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# Dall' ASI Science Data Center allo Space Science Data Center.

L. Angelo Antonelli  
Project Scientist INAF ASDC

## Multi-Mission Interactive Archive for Space Science

- Science Operations Center of AGILE
- Data distribution via its Multi-Mission Archive
- Web based interactive analysis and data fusion
- Data reduction software (Swift, NuSTAR, etc)
- Participation to Virtual Observatory
- Science and Data Center research

- **23 space missions supported**
- **13 operational in 2016**
- several possible new projects (e.g. Chang-E1/2, EUCLID, CHEOPS, PLATO, DAMPE?, New NASA MIDEX?, HXMT, MIRAX, New ESA-M4 mission?)

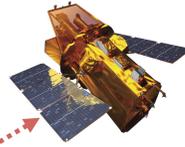


**Astrophysics,  
Cosmology,  
Astro-particle, (Cosmic-Rays)  
Exploration of the Solar System  
(and more... )**

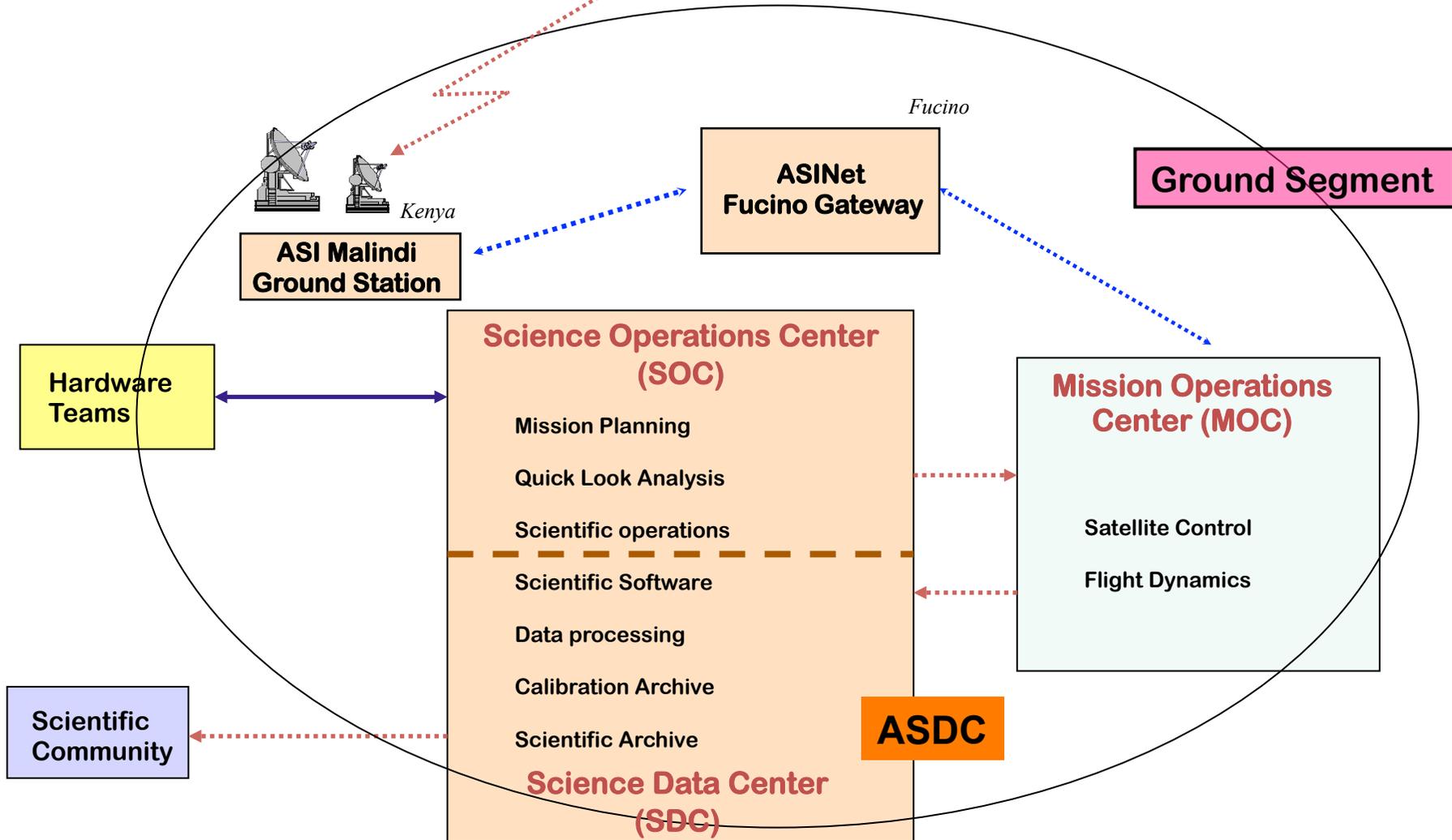
**The ASDC is one of the largest scientific data centers in Europe**

