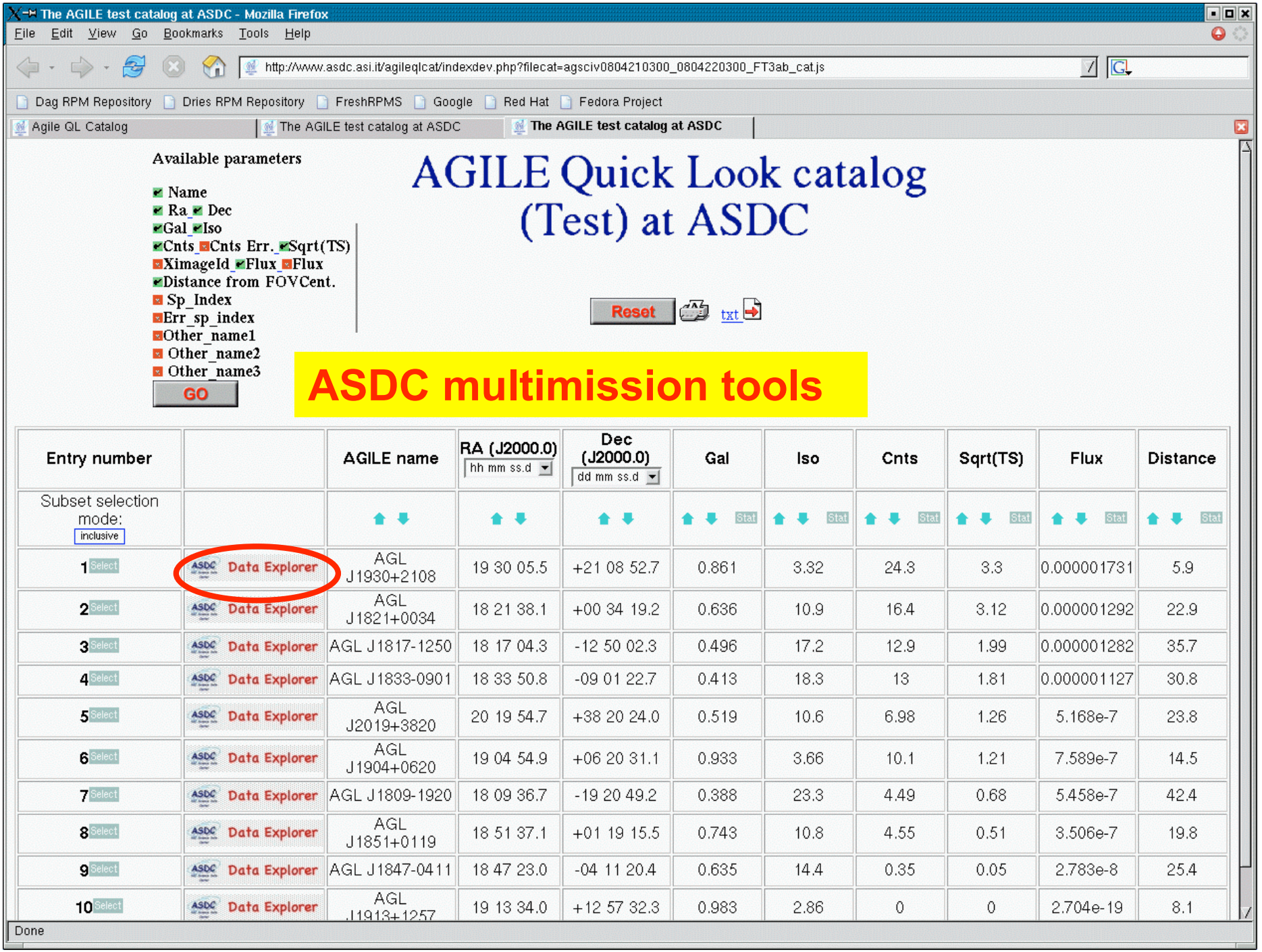
(July 2007- April 2008)



AGILE 9 months EXPOSURE MAP

(July 2007- April 2008)





