

# 天文データサービスの利用方法・利用例

川口 俊宏

2015年2月27日(金)

1. NED (系外天体データベース)
  - 1a. 天体名から情報を集める
  - 1b. 座標変換
2. Cosmological calculator
3. VizieR (カタログ・表検索)

# 天文データサービスの利用方法・利用例

川口 俊宏

2015年2月27日(金)

1. NED (系外天体データベース)
  - 1a. 天体名から情報を集める
  - 1b. 座標変換
2. Cosmological calculator
3. VizieR (カタログ・表検索)

# 1. NASA/IPAC Extragalactic Database (NED) <http://ned.ipac.caltech.edu/>

- 系外天体のデータベース、様々な換算ツールを集めたサイト
- 今日は例として3つの利用法を紹介します

**News & Featured Updates — December 2014**

- [42 million infrared sources from the Spitzer Source List](#)
- [119,520 new object links to 336 new publications](#)
- [219 H I spectra associated with 13 journal articles](#)
- [140 new redshift-independent distances](#)
- [Latest articles in Level 5](#)

NED is embarking on a major transformation: We invite you to [preview a new interface](#) providing a drop-down menu and a form to search for objects By Name directly on the landing page (future homepage). A new Near Position search option includes catalog sources that are undergoing integration into NED. All users should read about [these significant changes](#). Further streamlining of the interface, including consolidation of search forms, will be released incrementally with new content and evolving functionality.

OBJECTS	DATA	LITERATURE	TOOLS	INFO
<a href="#">By Name</a>	<a href="#">Images by Object Name Region</a>	<a href="#">References by Object Name</a>	<a href="#">Coordinate Transformation &amp; Extinction Calculator</a>	<a href="#">Introduction</a> <a href="#">Latest News/Updates</a>
<a href="#">Near Name</a>	<a href="#">Photometry &amp; SEDs</a>	<a href="#">References by Author Name</a>	<a href="#">Velocity Calculator</a>	<a href="#">Features</a> <a href="#">FAQ</a>
<a href="#">Near Position</a>	<a href="#">Spectra</a>	<a href="#">Text Search</a>	<a href="#">Cosmology Calculators</a>	<a href="#">Overview (pdf)</a>
<a href="#">IAU Format</a>	<a href="#">Redshifts</a>	<a href="#">Knowledgebase</a>	<a href="#">Extinction-Law Calculators</a>	<a href="#">Source Nomenclature</a>
<a href="#">By Parameters</a>	<a href="#">Redshift-Independent Distances</a>	<a href="#">Galaxy Distance Tabulations (NED-D)</a>	<a href="#">Galaxy Environment by Precomputed Parameters Radial Velocity Constraint</a>	<a href="#">Web Links</a> <a href="#">New Interface</a>
<a href="#">By Classifications Types, Attributes</a>	<a href="#">Classifications by Object Name</a>	<a href="#">Abstracts</a>	<a href="#">X/Y offset to RA/DEC</a>	<a href="#">Glossary &amp; Lexicon</a>
<a href="#">By Refcode</a>	<a href="#">Positions</a>	<a href="#">Thesis Abstracts</a>	<a href="#">Batch Job Submission Help</a> <a href="#">Pick Up Results</a>	<a href="#">Team</a>
<a href="#">Object Notes</a>	<a href="#">Diameters</a>		<a href="#">Build Data Table from Input List</a> <a href="#">By Name</a> <a href="#">Near Name/Position (Cross-Matching)</a>	<a href="#">Contact Us</a> <a href="#">or Comment</a>

# 1. NASA/IPAC Extragalactic Database (NED) <http://ned.ipac.caltech.edu/>

■ 系外天体のデータベース、様々な換算ツールを集めたサイト

■ 今日は例として3つの利用法を紹介します

(1a) 天体名から検索

(1b) 座標変換

(2) 赤方偏移と距離の換算  
視角と大きさの換算

**NED**

News & Featured Updates — December 2014

- [42 million infrared sources from the Spitzer Source List](#)
- [119,520 new object links to 336 new publications](#)
- [219 H I spectra associated with 13 journal articles](#)
- [140 new redshift-independent distances](#)
- [Latest articles in Level 5](#)

NED is embarking on a major transformation: We invite you to [preview a new interface](#) providing a drop-down menu and a form to search for objects By Name directly on the landing page (future homepage). A new Near Position search option includes catalog sources that are undergoing integration into NED. All users should read about [these significant changes](#). Further streamlining of the interface, including consolidation of search forms, will be released incrementally with new content and evolving functionality.

OBJECTS	DATA	LITERATURE	TOOLS	INFO
<a href="#">By Name</a> <span style="color:red">1a</span>	<a href="#">Images by Object Name Region</a>	<a href="#">References by Object Name</a>	<a href="#">Coordinate Transformation &amp; Extinction Calculator</a> <span style="color:red">1b</span>	<a href="#">Introduction</a> <a href="#">Latest News/Updates</a>
<a href="#">Near Name</a>	<a href="#">Photometry &amp; SEDs</a>	<a href="#">References by Author Name</a>	<a href="#">Velocity Calculator</a>	<a href="#">Features</a> <a href="#">FAQ</a>
<a href="#">Near Position</a>	<a href="#">Spectra</a>	<a href="#">Text Search</a>	<a href="#">Cosmology Calculators</a> <span style="color:red">2</span>	<a href="#">Overview (pdf)</a>
<a href="#">IAU Format</a>	<a href="#">Redshifts</a>	<a href="#">Knowledgebase</a>	<a href="#">Extinction Law Calculators</a>	<a href="#">Source Nomenclature</a>
<a href="#">By Parameters</a>	<a href="#">Redshift-Independent Distances</a>	<a href="#">Galaxy Distance Tabulations (NED-D)</a>	<a href="#">Galaxy Environment by Precomputed Parameters Radial Velocity Constraint</a>	<a href="#">Web Links</a> <a href="#">New Interface</a>
<a href="#">By Classifications Types, Attributes</a>	<a href="#">Classifications by Object Name</a>	<a href="#">Abstracts</a>	<a href="#">X/Y offset to RA/DEC</a>	<a href="#">Glossary &amp; Lexicon</a>
<a href="#">By Refcode</a>	<a href="#">Positions</a>	<a href="#">Thesis Abstracts</a>	<a href="#">Batch Job Submission Help</a> <a href="#">Pick Up Results</a>	<a href="#">Team</a>
<a href="#">Object Notes</a>	<a href="#">Diameters</a>		<a href="#">Build Data Table from Input List</a> <a href="#">By Name</a> <a href="#">Near Name/Position (Cross-Matching)</a>	<a href="#">Contact Us or Comment</a>



## 1a. 天体名からNEDで情報を得る

<http://ned.ipac.caltech.edu/forms/byname.html>

前のページの  
**1a**と書かれて  
いる箇所をクリ  
ックすると、右  
のページに  
移動する。

ここに天体名  
を入れて、リタ  
ーンを押す(又  
は、Submit  
Queryをクリック  
間違った名前を  
書き入れると、  
間違い方を  
指摘(次頁)。

**NASA/IPAC EXTRAGALACTIC  
DATABASE**

Search for Objects by Object Name

[Help](#) | [Comment](#) | [NED Home](#)  
Select Cosmological Parameters for Derived Quantities

Submit Query    Reset

**Input Parameters:**

Object Name:

Extended name search?  Yes  No

**Input Parameters for Distances and Cosmology-Corrected Quantities:** +

H<sub>0</sub>:     Ω<sub>matter</sub>:     Ω<sub>vacuum</sub>:     NED Default/WMAP (Three-Year)    WMAP (Five-Year) Parameters

Correct Redshift:   
as Input for Calculations of the Distances and Cosmology-Corrected Quantities

**Output Format Specification:**

System:     Equinox:        

Sort the output list by:

# 1a. 間違った天体名を入力した時の例: 「IRAS05555+5」の場合

**NASA/PAC EXTRAGALACTIC DATABASE**  
Date and Time of the Query: 2015-02-18 T05:09:26 PST  
[Help](#) | [Comment](#) | [NED Home](#)

Messages:

The object name that you submitted is not currently recognized by the NED name interpreter.

In general, naming conventions employ a prefix (usually an acronym for the first author(s) or the survey name) followed by a numerical string based on a tabular sequence or a position on the sky. For more specifics, see the document at <http://vizier.u-strasbg.fr/Dic/iau-spec.htm>

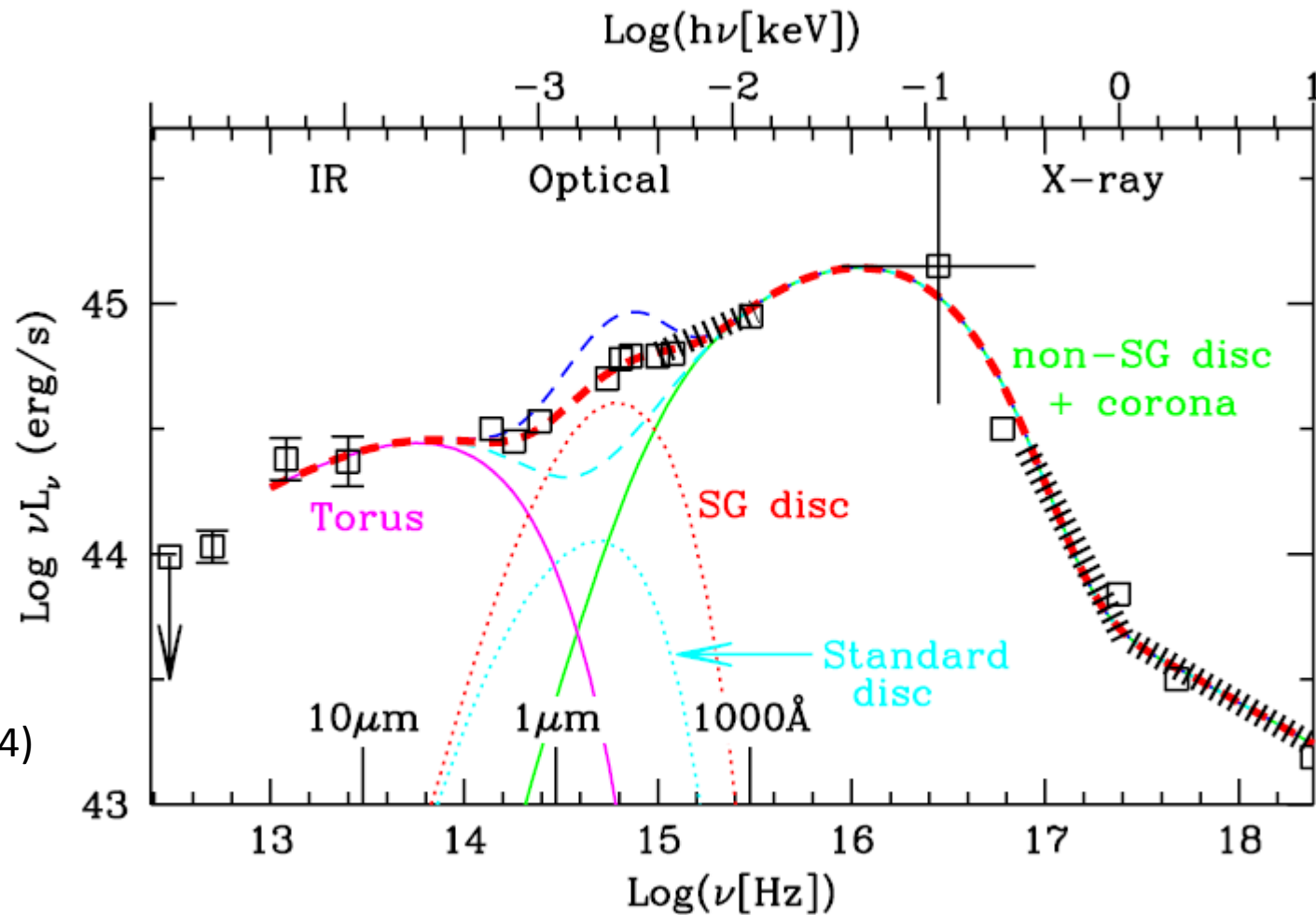
Based on your input, we have listed below a number of possibilities that NED does recognize that reasonably may include your object/survey and its standardized naming convention in NED.