# Ground Segment Structure

The Italian facility: ASI + TPZ



**Space Segment**





# ASI Science Data Center



- Home
- About ASDC
- Public Outreach
- Quick Look
- Missions
- Multimission Archive
- Catalogs
- Tools
- Links
- Bibliographic services
- Helpdesk
- Privacy



## Astrophysics/Cosmology

## Exploration of the Solar System

## Particle Astrophysics Cosmic rays

## Atmospheric Physics TGF

**all missions**

**Radio-Micro wave**

- Planck

**IR-Optic-UV**

- Herschel
- Swift-UVOT

**X ray**

- ASCA
- BeppoSAX
- Einstein
- Exosat
- NuSTAR
- ROSAT
- Swift-XRT

**Gamma ray**

- Agile
- Egret
- Fermi
- Swift-BAT

**all missions**

- Rosetta
- Dawn
- Chang'E 1
- Chang'E 2
- Messenger

**all missions**

- Pamela
- AMS-02
- Chang'E 1 (soon available)
- Chang'E 2 (soon available)

**all missions**

- Agile

**Spectral band** (  ): from  (1.00e-7 keV) to  (1.00e+8 keV)

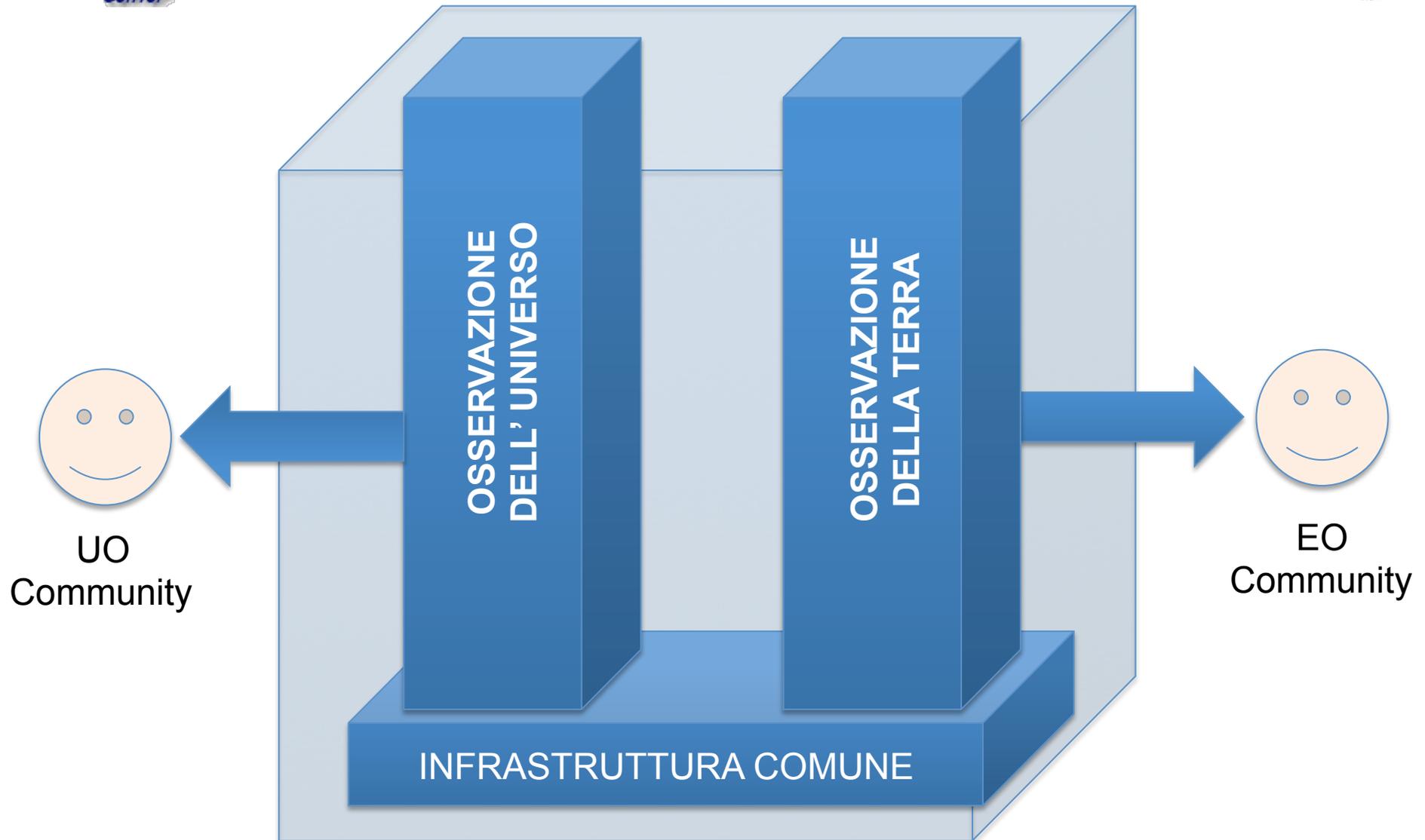
**Source name:**  **Name Resolver:**  ASDC Name Server  SIMBAD  NED

