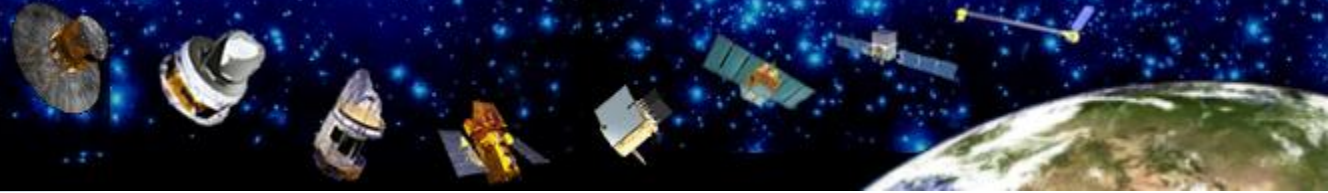


Presente e futuro dell'ASI Space Science Data Center



Paolo Giommi
ASI





The ASI Science Data Center - 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**

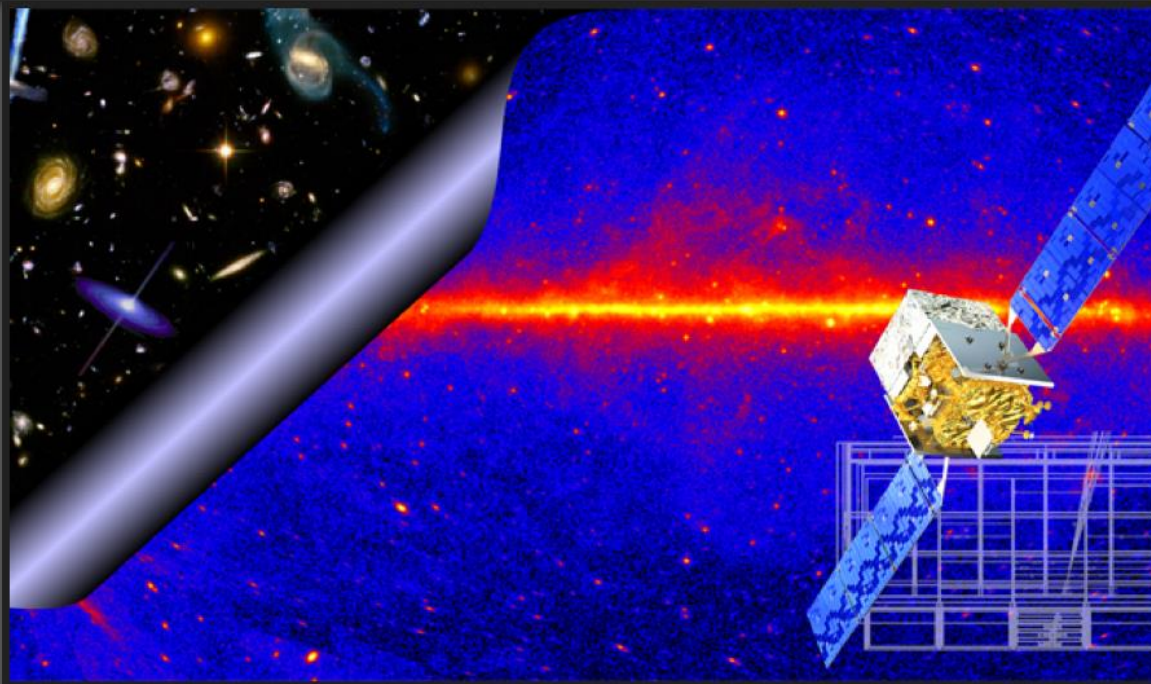
- several possible new projects (e.g.
Chang-E1/2, EUCLID, CHEOPS, PLATO,
DAMPE?, New NASA MIDEX?, HXMT,
MIRAX, New ESA-M4 mission?)



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

ASDC-SSDC -> Earth Observation

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



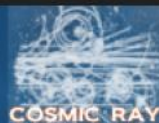
MEDIA



SKY
EXPLORER



MATISSE



COSMIC RAY
DATABASE



ASDC
MULTIMISSION
ARCHIVE FOR
SPACE SCIENCE

TOP NEWS



ASDC
CATALOGS

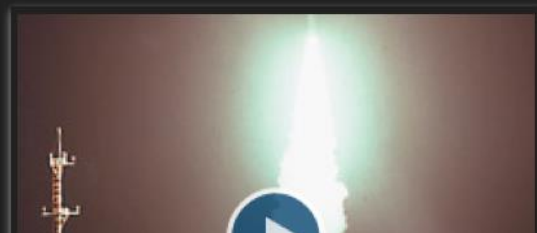


ASDC
BIBLIOGRAPHY
TOOL

EVENTS



NEWSLETTER



14th AGILE Workshop

"Agile on the Wave"

Rome - ASI Headquarters

June 20-21, 2016



Moon Mapping Project

"4th Workshop"

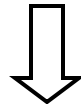
Rome, 10-11 May, 2016

Review internazionale (Marzo 1998)

P. Benvenuti (ESA, ST-ECF, Chair), D. Andrews (ESA-ESOC),
T. Maccacaro (OAB), N. Peccia (ESA-ESOC), M. Watson (Leicester University)

- ✗ Necessità di avere un *archivio permanente* di tutti gli strumenti: risorse adeguate + interazione con HW groups
- ✗ Assicurare la qualità scientifica dei dati
- ✗ Ambiente scientifically motivated

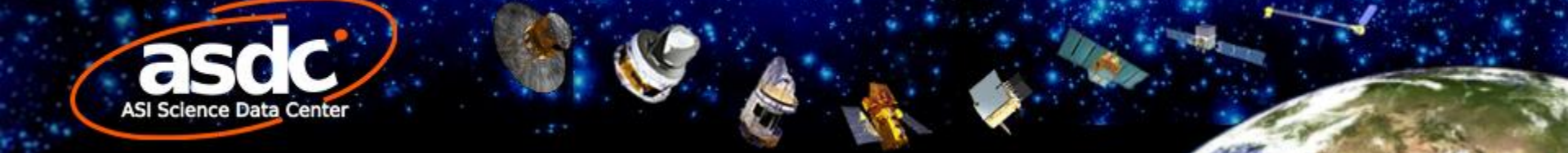
Necessità di contenere i costi



Nuovo Approccio

- Personale ASI
- Personale scientifico CIFS
- Supporto industriale limitato

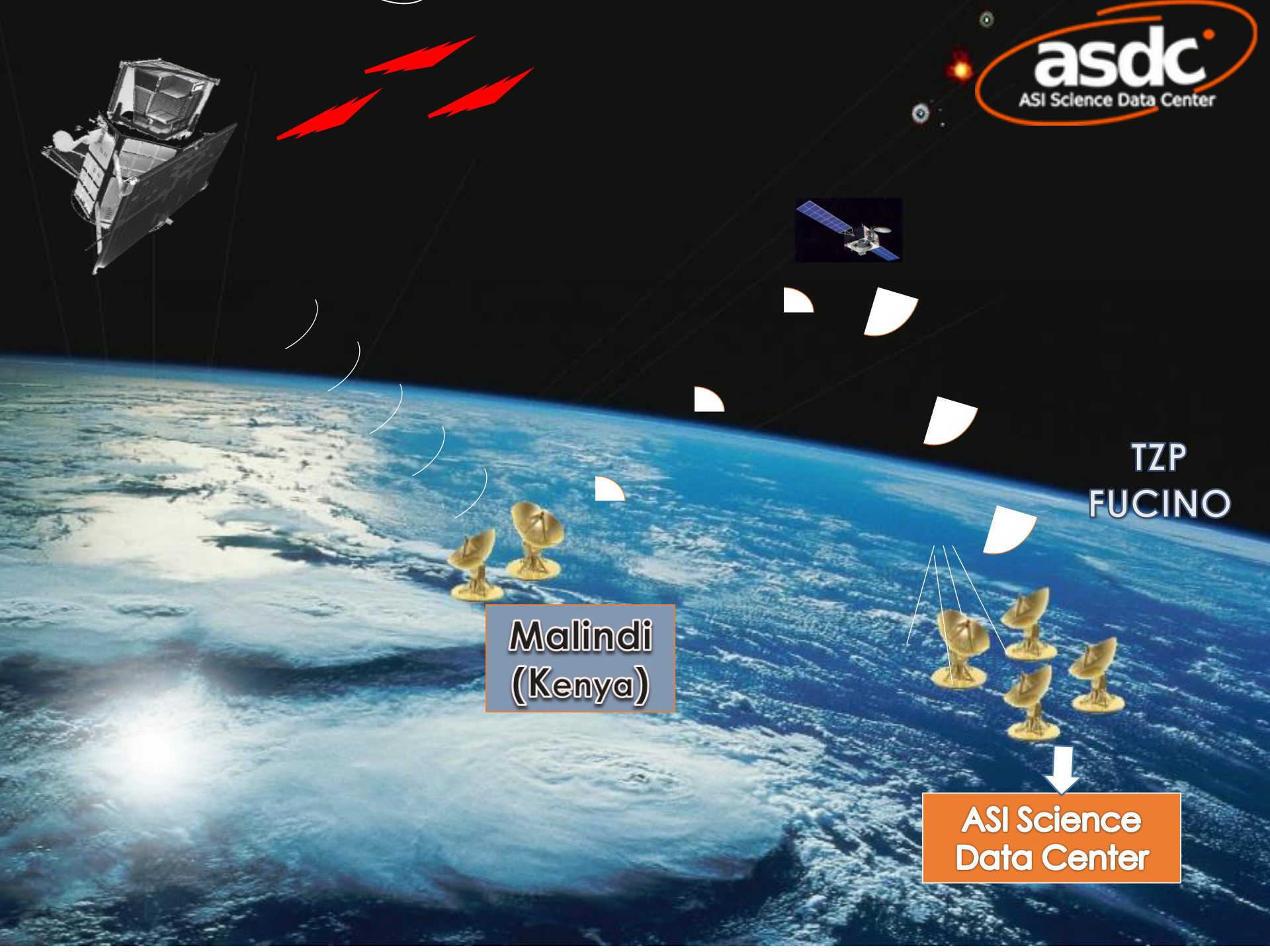
- Centro Multi-Missione
- Riutilizzo dell'esperienza
- Collaborazione con HW groups e centri dati internazionali



Herschel Science Operations: Heritage & Legacy

Johannes Riedinger
Herschel Mission Manager

- ESA-HQ concluded that RSSD was not the best place to manage or perform a launch-critical software development.
 - “Critical” XMM SOC software was developed in industry.
 - The contract was managed by ESOC under a “Firm Fixed Price” regime.
 - Commercial constraints under a FFP contract + a lack of domain knowledge in industry + a Project Manager decision that XMM could be launched without XMM SOC software being ready for operations → XMM-Newton “parked in orbit” for a considerable time.
- Development of “non-critical” XMM software was more successful.
 - XMM Science Analysis System: Developed by a very competent team in-house.
 - Several of the team members were recruited from ISO, many continued on to Herschel and other ESA astrophysics projects afterwards.
 - XMM Survey Science Centre: Software successfully developed (and operated for many years) by a well-known X-ray group at the University of Leicester.