Use this format	for this catalogue
-----	-----
IC NNNNa	IC catalogue
IPC HHMMm+DDMM	EINSTEIN IPC catalogue
<b>IRAS FHHMMm+DDMMa</b>	IRAS Faint Sources
IRAS FHHMMm+DDMMa	IRAS Faint Sources
IRAS HHMMm+DDMMa	IRAS Point Sources
IRAS HHMMm+DDMMa	IRAS Point Sources
NGC NNNN:[I80] NN	Objects from 1980A&A....90..246I
or IC 0342:[I80] NN	
SCG HHMM-DDMM:[I2002] A	Objects from 2002AJ....124.2471I
[I2002a] JHHMMSS.ss+DDMMSS.s	Objects from 2002A&A...389L..37I
LMC:[I79] ANNN-DD	Objects from 1979A&AS...38..239I
LMC:[I82] NNN	Objects from 1982A&AS...50....7I
or LMC:[I82] ANNN-DD	
LMC:[I75] NNA-NN	Objects from 1975A&AS...19..259I
or LMC:[I75] ANNN-DD	

カタログ毎の  
天体名記載  
方法が書かれ  
ているので、  
それを見て、  
気付く

1a. 天体名からNEDで情報を得る: 放射スペクトル分布 (SED) 編  
目的例A: この天体は、どういうスペクトルをしているのかおおよそ  
知りたい。

目的例B: モデル計算で放射スペクトルを計算した時に、観測データと  
比較したい。(下図)



(Kawaguchi et al. 2004)  
四角点と太点線が  
観測データ



# 1a. 天体名からNEDで情報を得る: SED編

天体名に、TonS180を入れて、リターンを押すと下図に移動する。

**NASA/IPAC EXTRAGALACTIC DATABASE**  
Date and Time of the Query: 2015-02-18 T05:22:42 PST  
[Help](#) | [Comment](#) | [NED Home](#)

**You have selected the following parameters to search on:**

Parameters for Distances and Cosmology:  $H_0 = 73.0$ ;  $\Omega_{\text{matter}} = 0.27$ ;  $\Omega_{\text{vacuum}} = 0.73$ ;  
Derived Quantities use a Redshift corrected to a Reference Frame defined by the 3K CMB

**NED results for object TON S180**

1 objects found in NED:

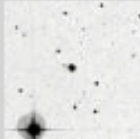
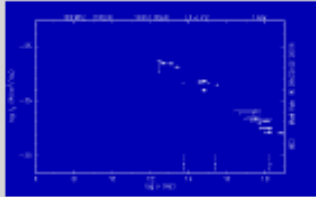
赤方偏移、後退速度、位置(RA, Dec)など基礎情報

Row No.	Object Name	EquJ2000.0 RA	EquJ2000.0 DEC	Object Type	Velocity/Redshift km/s	z	Mag.	Filter	Separ. arcmin	Refs	Notes	Phot	Posn	Vel/z	Diam	Assoc	Images	Spectra	Row No.
1	TON S180	00h57m19.9s	-22d22m59s	G	18581	0.061980	15.9R	...	...	162	8	34	2	2	0	0	<a href="#">Retrieve</a>	<a href="#">Retrieve</a>	1

**Detailed information for each object**

**Object No. 1 - TON S180**

**INDEX for TON S180**

<b>Essential Data (jump to sub-section of this query report):</b> <ul style="list-style-type: none"><li><a href="#">Essential Note</a></li><li><a href="#">Cross-IDs</a></li><li><a href="#">Coordinates</a></li><li><a href="#">Basic Data</a></li><li><a href="#">Quantities Derived from Redshift</a></li><li><a href="#">Redshift-Independent Distances</a></li><li><a href="#">Quick-Look Photometry and Luminosities</a></li><li><a href="#">Classifications</a></li><li><a href="#">Foreground Galactic Extinction</a></li><li><a href="#">External Services</a></li></ul>	<b>Detailed Data (NED queries):</b> <ul style="list-style-type: none"><li> <a href="#">Images</a></li><li> 34 Photometric data point(s) and SED</li><li><a href="#">Spectra</a></li><li><a href="#">Redshift-Independent Distances</a></li><li><a href="#">162 Reference(s)</a></li><li><a href="#">2 Position data point(s)</a></li><li><a href="#">2 Redshift data point(s)</a></li><li><a href="#">8 Note(s)</a></li></ul>
---	--



# 1a. 天体名からNEDで情報を得る: SED編

天体名に、TonS180を入れて、リターンを押すと下図に移動する。

**NASA/IPAC EXTRAGALACTIC DATABASE**  
Date and Time of the Query: 2015-02-18 T05:22:42 PST  
[Help](#) | [Comment](#) | [NED Home](#)

**You have selected the following parameters to search on:**

Parameters for Distances and Cosmology:  $H_0 = 73.0$ ;  $\Omega_{\text{matter}} = 0.27$ ;  $\Omega_{\text{vacuum}} = 0.73$ ;  
Derived Quantities use a Redshift corrected to a Reference Frame defined by the 3K CMB

**NED results for object TON S180**

---

1 objects found in NED:

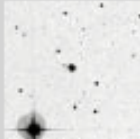
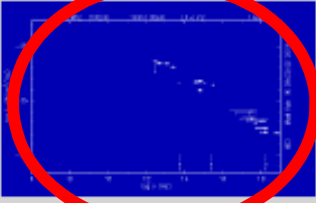
**SOURCE LIST**

Row No.	Object Name (* => Essential Note)	EquJ2000.0 RA DEC	Object Type	Velocity/Redshift km/s z	Mag./ Separ. Qual Filter arcmin	Number of Refs Notes	Phot	Posn	Vel/z	Diam	Assoc	Images	Spectra	Row No.
<u>1</u>	TON S180	00h57m19.9s -22d22m59s	G	18581 0.061980	15.9R ...	<u>162</u> <u>8</u>	<u>34</u>	<u>2</u>	<u>2</u>	0	0	<a href="#">Retrieve</a>	<a href="#">Retrieve</a>	<u>1</u>

**Detailed information for each object**

**Object No. 1 - TON S180**

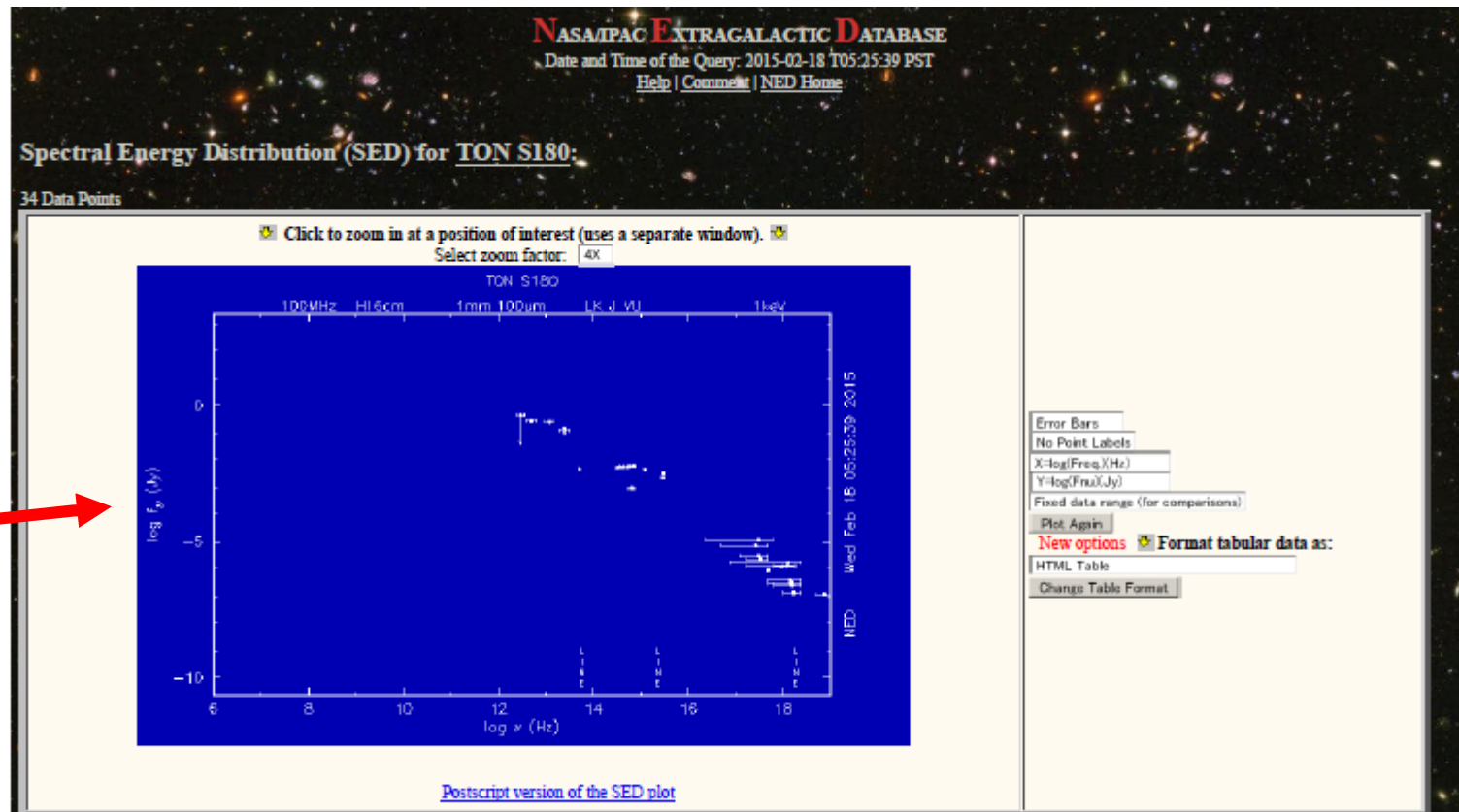
**INDEX for TON S180**

<p>Essential Data (jump to sub-section of this query report):</p> <ul style="list-style-type: none"><li><a href="#">Essential Note</a></li><li><a href="#">Cross-IDs</a></li><li><a href="#">Coordinates</a></li><li><a href="#">Basic Data</a></li><li><a href="#">Quantities Derived from Redshift</a></li><li><a href="#">Redshift-Independent Distances</a></li><li><a href="#">Quick-Look Photometry and Luminosities</a></li><li><a href="#">Classifications</a></li><li><a href="#">Foreground Galactic Extinction</a></li><li><a href="#">External Services</a></li></ul>	<p>Detailed Data (NED queries):</p> <div style="display: flex; align-items: center;"><span style="margin-left: 10px;"><a href="#">Images</a></span></div> <div style="display: flex; align-items: center;"><span style="margin-left: 10px;"><a href="#">34 Photometric data point(s) and SED</a></span></div> <ul style="list-style-type: none"><li><a href="#">Spectra</a></li><li><a href="#">Redshift-Independent Distances</a></li><li><a href="#">162 Reference(s)</a></li><li><a href="#">2 Position data point(s)</a></li><li><a href="#">2 Redshift data point(s)</a></li><li><a href="#">8 Note(s)</a></li></ul>
---	--

ここをクリック

クリックすると、別タブが開く(下図)

放射スペクトル分布の概形確認



各データ点の基となっている文献リスト。右端の青字をクリックするとその文献を観れる

Photometric Data — Published and Homogenized [Frequency, Flux Density] Units

No.	Published Units				Homogenized Units [Frequency, Flux Density]							Reference Code	No.
	Observed Passband	Measurement	Uncertainty	Units	Freq (Hz)	Measurement	Uncertainty	Units	Mode	Aperture/Qualifiers			
<a href="#">1</a>	10-50 keV (Suzaku)	0.94	...	log(erg/s/cm <sup>2</sup> )	7.25E+18	1.20E-07	...	Jy	Broad-band		<a href="#">2011ApJ...727...19F</a>	1	
<a href="#">2</a>	4-10 keV (XMM)	2.3E-12	...	erg/cm <sup>2</sup> /s	1.69E+18	1.36E-07	...	Jy	Broad-band	Obs. date: 2002-06-30	<a href="#">2010A&amp;A...521A...57T</a>	2	
<a href="#">3</a>	6.4 keV Fe K (alpha)	5.0	...	ergs cm <sup>-2</sup> s <sup>-1</sup>	1.55E+18	5.00E+09	...	Jy-Hz	Line		<a href="#">2000MNRAS...316...234R</a>	3	
<a href="#">4</a>	2.5-10 keV (XMM)	0.39E-11	...	erg cm <sup>-2</sup> s <sup>-1</sup>	1.51E+18	2.58E-07	...	Jy	Broad-band		<a href="#">2006MNRAS...368...479G</a>	4	
<a href="#">5</a>	2-10 keV (Chandra)	4.6E-12	...	ergs/s/cm <sup>2</sup>	1.45E+18	3.17E-07	...	Jy	Broad-band	Unabsorbed flux	<a href="#">2004ApJ...600...96R</a>	5	
<a href="#">6</a>	2-10 keV (ASCA)	53.4E-13	...	ergs/s/cm <sup>2</sup>	1.45E+18	3.68E-07	...	Jy	Broad-band		<a href="#">2001ApJS...133...11U</a>	6	
<a href="#">7</a>	2-10 keV (XMM)	4.690E-12	+/- 0.130E-12	erg/cm <sup>2</sup> /s	1.45E+18	3.23E-07	+/- 8.97E-09	Jy	Broad-band		<a href="#">2009A&amp;A...495...421B</a>	7	
<a href="#">8</a>	2-10 keV (XMM)	4.5E-12	...	erg/s/cm <sup>2</sup>	1.45E+18	3.10E-07	...	Jy	Broad-band		<a href="#">2010ApJ...713L...11Z</a>	8	
<a href="#">9</a>	0.3-10 keV (Chandra)	2.2E-11	...	ergs/s/cm <sup>2</sup>	1.25E+18	1.76E-06	...	Jy	Broad-band	Unabsorbed flux	<a href="#">2004ApJ...600...96R</a>	9	
<a href="#">10</a>	0.5-10 keV (ASCA)	16.1	...	ergs cm <sup>-2</sup> s <sup>-1</sup>	1.21E+18	1.33E-06	...	Jy	Broad-band		<a href="#">2000MNRAS...316...234R</a>	10	

見易い表示に変更して、スペクトルの概形を確認する：

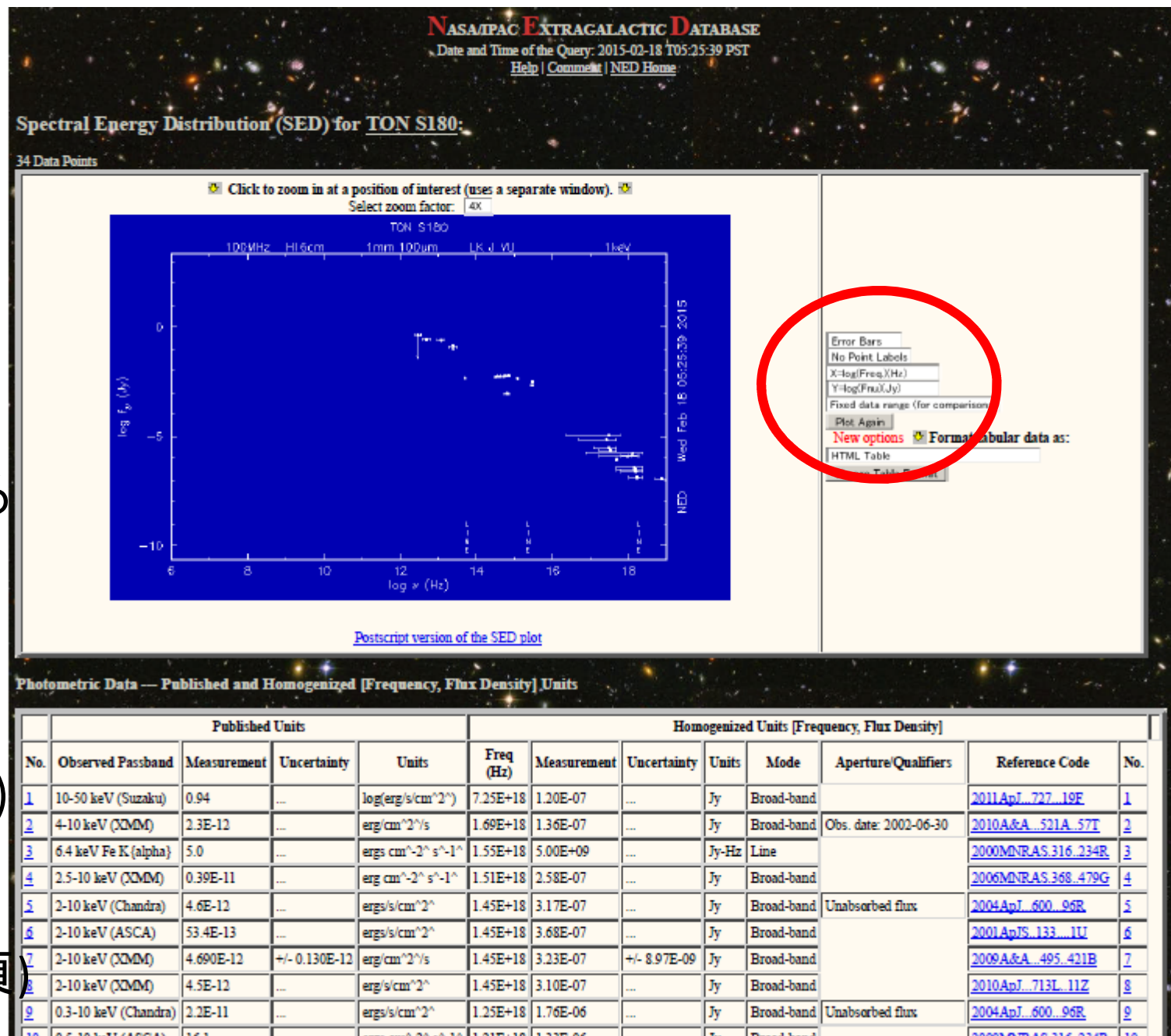
縦軸は  
Fnu [Jy]で  
表示される。

どの波長域で  
主にエネルギー  
を放射して  
いるのかを  
わかり易くする  
ため、

$Y = \log(F_{\nu})$  (Jy)  
から

$Y = \log(\nu F_{\nu})$   
(W/m<sup>2</sup>)