(e.g. CYGX-1)

**Coordinate:**   RA, DEC  L, B  Lon, Lat

(e.g. 19 58 21.7, +35 12 05.8 or 299.590333, 35.201611 or 71.334960, 3.066)

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



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NEXT SLIDES ARE  
DEDICATED TO ASDC  
CURRENT SERVICES  
ACCESSIBLE VIA WEB

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



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## Astrophysics/Cosmology

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all missions

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Spectral band (  ): from  (1.00e-7 keV) to  (1.00e+8 keV)

Submit

Source name:

(e.g. CYGX-1)

Name Resolver:  ASDC Name Server  SIMBAD  NED

Coordinate:

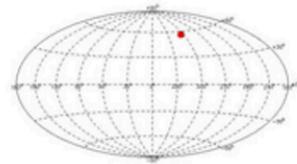
(e.g. 19 58 21.7, +35 12 05.8 or 299.590333, 35.201611 or 71.334960, 3.066)

RA, DEC  L, B  Lon, Lat

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

## Multi-Mission Interactive Archive

Query results for: **3C279** (by ASDC)  
Details: query with RA = **194.046309** (deg); DEC = **-5.789235** (deg); EQUINOX = **2000**; sort by **RA**;



Source Names

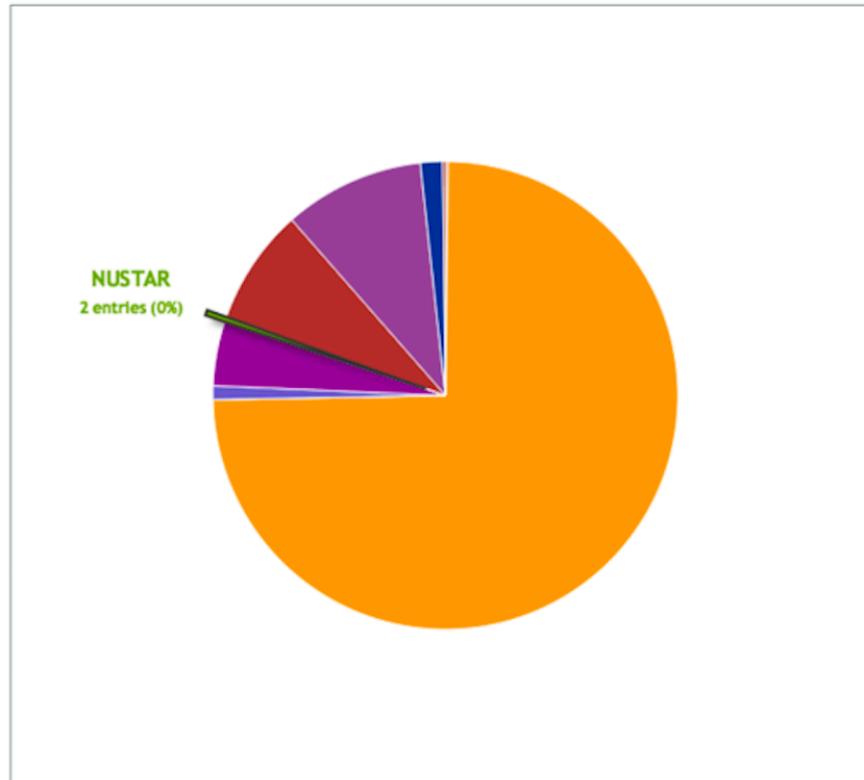
Bibliographic search ?

PKS1253-055

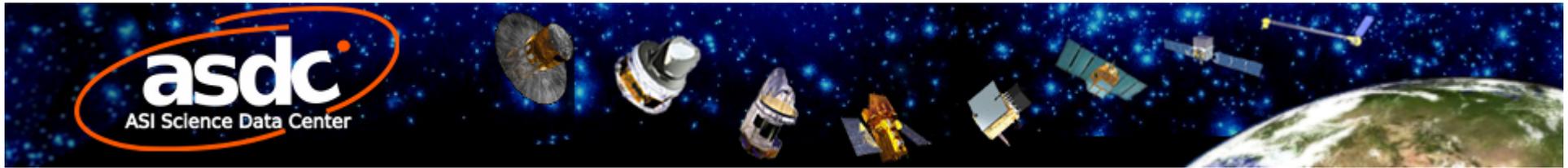
in time range between 1900 and 2016

By name via NED

By coordinates via ADS



MISSION	ENTRIES
PLANCK	0
HERSCHEL	1
SWIFT	389
ASCA	0
BeppoSax NFI	5
BeppoSax WFC	23
EINSTEIN	0
EXOSAT	0
NUSTAR	2
ROSAT	42
AGILE	51
EGRET	8
FERMI	1