Malindi
(Kenya)

TZP
FUCINO

ASI Science
Data Center

Multi-Mission Interactive Archive for Space Science

Astrophysics/Cosmology

Astrophysics/Cosmology

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

Exploration of the Solar System

all missions ☐

☐ Rosetta

☐ Dawn

☐ Chang'E 1

☐ Chang'E 2

☐ Messenger

Particle Astrophysics Cosmic rays

all missions ☐

☐ Pamela

☐ AMS-02

☐ Chang'E 1 (soon available)

☐ Chang'E 2 (soon available)

Atmospheric Physics TGF

all missions ☐

☐ Agile

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:

☒ RA, DEC ☐ L, B ☐ Lon, Lat

(e.g. 19 58 21.7, +35 12 05.8 or 299.590333, 35.201611 or 71.334960, 3.066917)

Multi-Mission Interactive Archive for Space Science

Exploration of the Solar System

Astrophysics/Cosmology

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

Exploration of the Solar System

all missions ☐

☒ Rosetta

☐ Dawn

☐ Chang'E 1

☐ Chang'E 2

☐ Messenger

Particle Astrophysics Cosmic rays

all missions ☐

☐ Pamela

☐ AMS-02

☐ Chang'E 1 (soon available)

☐ Chang'E 2 (soon available)

Atmospheric Physics TGF

all missions ☐

☐ Agile

Target name:

Submit

Multi-Mission Interactive Archive for Space Science

Particle Astrophysics/Cosmic rays

Astrophysics/Cosmology

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

Exploration of the Solar System

all missions ☐

☐ Rosetta

☐ Dawn

☐ Chang'E 1

☐ Chang'E 2

☐ Messenger

Particle Astrophysics Cosmic rays

all missions ☐

☒ Pamela

☐ AMS-02

☐ Chang'E 1 (soon available)

☐ Chang'E 2 (soon available)

Atmospheric Physics TGF

all missions ☐

☐ Agile

Particle name:

Submit

Multi-Mission Interactive Archive for Space Science

Earth's Atmosphere/Terrestrial Gamma-Ray Flashes

Astrophysics/Cosmology

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

Exploration of the Solar System

all missions ☐

☐ Rosetta

☐ Dawn

☐ Chang'E 1

☐ Chang'E 2

☐ Messenger

Particle Astrophysics Cosmic rays

all missions ☐

☐ Pamela

☐ AMS-02

☐ Chang'E 1 (soon available)

☐ Chang'E 2 (soon available)

Atmospheric Physics TGF

all missions ☐

☒ Agile

TGF catalog: 

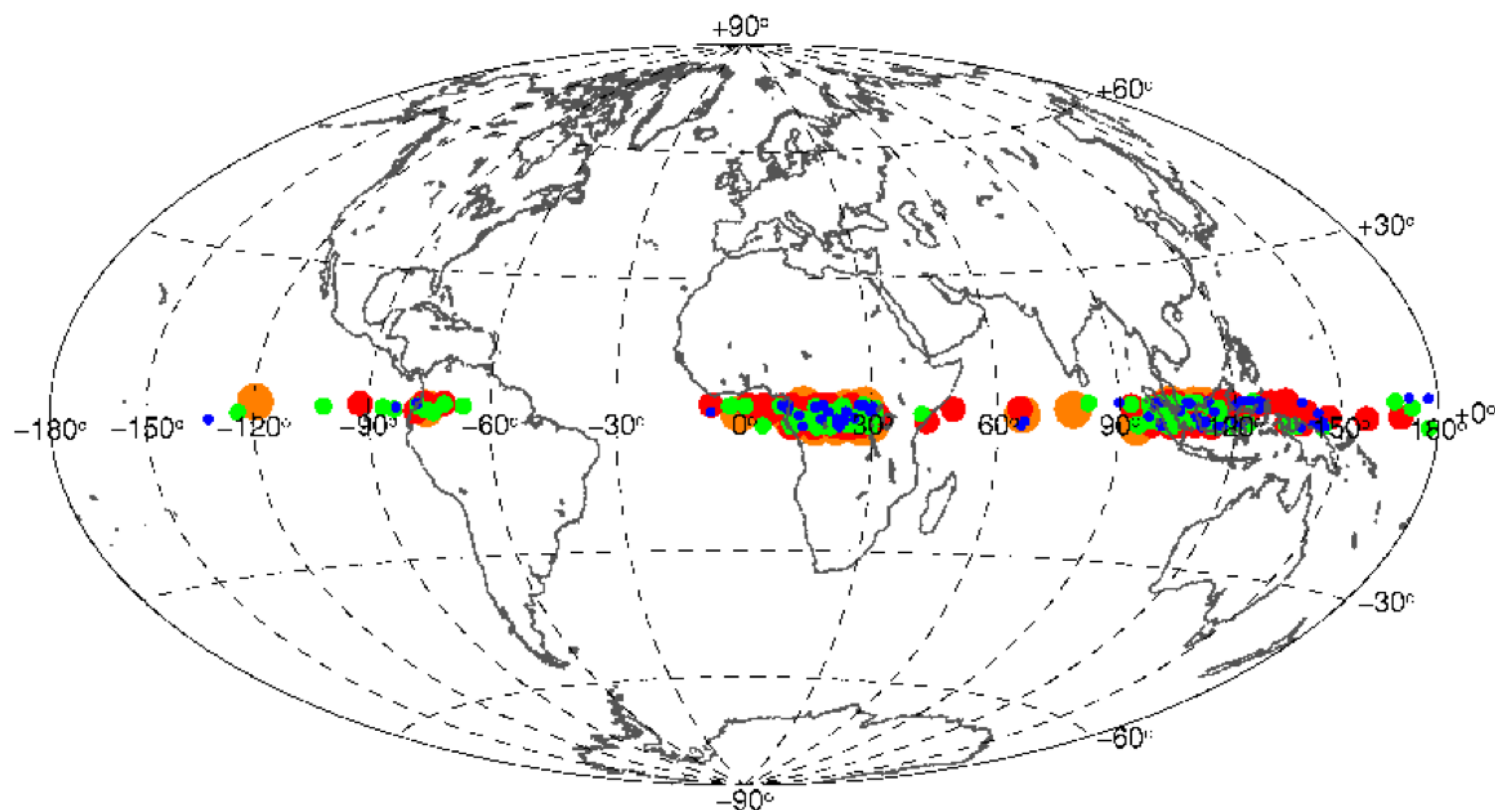
Date UTC (YYYY-MM-DD) from: **to:**

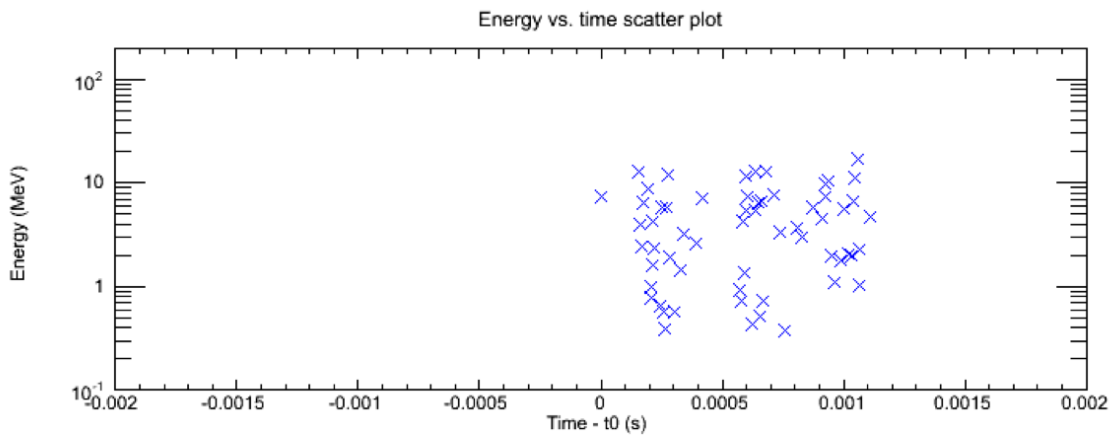
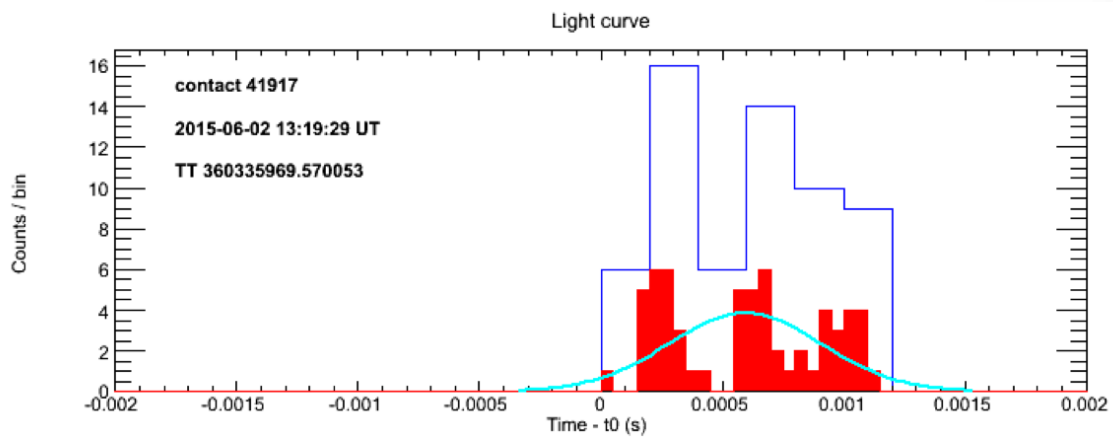
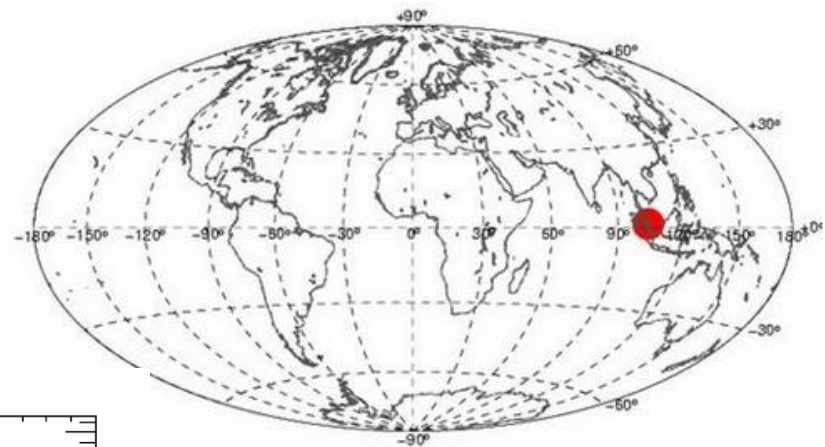
Geo-Longitude [-180.00,+180.00]: **(deg)** **Longitude interval $\pm$:** **(deg)**

Submit

Enhanced detection of Terrestrial Gamma-Ray Flashes by AGILE

TGF ($E < 30$ MeV) observed from March 2015 to June 2015



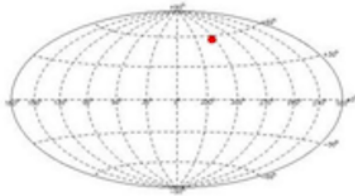


7th March 2016

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

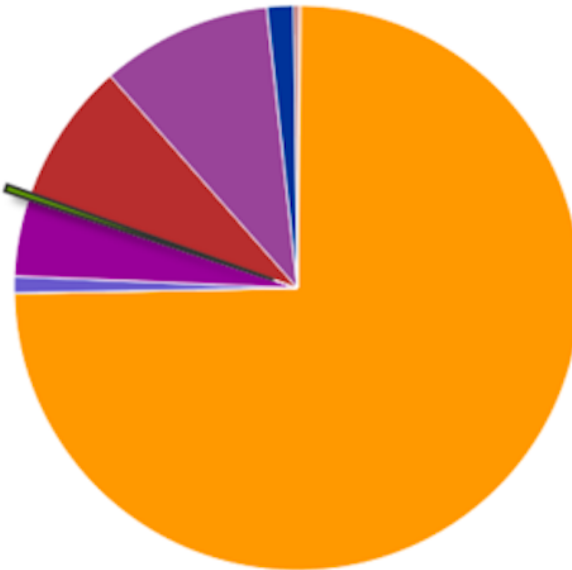


in time range between 1900 and 2016

By name via NED

By coordinates via ADS

NUSTAR
2 entries (0%)



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



Query results for: **blac(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) [Refresh page](#) [Reset all filters](#) [Show all entries](#)

Entry number		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
						Selection mode: Include ☒ All						↑ ↓
1	☒ Select	ASDC Data Explorer	Data Access	Interactive Analysis	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	☒ Select	ASDC Data Explorer	Data Access	Interactive Analysis	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) [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 \(p file\)](#)
- [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