に変えて、  
Plot Again  
をクリック(次頁)



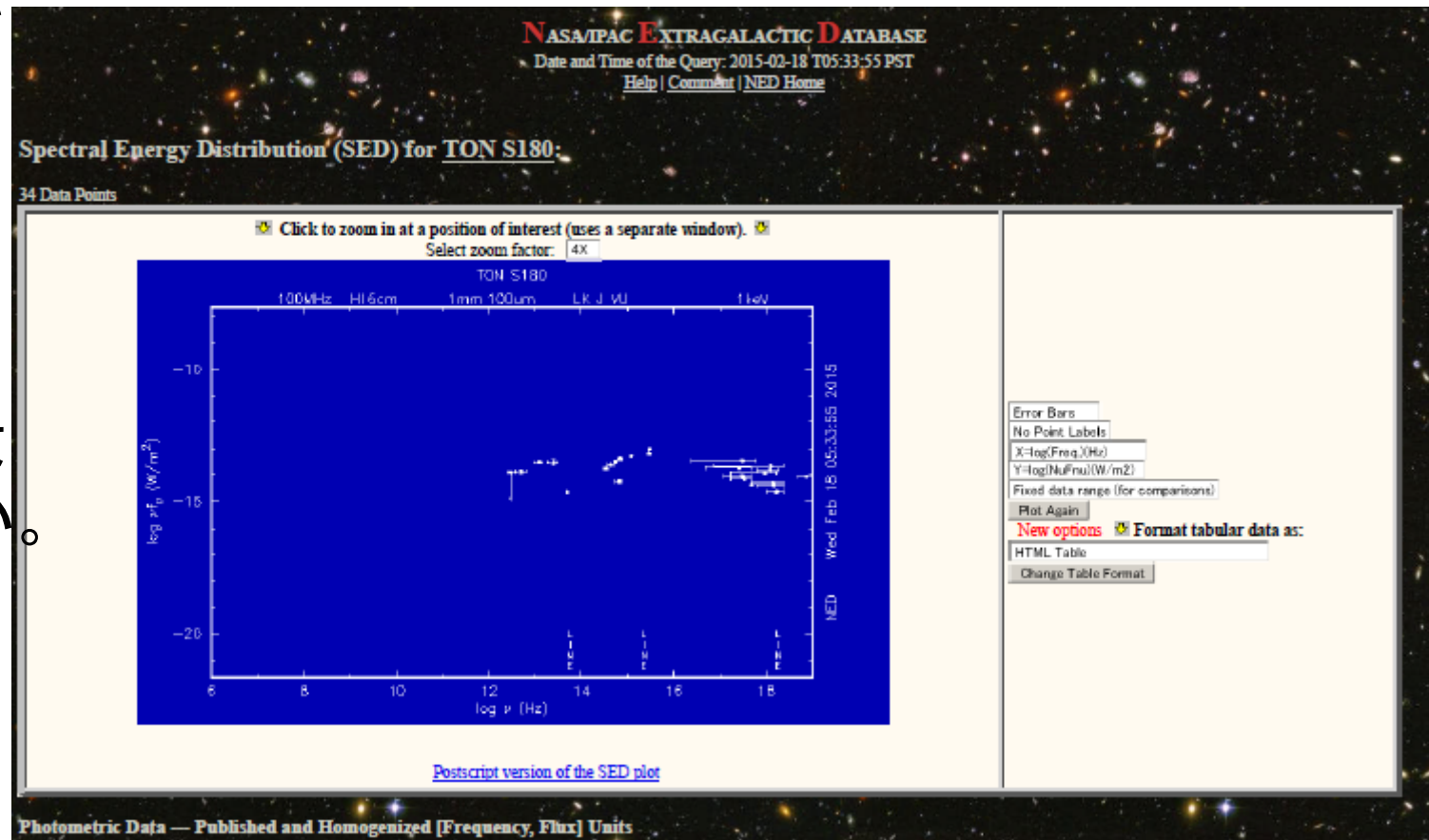


## 1a. 天体名からNEDで情報を得る: SED編

「目的例A: どういうスペクトルをしているのかおおよそ知りたい。」  
にはこれで十分かもしれない。

例えば、ジェットの放射が卓越している天体なのか、銀河中心核の降着円盤とコロナの放射が卓越しているのか、母銀河の放射が卓越しているのかなどの判断。

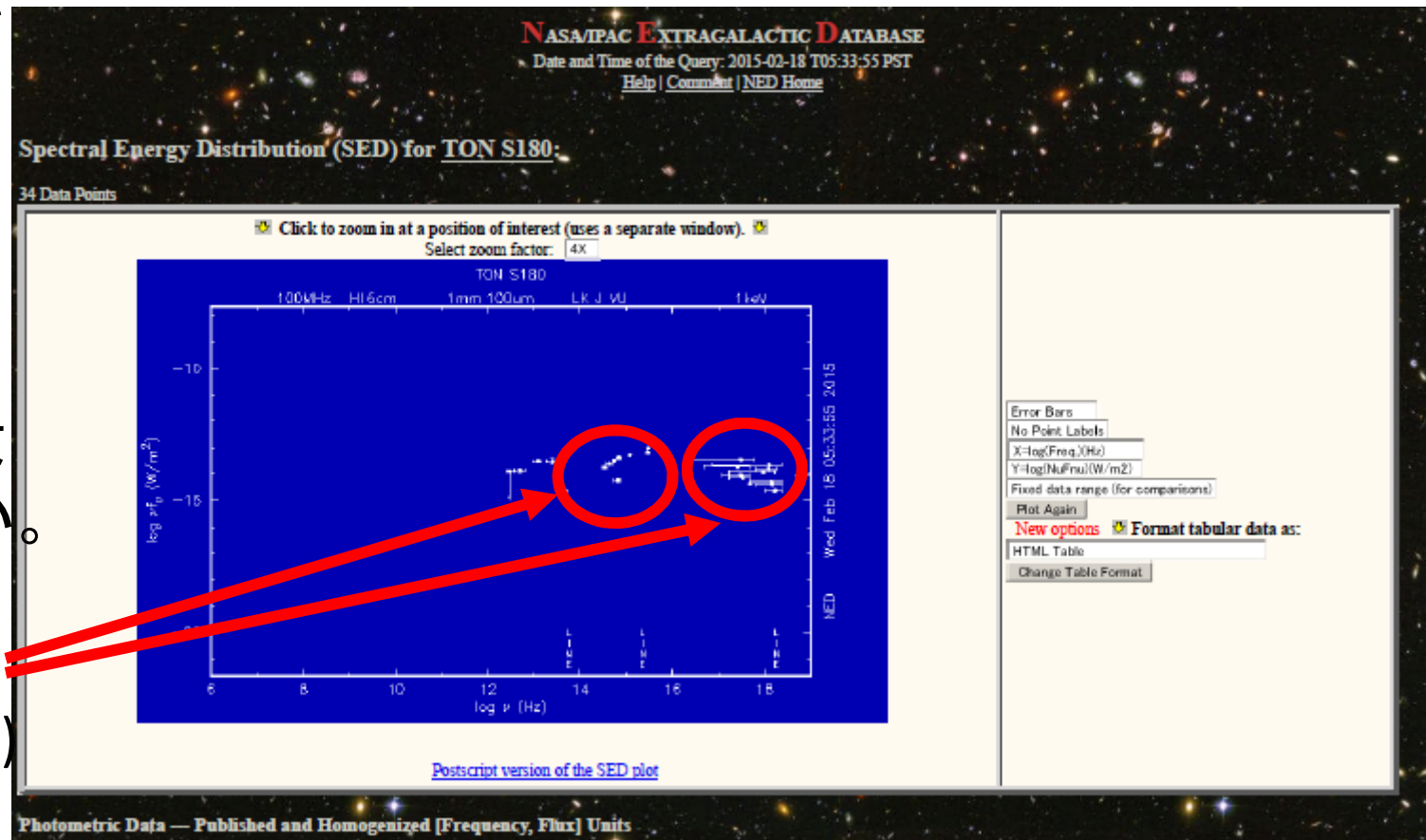
しかし、論文にはこのままでは使えない。



# 1a. 天体名からNEDで情報を得る: SED編

「目的例A: どういうスペクトルをしているのかおおよそ知りたい。」  
にはこれで十分かもしれない。

例えば、ジェットの放射が卓越している天体なのか、銀河中心核の降着円盤とコロナの放射が卓越しているのか、母銀河の放射が卓越しているのかなどの判断。

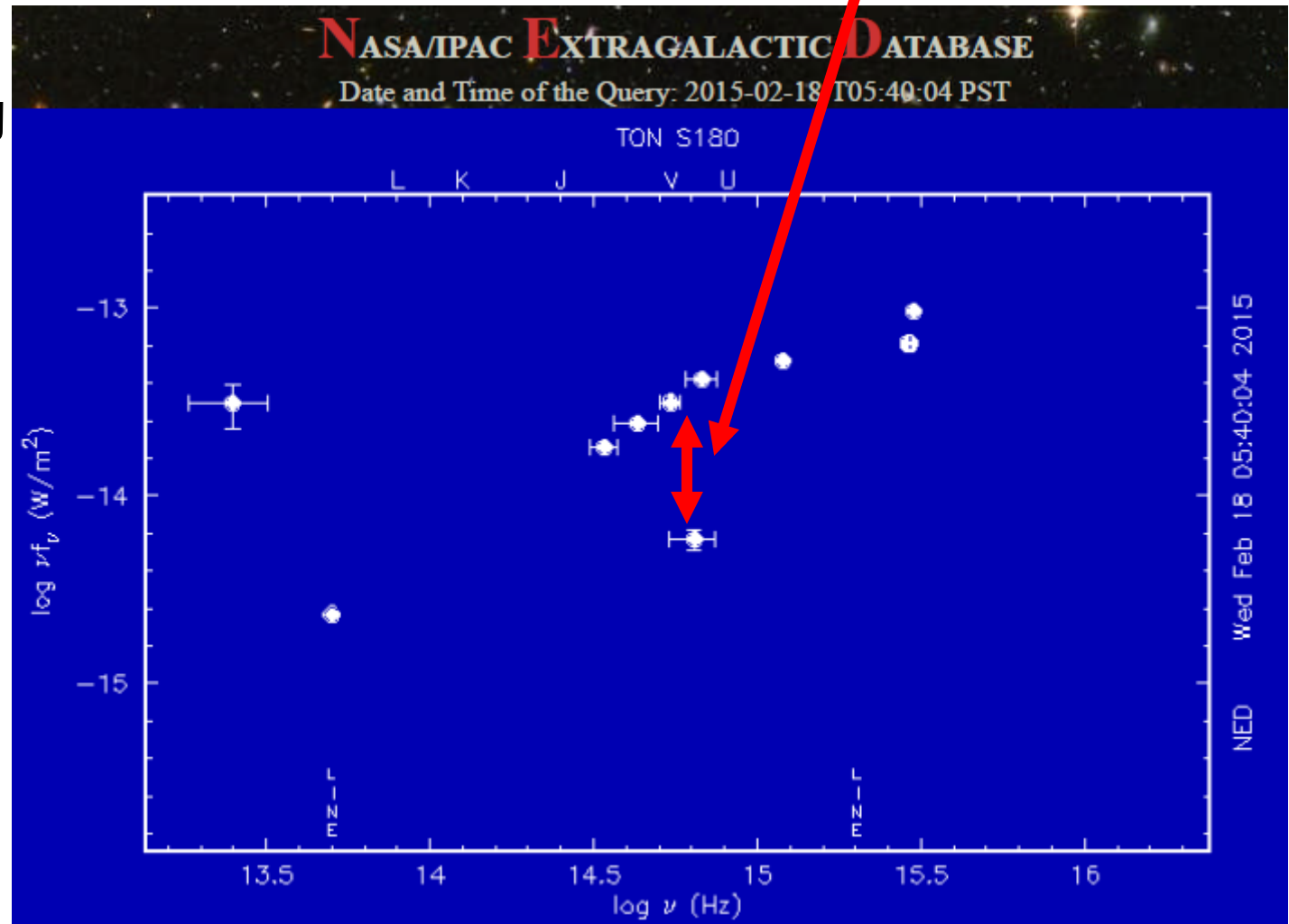


しかし、論文にはこのままでは使えない。

このあたりをクリック(次頁)

拡大図が表示される。(1/2) 近赤外線・可視光・紫外線の拡大図  
観測された条件(視野サイズなど)や観測日が異なりすぎるデータ点を同列に扱ってしまうと、論文に使える図にならない。