Entry number		AGILE name	RA (J2000.0) hh mm ss.d	Dec (J2000.0) dd mm ss.d	Gal	Iso	Cnts	Sqrt(TS)	Flux	Distance
Subset selection mode: inclusive										
1 Select	ASDC Data Explorer	AGL J1930+2108	19 30 05.5	+21 08 52.7	0.861	3.32	24.3	3.3	0.000001731	5.9
2 Select	ASDC Data Explorer	AGL J1821+0034	18 21 38.1	+00 34 19.2	0.636	10.9	16.4	3.12	0.000001292	22.9
3 Select	ASDC Data Explorer	AGL J1817-1250	18 17 04.3	-12 50 02.3	0.496	17.2	12.9	1.99	0.000001282	35.7
4 Select	ASDC Data Explorer	AGL J1833-0901	18 33 50.8	-09 01 22.7	0.413	18.3	13	1.81	0.000001127	30.8
5 Select	ASDC Data Explorer	AGL J2019+3820	20 19 54.7	+38 20 24.0	0.519	10.6	6.98	1.26	5.168e-7	23.8
6 Select	ASDC Data Explorer	AGL J1904+0620	19 04 54.9	+06 20 31.1	0.933	3.66	10.1	1.21	7.589e-7	14.5
7 Select	ASDC Data Explorer	AGL J1809-1920	18 09 36.7	-19 20 49.2	0.388	23.3	4.49	0.68	5.458e-7	42.4
8 Select	ASDC Data Explorer	AGL J1851+0119	18 51 37.1	+01 19 15.5	0.743	10.8	4.55	0.51	3.506e-7	19.8
9 Select	ASDC Data Explorer	AGL J1847-0411	18 47 23.0	-04 11 20.4	0.635	14.4	0.35	0.05	2.783e-8	25.4
10 Select	ASDC Data Explorer	AGL J1913+1257	19 13 34.0	+12 57 32.3	0.983	2.86	0	0	2.704e-19	8.1

Netscape

File Edit View Go Bookmarks Tools Window Help

http://www.asdc.asi.it/

Home Bookmarks Members WebMail Connections BizJournal SmartUpdate Mktplace

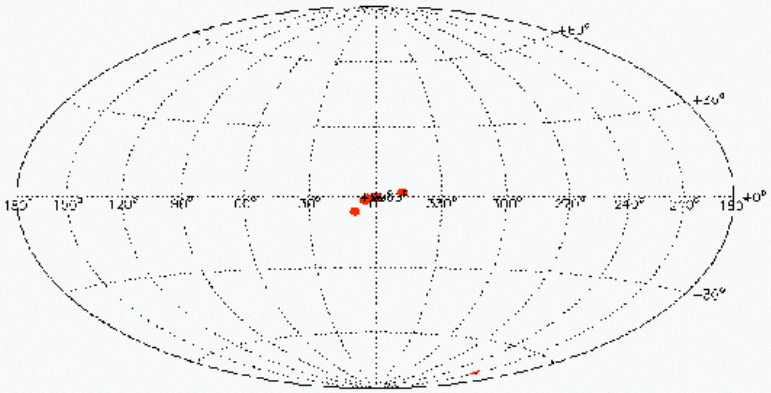
http://www.asdc.as...GC_simulation.html

SuperAGILE Orbital Analysis

Available parameters

- Source ID
- Identification Flag
- Source Class
- RA
- RA Error
- Dec
- Dec Error
- Flux
- Flux Error
- Exposure
- X Significance
- Z Significance
- Source Significance