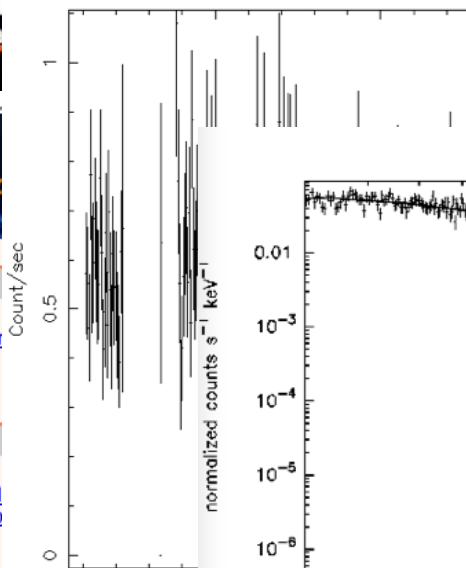
Energy range for Xspec flux estimation

Emin Emax

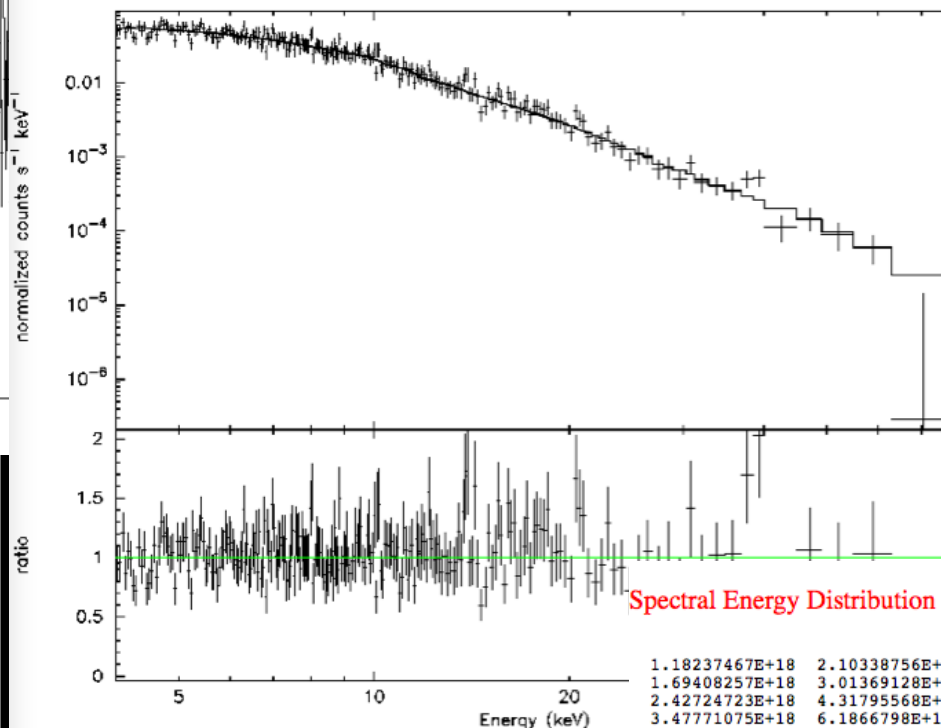
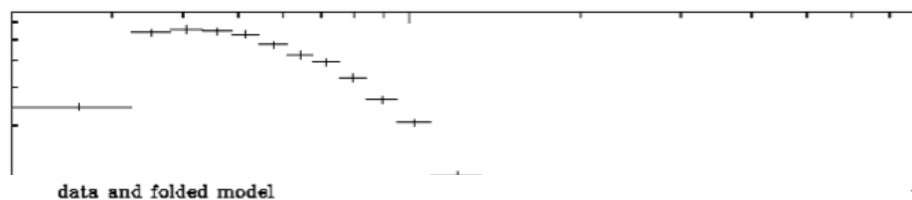
Number of SED bins

Submit

Light curve (nu600010)



Energy spectrum (nu60001001002A01_sr.pho)



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	Component	Parameter	Unit	Value
1	1	wabs	nH	0.173000
2	2	powerlaw	PhoIndex	1.88443
3	2	powerlaw	norm	6.25717E-03

ASDC SED Builder access:

(click below to include SED data points)

[Add data to SED](#)

FERMI Imaging Tool @ ASDC

Image parameters:

Source Name: ?

RA: Dec: ?

LII: BII: ?

Image size (deg): ?

Emin: ?

Emax: ?

Catalog Overlay: ?

Radio Infrared X-Ray Gamma

NVSS
SUMSS
FIRST
GB6

Ximage smoothing parameters:

Smoothing filter: ?

sigma: ?

back: ?

Ximage display parameters:

Color scaling: ?

Minimum level displayed: ?

Ximage detect parameters:

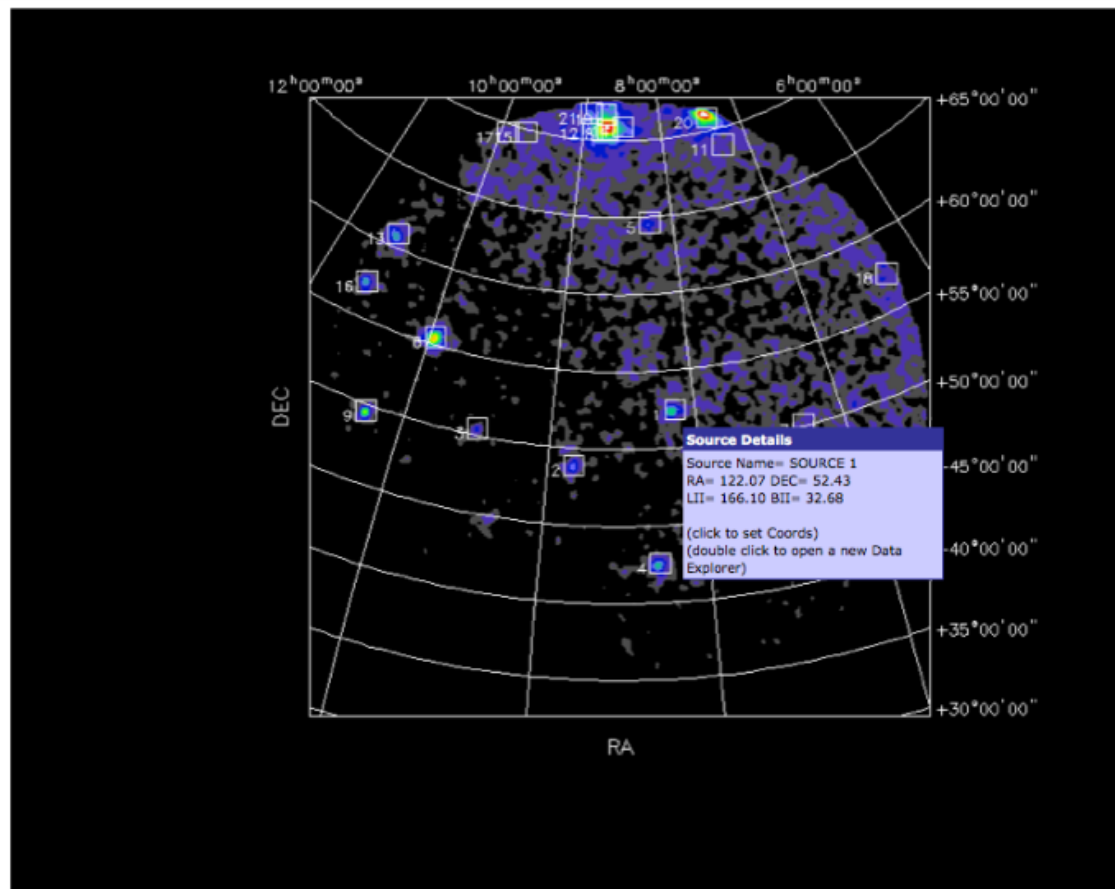
Probability threshold: ?

Source box size (deg): ?

Signal-to-noise ratio threshold: ?

Skygrid: ?

 - [Ximage detection file](#)
- [Ximage On-line User's Guide](#)



Show sources list sorted by : RA

Size (archmin)

7.2

Color table

Default

Image scaling

Default

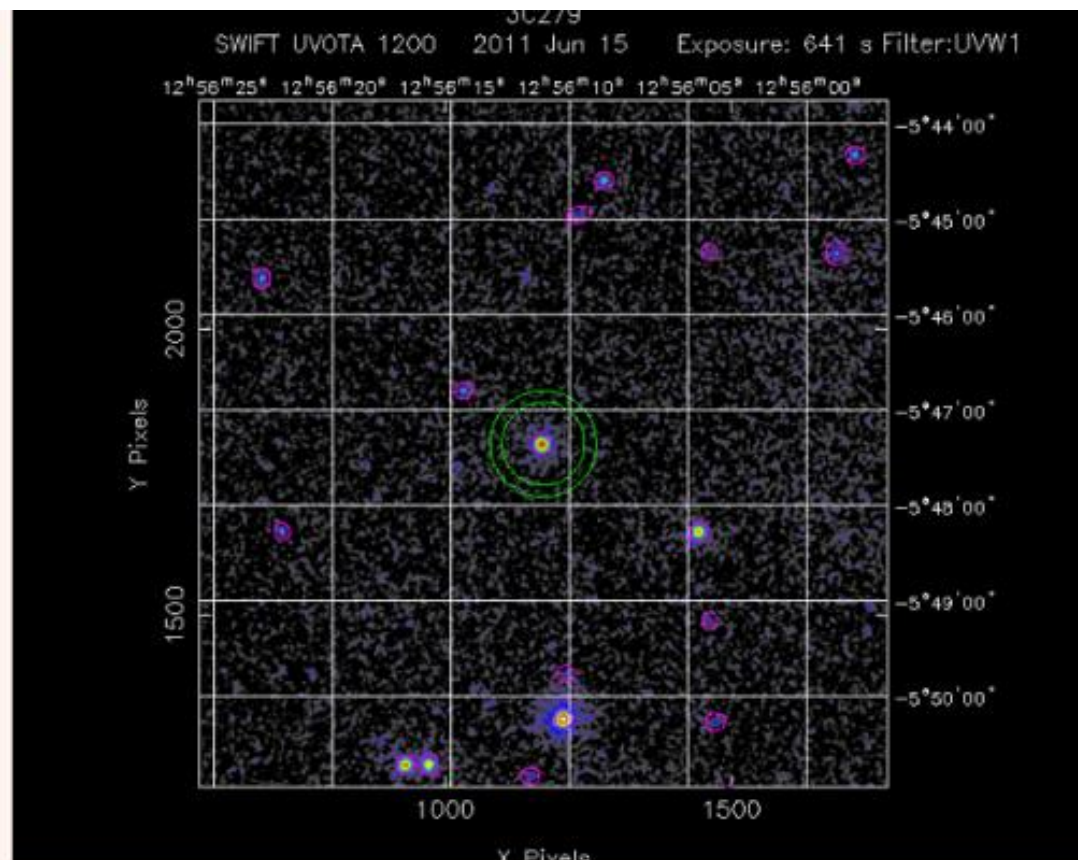
Error radius (arcsec)

0

Overlay catalogue entries

A2LED
A2PIC
ABELL
AGLGRD1CAT

Submit



Selected Filter : **W1**

Filters available

V
W1

[Download image file](#)

Details for source/cursor position (J2000.0)

Source: Ra=12 56 11.1 Dec=-05 47 21.4 Vmag=15.25+/-0.03 W1mag=15.22+/-0.02

Derived quantities: V: $f(5402\text{\AA})=6.0975\pm0.19357$ mJy; $\nu F(5.5463\text{e}+14\text{ Hz})=3.3806\text{e}-11\pm1.0902\text{e}-12$ erg/cm²/s; W1: $f(2634\text{\AA})=3.5516\pm0.049765$ mJy; $\nu F(1.1376\text{e}+15\text{ Hz})=4.0458\text{e}-11\pm5.5820\text{e}-13$ erg/cm²/s;

7th March 2016

Herschel Imaging Tool @ ASDC

Set Image parameters:

Image Centered On:

RA (deg) Dec (deg)

LII (deg) BII (deg)

Source name:

Image half size (arcmin)

Emin

Emax

Catalog Overlay ☐

Radio ☒ IR ☐ X-Ray ☐ Gamma ☐ Sources cats ☐

AT20G
ATCAPMN
B3
CRATES
CRATESGAPS

Ximage display parameters:

Color

Color scaling

Minimum level displayed

Maximum level displayed

Skygrid

Smoothing filter

sigma

background level

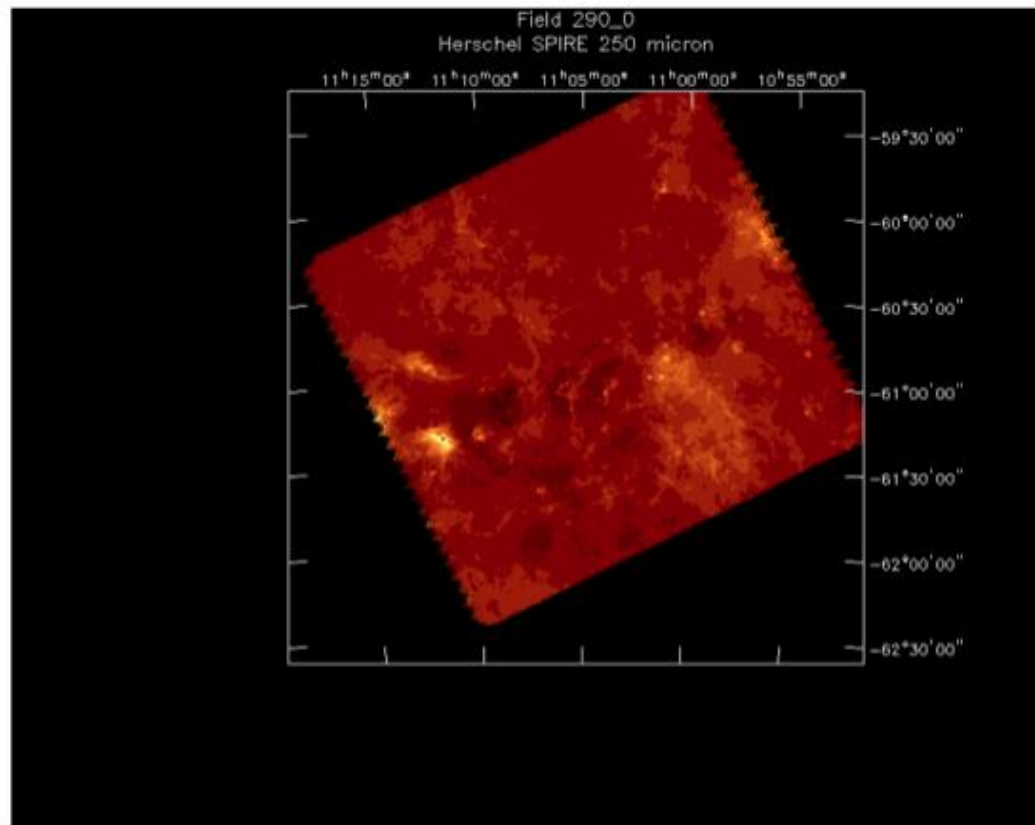
CuTex parameters:

☒ Detection ☐ Photometry

Detection ID

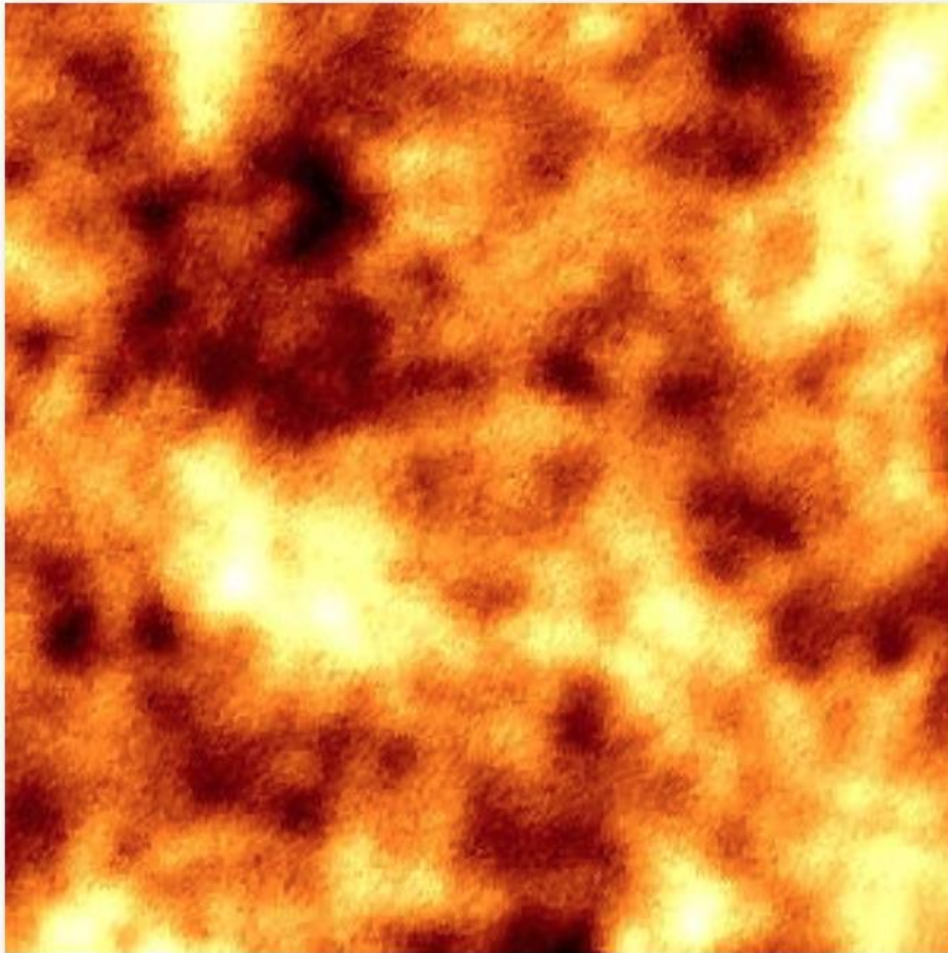
Detection:

n sigma





Planck Catalogs and Image Server



MAPPE

Show Frequency143 : ☒

Map: Frequency Maps(143GHz)

Hide Image: ☐ Opacity: 100%

[Download Map](#)

CATALOGHI

Show PLANCKERC : ☒

[Back to Search](#)

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

[giommi](#) (Logout) [Feedback](#)

[Tutorial](#)

DATA EXPLORER

[User Data](#)

[Existing SEDs](#)

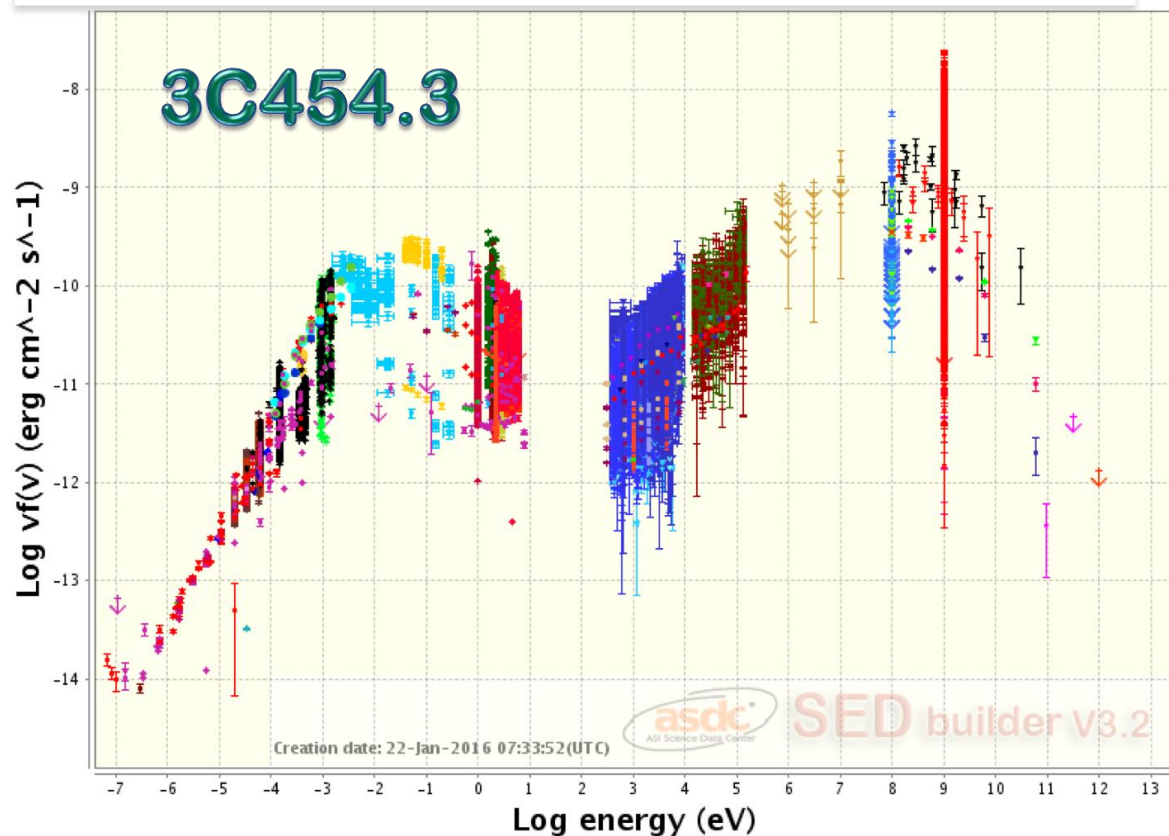
[Current SED](#)

[Search and build new SEDs](#)

[Show source names](#)



[Data citation policy - please read](#)



[Load Data](#) [Show Data](#)
[Save](#) [Duplicate Sed](#)

[Bibliographic search](#)

Redshift: Frame:
X Axis: Y Axis:
Plot Type:
[Update Plot](#)

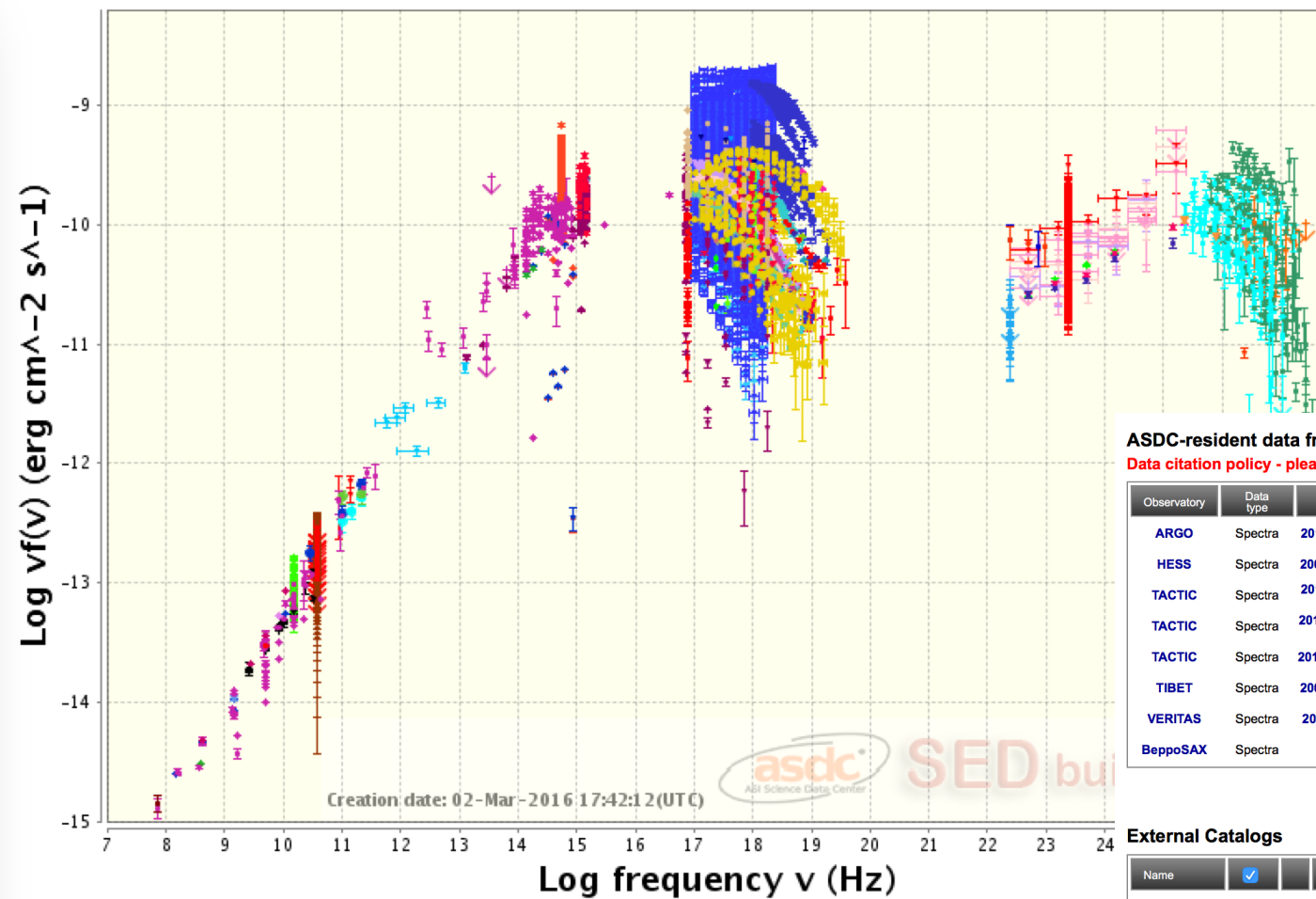
Input Data	Time Filtering	Energy Filtering	Models
Fit Functions	Templates	Instr Sensitivity	Plot options
Existing SEDs	Export	VO Tools	

ASDC-resident Catalogs

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

Energy Band / Catalog Name	☒			Options	Help
▶ Radio	☒				
▶ Infrared	☒				
▶ Optical UV	☒				
▶ Soft X Ray	☒				
▶ Hard X Ray	☒				
▶ Gamma Ray	☒				
▶ VHE	☒				