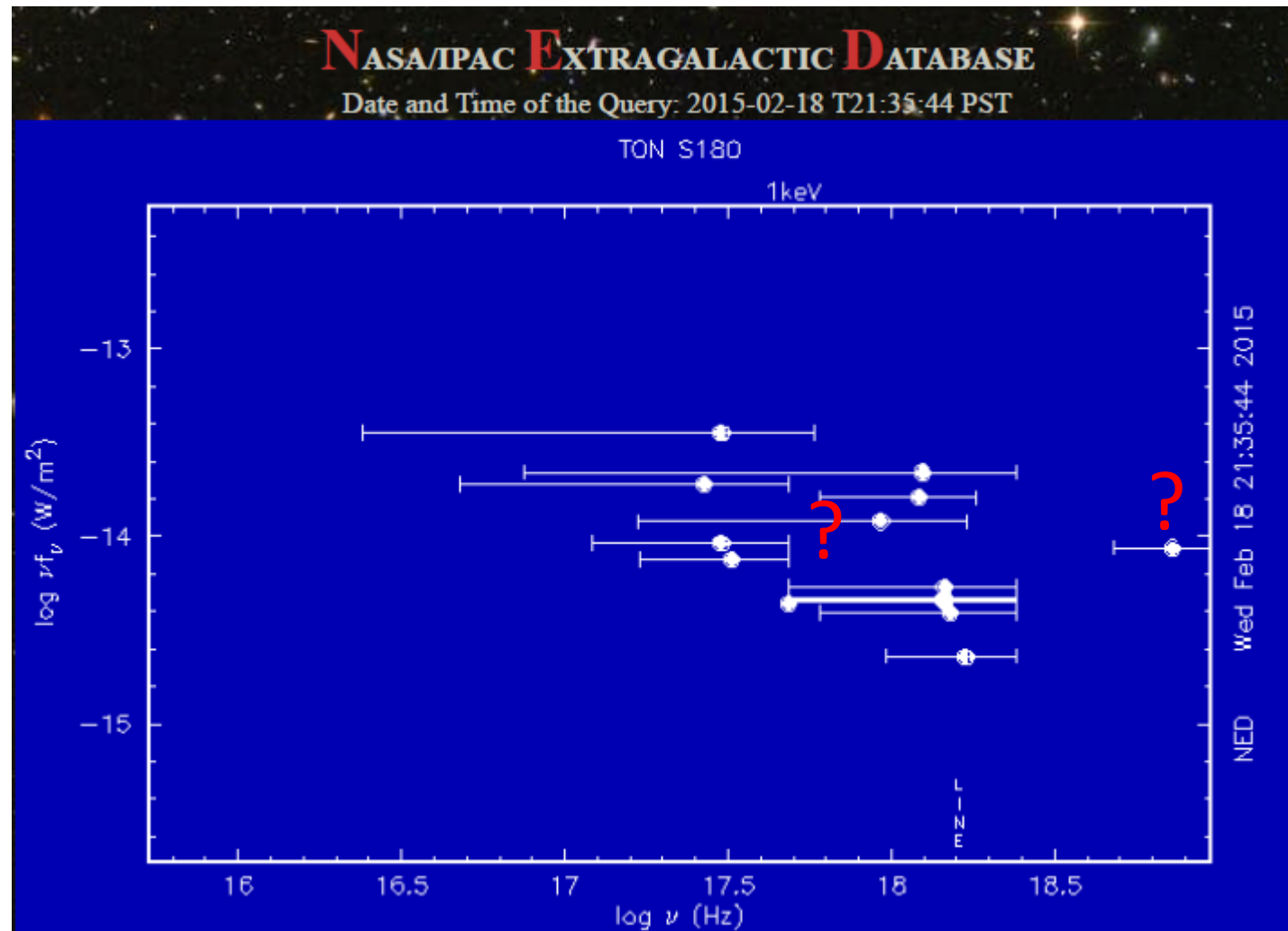
結局、条件や  
(光度の時間変動  
の影響を最小化  
するため)観測日  
が近いデータ点  
を元文献にあたり  
ながら選ぶ作業  
が必要。





## 拡大図が表示される。(2/2) X線放射スペクトルの拡大図

観測波長域(エネルギー帯域)が横バーの意味。実際のスペクトルが傾いていたり、折れていたり(例: broken power-law)すると、この図では読み取りづらい。



結局、文献リストを一つ一つクリックして、適切なデータを選んでいく。  
 選んだデータ点を使って、  
 グラフを描いて、論文での  
 使用に耐える  
 図を作成する。



「目的例B: モデル計算で放射スペクトルを計算した時に、観測データと比較したい。」  
 が達成される。  
 <実習>

NASA/PAC EXTRAGALACTIC DATABASE  
 Date and Time of the Query: 2015-02-18 T05:25:39 PST  
[Help](#) | [Comment](#) | [NED Home](#)

Spectral Energy Distribution (SED) for TON S180:  
 34 Data Points

Click to zoom in at a position of interest (uses a separate window).  
 Select zoom factor: 4X

Postscript version of the SED plot

Error Bars  
 No Point Labels  
 X=log(Freq./Hz)  
 Y=log(Flux/Jy)  
 Fixed data range (for comparisons)

Photometric Data — Published and Homogenized [Frequency, Flux Density] Units

No.	Published Units				Homogenized Units [Frequency, Flux Density]								Reference Code	No.
	Observed Passband	Measurement	Uncertainty	Units	Freq (Hz)	Measurement	Uncertainty	Units	Mode	Aperture/Qualifiers				
<a href="#">1</a>	10-50 keV (Suzaku)	0.94	...	log(erg/s/cm <sup>2</sup> )	7.25E+18	1.20E-07	...	Jy	Broad-band		<a href="#">2011ApJ...727...19F</a>	1		
<a href="#">2</a>	4-10 keV (XMM)	2.3E-12	...	erg/cm <sup>2</sup> /s	1.69E+18	1.36E-07	...	Jy	Broad-band	Obs. date: 2002-07-30	<a href="#">2010A&amp;A...521A...57T</a>	2		
<a href="#">3</a>	6.4 keV Fe K (alpha)	5.0	...	ergs cm <sup>-2</sup> s <sup>-1</sup>	1.55E+18	5.00E+09	...	Jy-Hz	Line		<a href="#">2000MNRAS.316..234R</a>	3		
<a href="#">4</a>	2.5-10 keV (XMM)	0.39E-11	...	erg cm <sup>-2</sup> s <sup>-1</sup>	1.51E+18	2.58E-07	...	Jy	Broad-band		<a href="#">2006MNRAS.368..479G</a>	4		
<a href="#">5</a>	2-10 keV (Chandra)	4.6E-12	...	ergs/s/cm <sup>2</sup>	1.45E+18	3.17E-07	...	Jy	Broad-band	Unabsorbed flux	<a href="#">2004ApJ...600...96R</a>	5		
<a href="#">6</a>	2-10 keV (ASCA)	53.4E-13	...	ergs/s/cm <sup>2</sup>	1.45E+18	3.68E-07	...	Jy	Broad-band		<a href="#">2001ApJS...133...11U</a>	6		
<a href="#">7</a>	2-10 keV (XMM)	4.690E-12	+/- 0.130E-12	erg/cm <sup>2</sup> /s	1.45E+18	3.23E-07	+/- 8.97E-09	Jy	Broad-band		<a href="#">2009A&amp;A...495..421B</a>	7		
<a href="#">8</a>	2-10 keV (XMM)	4.5E-12	...	erg/s/cm <sup>2</sup>	1.45E+18	3.10E-07	...	Jy	Broad-band		<a href="#">2010ApJ...713L...11Z</a>	8		
<a href="#">9</a>	0.3-10 keV (Chandra)	2.2E-11	...	ergs/s/cm <sup>2</sup>	1.25E+18	1.76E-06	...	Jy	Broad-band	Unabsorbed flux	<a href="#">2004ApJ...600...96R</a>	9		
<a href="#">10</a>	0.3-10 keV (ASCA)	16.1	...	ergs cm <sup>-2</sup> s <sup>-1</sup>	1.31E+18	1.33E-06	...	Jy	Broad-band		<a href="#">2000MNRAS.316..234R</a>	10		

## 1a. 天体名からNEDで情報を得る: 形態 (Morphology) 編

目的例A: その天体がどのような形態を持っているか、ざっくり観たい。  
点源なのか？ 銀河の形態が観えるのか？

目的例B: 円や正方形ではない視野を持つ観測装置を用いて観測する  
時に、どういう角度(Position Angle)で装置視野を配置すれば、  
科学的成果が最大化されるか検討する。



目的例A: その天体がどのような形態を持っているか、ざっくり観たい。  
 点源なのか？ 銀河の形態が観えるのか？  
 天体名を記入してリターンを押して最初に表示されるページの、

**NASA/IPAC EXTRAGALACTIC DATABASE**  
 Date and Time of the Query: 2015-02-18 T05:22:42 PST  
[Help](#) | [Comment](#) | [NED Home](#)

**You have selected the following parameters to search on:**

Parameters for Distances and Cosmology:  $H_0 = 73.0$ ;  $\Omega_{\text{matter}} = 0.27$ ;  $\Omega_{\text{vacuum}} = 0.73$ ;  
 Derived Quantities use a Redshift corrected to a Reference Frame defined by the 3K CMB

**NED results for object TON S180**

---

1 objects found in NED:

**SOURCE LIST**


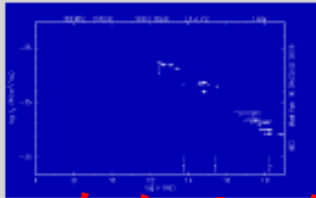
Row No.	Object Name (* => Essential Note)	EquJ2000.0 RA	DEC	Object Type	Velocity/Redshift km/s z	Mag. / Filter	Separ. arcmin	Refs	Notes	Phot	Posn	Vel/z	Diam	Assoc	Images	Spectra	Row No.
<a href="#">1</a>	TON S180	00h57m19.9s	-22d22m59s	G	18581 0.061980	15.9R	...	<a href="#">162</a>	<a href="#">8</a>	<a href="#">34</a>	<a href="#">2</a>	<a href="#">2</a>	0	0	<a href="#">Retrieve</a>	<a href="#">Retrieve</a>	<a href="#">1</a>

**Detailed information for each object**

---

**Object No. 1 - TON S180**

**INDEX for TON S180**

<p><b>Essential Data (jump to sub-section of this query report):</b></p> <ul style="list-style-type: none"> <li><a href="#">Essential Note</a></li> <li><a href="#">Cross-IDs</a></li> <li><a href="#">Coordinates</a></li> <li><a href="#">Basic Data</a></li> <li><a href="#">Quantities Derived from Redshift</a></li> <li><a href="#">Redshift-Independent Distances</a></li> <li><a href="#">Quick-Look Photometry and Luminosities</a></li> <li><a href="#">Classifications</a></li> <li><a href="#">Foreground Galactic Extinction</a></li> </ul>	<p><b>Detailed Data (NED queries):</b></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p><a href="#">Images</a></p> </div> <div style="text-align: center;">  <p><a href="#">Spectra</a></p> </div> </div> <p><a href="#">Redshift-Independent Distances</a>  <a href="#">162 Reference(s)</a>  <a href="#">2 Position data point(s)</a>  <a href="#">2 Redshift data point(s)</a>  <a href="#">8 Note(s)</a></p>
--	--

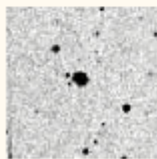







ここをクリック(次頁)。又は、、、

# NASA/IPAC EXTRAGALACTIC DATABASE

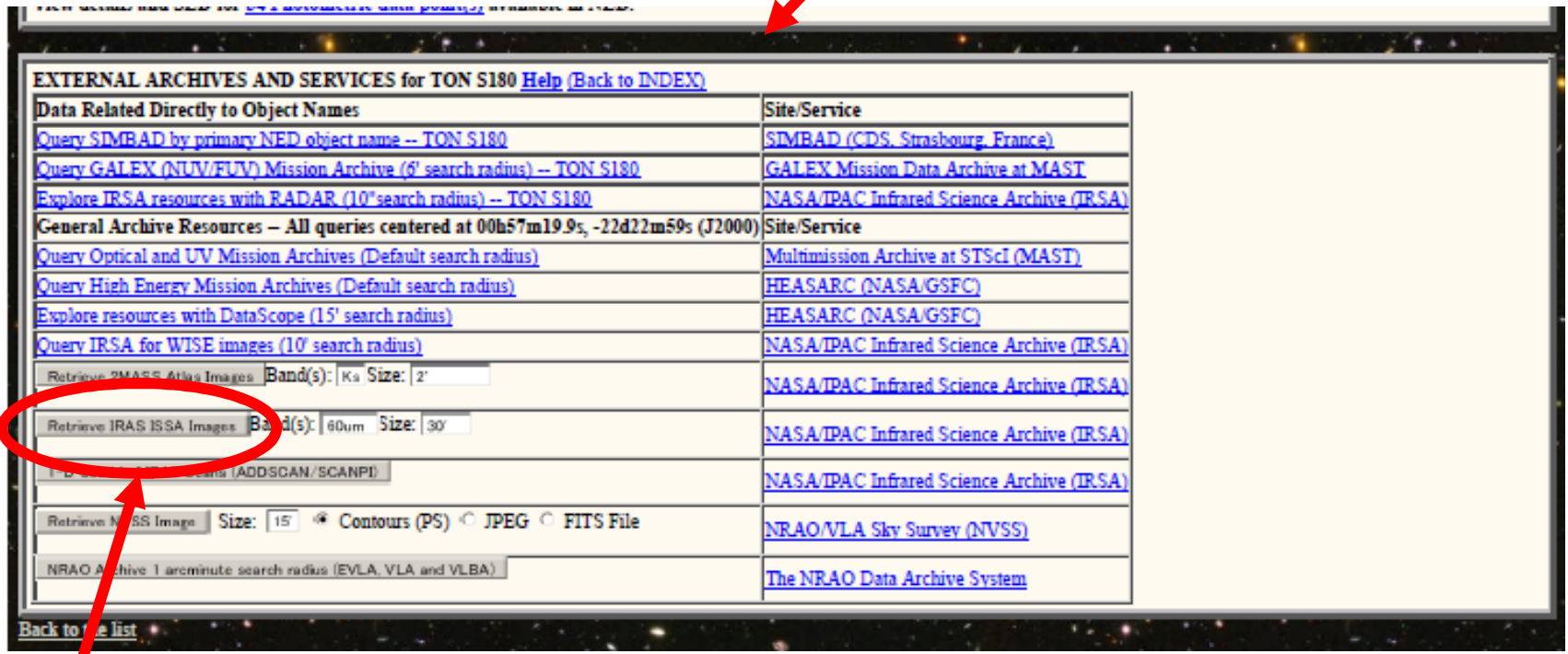
Date and Time of the Query: 2015-02-18 T21:40:20 PST