- Help
- Show/hide columns
- Advanced filtering
- Print current view of table
- Print complete table
- Reset all filters



### Query results for: **bllac(LOCAL)**

Details: query by **COORDINATE** with **RA** = 330.680417; **DEC** = 42.277500; **EQUINOX** = 2000; **RADIUS** = 5 arcmin; sort by **RA**; max lines retrieved: 1000 (on BROWSE catalog **numaster**)

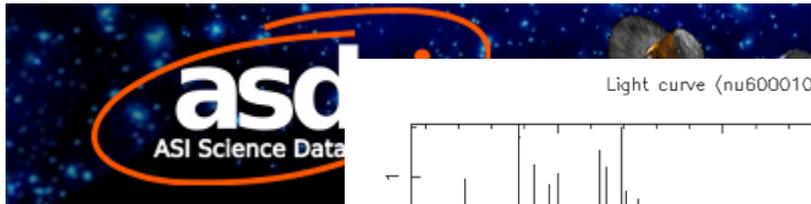
Export Current view of Table in: [Latex format](#) [FITS format](#) [Raw text format](#) [CSV text format](#)

◀ Previous Page Next Page ▶ Page Size (# of lines) 50 Refresh page Reset all filters Show all entries

Entry number	Selection mode: Include <input checked="" type="checkbox"/> All	Archive	Interactive Analysis	Target Name	obsid	RA (J2000)	Dec (J2000)	time	public_date	exposure_a	exposure_b	Dist. from searched position	
						hh mm ss.d	dd mm ss.d					arcmin	
1	<input checked="" type="checkbox"/> <a href="#">Select</a>	<a href="#">ASDC Data Explorer</a>	<a href="#">Data Access</a>	<a href="#">Interactive Analysis</a>	BL_LAC	60001001002	22 02 44.3	+42 14 33.7	Dec 11, 2012 14:36:00	Nov 25, 2013 00:00:00	21892.4463	21858.5711	2
2	<input checked="" type="checkbox"/> <a href="#">Select</a>	<a href="#">ASDC Data Explorer</a>	<a href="#">Data Access</a>	<a href="#">Interactive Analysis</a>	BL_LAC	60001001001	22 02 47.8	+42 14 43.0	Dec 11, 2012 13:54:00	Nov 25, 2013 00:00:00	384.6913	384.2664	2.1

◀ Previous Page Next Page ▶ Page Size (# of lines) 50 Refresh page Reset all filters Show all entries

Export Current view of Table in: [Latex format](#) [FITS format](#) [Raw text format](#) [CSV text format](#)



Standard Products



- Show energy spectrum
- Show light-curve
- Show image

Download Data



- Source Spectrum (pha file)
- Background Spectrum (pha file)
- Anc. Resp. File (arf)
- Red. Matrix File (rmf)
- Source Lightcurve (FITS)
- Background Lightcurve (FITS)

Spectral Analysis (with XSPEC)

NH (e.g. 3.e20)

default: NH=Galactic value (from Dickey & Lockman 1990)