GO



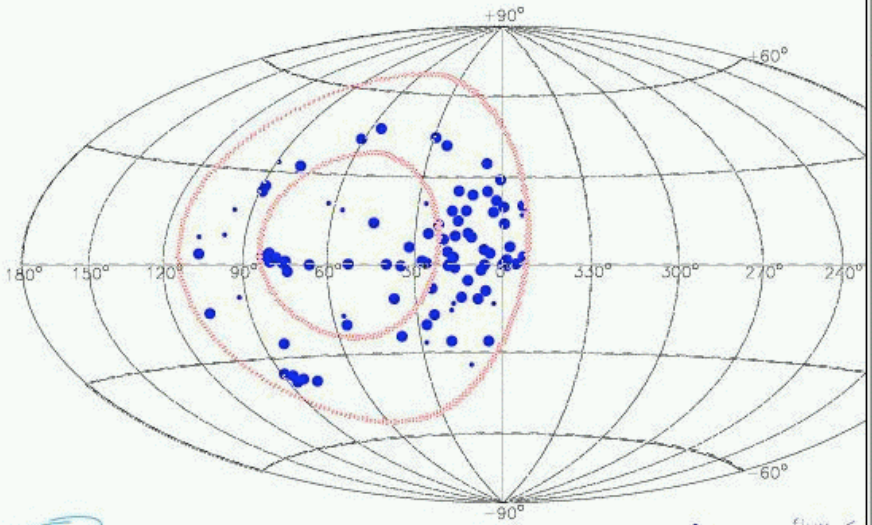
Reset txt

Entry number		Source ID	Identification Flag	Source Class	RA (J2000.0) degrees	RA Error (degrees)	Dec (J2000.0) degrees	Flux (10e-2 erg/cm2)	Exposure	Z Significance
Subset selection mode: inclusive					Stat	Stat	Stat	Stat	Stat	Stat
1 Select	ASDC Data Explorer	1E 1740.7-294	Y	N/A	265.977	0.0399	-29.746	7.2033	598.97	37.987
2 Select	ASDC Data Explorer	4U 1700-377	Y	N/A	255.978	0.0437	-37.841	11.273	598.97	51.097
3 Select	ASDC Data Explorer	GRS 1758-258	Y	N/A	270.308	0.0385	-25.748	6.9589	598.97	29.016
4 Select	ASDC Data Explorer	1E 1742.8-285 AX J17091-29	MULT	N/A	266.403	0.0396	-29.018	5.1495	598.97	26.686
5 Select	ASDC Data Explorer	IGR J17544-2	Y	N/A	268.585	0.0387	-26.335	6.5208	598.97	33.157

AGILE, Astro-rivelatore Gamma a Immagini Leggero - Netscape

The ASDC AGILE FOV viewer of EGRET sources agilefov_20080410_20080430_286_20 - Netscape

Move mouse on a source and click



ASDC

Marker size prop to EGRET Flux
Units of e-8 ph/cm2/s (E>100 MeV)

flux <
40< flux <
flux >

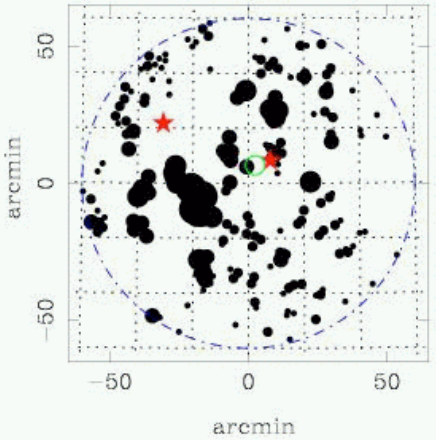
The ASDC Multi-frequency Data Explorer: Web and VO data access and tools - Netscape

File Edit View Go Bookmarks Tools Window Help

ASDC + VO Catalogs | Interactive Data Access at ASDC | Spectral Energy Distribution | Error circle EXPLORER | Full Entry Details

ASDC

Entry ---
with sky coordinates Ra= 20 21 00.0 Dec=+40 17 59.9, L=78.05 b=2.08



Zoom
30

Current position R.A.=20 21 00.0 Dec.=+40 17 59.9, L=78.05 b=2

Multi-λ measurements via ASDC Browse

Multi-λ measurements via VO Interface

Opt-DSS from eso

Image size 3 arcmin

NVSS

Image

Image

Search radius 0.2 arcmin

STSCI MAST | GSC2 | 2MASS | NED | SIMBAD

HEASARC(X-R-G) | VIZIER(X-R-G) | ASDC-R | ASDC-X | SDSS

USNO

SDSS DR6 Navigate tool

NVO

0.000

Gal. Center II	359.978	0.627	265.781	-2			
Anti-Center I	192.637	8.109	100.944	21			
SA Crab (8,24)	188.961	16.996	108.283	28			
SA Crab (15,26)	183.008	22.203	111.762	35			
Anti-Center II	197.296	15.717	110.404	20.758	2008-04-08 12:00	2008-04-10 12:00	
Vulpecula Field	53.039	6.474	286.259	20.819	2008-04-10 12:00	2008-04-30 12:00	
North Gal Pole	104.852	35.439	250.075	72.497	2008-04-30 12:00	2008-05-10 12:00	

Agile/report/QLSCI_10_04_2008 - ASDC Wiki - Netscape

http://wiki.asdc.asi.it/Agile/report/QLSCI_10_04_2008

Gmail - Inbox (355) | Agile Services: user pittori | Agile/report/QLSCI_10_04_2...

adcwiki Preferences Logout

Search Titles Text

ASDC ASI Science Data Center

Agile/ report/ QLSCI_10_04_2008

QLSCI_16_04_2008 » QLSCI_15_04_2008 » Agile/report » QLSCI_14_04_2008 » QLSCI_10_04_2008

ASDC | Agile | Swift | Glast | VO | Simulatore ASDC | Sistema Solare | GAIA | RecentChanges | FindPage | QLSCI_10_04_2008