[Help](#) | [Comment](#) | [NED Home](#)

## Images and maps in NED archive for object TON S180

Preview	FITS/JPG File	More Information	View & Overlay	Band, Wavelength	Image Size (arcmin)	Res. (arcsec)	Telescope	Refcode
	32KB FITS image <a href="#">Retrieve</a>	<a href="#">Display</a> FITS Header		IIIaJ, 4680A	3.0 x 3.0 <a href="#">ChangeSize</a>	1.70	UKSchmidt(newoptics)	<a href="#">1994DSS...1...0000:</a>
	1065KB FITS image <a href="#">Retrieve</a>	<a href="#">Display</a> FITS Header		0.1-2.4keV, 9.2A	128.0 x 128.0	N/A	ROSAT_PSPC	<a href="#">1995RXCD4.T...0000C</a>
	1065KB FITS image <a href="#">Retrieve</a>	<a href="#">Display</a> FITS Header		0.1-2.4keV, 9.2A	128.0 x 128.0	N/A	ROSAT_PSPC	<a href="#">1995RXCD4.T...0000C</a>
	1065KB FITS image <a href="#">Retrieve</a>	<a href="#">Display</a> FITS Header		0.1-2.4keV, 9.2A	128.0 x 128.0	N/A	ROSAT_PSPC	<a href="#">1995RXCD3.T...0000C</a>

又は、同じページの一番下の、外部へのリンク群から、興味ある波長、適切な空間分解能のデータを選ぶ。



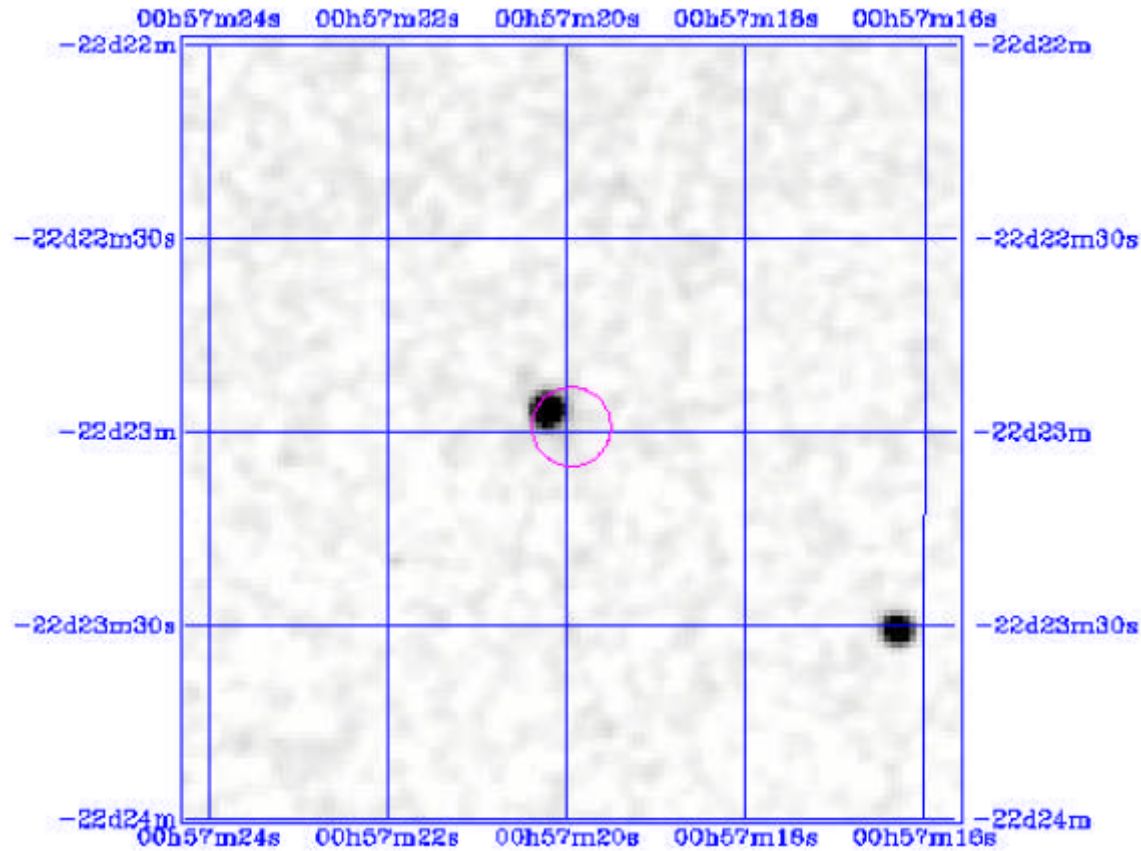
EXTERNAL ARCHIVES AND SERVICES for TON S180 <a href="#">Help</a> <a href="#">Back to INDEX</a>	
Data Related Directly to Object Names	Site/Service
<a href="#">Query SIMBAD by primary NED object name -- TON S180</a>	<a href="#">SIMBAD (CDS, Strasbourg, France)</a>
<a href="#">Query GALEX (NUV/FUV) Mission Archive (6' search radius) -- TON S180</a>	<a href="#">GALEX Mission Data Archive at MAST</a>
<a href="#">Explore IRSA resources with RADAR (10' search radius) -- TON S180</a>	<a href="#">NASA/IPAC Infrared Science Archive (IRSA)</a>
General Archive Resources -- All queries centered at 00h57m19.9s, -22d22m59s (J2000)	Site/Service
<a href="#">Query Optical and UV Mission Archives (Default search radius)</a>	<a href="#">Multimission Archive at STScI (MAST)</a>
<a href="#">Query High Energy Mission Archives (Default search radius)</a>	<a href="#">HEASARC (NASA/GSFC)</a>
<a href="#">Explore resources with DataScope (15' search radius)</a>	<a href="#">HEASARC (NASA/GSFC)</a>
<a href="#">Query IRSA for WISE images (10' search radius)</a>	<a href="#">NASA/IPAC Infrared Science Archive (IRSA)</a>
<a href="#">Retrieve 2MASS Atlas Images</a> Band(s): <input type="text" value="Ks"/> Size: <input type="text" value="2"/>	<a href="#">NASA/IPAC Infrared Science Archive (IRSA)</a>
<a href="#">Retrieve IRAS ISSA Images</a> Band(s): <input type="text" value="60um"/> Size: <input type="text" value="30"/>	<a href="#">NASA/IPAC Infrared Science Archive (IRSA)</a>
<a href="#">Retrieve IRAS Images (ADDSGAN/SCANPI)</a>	<a href="#">NASA/IPAC Infrared Science Archive (IRSA)</a>
<a href="#">Retrieve MIPS Image</a> Size: <input type="text" value="15"/> <input checked="" type="radio"/> Contours (PS) <input type="radio"/> JPEG <input type="radio"/> FITS File	<a href="#">NRAO/VLA Sky Survey (NVSS)</a>
<a href="#">NRAO Archive 1 arcminute search radius (EVLA, VLA and VLBA)</a>	<a href="#">The NRAO Data Archive System</a>

例えば、ここ(2MASS, Ks band image)をクリックすると、次頁のように近赤外線画像が観れる。(この天体の場合、点源に観えてしまい、あまりワクワクはしません。)

この天体は形態を鑑賞するには適していないので、別の天体での例をさらに後に示します。

# TonS180の近赤外線(2MASS)画像

Seeing FWHM (") 2.54560e+00  
Zero Point (mag) 1.99698e+01  
Approximate SNR=10 (mag) 1.50150e+01





天体名の欄に、NGC1068を記入しリターン。結果ページの最下段が下図

View details for [8 Diameter data point\(s\)](#) available in NED.

EXTERNAL ARCHIVES AND SERVICES for MESSIER 077 <a href="#">Help (Back to INDEX)</a>	
Data Related Directly to Object Names	Site/Service
<a href="#">Query SIMBAD by primary NED object name -- MESSIER 077</a>	<a href="#">SIMBAD (CDS, Strasbourg, France)</a>
<a href="#">Query GALEX (NUV/FUV) Mission Archive (6' search radius) -- MESSIER 077</a>	<a href="#">GALEX Mission Data Archive at MAST</a>
<a href="#">Explore IRSA resources with RADAR (10" search radius) -- MESSIER 077</a>	<a href="#">NASA/IPAC Infrared Science Archive (IRSA)</a>
General Archive Resources -- All queries centered at 02h42m40.7s, -00d00m48s (J2000)	
<a href="#">Query Optical and UV Mission Archives (Default search radius)</a>	<a href="#">Multimission Archive at STScI (MAST)</a>
<a href="#">Query High Energy Mission Archives (Default search radius)</a>	<a href="#">HEASARC (NASA/GSFC)</a>
<a href="#">Explore resources with DataScope (5' search radius)</a>	<a href="#">HEASARC (NASA/GSFC)</a>
<a href="#">Query SDSS Sky Server -- MESSIER 077</a>	<a href="#">SDSS Sky Server</a>
<a href="#">Query IRSA for WISE images (10' search radius)</a>	<a href="#">NASA/IPAC Infrared Science Archive (IRSA)</a>
Retrieve IRSA WISE Images <input type="text" value="Ks"/> Size: <input #"="" type="text" value="2'&lt;/input&gt;&lt;/td&gt;&lt;td&gt;&lt;a href="/> NASA/IPAC Infrared Science Archive (IRSA)	
Retrieve IRAS ISSA Images <input type="text" value="Band(s): 60um"/> Size: <input type="text" value="15'"/>	<a href="#">NASA/IPAC Infrared Science Archive (IRSA)</a>
1-D Coadd of IRAS Scans (ADDSCAN/SCANPI)	<a href="#">NASA/IPAC Infrared Science Archive (IRSA)</a>
Retrieve NVSS Image <input type="text" value="Size: 15'"/> <input checked="" type="radio"/> Contours (PS) <input type="radio"/> JPEG <input type="radio"/> FITS File	<a href="#"> NRAO/VLA Sky Survey (NVSS)</a>
Retrieve FIRST Image <input type="text" value="Size: 15'"/> <input checked="" type="radio"/> GIF <input type="radio"/> FITS File	<a href="#">Faint Images of the Radio Sky at Twenty-Centimeters</a>
NRAO Archive 1 arcminute search radius (EVLA, VLA and VLBA)	<a href="#">The NRAO Data Archive System</a>

[Back to the list](#)

Sloan Digital Sky Survey (SDSS)で観測・公開されている領域だと、ここにリンクが表示されます。クリックすると、次頁のようにリンク先に飛びます

## SDSS J024240.70-000047.9

GALAXY ra=40.66960673, dec=-0.01331068, ObjId = 587731512615370807

Column names link to glossary entries. Move mouse over a column name to get its units.

mode	PRIMARY
status	TARGET PRIMARY OK_STRIPE OK_SCANLINE PSEGMENT RESOLVED OK_RUN GOOD SET
flags	TOO_FEW_GOOD_DETECTIONS PSF_FLUX_INTERP DEBLENDED_AT_EDGE INTERP_CENTER SATUR_CENTER BINNED1 DEBLENDED_AS_PSF NOTCHECKED SATURATED INTERP COSMIC_RAY CHILD
PrimTarget	TARGET_ROSAT_E
SecTarget	



<a href="#">u</a>	<a href="#">g</a>	<a href="#">r</a>	<a href="#">i</a>	<a href="#">z</a>		
14.91	10.08	9.50	9.26	11.57		
<a href="#">err_u</a>	<a href="#">err_g</a>	<a href="#">err_r</a>	<a href="#">err_i</a>	<a href="#">err_z</a>		
0.01	0.00	0.01	0.01	0.01		
<a href="#">run</a>	<a href="#">rerun</a>	<a href="#">camcol</a>	<a href="#">field</a>	<a href="#">obj</a>	<a href="#">rowc</a>	<a href="#">colc</a>
2738	40	3	190	55	393.8	1859.1
<a href="#">fiberMag_r</a>	<a href="#">petroMag_r</a>	<a href="#">devMag_r</a>	<a href="#">expMag_r</a>	<a href="#">psfMag_r</a>	<a href="#">modelMag_r</a>	
13.49	9.52	9.50	9.65	14.05	9.50	
<a href="#">extinction_r</a>	<a href="#">petroRad_r</a>	<a href="#">parentId</a>	<a href="#">nChild</a>			
0.09	30.359	587731512615370806	0			

No scienceprimary SpecObj linked to this PhotoObj  
(Click on "All Spectra" link if you think this object has a spectrum)

### Cross-identifications

<a href="#">catalog</a>	<a href="#">delta</a>	<a href="#">peak</a>	<a href="#">major</a>	<a href="#">minor</a>	<a href="#">pa</a>
FIRST	1.562854	797.539978	11.1	2.87	49
<a href="#">catalog</a>	<a href="#">delta</a>	<a href="#">cps</a>	<a href="#">hard1</a>	<a href="#">hard2</a>	<a href="#">extent</a>
ROSAT	3.24807	1.785	-0.03		6

さらにここをクリックすると、

綺麗な天体画像が出てきます。

SDSS DR6

[Home] [Help] [List] [Navi] [Expl]

Parameters	
ra	40.669600 deg
dec	-0.013310 deg
scale	0.39612 "/pix
width	512 pix
height	512 pix
opt	

Get image

Use query to mark objects

Drawing options

- Grid
- Label
- Photometric objects



「0.396" / pixel, 1辺が512pixelの画像」という情報から、1辺が203秒 (約3.4分角)であることがわかります。

「目的例A: その天体がどのような形態を持っているか、ざっくり観たい。」  
には、これらで十分であることが多いのですが、実際の研究では、  
これらでは不十分なこともあります。

目的例B: 円や正方形ではない視野を持つ観測装置を用いて観測する  
時に、どういう角度(Position Angle)で装置視野を配置すれば、  
科学的成果が最大化されるか検討する。