Freeze NH?  yes  no

Xspec Model

photon index

norm

Energy range for spectral analysis

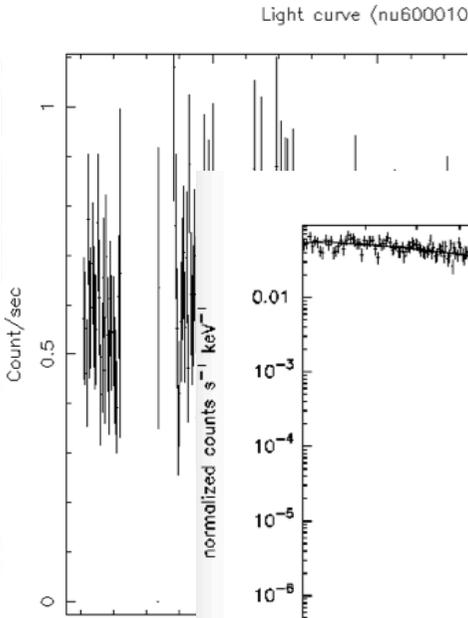
Emin  Emax

Energy range for Xspec flux estimation

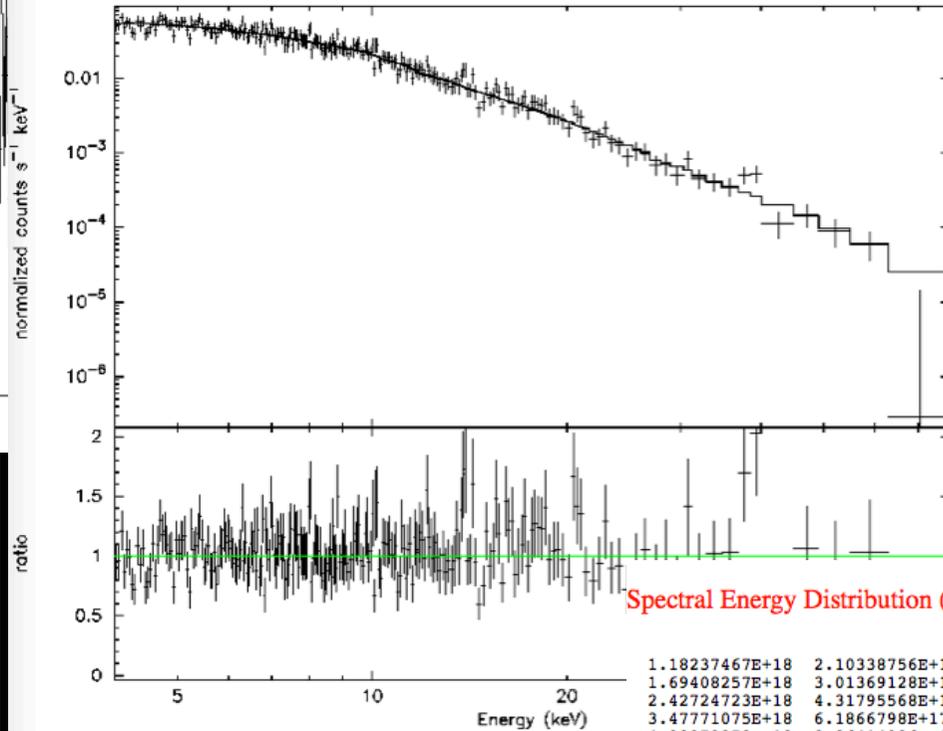
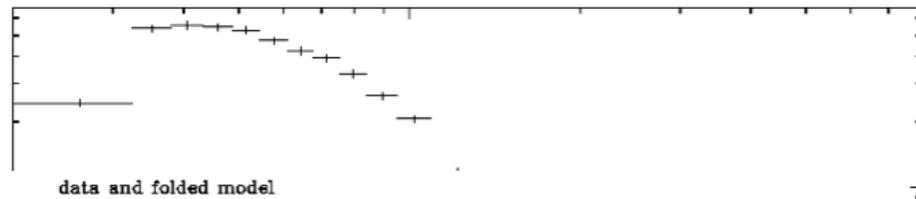
Emin  Emax

Number of SED bins

**Submit**



Energy spectrum (nu60001001002A01\_sr.pha)