Immutable Page Comments Info Add Link Attachments More Actions:

GRID DAILY REPORT

10 Apr. 2008

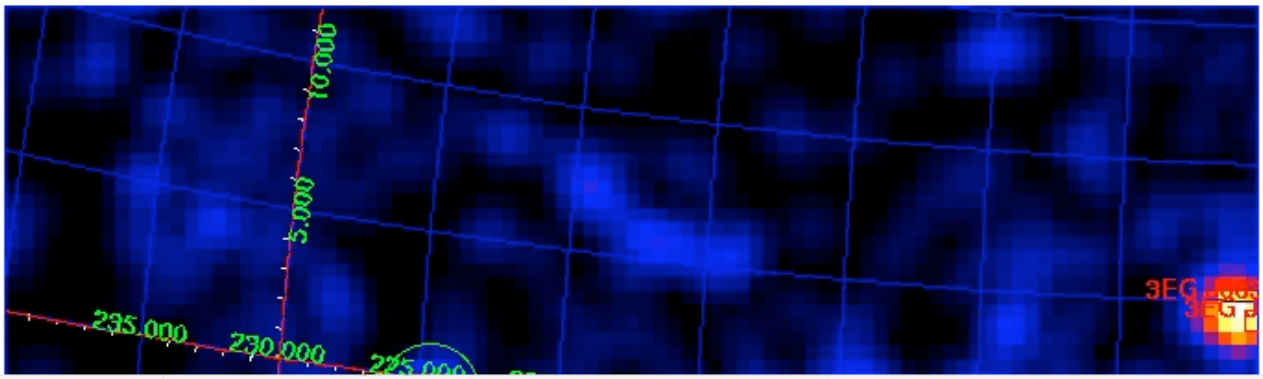
M. Marisaldi, D. Gasparrini

Periodo di analisi 24 ore: Start: 2008-04-09 03:00:00 - Stop: 2008-04-10 03:00:00

- Filtro F4:

  E' presente una sorgente con sqrt(TS) > 3 oltre a CRAB e Geminga:

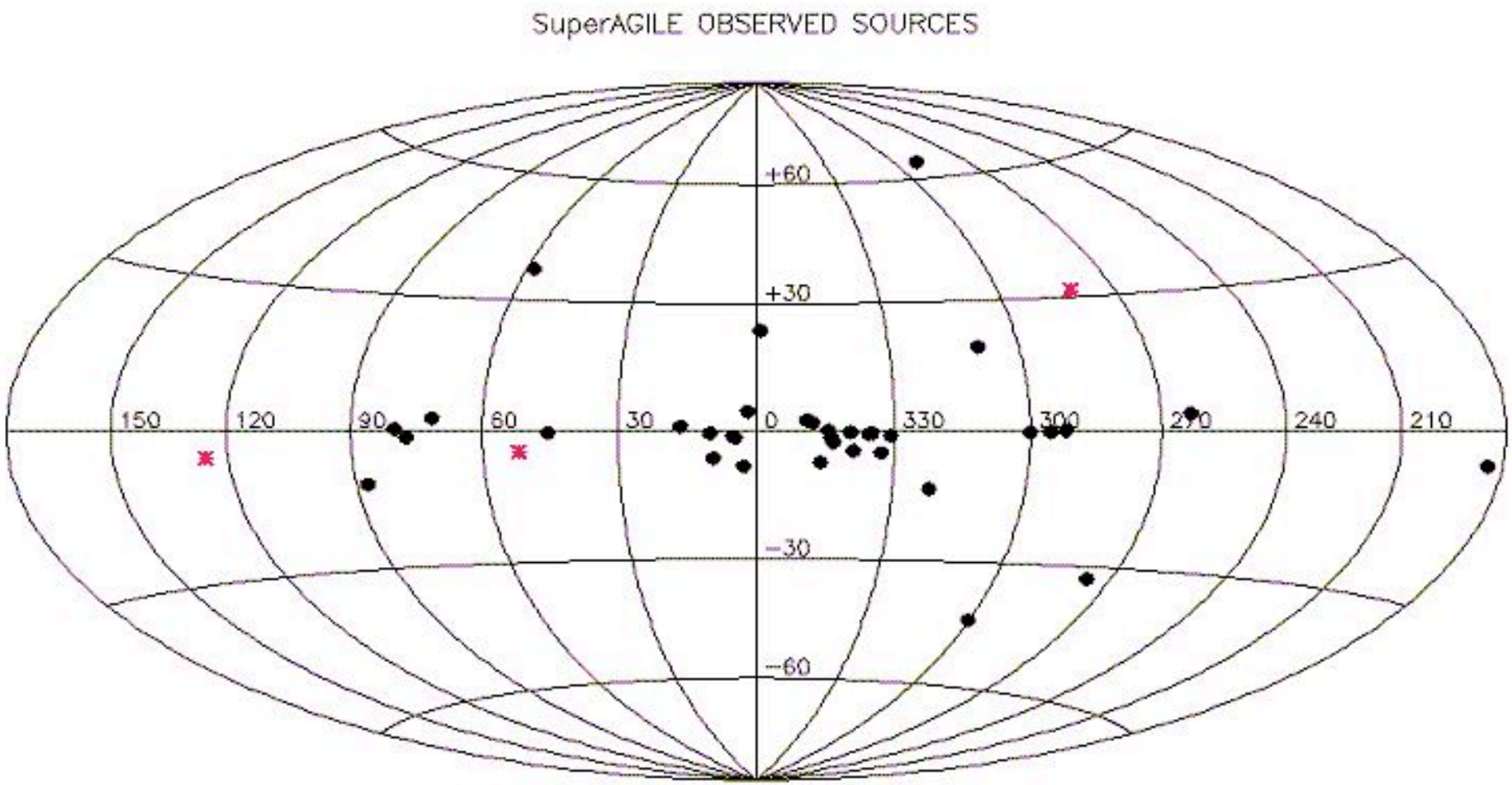
  L=224.8280 B=-1.3250 con sqrt(TS) = 4.44, la sorgente dista dal centro del puntamento 39.4 gradi, ai bordi quindi dell'anello



