AGILE Data Center (ADC), December 21, 2010

The proprietary period for the last two AGILE Cycle-2 Observation Blocks (OB), OB 8300 and OB 8400 (from 2009-09-30 to 2009-10-31), has currently expired, and the data are public and available from the ASDC Multimission Archive webpage http://www.asdc.asi.it/mini/ for the AGILE Mission.

Note that a new version of the whole archive for public Cycle-1 and Cycle-2 OB, reprocessed with the latest OB pipeline software version 5.19_18_17, is now available. Software version 5.19_18_17 is the same used in the creation of the proprietary AO3 data delivered on November 9, 2010 to successful proponents of the Cycle-3 AGILE Guest Observer Program.

As in previous public deliveries, AGILE data in pointing mode are cleaned by eliminating time periods corresponding to repointing slews and occasional losses of fine-pointing attitude (file type: STD00_GO).

Moreover the present data release also includes non-cleaned data, treated in a similar way to those presently taken in spinning mode (file type: STDOP).

WARNING: to avoid spurious artefacts, this set of non-cleaned data must be carefully analysed using a smaller field of view, according to the following recommendations on parameter values when generating maps:

\[ \text{fovrad} = 50 \quad \text{albrad} = 90 \quad \text{phasecode} = 2 \]

See explanation for the new file naming convention in the Data Retrieval section below.

Delivered Data

AGILE Cycle-1 observations were structured as a series of 29 OBs 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").

Cycle-1 observations, following the first year AGILE Baseline Pointing Plan and including 7 Target of Opportunities (Too) and 1 Partial Repointing, are listed below:

<table>
<thead>
<tr>
<th>#</th>
<th>OB</th>
<th>OB Name</th>
<th>RA_PNT</th>
<th>DEC_PNT</th>
<th>OB start date</th>
<th>OB end date</th>
<th>Mean OB Exp.</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>1</td>
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<td>Cygnus Field 1</td>
<td>20 26 47.9</td>
<td>+53 17 59.9</td>
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<td>2007-12-05 09:00</td>
<td>7863569</td>
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</tr>
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<td>+37 53 59.9</td>
<td>2007-12-15 12:00</td>
<td>2007-12-16 12:00</td>
<td>1818760</td>
<td>Too</td>
</tr>
<tr>
<td>4</td>
<td>5010</td>
<td>Virgo Field 1</td>
<td>11 58 00.0</td>
<td>-00 24 00.0</td>
<td>2007-12-16 12:00</td>
<td>2008-01-08 12:00</td>
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<td>Baseline</td>
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<td>10 45 12.0</td>
<td>-63 47 59.9</td>
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<td>33770516</td>
<td>Baseline</td>
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<td>2008-02-01 12:00</td>
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<tr>
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<td>+50 30 00.0</td>
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<td>8</td>
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<td>-51 23 59.9</td>
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AGILE Cycle-2 observations were structured as a series of 24 OBs 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").

The set GRID data which become public today corresponds to the last two AGILE observations of Cycle-2, from 2009-09-30 to 2009-10-31.
Cycle-2 observations, following the second year AGILE Baseline Pointing Plan and including 2 Target of Opportunities (ToO) and 1 Partial Repointing, are listed below:

<table>
<thead>
<tr>
<th>#</th>
<th>OB #</th>
<th>OB Name</th>
<th>RA_PNT</th>
<th>DEC_PNT</th>
<th>OB start date</th>
<th>OB end date</th>
<th>Mean OB Exp.</th>
<th>Notes</th>
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<td>2009-06-15 12:00</td>
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<td>32989242</td>
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<tr>
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<td>+38 00 00.0</td>
<td>2009-07-15 12:00</td>
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<td>62235955</td>
<td>Baseline</td>
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<td>7700</td>
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<td>47</td>
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<td>Vela Field 3</td>
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<td>+06 24 00.0</td>
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<td>2009-09-16 12:00</td>
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<td>2009-10-15 12:00</td>
<td>2009-10-31 12:00</td>
<td>40998810</td>
<td>Baseline</td>
</tr>
</tbody>
</table>

The query for the AGILE Mission data in the ASDC Multi Mission Interactive Archive http://www.asdc.asi.it/mmia/ produces an interactive table showing all OBs selected according to the chosen option:
- either the observation mean pointing position (RA_PNT, DEC_PNT) lies within 50 degrees from the source position...
- or the observation lies in the specified time-range.
- or the observation has the selected parameters (OB number values).

