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***** AGILE Public Data Release Note v2.0 *****

User's README

AGILE Data Center (ADC), October 6, 2009

Data in v2.0 public release were processed with the AGILE "Standard Analysis" OB pipeline, which cleans the archive by eliminating data corresponding to repointing slews and occasional losses of fine-pointing attitude.

The OB pipeline software version used is:

3_18_17_16 corresponding to new AGILE reprocessed data.

Please note that all Cycle-1 OB data already included in previous deliveries have been reprocessed with the latest available software.

This new public delivery reflects the current best understanding and testing of calibrations, background rejection, and processing results.

Currently the proprietary period for the first 20 OB (from OB 4900 to OB 5820) has expired and the data are public and available from the ASDC Multimission Archive webpage <http://www.asdc.asi.it/mmia/> for the AGILE Mission.

AGILE Cycle-1 GO have still data rights expiring on december 22, 2009 over 9 OB: from the OB 5900 to OB 6400.

This v2.0 reprocessed archive for public Cycle-1 OB is homogeneous with reprocessed proprietary data delivered on 2009_Oct_06 to successful proponents of the AGILE Guest Observer Program.

***** Data delivery details: *****

AGILE Cycle-1 observations were structured as a series of 29 Observation Blocks (OB), each corresponding to a unique identifying number.

The schedule can be found at:

http://agile.asdc.asi.it/current_pointing.html

(click on the red text: "Click here to show previous pointings").

This current set of public GRID data corresponds to the first 20 AGILE observations of Cycle-1 following the first year AGILE Baseline Pointing Plan and including 3 Target of Opportunities (ToO) and 1 Partial Repointing:

	OB #	OB Name	RA_PNT	DEC_PNT	OB start date	OB end date	Mean OB Exp.	Notes
1	4900	Cygnus Field 1	20 26 47.9	+53 17 59.9	2007-12-01 12:00	2007-12-05 09:00	7863569	Baseline
2	4910	Cygnus Field 1 b<0	21 53 59.9	+38 00 00.0	2007-12-05 09:00	2007-12-15 12:00	17534267	Partial Rep.
3	4920	Cygnus Field 1 Ext.	22 15 35.9	+37 53 59.9	2007-12-15 12:00	2007-12-16 12:00	1818760	ToO
4	5010	Virgo Field 1	11 58 00.0	-00 24 00.0	2007-12-16 12:00	2008-01-08 12:00	26087354	Baseline
5	5100	Vela Field	10 45 12.0	-63 47 59.9	2008-01-08 12:00	2008-02-01 12:00	33770516	Baseline
6	5200	South Gal Pole	04 06 23.9	-38 06 00.0	2008-02-01 12:00	2008-02-09 09:00	12842897	Baseline
7	5210	ToO MKN 421	16 48 47.9	+50 30 00.0	2008-02-09 09:00	2008-02-12 12:00	6068356	ToO
8	5220	South Gal Pole Res.	04 27 11.9	-35 47 59.9	2008-02-12 12:00	2008-02-14 12:00	3550767	Baseline
9	5300	Musca Field	13 51 36.0	-73 54 00.0	2008-02-14 12:00	2008-03-01 12:00	33480692	Baseline
10	5400	Gal. Cent. I OB	17 04 47.9	-51 23 59.9	2008-03-01 12:00	2008-03-16 12:00	25219658	Baseline
11	5450	Gal. Cent. II OB	18 14 00.0	-28 36 00.0	2008-03-16 12:00	2008-03-30 12:00	18890136	Baseline
12	5500	Anti-Center	07 00 00.0	+21 41 59.9	2008-03-30 12:00	2008-04-05 12:00	9156017	Baseline
13	5510	SA Raster Scan 23d	07 19 59.9	+28 36 00.0	2008-04-05 12:00	2008-04-07 12:00	3433405	Baseline

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14	5520	SA Raster Scan 28d	07 30 23.9	+35 42 00.0	2008-04-07 12:00	2008-04-08 12:00	624562	Baseline
15	5530	Anti Center Res.	07 28 23.9	+20 48 00.0	2008-04-08 12:00	2008-04-10 12:00	3495799	Baseline
16	5600	Vulpecula Field	19 36 24.0	+20 36 00.0	2008-04-10 12:00	2008-04-30 12:00	32487373	Baseline
17	5700	North Gal Pole	16 53 36.0	+71 00 00.0	2008-04-30 12:00	2008-05-10 12:00	20943837	Baseline
18	5800	Cygnus Field 2	21 11 12.0	+35 12 00.0	2008-05-10 12:00	2008-06-09 18:00	46349986	Baseline
19	5810	TOO WComae ON +231	12 23 12.0	+29 48 00.0	2008-06-09 18:00	2008-06-15 12:00	9974044	ToO
20	5820	Cygnus Field 2 Res	22 06 47.9	+50 00 00.0	2008-06-15 12:00	2008-06-30 12:00	28796719	Baseline

From the ASDC Multi Mission Interactive Archive <http://www.asdc.asi.it/mmia/>
the query results for the AGILE Mission show an interactive table with all OB data which include:
- either the searched source position within 50 degrees from the mean
position of the OB pointing RA_PNT, DEC_PNT (J2000)
- or the specified time-range
- or the selected parameters (OB numbers).