7th March 2016



ASDC-resident data from published papers

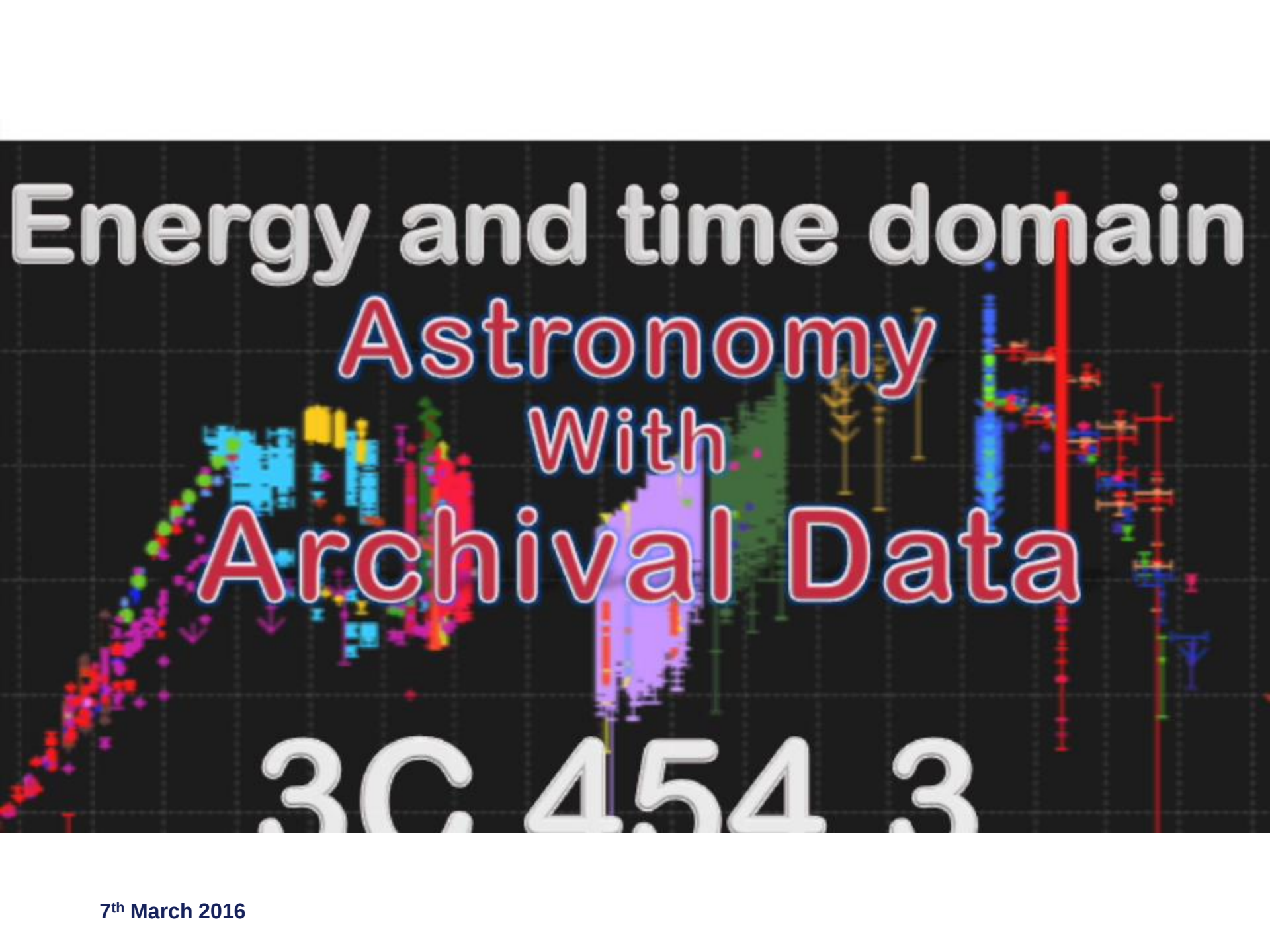
Data citation policy - please read

Observatory	Data type	Paper references	☒	☒	☒	Options
ARGO	Spectra	2011ApJ...734..110B 2015ApJ...812...60B	☒	☒	☒	V S U
HESS	Spectra	2005A&A...437...95A 2015ApJ...812...60B	☒	☒	☒	V S U
TACTIC	Spectra	2010JPhG...37I5201C 2015ApJ...812...60B	☒	☒	☒	V S U
TACTIC	Spectra	2012JPhG...39d5201C 2015ApJ...812...60B	☒	☒	☒	V S U
TACTIC	Spectra	2015NIMPA.770...42S 2015ApJ...812...60B	☒	☒	☒	V S U
TIBET	Spectra	2003ApJ...598..242A 2015ApJ...812...60B	☒	☒	☒	V S U
VERITAS	Spectra	2011ApJ...738...25A 2015ApJ...812...60B	☒	☒	☒	V S U
BeppoSAX	Spectra	2002babs.conf...63G	☒	☒	☒	V S U

External Catalogs

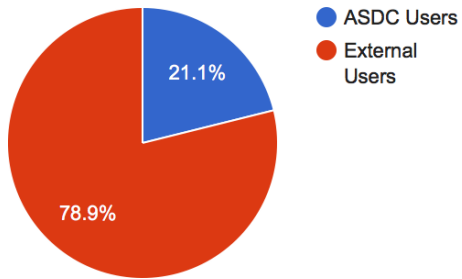
Name	☒	☒	Credits	Search	Options
2MASS	☒	☒	☒	☒	V S U
Catalina RTS	☒	☒	☒	☒	V S U
NED	☒	☒	☒	MKN421	V S U
VIZIER	☒	☒	☒	☒	V S U
SDSS7	☒	☒	☒	☒	V S U
SDSS10	☒	☒	☒	☒	V S U
USNO A2.0	☒	☒	☒	☒	V S U
USNO B1	☒	☒	☒	☒	V S U
USNOA2.0Vo	☐	☒	☒	☒	U
TwoMassVo	☒	☒	☒	☒	V S U
SDSS7Vo	☒	☒	☒	☒	V S U
UKIDSS8Vo	☐	☒	☒	☒	U

7th March 2016



Energy and time domain Astronomy With Archival Data

3C 454.3



SED tool usage



Search Type:

[Fluxes](#)[Flux ratios](#)[Solar flares](#)[References](#)[Help](#)[Contact us](#)

Fluxes:

Differential intensity fluxes for galactic, trapped and solar flare particles are available.
H fluxes are also available as monthly flux variations.
All fluxes are displayed as a function of energy.
Monthly fluxes only can be displayed at a given energy as a function of time.
Monthly fluxes are available in the energy range 0.08 - 49 GeV.

Particle Type: ALL

Experiments:

ALL
1H
2H
3He
4He
e+
e-
H
He
pbar

Refined Search:

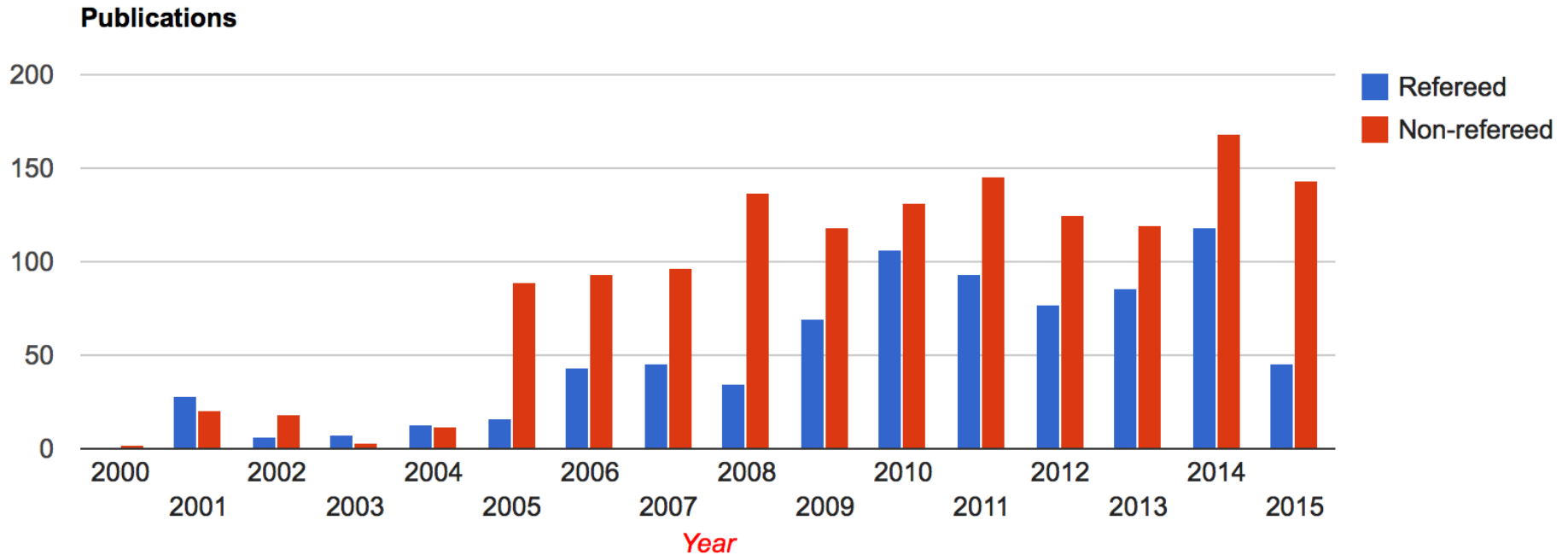
☒ All differential fluxes

☐ Differential fluxes in time interval from: YYYY-MM-DD to YYYY-MM-DD

ASDC publications overview

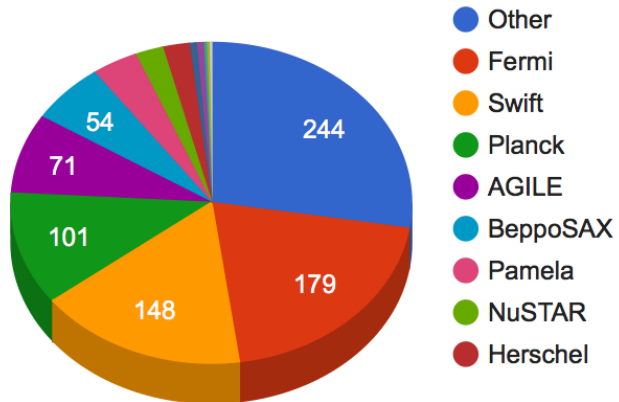
ASDC Refereed publications total : 795

ASDC Non-refereed publications total : 1425



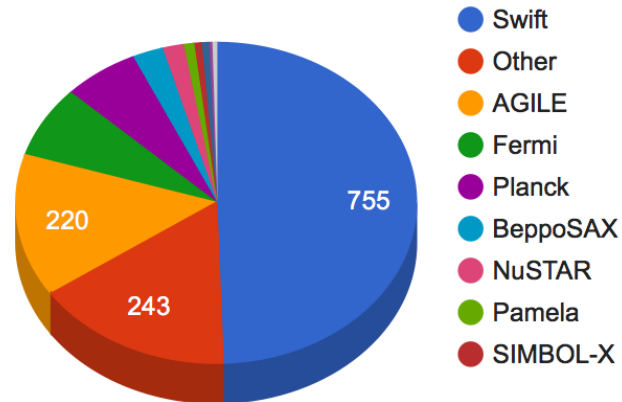
Refereed total : 885
Non-refereed total : 1526

ASDC Refereed Publications



▲ 1/2 ▼

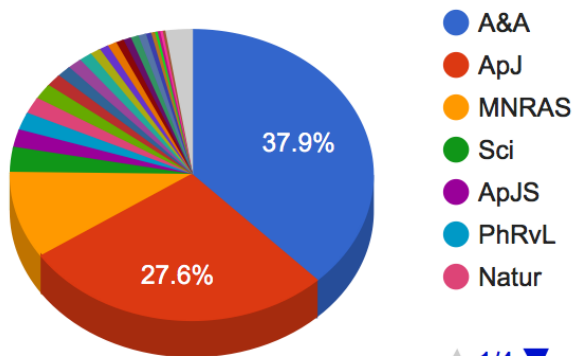
ASDC Non-refereed Publications



▲ 1/2 ▼

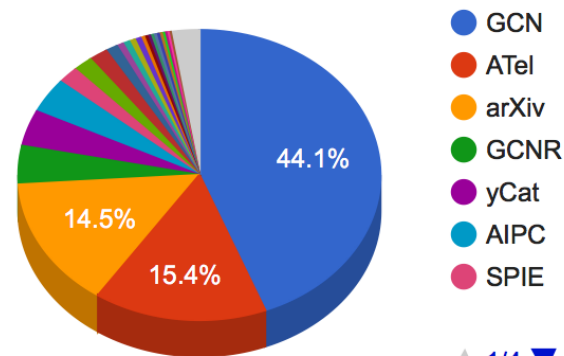
Refereed total : 868
Non-refereed total : 1497