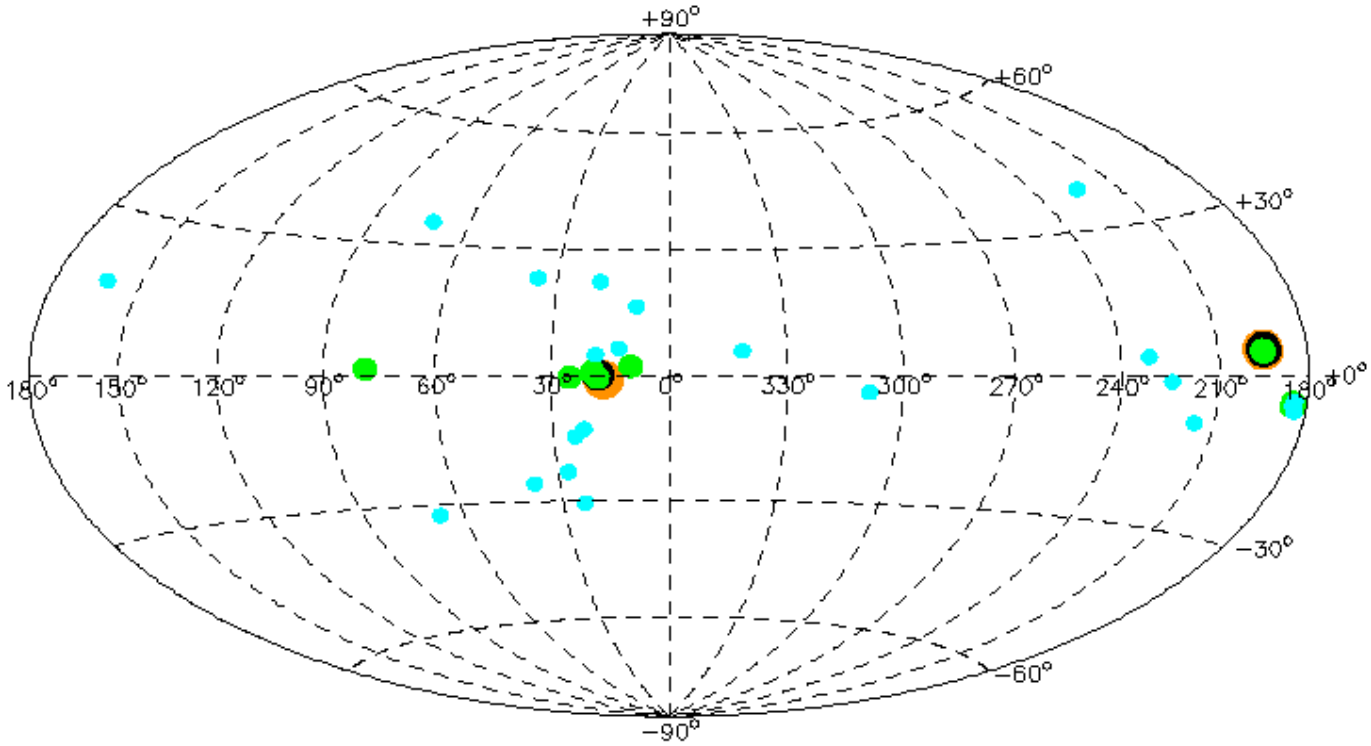
⇒ 15 Astronomer's Telegrams (ATel)