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.

The Mean OB Exposure column (in cm² s) in the interactive table corresponds to the effective area associated to the FM filtered events.

The "Public access" link makes it possible to download the following files for each OB:

*** cleaned data files ***

- the spacecraft cleaned auxiliary (LOG) files (ag-TSTART>_STDOP_GO.LOG.gz)
  needed for the data analysis and covering approximately one-day of
  observation within each OB, are grouped under the directory STDOP_GO_LOG:

    * STDOP_GO_LOG
      ag-TSTART1>_STDOP_GO.LOG.gz
      ag-TSTART2>_STDOP_GO.LOG.gz
      ......
      ......
      ag-TSTARTn>_STDOP_GO.LOG.gz
  and a single general LOG index file with suffix: ag-STDOP_GO_LOG-TSTART1.index

  WARNING: LOG files have a very accurate time resolution of 100 msec and need several GB of available disk space.

- two cleaned event files including all gamma-ray events in the GRID Field of View (FoV) using AGILE event filters:

  the standard OB event file ag-TSTART-TSTOP>_STDOP_GO_FM.EVT and its index file with suffix: .index
  the additional OB event file ag-TSTART-TSTOP>_STDOP_GO_FT3AB.EVT and its index file with suffix: .index

  WARNING: 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).

- three maps, count, exposure and diffuse background, centered on the mean OB pointing position:
  ag-TSTART-TSTOP>_STDOP_GO_FM.COUNTS
  ag-TSTART-TSTOP>_STDOP_GO_FM.EXP
  ag-TSTART-TSTOP>_STDOP_GO_FM.GAS

  These maps were automatically generated with the FM filter with the following parameters:

  mdim=120.0   index=-2.1   earth_tol=3.0
  mres=0.25   fovrad=70   keepmono=NO
  lonpole=180   albrad=80   phasecode=18
  emin=100   y_tol=0.5   projection=ARC
  emax=50000   roll_tol=360.0   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 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.
*** non-cleaned data files ***

- the spacecraft auxiliary (LOG) files (ag-<TSTART>_STD0P.LOG.gz)
  needed for the data analysis and covering approximately one-day of
  observation within each OB, are grouped under the directory STD0P_LOG:

  * STD0P_LOG
    ag-<TSTART1>_STD0P.LOG.gz
    ag-<TSTART2>_STD0P.LOG.gz
    .....  
    ag-<TSTARTN>_STD0P.LOG.gz
  
  and a single general LOG index file with suffix: ag-STD0P_LOG-<TSTART1>.index

- two event files including all gamma-ray events in the GRID Field of View (FoV) using AGILE event filters:

  - the standard OB event file ag<TSTART>-<TSTOP>_STD0P_FM.EVT and its index file with suffix: .index
  - the additional OB event file ag<TSTART>-<TSTOP>_STD0P_FT3AB.EVT and its index file with suffix: .index

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.

******************************************************************************
***** Interactive Tool *****
******************************************************************************

An interactive tool allows ASDC Web users to preview the AGILE
public data fields and to perform an interactive preliminary analysis around a chosen sky position.
Warning: use only as a preview of the AGILE gamma-ray field.
To perform your own scientific analysis, please download data and use the official public AGILE software.
To access the preview tool click on "On-line Analysis" in the query output table, under the "GRID Interactive Archive"
column. The interactive ASDC tool uses the XIMAGE software package for multi-mission X-ray astronomy (v4.5.1),
adapted to gamma-ray image display and data analysis.

******************************************************************************
*** Note on AGILE Filters ***
******************************************************************************

The standard AGILE event filter is the FM filter, optimized up to 60 deg off-axis.
The AGILE Team recommends the use of v3.0 EVT files produced with the FM filter for
gamma-ray source standard likelihood analysis.

EVT files produced with the FT3AB filter are also published, but they are delivered with a warning (see above).

Each filter is associated with its own calibration and diffuse model files.
Be careful always to use the calibration and diffuse model files appropriate to the chosen EVT filter type.
Calibration and diffuse model files are delivered with the
public software release under the directory $ADDC/scientific analysis/data.

* FM filter: if you use the FM-filtered event file with suffix: EVT__GO_FM
  you should always use as an input to 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
- flux correction files of type *FM*.expcorr.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 to 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
  - flux correction files of type *FT3AB*.expcorr.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
  - flux correction files of type *F4*.expcorr.gz
  - diffuse model files of type *F4*.conv.sky.gz

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

Enjoy!