ASDC Refereed Publications



▲ 1/4 ▼

ASDC Non-refereed Publications

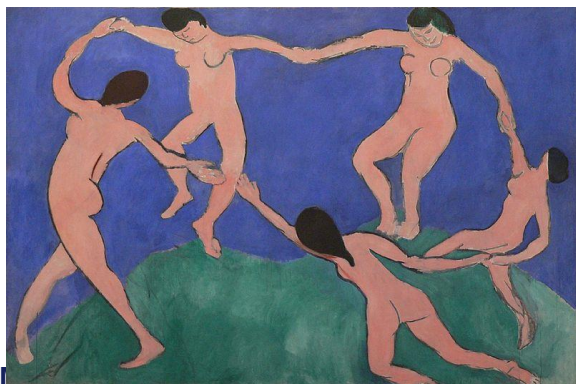


▲ 1/4 ▼



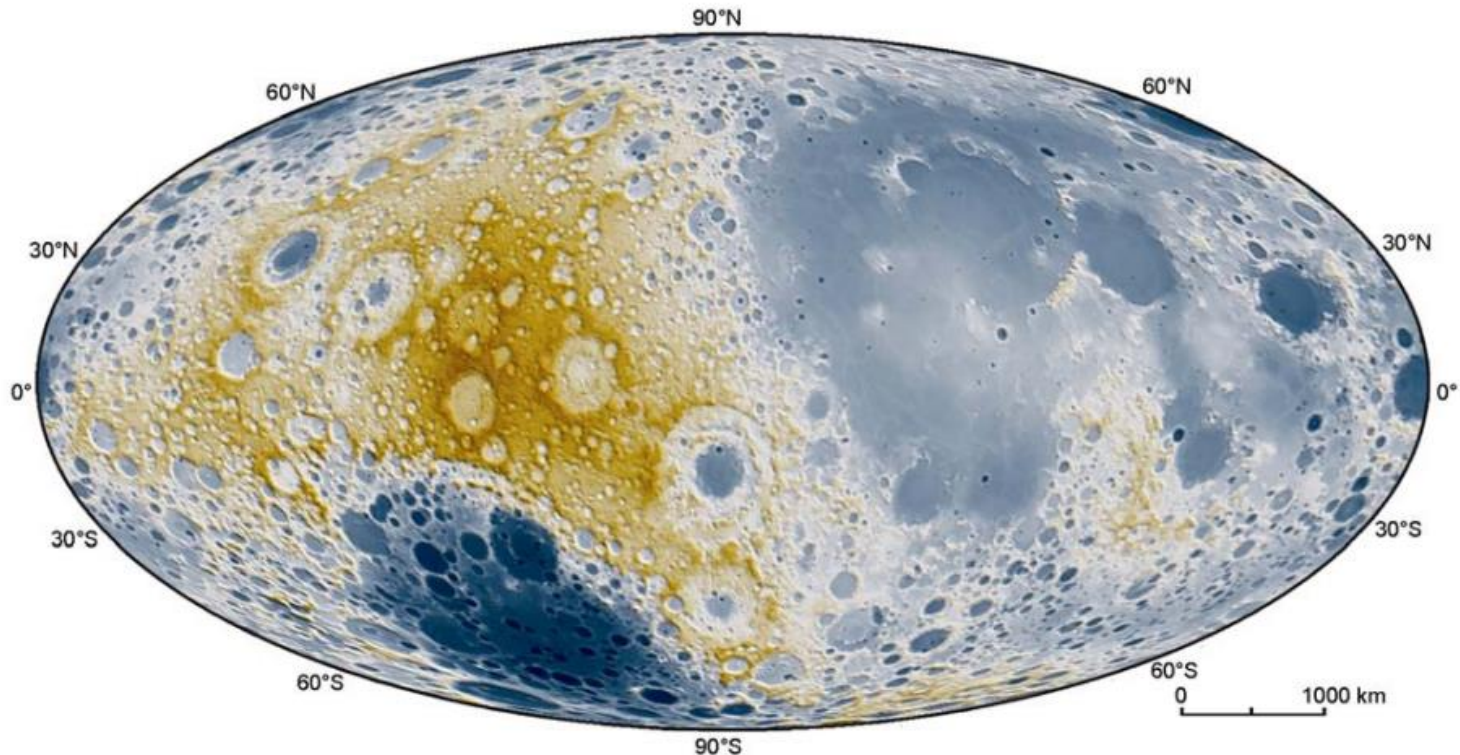
MATISSE (Multi-purpose Advanced Tool for Instruments for the Solar System Exploration)

The ASDC analysis tool for Solar System Exploration data



7th March 2019

The Italian-Chinese Moon Mapping project



Moon Mapping

Chinese Universities

- **Tsinghua University**
- **China University of Geosciences**
- **East China Normal University**
- **Nanjing University**
- **Chongquin University**

Moon Mapping

Italian Universities/Research centers

- **Politecnico Milano**
- **Università di Padova**
- **Univerità di Pavia**
- **Università di Parma**
- **CNR-IRPI, Perugia**
- **INAF-IASP, Roma**
- **Università di Cagliari**
- **Università di Chieti**

2nd workshop - January 2015 at ASI



Third workshop
Forum on Lunar and Deep Space Exploration
ASI delegation plus Moon Mapping Italian team



Fourth Moon Mapping workshop

Italian Space Agency

10-11 May 2016





UNITED NATIONS
Office for Outer Space Affairs

Open Universe

Paolo Giommi
Italian Space Agency

**An initiative under the auspices of COPUOS announced
by the ASI president
and described in a conference room paper presented by
Italy**

**for expanding availability of and accessibility to open source space
science data**

**Approved by the general assembly of COPUOS at its 59th session
(June 2016)**

Committee on the Peaceful

Vienna, 10/06/2016

Uses of Outer Space

59th session

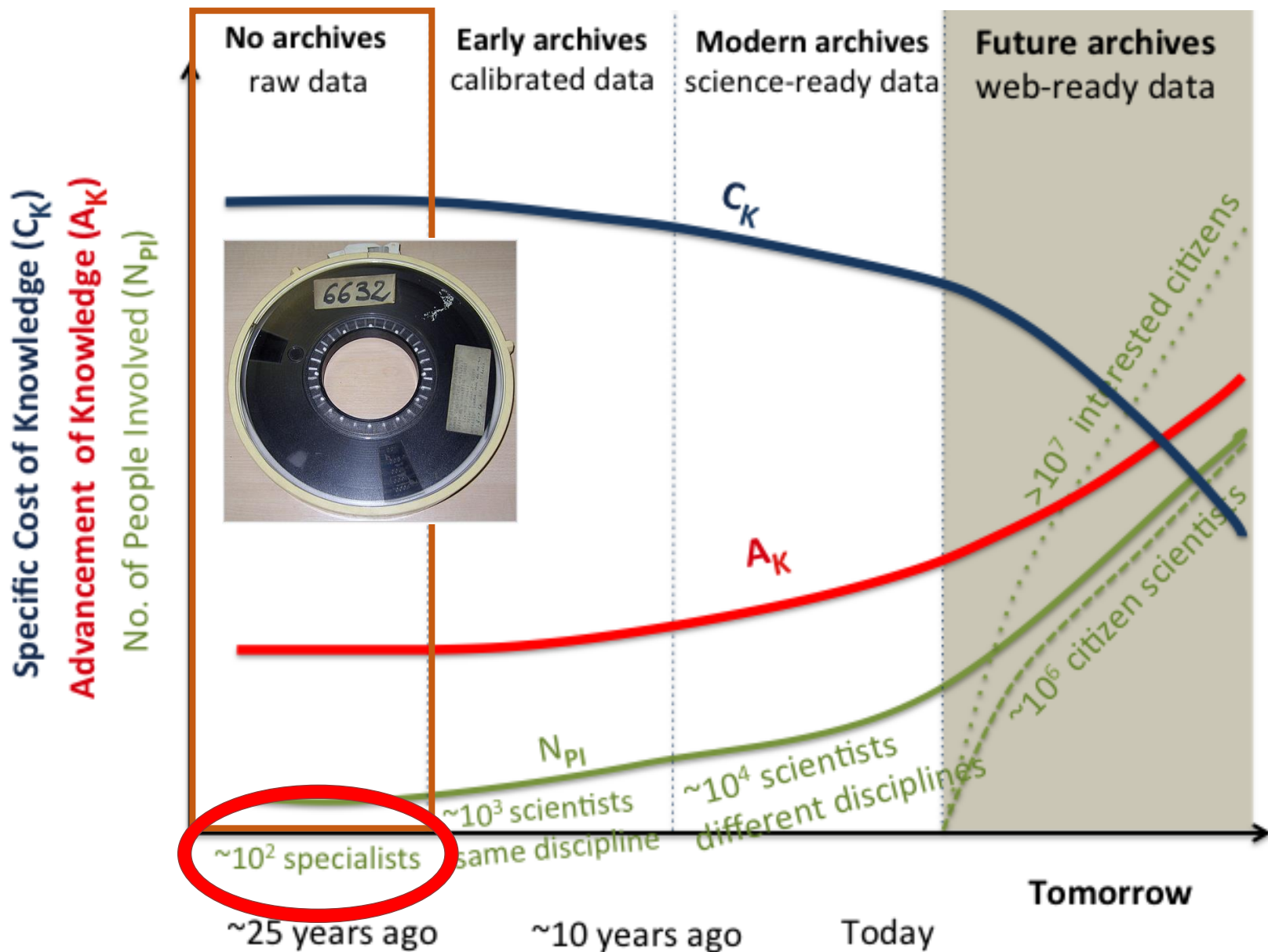
34

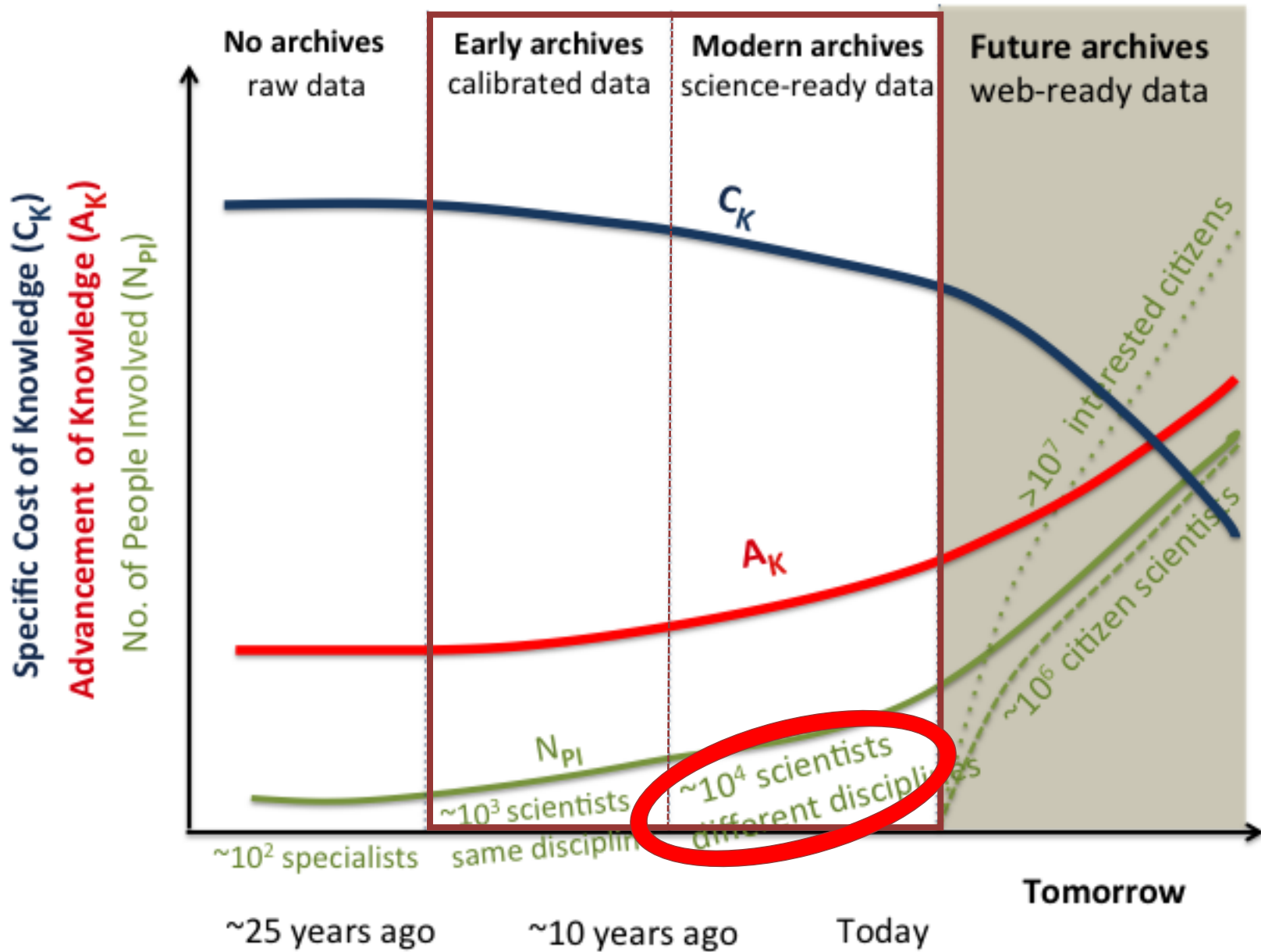
Critical juncture in the history of human civilization:

- computing power, data storage and interconnectivity have become nearly limitless resources potentially available to billions of people in the world;
- **open data access** is a well-established principle of every scientific discipline that drives innovation and productivity;
- **however there is still a considerable degree of unevenness in the services** currently offered by scientific data providers.