⇒ 8 GCN Circulars (GRB Coordinates Network)

SuperAGILE non-GRB sources detected between Nov 2007 and Jan 2008

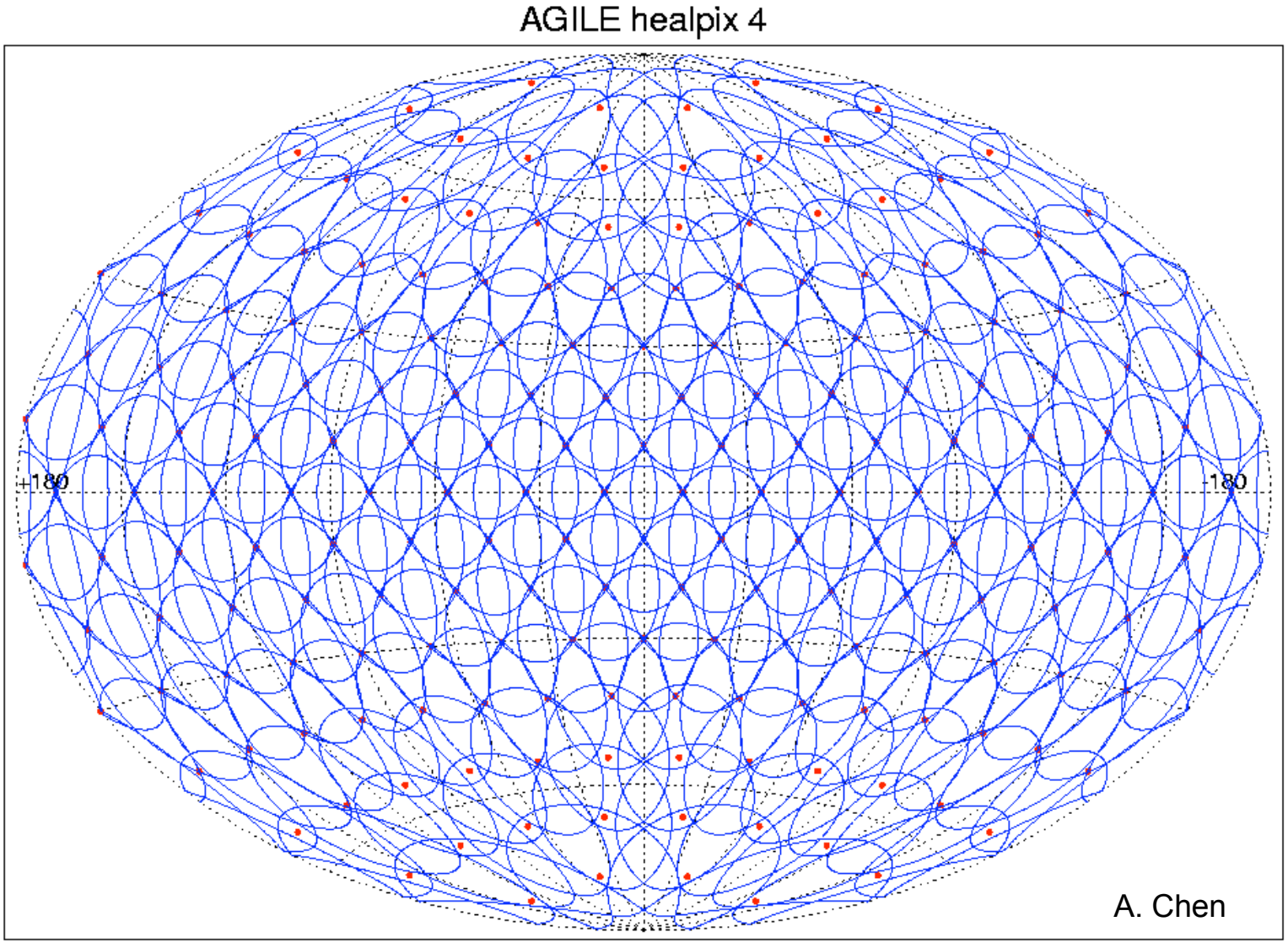


AGILE GRID Quick Look Test Catalogue:
under construction



First AGILE GRID data reprocessing with in-flight calibrations
and available software updates: completed on April 9th.
Second reprocessing with updated software and calibrations to be started **next month**.