その場合は、天体を扱っている文献リストから、空間分解能やスペクトル  
情報の有無を考慮しながら、文献を調べる。

以下に、IRAS 05262+4432 を天体名に記入して調べた例を示します。



結果の図の、最初の方に表示される、「Refs」の下の数字をクリックします  
この数字は、文献数を意味していて、この天体での「23」という数字は、  
23編の論文でこの天体が触れられていることを意味します。

**NASA/PAC EXTRAGALACTIC DATABASE**  
Date and Time of the Query: 2015-02-18 T22:19:40 PST  
[Help](#) | [Comment](#) | [NED Home](#)

**You have selected the following parameters to search on:**  
Parameters for Distances and Cosmology:  $H_0 = 73.0$ ;  $\Omega_{\text{matter}} = 0.27$ ;  $\Omega_{\text{vacuum}} = 0.73$ ;  
Derived Quantities use a Redshift corrected to a Reference Frame defined by the 3K CMB



**NED results for object IRAS 05262+4432**

**1 objects found in NED:**

Row No.	Object Name (* => Essential Note)	EquJ2000.0 RA	DEC	Object Type	Velocity/Redshift km/s z	Mag./ Filter	Separation arcmin	Refs	Notes	Phot	Posn	Vel/z	Diam	Assoc	Images	Spectra
<a href="#">1</a>	<a href="#">2MASX J05295547+4434388</a>	05h29m55.5s	+44d34m39s	G	9644 0.032169	13.6	..	<a href="#">23</a>	<a href="#">2</a>	<a href="#">19</a>	<a href="#">1</a>	0	<a href="#">2</a>	0	<a href="#">Retrieve</a>	<a href="#">Retrieve</a>

**Detailed information for each object**

**Object No. 1 - 2MASX J05295547+4434388**

INDEX for 2MASX J05295547+4434388	
Essential Data (jump to sub-section of this query report): <a href="#">Essential Note</a>	Detailed Data (NED queries):   <a href="#">Spectra</a>

23編の論文の、著者とタイトル(の最初のみ)の一覧が表示されるので、吟味して選びます。

NASA/IPAC EXTRAGALACTIC DATABASE  
Date and Time of the Query: 2015-02-18 T22:19:44 PST  
[Help](#) | [Comment](#) | [NED Home](#)

Reference(s) for object **2MASX J05295547+4434388**

23 reference(s) found in NED.

1.	<a href="#">2013MNRAS.428.2901W</a>	Walton, D. J.; ...	Suzaku observations of 'bare' active galactic nuclei
2.	<a href="#">2012ApJS..199...26H</a>	Huchra, John P. ...	The 2MASS Redshift Survey---Description and Data Release
3.	<a href="#">2011A&amp;A...532A.125T</a>	Tarchi, A.; Cas...	Narrow-line Seyfert 1 galaxies: an amazing class of AGN
4.	<a href="#">2009ApJS..184..138H</a>	Haakonsen, Chri...	XID II: Statistical Cross-Association of ROSAT Bright Source Catalog X-ray Sourc...
5.	<a href="#">2009AJ...138.1938C</a>	Courtney, Malcom...	The Extragalactic Distance Database and Digital SDSS-DR7 File Catalog
6.	<a href="#">2008ApJ...676..137K</a>	Kawaguchi, Tosh...	First Detection of $^{12}\text{CO}(1\rightarrow 0)$ Emission from Two Narrow-Line Seyfert 1 Galaxie...
7.	<a href="#">2007ApJS..169...10O</a>	Ohta, Kouji; Ao...	A Bar Fuels a Supermassive Black Hole?: Host Galaxies of Narrow-Line Seyfert 1 G...
8.	<a href="#">2006ApJ...655..157Z</a>	Zhang, En-Peng;	The Unified Model of Active Galactic Nuclei. I. Non-Hidden, Broad-Line Region Sey...
9.	<a href="#">2005MNRAS.358.1231L</a>	Lou, Yu-Qing; B...	Correlations among multiwavelength luminosities of star-forming galaxies
10.	<a href="#">2005ApJ...625...78H</a>	Hao, C. N.; Xia...	The Physical Connections among Infrared QSOs, Palomar-Green QSOs, and Narrow-Lin...
11.	<a href="#">2004ApJ...616.1284M</a>	McGlynn, T. A.; ...	Automated Classification of ROSAT Sources Using Heterogeneous Multiwavelength So...
12.	<a href="#">2003A&amp;A...412...57P</a>	Paturel, G.; Th...	HYPERLEDA. II. The homogenized HI data
13.	<a href="#">2001A&amp;A...377...52W</a>	Wang, T., Lu, Y...	Black hole mass and velocity dispersion of narrow line region in active galactic...
14.	<a href="#">2001A&amp;A...374...92V</a>	Veron Cetty, M...	A catalogue of quasars and active nuclei: 10th edition
15.	<a href="#">2001A&amp;A...372..730V</a>	Veron Cetty, M...	A spectrophotometric atlas of Narrow-Line Seyfert 1 galaxies
16.	<a href="#">2000A&amp;AS..144..475P</a>	Paturel, G., Pe...	Galaxy coordinates. III. Accurate positions for 17124 galaxies including 3301 ne...
17.	<a href="#">1999MNRAS.308..897L</a>	LAWRENCE, A., R...	The QDOT all-sky IRAS galaxy redshift survey
18.	<a href="#">1999A&amp;A...349..389V</a>	VOGES, W., ASCH...	The ROSAT all-sky survey bright source catalogue
19.	<a href="#">1998AJ...116.2682C</a>	CONDON, J., YIN...	The ROSAT/IRAS Galaxy Sample Revisited
20.	<a href="#">1996ApJS..106..341M</a>	MORAN, E. C., H...	CLASSIFICATION OF IRAS-SELECTED X-RAY GALAXIES IN THE ROSAT ALL-SKY SURVEY
21.	<a href="#">1995ApJS..100...69F</a>	FISHER, K. B., ...	THE IRAS 1.2 Jy SURVEY: REDSHIFT DATA
22.	<a href="#">1994A&amp;AS..104..529T</a>	Takata, T., Yam...	Search and redshift survey for IRAS galaxies behind the Northern Milky Way
23.	<a href="#">1992A&amp;A...261...57B</a>	Boller, Th., Me...	ROSAT All Sky Survey observations of IRAS galaxies

例えば、  
Ohta et al. 2007、  
Kawaguchi et al.  
2008を  
クリックすると

論文の、著者とタイトルの全表示とAbstractがみれます。

**NASA/IPAC EXTRAGALACTIC DATABASE**  
Date and Time of the Query: 2015-02-18 T22:33:40 PST  
[Help](#) | [Comment](#) | [NED Home](#)

For refcode 2007ApJS..169....10:  
[Retrieve 50 NED objects in this reference.](#)  
Please click [here](#) for [ADS abstract](#)

**NED Abstract**

Copyright by American Astronomical Society.  
Reproduced by permission

2007ApJS..169....10

A Bar Fuels a Supermassive Black Hole?: Host Galaxies of Narrow-Line Seyfert 1 Galaxies

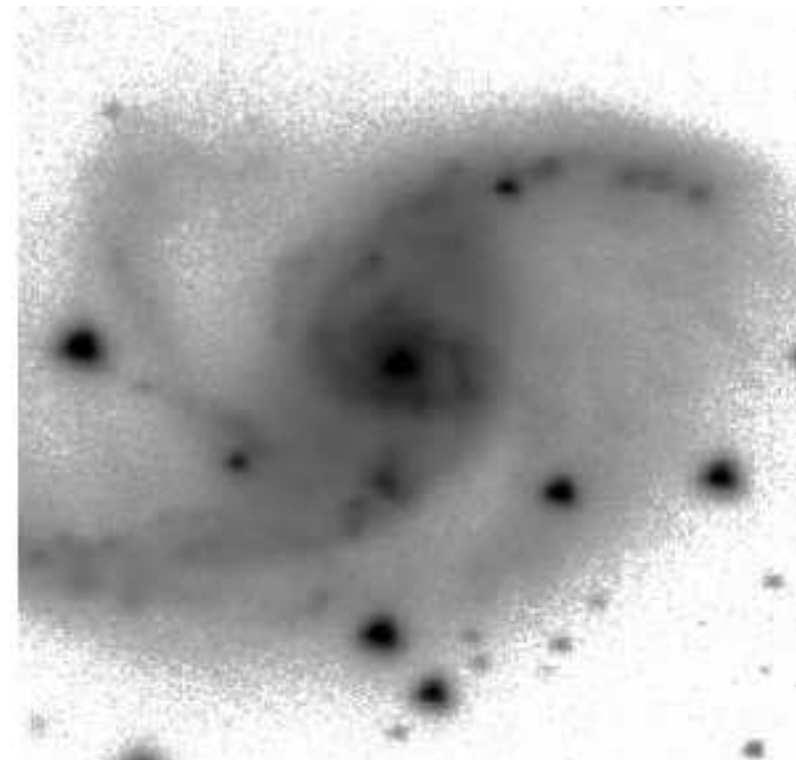
Kouji Ohta, Kentaro Aoki, Toshihiro Kawaguchi, and Gaku Kiuchi

Abstract. We present optical images of nearby 50 narrow-line Seyfert 1 galaxies (NLS1s) that cover all the NLS1s at  $z < 0.066$  and  $\{\delta\} \geq -25^\circ$  known in 2001. Among the 50 NLS1s, 40 images are newly obtained by our observations and 10 images are taken from archive data. Motivated

さらに詳しく観る意義がありそうだったら、「ADS abstract」の青字をクリック



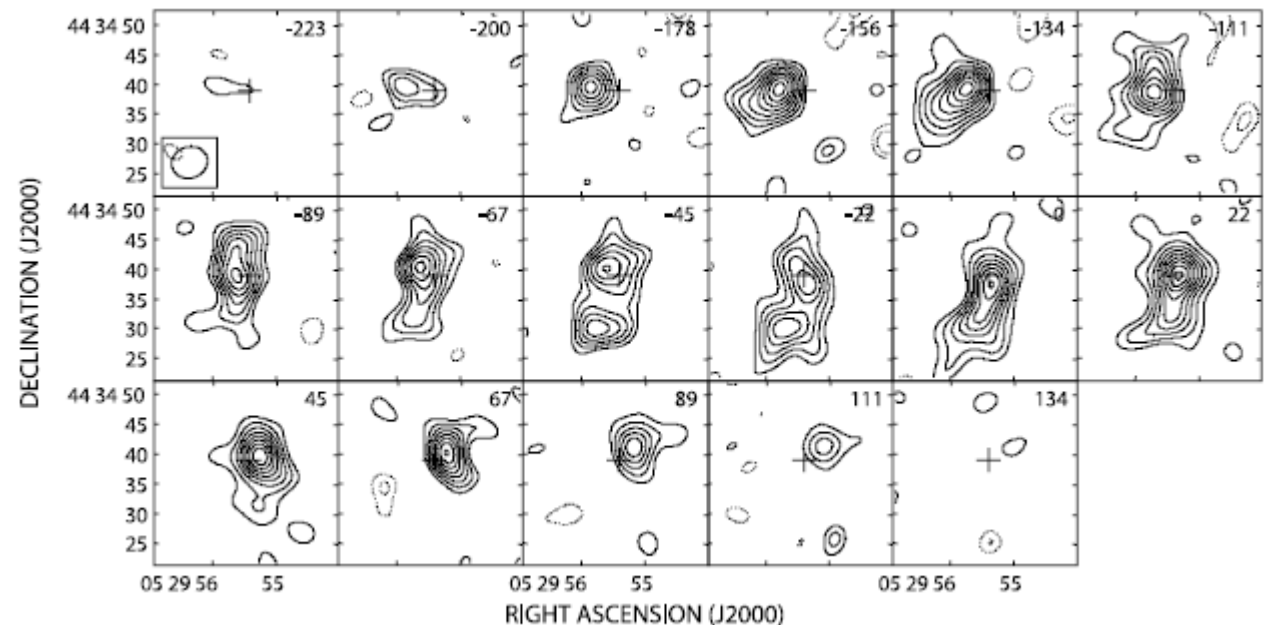
各論文を調べることで、  
この銀河には腕構造やリングなど、  
複雑な構造をしていること(右図)、



銀河中心部数kpcでの銀河回転は、  
回転軸が(ほぼ)南北を向いて  
いること(右下図)、など  
がわかります。



観測装置の長径を  
観たい構造に合わせて  
設定して観測し、成果  
を最大化します。





おまけ1: また、この「Refs」のリンク先に表示される文献リストは、自分が興味のある天体が、これまでどういう研究がされてどこまでわかっているのかを事前に把握する際にも、多用します。自分(達)がやろうとしている事がすでに過去の文献で研究されていないかどうかを調べられます。

**NASA/IPAC EXTRAGALACTIC DATABASE**  
 Date and Time of the Query: 2015-02-18 T22:19:40 PST  
[Help](#) | [Comment](#) | [NED Home](#)

**You have selected the following parameters to search on:**

Parameters for Distances and Cosmology:  $H_0 = 73.0$ ;  $\Omega_{\text{matter}} = 0.27$ ;  $\Omega_{\text{vacuum}} = 0.73$ ;  
 Derived Quantities use a Redshift corrected to a Reference Frame defined by the 3K CMB

**NED results for object IRAS 05262+4432**

---

1 objects found in NED:

SOURCE LIST																
Row No.	Object Name	EquJ2000.0 RA	DEC	Object Type	Velocity/Redshift km/s	z	Mag./	Sept	Number of Refs	Notes	Phot	Posn	Vel/s	Diam	Assoc Images	Spectra
<a href="#">1</a>	2MASX J05295547+4434388	05h29m55.5s	+44d34m39s	G	9644	0.032169	13.6		<b>23</b>	2	19	1	0	2	0	<a href="#">Retrieve</a> <a href="#">Retrieve</a>

**Detailed information for each object**

---

**Object No. 1 - 2MASX J05295547+4434388**

INDEX for 2MASX J05295547+4434388	
Essential Data (jump to sub-section of this query report): <a href="#">Essential Note</a>	Detailed Data (NED queries): <a href="#">Spectra</a>

おまけ2: 多数の天体に対して自動データ取得を試みる手段もあります。

Batch Job: <https://ned.ipac.caltech.edu/help/batch.html>

データ要求の文法例も記載されています。

## NED Batch Jobs

(Latest Revision: 25 February 2011)

**Attention: Batch Forms have been updated. Please download the current version.**

### Introduction to NED Batch Jobs

NED can process requests for large amounts of data through its "Batch Job" option. Using this mode simply involves submitting to NED via email a "batch form" containing a list of objects or positions, or other parameters (redshift, object type, or name prefix). After the request has been processed, NED will send you a notice by return e-mail, and you may retrieve the files at [Pick Up Batch Job Results](#).