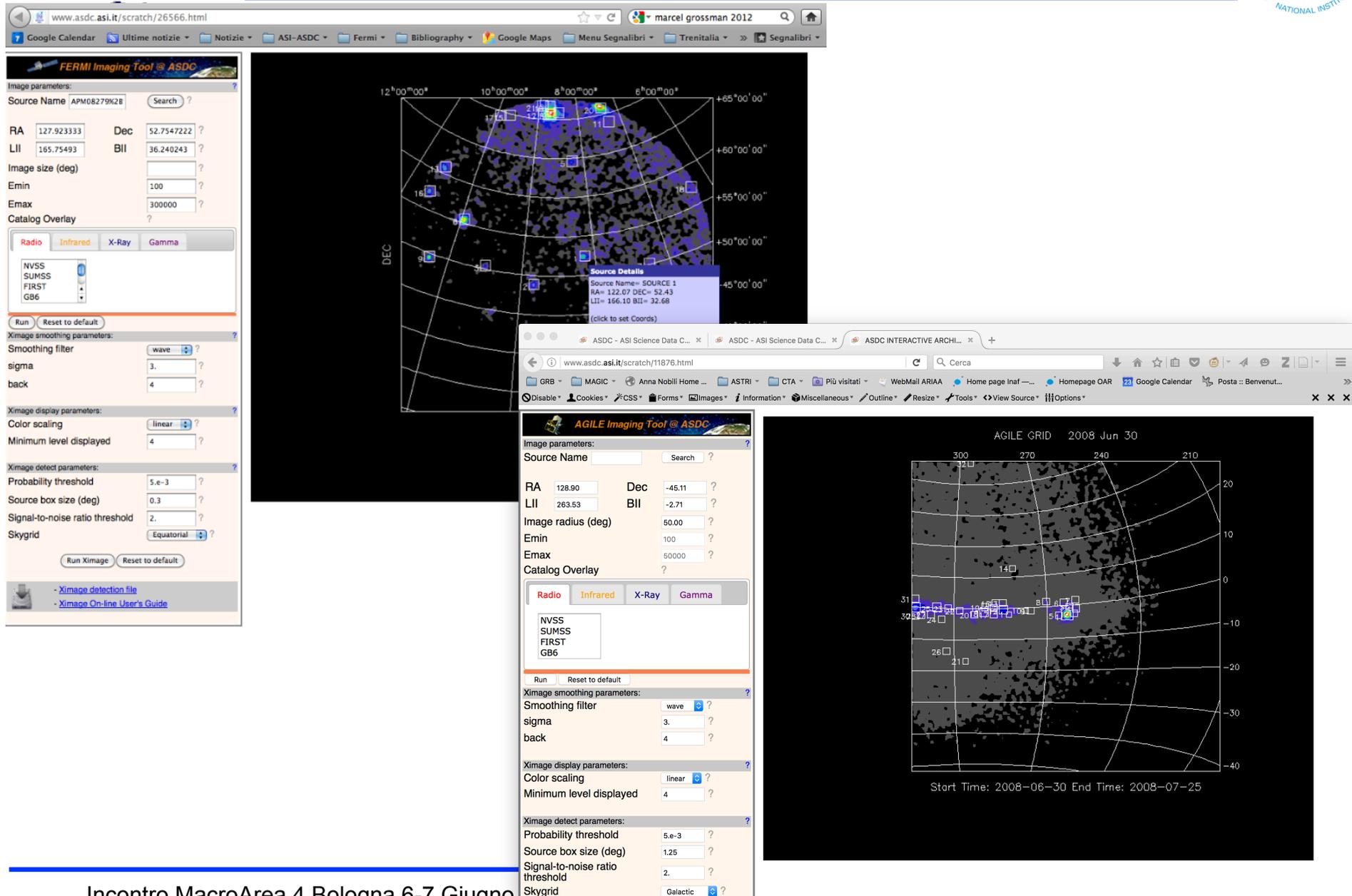


Spectral Energy Distribution (SED):

1.18237467E+18	2.10338756E+17	1.20990587E-11	2.74179496E-13
1.69408257E+18	3.01369128E+17	1.33162691E-11	2.91182334E-13
2.42724723E+18	4.31795568E+17	1.34440853E-11	3.46936428E-13
3.47771075E+18	6.1866798E+17	1.50269311E-11	5.30840671E-13
4.98279373E+18	8.86414936E+17	1.58526872E-11	7.74971396E-13
7.13924555E+18	1.27003736E+18	1.43058022E-11	1.33081415E-12
1.02289667E+19	1.81968391E+18	1.95793902E-11	2.53545514E-12
1.46558578E+19	2.60720623E+18	1.04843946E-11	4.25994309E-12

Model	Model Component	Parameter	Unit	Active/On	Value
1	1	wabs	nH	10^22	0.173000 frozen
2	2	powerlaw	PhoIndex		1.88443 +/- 2.4
3	2	powerlaw	norm		6.25717E-03 +/- 3.3

ASDC SED Builder access:  
(click below to include SED data points)



The image displays two screenshots of the ASDC web interface, showing the FERMI and AGILE Imaging Tools. The FERMI tool (top left) shows a sky map with a source box and a 'Source Details' popup. The AGILE tool (bottom right) shows a similar sky map with a different source box and a 'Source Details' popup. Both tools have extensive parameter controls for image smoothing, display, and detection.

**FERMI Imaging Tool @ ASDC**

Image parameters:

Source Name: APM06279K2B

RA: 127.923333, Dec: 52.7547222

LII: 165.75493, BII: 36.240243

Image size (deg):

Emin: 100, Emax: 300000

Catalog Overlay: Radio, Infrared, X-Ray, Gamma

NVSS, SUMSS, FIRST, GB6

Run, Reset to default

Ximage smoothing parameters:

Smoothing filter: wave

sigma: 3, back: 4

Ximage display parameters:

Color scaling: linear, Minimum level displayed: 4

Ximage detect parameters:

Probability threshold: 5.e-3, Source box size (deg): 0.3, Signal-to-noise ratio threshold: 2, Skygrid: Equatorial

Run Ximage, Reset to default

Ximage detection file, Ximage On-line User's Guide

**AGILE Imaging Tool @ ASDC**

Image parameters:

Source Name: SOURCE 1

RA: 122.07, Dec: 52.43

LII: 166.10, BII: 32.68

Image radius (deg): 50.00

Emin: 100, Emax: 50000

Catalog Overlay: Radio, Infrared, X-Ray, Gamma

NVSS, SUMSS, FIRST, GB6

Run, Reset to default

Ximage smoothing parameters:

Smoothing filter: wave

sigma: 3, back: 4

Ximage display parameters:

Color scaling: linear, Minimum level displayed: 4

Ximage detect parameters:

Probability threshold: 5.e-3, Source box size (deg): 1.25, Signal-to-noise ratio threshold: 2, Skygrid: Galactic

AGILE GRID 2008 Jun 30

Start Time: 2008-06-30 End Time: 2008-07-25

Swift UVOT

SWIFT UVOTA 1200 30279 Exposure: 641 s Filter:UVW1

12<sup>h</sup>56<sup>m</sup>25<sup>s</sup> 12<sup>h</sup>56<sup>m</sup>20<sup>s</sup> 12<sup>h</sup>56<sup>m</sup>15<sup>s</sup> 12<sup>h</sup>56<sup>m</sup>10<sup>s</sup> 12<sup>h</sup>56<sup>m</sup>05<sup>s</sup> 12<sup>h</sup>56<sup>m</sup>00<sup>s</sup>

Y Pixels: 2000, 1500

X Pixels: 1000, 1500

Size (arcmin): 7.2

Color table: Default

Image scaling: Default

Error radius (arcsec): 0

Overlay catalogue entries: AZLED, AZPIC, ABELL, AGLGRD1CAT

Details for source/cursor position (2000.0)  
 Source: RA=12.56 11.1 Dec=-05 47 21.4 Vmag=15.25+/-0.03 WImag=15.22+/-0.02

Derived quantities: V: f(5402Å)=6.0975+/-0.19357 mJy; nuF(5.8463e+14 Hz)=3.3806e-11+/-1.0902e-12 erg/cm2/s; W1: f(2634Å)=3.5516+/-0.049765 mJy; nuF(1.1376e+15 Hz)=4.0458e-1

Selected Filter: **W1**

Filters available: V, W1

Herschel Imaging Tool @ ASDC

Set Image parameters:

Image Centered On:  
 RA (deg): 166.33 Dec (deg): -60.96  
 LII (deg): BII (deg):  
 Source name: Search

Image half size (arcmin): 101  
 Emin: Emax:

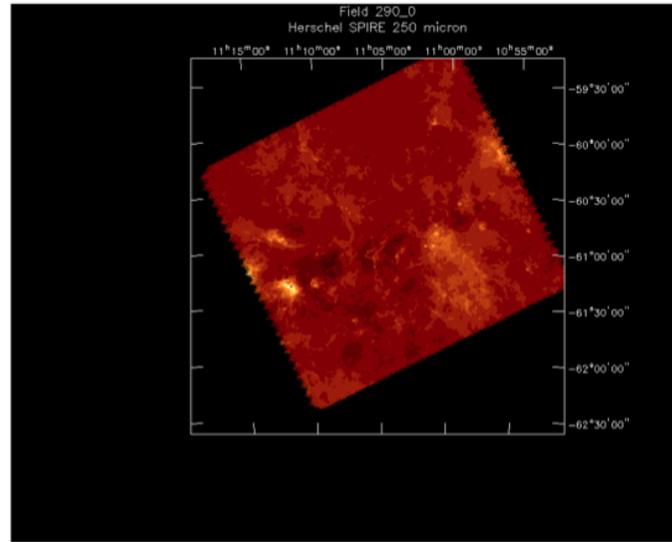
Catalog Overlay:  
 Radio IR X-Ray Gamma Sources cats

Ximage display parameters:  
 Color: bb  
 Color scaling: log  
 Minimum level displayed: -2.0981929  
 Maximum level displayed: 494.45078  
 Skygrid: Off  
 Smoothing filter: none  
 sigma: 5  
 background level: 1

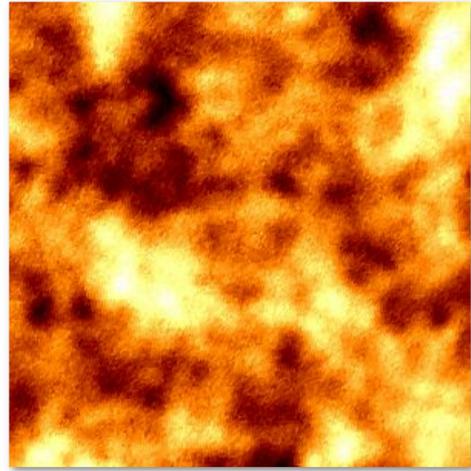
Run (Ximage) Reset to default

CuTEC parameters:  
 Detection  Photometry  
 Detection ID:  
 n sigma: 2

## HERSCHEL



ASDC ASI Science Data Center **Planck Catalogs and Image Server**



## PLANCK

Show Frequency143:   
 Map: Frequency Maps(143GHz)