USEFUL NOTE: a query with "Search Type" by "Time", with default Start Date and End Date values
results in a complete table of all public AGILE OB available to date.

In the interactive table the Mean OB Effective Exposure (in cm² s)
corresponding to the effective area associated to the new (FM) event filter
is also indicated.

For each OB, the "Public access" link makes it possible to download the following
v2.0 files:

For each AGILE Observation Block the spacecraft auxiliary (LOG) files,
needed for the data analysis (ag-<TSTART>.LOG__GO.gz),
are grouped under the directory LOG__GO:

```
* LOG__GO
  ag-<TSTART1>.LOG__GO
  ag-<TSTART2>.LOG__GO
  .....
  .....
  ag-<TSTARTn>.LOG__GO
```

and a single general LOG index file with suffix: LOG__GO-<TSTART1>.index

WARNING: the newly delivered LOG files have a very accurate time resolution of
100 msec and need several GB of available disk space. Each LOG__GO file covers
approximately one-day of observation within the OB.

- the new standard OB event file with suffix: EVT__GO_FM
and its index file with suffix: EVT__GO_FM.index

- count, exposure and diffuse background OB maps with suffix:
COUNTS__GO_FM
EXP__GO_FM
GAS__GO_FM

- a GIF file showing the images of both the OB (FM) exposure and count maps.
For illustrative purpose only, the count map image includes automatic candidate detections in the FoV obtained with XIMAGE software.

- the additional OB event file with suffix: EVT__GO_FT3AB
and its index file with suffix: EVT__GO_FT3AB.index

NOTE OF CAUTION: data analysis with event files obtained with FT3AB filter may be more efficient in detecting sources with a soft energy spectrum, but there may be noisy residual artifacts at the border of the Field of View (off-axis angle > 40 deg).

The event files in each OB data-packet include all gamma-ray events in the GRID Field of View (FoV) using the new AGILE event filters.

The OB count exposure and diffuse background maps are centered on the mean OB pointing position and were automatically generated with the FM standard filter and with the following parameters:

```
mdim=80.0
mres=0.25
lonpole=180
emin=100
emax=50000
index=-2.1
fovrad=80
albrad=80
y_tol=0.5
roll_tol=360.0
earth_tol=3.0
keepmono=NO
phasecode=18
projection=ARC
step=4
```

To produce your own maps and run likelihood tasks please download and install the public AGILE software available at:
<http://agile.asdc.asi.it/public/>
and follow the Software User Manual included.
A new software packet GO_BUILD_GRID_4.0.tgz file will be available next week.

Technical Note: if you choose to download data files with the default option "Automatically unpack the data using a Java applet" then each file name in the corresponding .index file must be changed removing the .gz suffix before running map generator tasks.

***** NOTE ON AGILE EVENT FILTERS *****

Please be aware that in previous delivery v1.0 a conservative event filter (F4) was used, optimized to select gamma-ray events within the central Field of View zone (< 40 deg radius) at the expenses of the effective area.

The new standard AGILE event filter is the FM filter optimized up to 60 deg off-axis. The AGILE Team recommends the use of v2.0 EVT files produced with the FM filter for standard likelihood gamma-ray source analysis.

EVT files produced with an alternative FT3AB filter are also published, but they are delivered with a

NOTE OF CAUTION: this filter may be more efficient in detecting sources with a soft energy spectrum, but it has noisy residual artifacts at the border of the Field of View (off-axis angle > 40 deg).

WARNING: Each filter type has its own calibration.

In your data analysis be careful always to use the calibration files and diffuse model files appropriate to the chosen EVT filter type. Calibration files and diffuse model files are delivered with the public software release under the directory \$ADC/scientific analysis/data.

* FM filter: if you use the standard FM-filtered event file with suffix: EVT__GO_FM you should always use as an input of scientific software tasks:

- effective area files of type *FM*.sar.gz
- energy dispersion files of type *FM*.edp.gz
- point spread function files of type *FM*.psd.gz
- diffuse model files of type *FM*.conv.sky.gz

* FT3AB filter: if you use the FT3AB-filtered event file with suffix: EVT__GO_FT3AB you should always use as an input of scientific software tasks:

- effective area files of type *FT3AB*.sar.gz
- energy dispersion files of type *FT3AB*.edp.gz
- point spread function files of type *FT3AB*.psd.gz
- diffuse model files of type *FT3AB*.conv.sky.gz

* Old F4 filter: this filter is not included in the new data delivery. If you want to use old F4-filtered event files of previous public data delivery v1.0 with suffix: EVT__GO you should always use as an input of scientific software tasks:

- effective area files of type *F4*.sar.gz
- energy dispersion files of type *F4*.edp.gz
- point spread function files of type *F4*.psd.gz
- diffuse model files of type *F4*.conv.sky.gz

For further details please follow the instructions given in the Software User Manual.

Enjoy!