Initiatives are necessary to expand availability and accessibility to open source space science data:

Open Universe proposal





☒ All Files

☐ auxil

☐ sw00053675001pat.fits	FITS	26 kB	(level 3) Corrected attitude file
☐ sw00053675001pjb.par	ASCII	3 kB	(level 1) Job parameter file
☐ sw00053675001pob.cat	FITS	3 kB	(level 1) FITS format tape contents
☐ sw00053675001ppr.par	ASCII	2 kB	(level 1) Processing parameter file
☐ sw00053675001s.mkf	FITS	30 kB	(level 2) Makefilter filter file
☐ sw00053675001sao.fits	FITS	483 kB	(level 1) Attitude/orbit-related filter value
☐ sw00053675001sat.fits	FITS	28 kB	(level 1) Spacecraft attitude file
☐ sw00053675001sen.hk	FITS	131 kB	(level 1) S/C engineering data
☐ sw00053675001sti.fits	FITS	3 kB	(level 1) UTC corrections file
☐ SWIFT_TLE_ARCHIVE.txt.15254.42938434	ASCII	103 kB	(level 1) TLE orbit file

☐ bat

☐ hk

☐ sw00053675001bdec.b.hk	FITS	13 kB	(level 1) Housekeeping data
☐ sw00053675001bdp.hk	FITS	23 kB	(level 1) BAT DAP housekeeping
☐ sw00053675001ben.hk	FITS	232 kB	(level 1) instrument engineering data
☐ sw00053675001bgoc.b.hk	FITS	283 kB	(level 1) Housekeeping data
☐ sw00053675001bhd.hk	FITS	6 kB	(level 1) Housekeeping data

☐ masktag

☐ sw00053675001bmt00010004_rw.lc	FITS	4 kB	(level 1) Mask tagged lightcurves
☐ sw00053675001bmt00010005.lc	FITS	5 kB	(level 1) Mask tagged lightcurves
☐ sw00053675001bmt00010005_rw.lc	FITS	8 kB	(level 1) Mask tagged lightcurves
☐ sw00053675001bmt00010051.lc	FITS	9 kB	(level 1) Mask tagged lightcurves
☐ sw00053675001bmt00010051_rw.lc	FITS	17 kB	(level 1) Mask tagged lightcurves
☐ sw00053675001bmt00010500_rw.lc	FITS	4 kB	(level 1) Mask tagged lightcurves

☐ pulsar

☐ sw00053675001bpl00000000.fits	FITS	21 kB	(level 1) Pulsar data file
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☐ rate

☐ sw00053675001brt1s.lc	FITS	5 kB	(level 1) merged rate files
☐ sw00053675001brtmc.lc	FITS	20 kB	(level 1) merged rate files
☐ sw00053675001brtms.lc	FITS	36 kB	(level 1) merged rate files
☐ sw00053675001brtqd.lc	FITS	8 kB	(level 1) merged rate files

☐ survey

☐ sw00053675001bsvpbo0b47g03d1.dph	FITS	814 kB	(level 1) Calibrated B
☐ sw00053675001bsvpbo0b48g03d1.dph	FITS	796 kB	(level 1) Calibrated B

☐ log

☐ sw00053675001bir.html	HTML	1 kB	(level 1) HTML exposure report
☐ sw00053675001per.html	HTML	1 kB	(level 1) HTML processing error index
☐ sw00053675001pfi.html	HTML	2 kB	(level 1) HTML file list
☐ sw00053675001pin.html	HTML	2 kB	(level 1) HTML Processing index
☐ sw00053675001pjl.html	HTML	45 kB	(level 1) HTML processing job log
☐ sw00053675001psu.html	HTML	1 kB	(level 1) HTML processing summary page
☐ sw00053675001uir.html	HTML	1 kB	(level 1) HTML exposure report
☐ sw00053675001xir.html	HTML	3 kB	(level 1) HTML exposure report

☐ uvot

☐ hk

☐ sw00053675001uen.hk	FITS	35 kB	(level 1) instrument engineering data
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☐ xrt

☐ hk

☐ sw00053675001xbf_rw.img	FITS	171 kB	(trend) XRT bias image mode data
☐ sw00053675001xen.hk	FITS	18 kB	(level 1) instrument engineering d
☐ sw00053675001xhd.hk	FITS	47 kB	(level 1) Housekeeping data
☐ sw00053675001xtr.hk	FITS	9 kB	(level 1) Housekeeping data

Download

Click this button or the one at the top of the page after selecting files.

Committee on the Peaceful

Uses of Outer Space

59th session

Vienna, 10/06/2016

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NuSTAR Data Products

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 file)
- Background Lightcurve (FITS file)

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

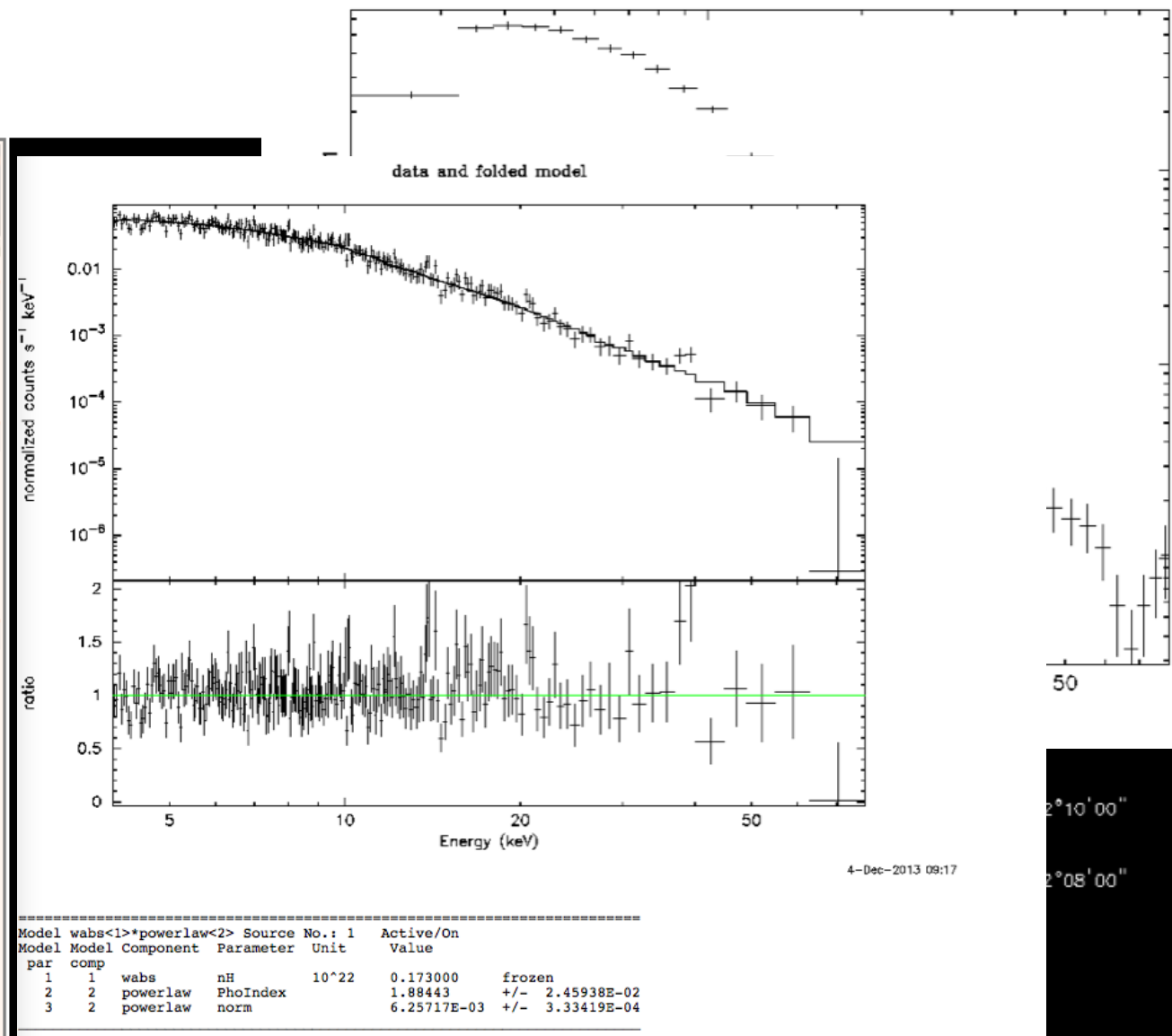
norm

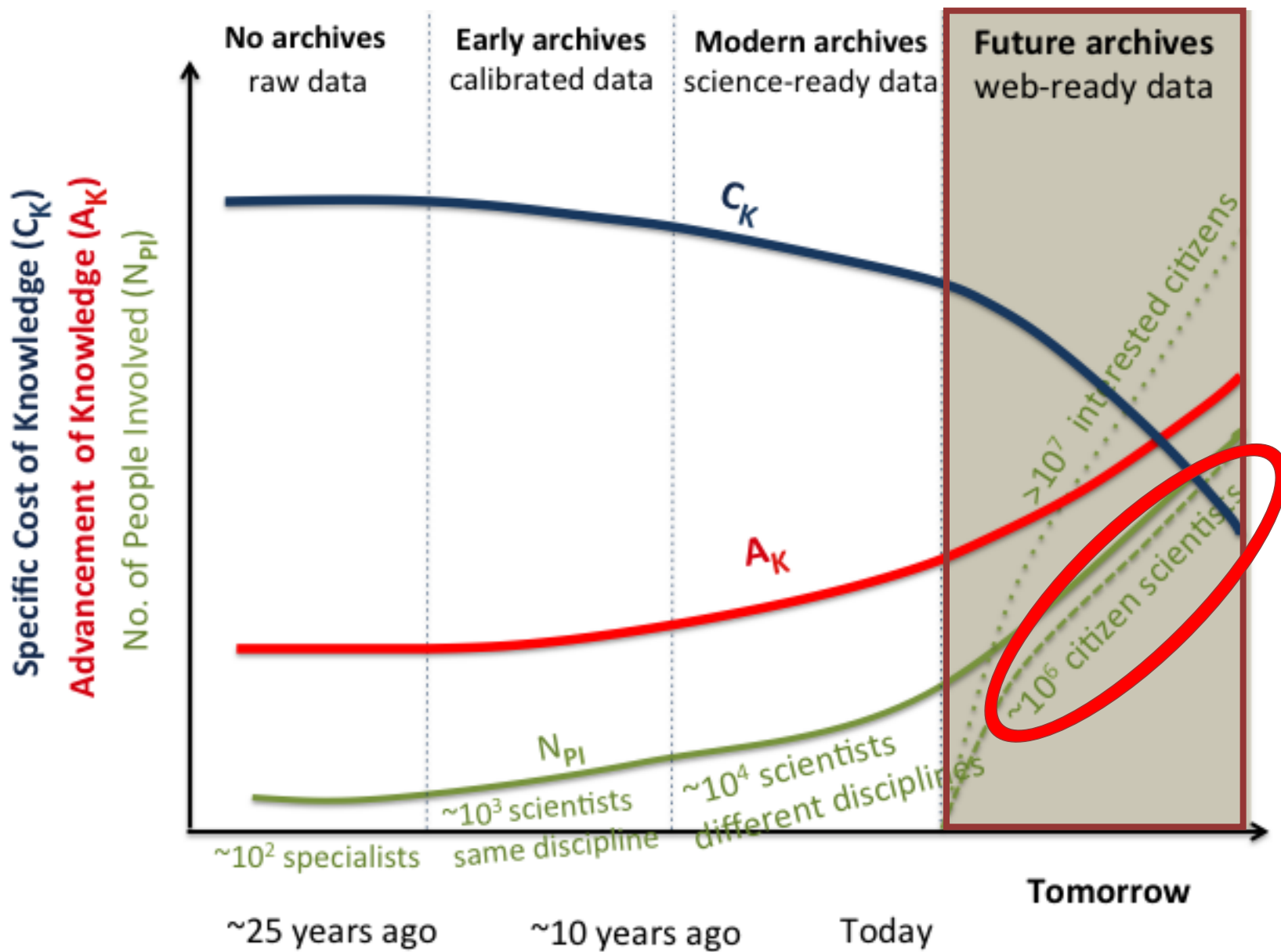
Energy range for spectral analysis
Emin Emax