Hide Image:  Opacity: 100%

Download Map

Show PLANCKERC:

# SED(t) builder V 3.2

A tool to build and handle Spectral Energy Distributions, time-resolved SEDs and multi-frequency light-curves



Version 3.2.2

[Tutorial](#)

[User Data](#)

[Current SED](#)

[Show source names](#)

[DATA EXPLORER](#)

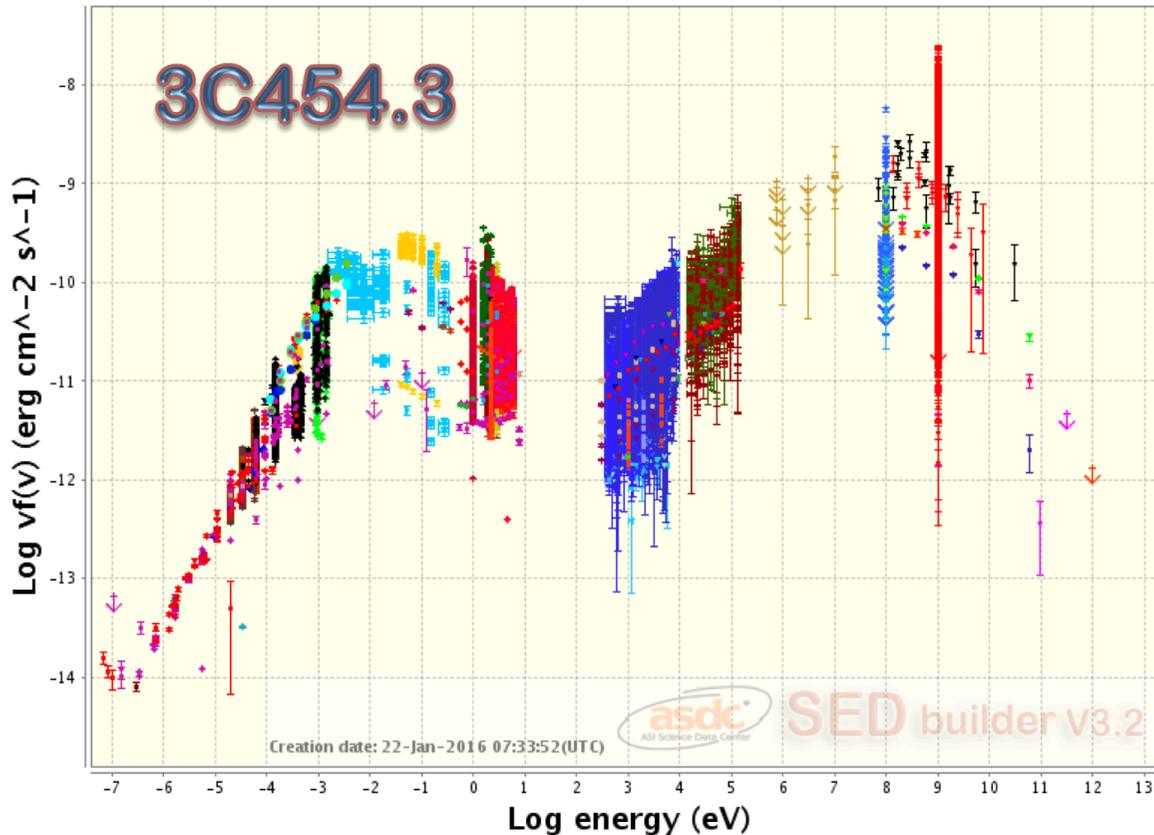
[Existing SEDs](#)

[Search and build new SEDs](#)



[Data citation policy - please read](#)

3C454.3 Ra=343.49060 deg Dec=16.14822 deg (NH=6.6E20 cm<sup>-2</sup>)



Redshift:  Frame:   
 X Axis:  Y Axis:   
 Plot Type:

### ASDC-resident Catalogs

[Expand all](#) [Collapse all](#)

Energy Band / Catalog Name	<input checked="" type="checkbox"/>			Options	Help
▶ Radio	<input checked="" type="checkbox"/>				
▶ Infrared	<input checked="" type="checkbox"/>				
▶ Optical UV	<input checked="" type="checkbox"/>				
▶ Soft X Ray	<input checked="" type="checkbox"/>				
▶ Hard X Ray	<input checked="" type="checkbox"/>				
▶ Gamma Ray	<input checked="" type="checkbox"/>				
▶ VHE	<input checked="" type="checkbox"/>				

### ASDC-resident data from published papers

[Data citation policy - please read](#)