There are two types of batch job forms available. You may use one form to search any of the main data categories in NED -- Objects, Basic Data, References, Photometry, Positions, and Redshifts -- and the second to constrain searches by Parameters -- positions, names, object types, and redshifts. The input forms are flexible enough that you may do several different searches with a single form. Though the batch processor will currently support only 3,000 input requests per job, it will return up to 10,000 objects per job.

The batch job queue is checked, and new entries run, every 15 minutes. Thus, you may usually retrieve your results via FTP soon after you submit your job. During times of heavy usage, large batch jobs may

1. NED (系外天体データベース)
  - 1a. 天体名から情報を集める
  - 1b. 座標変換
2. Cosmological calculator
3. VizieR (カタログ・表検索)



## 1b. 座標変換

昔の文献だと座標をB1950で表記されていたりする。

最近の観測データ(J2000表記)の値と合わせて検討したい時などに、このサイトで変換する。

右赤丸印をクリックすると、次頁。

**NED**

News & Featured Updates — December 2014

- [42 million infrared sources from the Spitzer Source List](#)
- [119,520 new object links to 336 new publications](#)
- [219 H I spectra associated with 13 journal articles](#)
- [140 new redshift-independent distances](#)
- [Latest articles in Level 5](#)

NED is embarking on a major transformation: We invite you to [preview a new interface](#) providing a drop-down menu and a form to search for objects By Name directly on the landing page (future homepage). A new Near Position search option includes catalog sources that are undergoing integration into NED. All users should read about [these significant changes](#). Further streamlining of the interface, including consolidation of search forms, will be released incrementally with new content and evolving functionality.

<a href="#">OBJECTS</a>	<a href="#">DATA</a>	<a href="#">LITERATURE</a>	<a href="#">TOOLS</a> <span style="color: red;">1b</span>	<a href="#">INFO</a>
<a href="#">By Name</a>	<a href="#">Images by Object Name Region</a>	<a href="#">References by Object Name</a>	<a href="#">Coordinate Transformation &amp; Extinction Calculator</a>	<a href="#">Introduction</a> <a href="#">Latest News/Updates</a>
<a href="#">Near Name</a>	<a href="#">Photometry &amp; SEDs</a>	<a href="#">References by Author Name</a>	<a href="#">Velocity Calculator</a>	<a href="#">Features</a> <a href="#">FAQ</a>
<a href="#">Near Position</a>	<a href="#">Spectra</a>	<a href="#">Text Search</a>	<a href="#">Cosmology Calculators</a>	<a href="#">Overview (pdf)</a>
<a href="#">IAU Format</a>	<a href="#">Redshifts</a>	<a href="#">Knowledgebase</a>	<a href="#">Extinction-Law Calculators</a>	<a href="#">Source Nomenclature</a>
<a href="#">By Parameters</a>	<a href="#">Redshift-Independent Distances</a>	<a href="#">Galaxy Distance Tabulations (NED-D)</a>	<a href="#">Galaxy Environment by Precomputed Parameters</a> <a href="#">Radial Velocity Constraint</a>	<a href="#">Web Links</a> <a href="#">New Interface</a>
<a href="#">By Classifications Types, Attributes</a>	<a href="#">Classifications by Object Name</a>	<a href="#">Abstracts</a>	<a href="#">X/Y offset to RA/DEC</a>	<a href="#">Glossary &amp; Lexicon</a>
<a href="#">By Refcode</a>	<a href="#">Positions</a>	<a href="#">Thesis Abstracts</a>	<a href="#">Batch Job Submission Help</a> <a href="#">Pick Up Results</a>	<a href="#">Team</a>
<a href="#">Object Notes</a>	<a href="#">Diameters</a>		<a href="#">Build Data Table from Input List</a> <a href="#">By Name</a> <a href="#">Near Name/Position (Cross-Matching)</a>	<a href="#">Contact Us or Comment</a>



# NASA/IPAC EXTRAGALACTIC DATABASE

## Coordinate Transformation & Galactic Extinction Calculator

[Help](#) | [Comment](#) | [NED Home](#)

---

**Input parameters:**

System:  Equinox:

Observation epoch:

RA or Longitude:

DEC or Latitude:

PA (East of North):

---

**Output Parameters:**

System:  Equinox:

Input欄に、変換前の座標を記入する。記入文法がわからなければ、Helpをクリックすると例が表示されます。

例えば、RA=26h7m23s , DEC = 79d23m90s を記入し、Calculateをクリックすると、J2000表記での座標が表示される(J2000→B1950も可)。

1. NED (系外天体データベース)
  - 1a. 天体名から情報を集める
  - 1b. 座標変換
2. Cosmological calculator
3. VizieR (カタログ・表検索)

## 2. 赤方偏移--距離--宇宙年齢換算

<http://www.astro.ucla.edu/~wright/CosmoCalc.html>

**NED**

News & Featured Updates — December 2014

- [42 million infrared sources from the Spitzer Source List](#)
- [119,520 new object links to 336 new publications](#)
- [219 H I spectra associated with 13 journal articles](#)
- [140 new redshift-independent distances](#)
- [Latest articles in Level 5](#)

NED is embarking on a major transformation: We invite you to [preview a new interface](#) providing a drop-down menu and a form to search for objects By Name directly on the landing page (future homepage). A new Near Position search option includes catalog sources that are undergoing integration into NED. All users should read about [these significant changes](#). Further streamlining of the interface, including consolidation of search forms, will be released incrementally with new content and evolving functionality.

OBJECTS	DATA	LITERATURE	TOOLS	INFO
<a href="#">By Name</a>	<a href="#">Images by Object Name Region</a>	<a href="#">References by Object Name</a>	<a href="#">Coordinate Transformation &amp; Extinction Calculator</a>	<a href="#">Introduction Latest News/Updates</a>
<a href="#">Near Name</a>	<a href="#">Photometry &amp; SEDs</a>	<a href="#">References by Author Name</a>	<a href="#">Velocity Calculator</a>	<a href="#">Features FAQ</a>
<a href="#">Near Position</a>	<a href="#">Spectra</a>	<a href="#">Text Search</a>	<a href="#">Cosmology Calculators</a>	<a href="#">Overview (pdf)</a>
<a href="#">IAU Format</a>	<a href="#">Redshifts</a>	<a href="#">Knowledgebase</a>	<a href="#">Extinction Law Calculators</a>	<a href="#">Source Nomenclature</a>
<a href="#">By Parameters</a>	<a href="#">Redshift-Independent Distances</a>	<a href="#">Galaxy Distance Tabulations (NED-D)</a>	<a href="#">Galaxy Environment by Precomputed Parameters Radial Velocity Constraint</a>	<a href="#">Web Links New Interface</a>
<a href="#">By Classifications Types, Attributes</a>	<a href="#">Classifications by Object Name</a>	<a href="#">Abstracts</a>	<a href="#">X/Y offset to RA/DEC</a>	<a href="#">Glossary &amp; Lexicon</a>
<a href="#">By Refcode</a>	<a href="#">Positions</a>	<a href="#">Thesis Abstracts</a>	<a href="#">Batch Job Submission Help Pick Up Results</a>	<a href="#">Team</a>
			<a href="#">Build Data Table from Input List</a>	

右の赤丸印をクリックした後、「Cosmological Calculator I」をクリックする。



クリック先が右下図のサイト。いろいろと利用法はあると思われませんが、ここでは2つの例を示します。

①

ここ

に、赤方偏移  
を記入する。

例えば、

$z=7.085$ を

入れる。

(highest-z QSO;

Mortlock et al.

2011)

Enter values, hit a button

69.6	$H_0$
0.286	$\Omega_{M}$
3	
Open	Flat
0.714	$\Omega_{vac}$

General

Open sets  
 $\Omega_{vac} = 0$  giving an open Universe [if you entered  $\Omega_M < 1$ ]  
Flat sets  
 $\Omega_{vac} = 1 - \Omega_M$  giving a flat Universe.  
General uses the  $\Omega_{vac}$  that you entered.

For  $H_0 = 69.6$ ,  $\Omega_M = 0.286$ ,  $\Omega_{vac} = 0.714$ ,  $z = 3.000$

- It is now 13.721 Gyr since the Big Bang.
- The age at redshift  $z$  was 2.171 Gyr.
- The [light travel time](#) was 11.549 Gyr.
- The [comoving radial distance](#), which goes into Hubble's law, is 6481.3 Mpc or 21.139 Gly.
- The comoving volume within redshift  $z$  is 1140.389 Gpc<sup>3</sup>.
- The [angular size distance  \$D\_A\$](#)  is 1620.3 Mpc or 5.2846 Gly.
- This gives a scale of 7.855 kpc/".
- The [luminosity distance  \$D\_L\$](#)  is 25924.3 Mpc or 84.554 Gly.

1 Gly = 1,000,000,000 light years or  $9.461 \times 10^{26}$  cm.

1 Gyr = 1,000,000,000 years.

1 Mpc = 1,000,000 parsecs =  $3.08568 \times 10^{24}$  cm, or 3,261,566 light years.

[Tutorial: Part 1](#) | [Part 2](#) | [Part 3](#) | [Part 4](#)  
[FAQ](#) | [Age](#) | [Distances](#) | [Bibliography](#) | [Relativity](#)

See the [advanced](#) and [light travel time](#) versions of the calculator.

その後、「Flat」をクリック。次頁のような結果が示される。



結果:

宇宙年齢13.72Gyrのうち、0.759Gyrの時代を観ている。

For  $H_0 = 69.6$ ,  $\Omega_{\text{M}} = 0.286$ ,  $\Omega_{\text{vac}} = 0.714$ ,  $z = 7.085$

- It is now **13.720 Gyr** since the Big Bang.
- The age at redshift  $z$  was **0.759 Gyr**.
- The light travel time was 12.962 Gyr.
- The comoving radial distance, which goes into Hubble's law, is 8847.9 Mpc or 28.858 Gly.
- The comoving volume within redshift  $z$  is 2901.458 Gpc<sup>3</sup>.
- The angular size distance  $D_A$  is 1094.4 Mpc or 3.5694 Gly.
- This gives a scale of 5.306 kpc/".
- The luminosity distance  $D_L$  is 71535.7 Mpc or 233.320 Gly.

発展例1: 例えば、 $10^9$ 太陽質量の巨大ブラックホールを形成するのに最短でも1Gyrかかる巨大ブラックホール形成機構は、この観測結果から、否定される。

発展例2: 仮に、巨大ブラックホールを形成するのに0.6Gyrかかる巨大ブラックホール形成機構は、赤方偏移いくら以上でのクエーサー探査を行えば良いか?

→  $z=8.45$  で、age = 0.6Gyr

## ② 想定している天体が、点源か(感度計算が楽)? 広がっているか?

Enter values, hit a button

69.6	$H_0$
0.286	$\Omega_{M}$
3	
Open	Flat
0.714	$\Omega_{vac}$
General	

Open sets

ここに、赤方偏移を記入するのは先ほどと同じ。

例えば、 $z=0.02$ 。その後、「Flat」をクリック。結果は下。

For  $H_0 = 69.6$ ,  $\Omega_{M} = 0.286$ ,  $\Omega_{vac} = 0.714$ ,  $z = 3.000$

- It is now 13.721 Gyr since the Big Bang.
- The age at redshift  $z$  was 2.171 Gyr.
- The [light travel time](#) was 11.549 Gyr.
- The [comoving radial distance](#), which goes into Hubble's law, is 6481.3 Mpc or 21.139 Gly.
- The comoving volume within redshift  $z$  is 1140.389 Gpc<sup>3</sup>.
- The [angular size distance  \$D\_A\$](#)  is 1620.3 Mpc or 5.2846 Gly.
- This gives a scale of 7.855 kpc/".
- The [luminosity distance  \$D\_L\$](#)  is 25924.3 Mpc or 84.554 Gly.

結果: 410pc / 1秒角

@ 86Mpcの距離

例: 0.3秒の角度分解能を持つ装置での観測では、10pcの大きさの天体は点源。

For  $H_0 = 69.6$ ,  $\Omega_{M} = 0.286$ ,  $\Omega_{vac} = 0.714$ ,  $z = 0.020$

- It is now 13.720 Gyr since the Big Bang.
- The age at redshift  $z$  was 13.443 Gyr.
- The [light travel time](#) was 0.277 Gyr.
- The [comoving radial distance](#), which goes into Hubble's law, is 85.8 Mpc
- The comoving volume within redshift  $z$  is 0.003 Gpc<sup>3</sup>.
- The [angular size distance  \$D\_A\$](#)  is 84.094 Mpc or 0.274280 Gly.
- This gives a scale of **0.408 kpc/"**
- The [luminosity distance  \$D\_L\$](#)  is 87.5 Mpc or 0.285 Gly.

1. NED (系外天体データベース)
  - 1a. 天体名から情報を集める
  - 1b. 座標変換
2. Cosmological calculator
3. VizieR (カタログ・表検索)

カタログ検索サイト: VizieR

作成元(フランス): <http://vizier.u-strasbg.fr/viz-bin/VizieR>

日本でのミラーサイト: <http://vizier.nao.ac.jp/viz-bin/VizieR>

日本語での説明(下記): [http://dbc.nao.ac.jp/viz\\_manuals/vizier\\_J.html](http://dbc.nao.ac.jp/viz_manuals/vizier_J.html)

## CDS のカタログ検索サービス “VizieR”

2004, July 19, by Koichi NAKAJIMA (Hitotsubashi Univ.)