AGILE First Consolidated Source Catalogue:
to be published within October 2008



AGILE, Astro-rivelatore Gamma a Immagini Leggero - Netscape

Back Forward Reload Stop http://agile.asdc.asi.it/ao.html Print

Home Bookmarks Google AGILE GLAST ASDC WEBMAIL @ Roma2.i... ASDC ASI Webmail Libero INFN - Istituto Nazio... Dipartimento di Fisi...

Gmail: Email from Google | AGILE, Astro-rivelatore Gam...

agenzia spaziale italiana

AGILE

ASDC ASI Science Data Center

Astro-rivelatore Gamma a Immagini Leggero *Back to Home Page*

Agile AO-1

The official list of all AGILE AO-1 approved targets is now available here

The Italian Space Agency (ASI) announces the release of the first Announcement of Opportunity to solicit proposals for the Guest Observer Program (GOP) of the AGILE mission.

This announcement solicits proposals for observations to be carried out during the observing time beginning on December 1st, 2007, and lasting twelve months.

Proposals may be submitted at any time during the period starting 1 October 2007 and ending 31 October 2007.

Top level documentation regarding this AO can be found here.

Proposals may be prepared and submitted using a set of dedicated ASDC GOP on-line services (Proposal Preparation) .

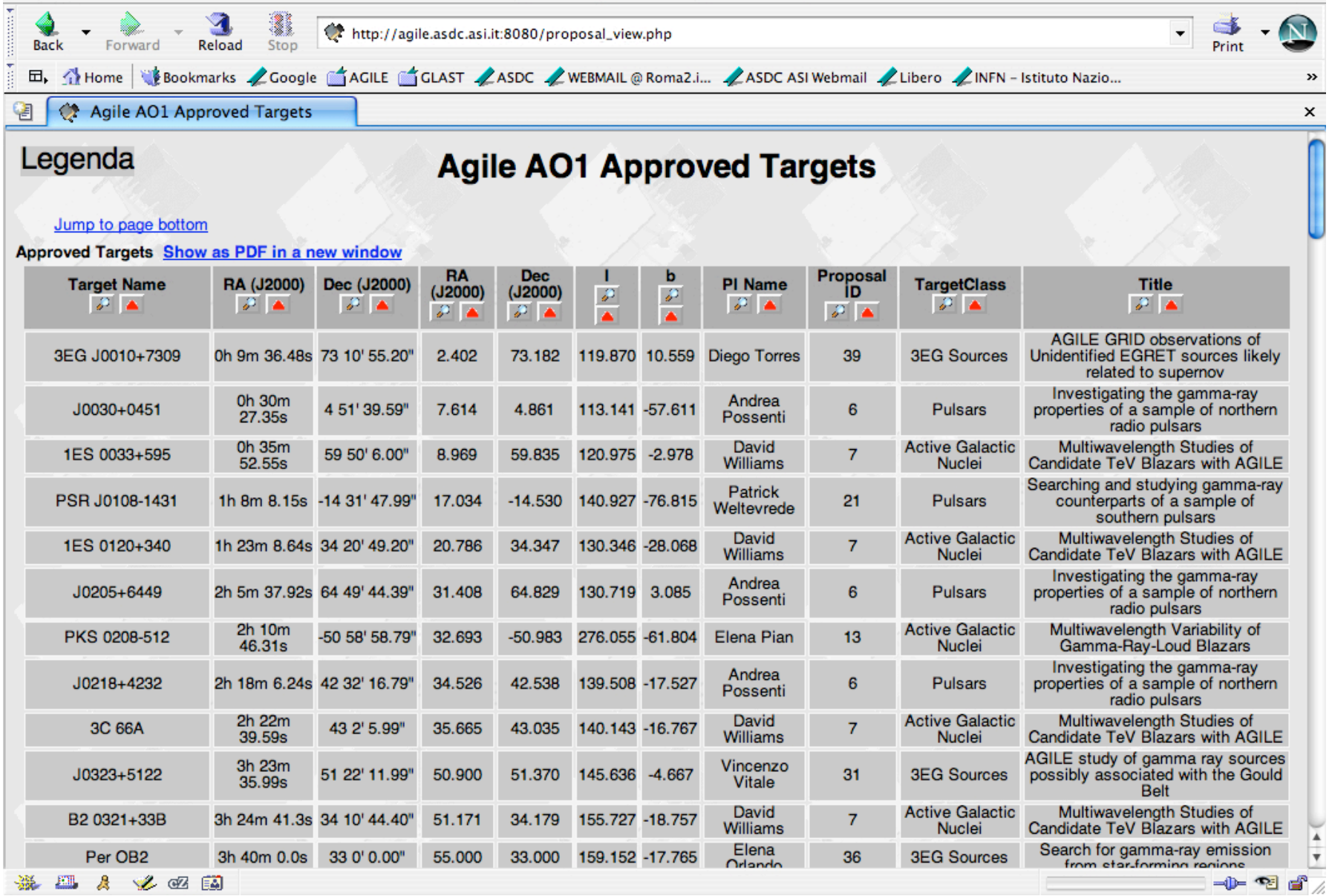
Please remember that users must register in order to access the "proposal submission tool" and to prepare and update their proposals before final submission.