Energy range for Xspec flux estimation
Emin Emax

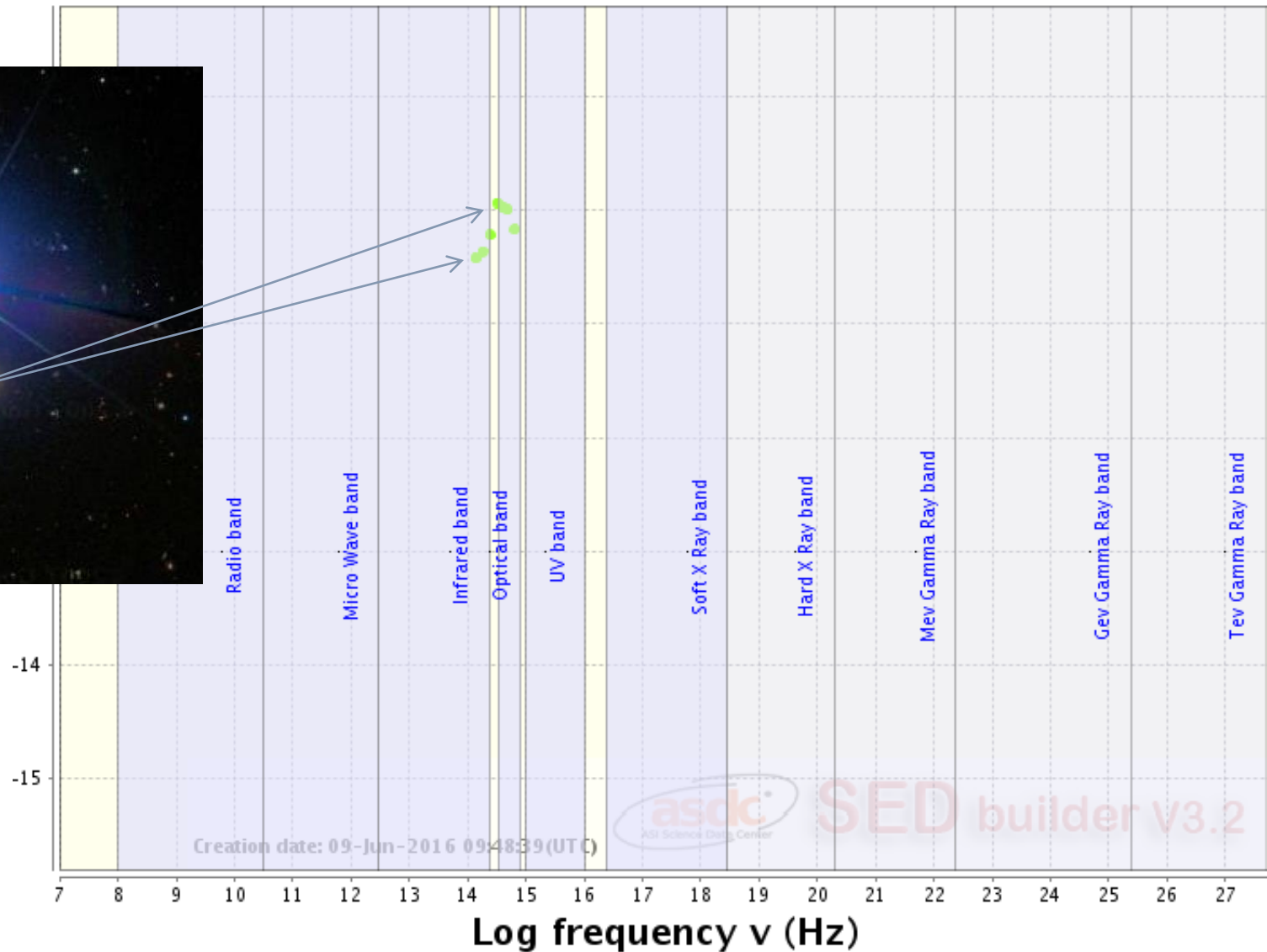
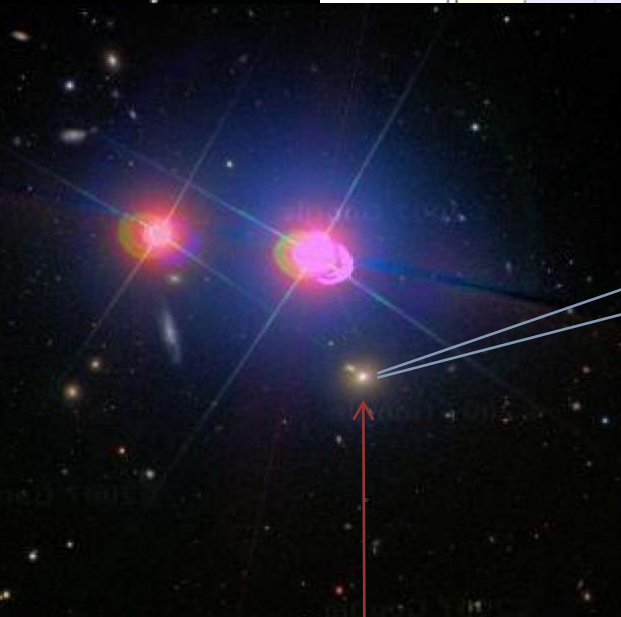
Number of SED bins

Submit



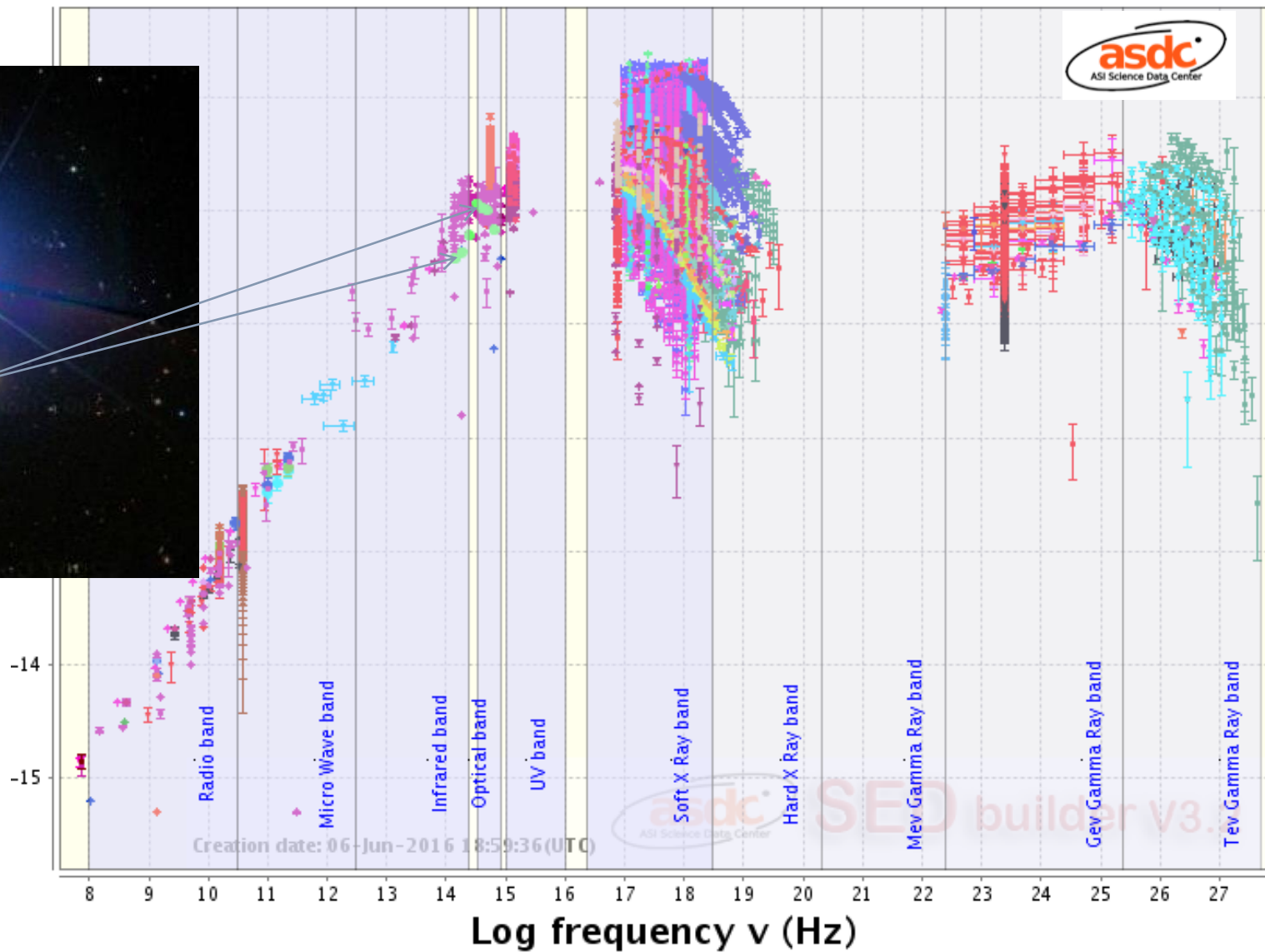
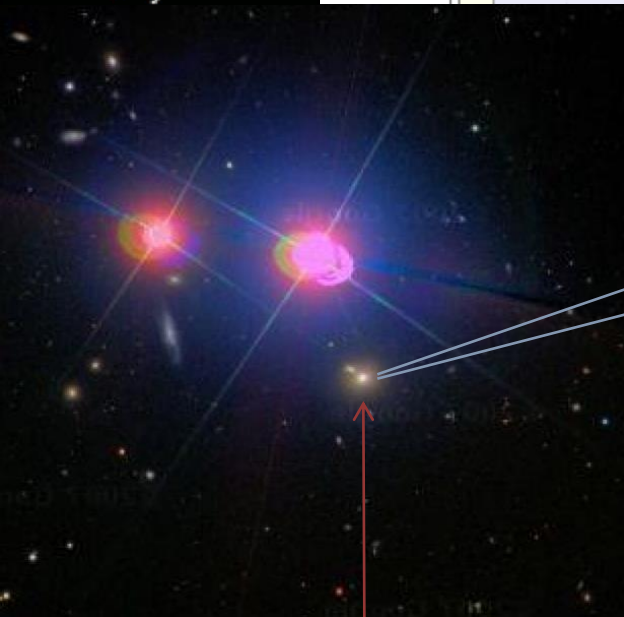


The active galaxy MKN 421



The active galaxy MKN 421

GoogleTM
Sky





Canadian schoolboy, 15, discovers lost Mayan city

William Gadoury discovered a lost Mayan city in the Yucatan peninsula using Google Earth and star constellations. Many similar discoveries in the sector of space science will be enabled by the “Open Universe” proposal.

Open Universe proposal

Review of space science data services

- Objective criteria
- Technical expertise
- Best practice

Data revolution

- Award of UN Open Data Index
- Technical recommendations for improvement

Open Universe proposal

World-wide objectives

Avalanche of new open data web services for space science

- Education
- Training
- Research
- Science

Beneficiaries

- Research organizations
- Data custodians
- Universities
- Schools
- Citizens

Proposal for a United Nations/ASI workshop to discuss the Initiative

Early 2017

**Open to experts and data providers
from all interested countries.**

The outcome would be part of the process leading to

UNISPACE+50

**within the thematic priority “Capacity Building”
with focus on**

Science, Technology, Engineering and Mathematics (STEM)