---

[VizieR とは?](#)  
[VizieR の使い方。](#)  
[Aladin の使い方。](#)

---

### VizieR とは?

VizieR は、WEB 上で容易に、天体カタログを探したりカタログデータを抜き出したり することのできる tool で、[CDS](#) と [ESA-ESRIN](#) が共同開発したもの。CDS の Aladin サービスにより、結果の画像表示も可能。

==> [VizieR の歴史\(英文\)](#)

### VizieR の使い方

1. [VizieR Service 画面](#) に入り、最初にカタログを選ぶ。方法は
  - カタログ略称 (HD、Arp、RC3 など) を入力。
  - カタログ略称の一覧表から選ぶ。
  - カタログ番号 (III/135A = HD、VII/155 = RC3 など) から選ぶ。
  - あるいはカタログの著者名、キーワードなどから、複数のカタログを選び、次の Catalogue Selection Page でさらに絞り込む。
  - Kohonen Self-Organizing Map というカタログ分類図を利用して、object 別にカタログを選



カタログ検索サイト: VizieR

作成元(フランス): <http://vizier.u-strasbg.fr/viz-bin/VizieR>

日本でのミラーサイト: <http://vizier.nao.ac.jp/viz-bin/VizieR>

Local Services (日本語): [ADAC homepage](#) · [Catalogue service](#) · [Nomenclature](#) · [SMOKA](#) ·

Local Services (in English): [ADAC homepage](#) · [Catalogue service](#) · [Nomenclature](#) · [SMOKA](#) · [DSS etc. images](#) · [DSS wide field](#) · [NASA ADS mirror](#) ·

If you have any questions on this mirror server, please send E-mail to [data\\_center@dbc.nao.ac.jp](mailto:data_center@dbc.nao.ac.jp).  
このミラーサーバに関するご質問は [data\\_center@dbc.nao.ac.jp](mailto:data_center@dbc.nao.ac.jp) へ

Find catalogs among 13295 available

Clear  Find

Catalog, author's name, word(s) in title, description, etc. e.g.: AGN, Veron, I/239, or bibcodes...

Search for catalogs by column descriptions (UCD) ?

Search for catalogs containing additional data

Search by Position across 13945 tables

Target Name (resolved by [Sesame](#)) or Position:  J2000 Target dimension:  2 arcmin

Radius  Box size

Wavelength	Mission	Astronomy
Radio	AKARI	Abundances
IR	ANS	Ages
optical	ASCA	AGN
UV	BeppoSAX	Associations
EUV	CGRO	Atomic_Data
X-ray	Chandra	Binaries:cataclysmic
Gamma-ray	COBE	Binaries:eclipsing

Browsing modes: [Designation](#), [Acronyms](#), [Favorites](#), [Dates](#), [Image spectra](#), [Kohonen](#)  
Or list [the large surveys](#)

Tools related to VizieR

例えば、活動銀河核のカタログとして著名なVeron夫妻のカタログを探す  
ここに、Veron と記入し、「Find」をクリック

結果:カタログを含む、Veronさんを著者に含む論文の一覧が表示される

**Catalog Selection Page**

Local Services (日本語): [ADAC homepage](#) · [Catalogue service](#) · [Nomenclature](#) · [SMOKA](#) ·  
Local Services (in English): [ADAC homepage](#) · [Catalogue service](#) · [Nomenclature](#) · [SMOKA](#) · [DSS etc. images](#) · [DSS wide field](#) · [NASA ADS mirror](#) ·

If you have any questions on this mirror server, please send E-mail to [data\\_center@dbc.nao.ac.jp](mailto:data_center@dbc.nao.ac.jp).  
このミラーサーバに関するご質問は [data\\_center@dbc.nao.ac.jp](mailto:data_center@dbc.nao.ac.jp) へ

show obsolete   
18 catalogs found (containing 6 obsolete)

ALL   or

<input type="checkbox"/>	<a href="#">J/A+AS/135/437</a>	245 AGNs with composite spectra. II. (Goncalves+ 1999)	<a href="#">1999A&amp;AS.135.437G</a>	<a href="#">ReadMe+ftp</a>	
<input type="checkbox"/>	<a href="#">J/MNRAS/275/1102</a>	(a) Evolution of quasar luminosity function (Hawkins+ 1995) 314	<a href="#">1995MNRAS.275.1102H</a>	<a href="#">ReadMe+ftp</a>	
<input type="checkbox"/>	<a href="#">J/A+A/296/665</a>	(a) Survey of optically variables QSOs (Veron+, 1995) 107	<a href="#">1995A&amp;A...296.665V</a>	<a href="#">ReadMe+ftp</a>	
<input type="checkbox"/>	<a href="#">J/A+A/417/515</a>	I Zw 1 unusual emission line spectrum (Veron-Cetty+, 2004) (Spectrum)	<a href="#">2004A&amp;A...417.515V</a>	<a href="#">ReadMe+ftp</a> <a href="#">spectrum/fts</a>	
<input type="checkbox"/>	<a href="#">J/A+AS/115/97</a>	(a) Positions of 790 AGNs (Veron-Cetty+, 1996) 1k	<a href="#">1996A&amp;AS.115..97V</a>	<a href="#">ReadMe+ftp</a>	
<input type="checkbox"/>	<a href="#">VII/248</a>	(a) Quasars and Active Galactic Nuclei (12th Ed.) (Veron+ 2006) This catalogue is obsoleted by <a href="#">VII/258</a>	<a href="#">2006A&amp;A...455.773V</a>	<a href="#">ReadMe+ftp</a>	
<input type="checkbox"/>	<a href="#">VII/258</a>	(a) Quasars and Active Galactic Nuclei (13th Ed.) (Veron+ 2010) Notice the change of cosmology compared to the previous editions (H <sub>0</sub> =71km/s/Mpc) 172k	<a href="#">2010A&amp;A...518A.10V</a>	<a href="#">ReadMe+ftp</a>	
<input type="checkbox"/>	<a href="#">VII/188</a>	(a) Quasars and Active Galactic Nuclei (7th Ed.) (Veron+ 1996) This catalogue is obsoleted by <a href="#">VII/207</a>	<a href="#">1996ESOSR...188.1V</a>	<a href="#">ReadMe+ftp</a>	<a href="#">img(gal)</a>
<input type="checkbox"/>	<a href="#">VII/224</a>	(a) Quasars and Active Galactic Nuclei (10th Ed.) (Veron+ 2001) This catalogue is obsoleted by <a href="#">VII/235</a>	<a href="#">1996ESOSR...224.1V</a>	<a href="#">ReadMe+ftp</a>	<a href="#">img(gal)</a>
<input type="checkbox"/>		(a) Extragalactic Radio Source Identifications (Veron-Cetty+ 1983)	<a href="#">1983A&amp;AS...53.219V</a>	<a href="#">ReadMe+ftp</a>	

探したいのは、Quasars and Active Galactic Nuclei \*\*th Editionと書かれているもののうち、一番新しいもの。この中では、13th Editionが一番新しそう。ここをクリックすると、カタログ内からインタラクティブに天体を絞れる(次頁)。こちらをクリックすると、テーブルの書式が整理されていたり、全データをftpで落せる(次々頁)。



## VizieR Search Page

**Search Criteria**  
[Save in CDSportal](#)

**Keywords**   
 VII/258

**Tables**   
 VII/258  
 ..vv10  
 .reject  
 .refs  
 .table2

---

**Preferences**  
 max: 50

HTML Table

All columns

**Compute**

Distance  $\rho$

Position angle  $\theta$

Distance (x,y)

Galactic

J2000

B1950

Ecl. J2000

default

Sort by Distance

+ order -

No sort

**Position in:**

Sexagesimal

Decimal °

**Mirrors**  
 CDS, France


Local Services (日本語): [ADAC homepage](#) · [Catalogue service](#) · [Nomenclature](#) · [SMOKA](#) ·  
 Local Services (in English): [ADAC homepage](#) · [Catalogue service](#) · [Nomenclature](#) · [SMOKA](#) · [DSS etc. images](#) · [DSS wide field](#) · [NASA ADS mir](#)

If you have any questions on this mirror server, please send E-mail to [data\\_center@dbc.nao.ac.jp](mailto:data_center@dbc.nao.ac.jp).  
 このミラーサーバに関するご質問は [data\\_center@dbc.nao.ac.jp](mailto:data_center@dbc.nao.ac.jp) へ

[Fast Xmatch with large catalogs or](#)

Target Name (resolved by [Sesame](#)) or Position:  Target dimension:

Radius  Box size

[VII/258](#)  Quasars and Active Galactic Nuclei (13th Ed.) (Veron+ 2010) [Notice the change of cosmology compared to the previous editions \(Ho=71km/s/Mpc\)](#) [Similar Catalogs](#) [2010A&A...518A.10V](#) [ReadMe+ftp](#) 

[VII/258/vv10](#) (c) Quasars ( $M_v < -22.25$ ), BL Lac and AGNs ( $M_v > -22.25$ ) ([Note](#)) (168940 rows)

[VII/258/reject](#) (c) Rejected quasars (178 rows)

[VII/258/refs](#) References to QSOs, BL Lac, AGN and rejected (2700 rows)

[VII/258/table2](#) List of gravitationally lensed quasars (88 rows)

[VII/258/table3](#) List of quasar pairs (47 rows)


[VII/258/ref2](#) References to table2 and table3 (104 rows)

Query by [Constraints](#)  applied on Columns (Output Order:  +  -)

Show	Sort	Join tables	Column	Clear	Constraint	Explain (UCD)
<input type="checkbox"/>	<input type="radio"/>	<a href="#">more</a> <a href="#">join</a>	(ALL) recno	<input type="button" value="Clear"/>		Record number assigned by the VizieR team. Should Not be used for identification. ( <a href="#">meta.record</a> )
<input checked="" type="checkbox"/>	<input type="radio"/>		(1) Cl	<input type="button" value="Clear"/>	(char)	Class, as Q (quasar, $M_v < -22.25$ ), B (BL Lac) and A (Active galaxy nucleus, $M_v > -22.25$ ) ( <a href="#">src.class</a> )
<input checked="" type="checkbox"/>	<input type="radio"/>		(1+2) nR	<input type="button" value="Clear"/>	(char)	[*] '*' if not detected in radio ( <a href="#">Note 1</a> ) ( <a href="#">meta.code</a> )
<input checked="" type="checkbox"/>	<input type="radio"/>		(1+2+4+5) Name	<input type="button" value="Clear"/>	(char)	Most common name of the object ( <a href="#">meta.id</a> )
<input checked="" type="checkbox"/>	<input type="radio"/>		(1+2) n_RA J2000	<input type="button" value="Clear"/>	(char)	[AOR] Approximative/Optical/Radio position ( <a href="#">Note 2</a> ) ( <a href="#">meta.note</a> )
<input checked="" type="checkbox"/>	<input type="radio"/>		(1+2) RA J2000	<input type="button" value="Clear"/>		"h:m:s" Right Ascension J2000 (see also n_RA) ( <a href="#">pos.eq.ra;meta.main</a> )
<input checked="" type="checkbox"/>	<input type="radio"/>		(1+2) DE J2000	<input type="button" value="Clear"/>		"d:m:s" Declination J2000 ( <a href="#">pos.eq.dec;meta.main</a> )
<input type="checkbox"/>	<input type="radio"/>		(1) F6cm	<input type="button" value="Clear"/>	Jy	(n) 6cm (5GHz) flux ( <a href="#">Note 5</a> ) ( <a href="#">phot.flux.density;em.radio.3-6GHz</a> )
<input type="checkbox"/>	<input type="radio"/>		(1) r_F6cm	<input type="button" value="Clear"/>		(n) [1,2701] Reference of 6cm Flux ( <a href="#">meta.ref;pos.frame</a> )
<input type="checkbox"/>	<input type="radio"/>		(1) F20cm	<input type="button" value="Clear"/>	Jy	(n) 20cm (1.4GHz) flux (Jy) ( <a href="#">Note 5</a> ) ( <a href="#">phot.flux.density;em.radio.750-1500MHz</a> )
<input type="checkbox"/>	<input type="radio"/>		(1) r_F20cm	<input type="button" value="Clear"/>		(n) [1,2701] Reference of 20cm flux ( <a href="#">meta.ref;pos.frame</a> )
<input type="checkbox"/>	<input type="radio"/>			<input type="button" value="Reset All"/> <input type="button" value="Clear"/>		(n) indicates a possible blank or NULL column
<input checked="" type="checkbox"/>	<input type="radio"/>		(1) l_z	<input type="button" value="Clear"/>	(char)	[>*] limit or method flag on z ( <a href="#">Note 4</a> ) ( <a href="#">meta.code.error;src.redshift</a> )
<input checked="" type="checkbox"/>	<input type="radio"/>		(1+2+5) z	<input type="button" value="Clear"/>		(n) redshift ( <a href="#">src.redshift</a> )



## Access to Astronomical Catalogues

 ← Click to display the menu

Summary

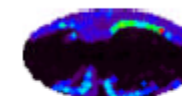
ReadMe

VizieR

Browse

FTP

Tar



VII/258 Quasars and Active Galactic Nuclei (13th Ed.) (Veron+ 2010)

A catalogue of quasars and active nuclei: 13th edition  
Veron-Cetty M.P., Veron P.  
<Astron. Astrophys. 518, A10 (2010)>  
[=2010A&A...518A..10V](#)

**ADC\_Keywords:** QSOs ; Active gal. nuclei ; BL Lac objects ; Gravitational lensing

**Keywords:** Quasars: general ; galaxies: Seyfert ; BL Lac objects: general

### Description:

This catalogue is a compilation of all known AGNs presented in a compact and convenient form. It is an update of the previous versions; and as in the previous editions no information about absorption lines of X-ray properties are given, but absolute magnitudes are given, assuming  $H_0=71\text{km/s/Mpc}$  and  $q_0=0$  (notice the change of cosmology:  $H_0$  was assumed to be  $50\text{km/s/Mpc}$  in the previous editions). When available, the 20cm and 6cm radio flux are given.

The present edition of this catalogue contains the quasars with measured redshift known prior to July 1st, 2009. It contains 133336 quasars, 1374 BL Lac objects and 34231 active galaxies (including 15627 Seyfert 1's), almost doubling the number listed in the 12th edition. Lists of known lensed quasars (table2.dat) and double quasars (table3.dat) are also given here.

### Version history:

- |   |             |
|---|-------------|
| (1) Veron-Cetty M.P., Veron P., 1984                    | (2251 QSOs) |
| ESO Scientific Report 1                                 |             |
| (2) Veron-Cetty M.P., Veron P., 1985                    | (2835 QSOs) |
| ESO Scientific Report 4                                 |             |
| (3) Veron-Cetty M.P., Veron P., 1987                    | (3473 QSOs) |
| ESO Scientific Report 5, Catalog <a href="#">VII/93</a> |             |



以上です。

実習の時間帯に、もう少し具体的な使い方の練習を行います。

1. NED (系外天体データベース)
  - 1a. 天体名から情報を集める
  - 1b. 座標変換
2. Cosmological calculator
3. VizieR (カタログ・表検索)