AGILE BASELINE POINTING PLAN (ABPP) - Cycle 1 :

The table provides the coordinates of the pointing centroids at the beginning of the pointing periods

Done

Scientific program open to the community: Cycle-1 Guest Observer Program. GO data taking started on Dec. 1, 2007



Target Name	RA (J2000)	Dec (J2000)	RA (J2000)	Dec (J2000)	l	b	PI Name	Proposal ID	TargetClass	Title
3EG J0010+7309	0h 9m 36.48s	73 10' 55.20"	2.402	73.182	119.870	10.559	Diego Torres	39	3EG Sources	AGILE GRID observations of Unidentified EGRET sources likely related to supernov
J0030+0451	0h 30m 27.35s	4 51' 39.59"	7.614	4.861	113.141	-57.611	Andrea Possenti	6	Pulsars	Investigating the gamma-ray properties of a sample of northern radio pulsars
1ES 0033+595	0h 35m 52.55s	59 50' 6.00"	8.969	59.835	120.975	-2.978	David Williams	7	Active Galactic Nuclei	Multiwavelength Studies of Candidate TeV Blazars with AGILE
PSR J0108-1431	1h 8m 8.15s	-14 31' 47.99"	17.034	-14.530	140.927	-76.815	Patrick Weltevrede	21	Pulsars	Searching and studying gamma-ray counterparts of a sample of southern pulsars
1ES 0120+340	1h 23m 8.64s	34 20' 49.20"	20.786	34.347	130.346	-28.068	David Williams	7	Active Galactic Nuclei	Multiwavelength Studies of Candidate TeV Blazars with AGILE
J0205+6449	2h 5m 37.92s	64 49' 44.39"	31.408	64.829	130.719	3.085	Andrea Possenti	6	Pulsars	Investigating the gamma-ray properties of a sample of northern radio pulsars
PKS 0208-512	2h 10m 46.31s	-50 58' 58.79"	32.693	-50.983	276.055	-61.804	Elena Pian	13	Active Galactic Nuclei	Multiwavelength Variability of Gamma-Ray-Loud Blazars
J0218+4232	2h 18m 6.24s	42 32' 16.79"	34.526	42.538	139.508	-17.527	Andrea Possenti	6	Pulsars	Investigating the gamma-ray properties of a sample of northern radio pulsars
3C 66A	2h 22m 39.59s	43 2' 5.99"	35.665	43.035	140.143	-16.767	David Williams	7	Active Galactic Nuclei	Multiwavelength Studies of Candidate TeV Blazars with AGILE
J0323+5122	3h 23m 35.99s	51 22' 11.99"	50.900	51.370	145.636	-4.667	Vincenzo Vitale	31	3EG Sources	AGILE study of gamma ray sources possibly associated with the Gould Belt
B2 0321+33B	3h 24m 41.3s	34 10' 44.40"	51.171	34.179	155.727	-18.757	David Williams	7	Active Galactic Nuclei	Multiwavelength Studies of Candidate TeV Blazars with AGILE
Per OB2	3h 40m 0.0s	33 0' 0.00"	55.000	33.000	159.152	-17.765	Elena Orlando	36	3EG Sources	Search for gamma-ray emission from star-forming regions

AGILE AO1:

Submitted proposals: 29

Approved/P. Approved: 24

Requested Targets: 122

Approved Targets: 100

Pulsars: 39

AGN: 31

3EG sources: 30

GOP Schedule

- SW build GO 1.0 + test dataset: *released on May 22, 2008*
- GO data validation: *on-going*
- GO data distribution: *started on June 5*