



A VISUAL BASIC PROGRAM FOR SERCHING FILES IN A CDS ASTRONOMICAL CATALOGUES

Kamal M. Abood · Ramy Z. Ezzat

Department of Astronomy, College of Science, University of Baghdad. Baghdad- Iraq.

Abstract

An algorithm was designed for searching a specify files within the astronomical catalogues, a program (in visual basic language) has been written to make a survey for an astronomical radio sources. This program gives the user a facility to access to any word on any text file in the catalogue.

The program includes six searching cases, searching for any word, searching for frequency unit like (MHz), searching for specific values of frequency between minimum and maximum values, searching for declination words, searching for right ascension words, searching for journals, and Searching for authors.

The data files for this program were loaded from website of CDS catalogue internet web site, 85 files for radio sources are loaded in our system as a first data collection to establish our system memory bank .This memory can be updated this data by adding more files to our system. A test for the program was carried out in all searching cases.

برنامج بلغة الفجوال بيسك للبحث في ملفات جداول فلكية من نوع CDS

كمال محمد عبود ، رامي زينل عزت

قسم الفلك، كلية العلوم، جامعة بغداد. بغداد– العراق.

الخلاصة

صُمم برنامج للبحث عن ملفات معينة في جداول فلكية، (كُتب البرنامج بلغة الفجوال بيسك) لعمل مسح للمصادر الفلكية الراديوية، يقدم هذا البرنامج تسهيلات للمستخدم للوصول لاي كلمة في اي ملف في الجدول. تضمن هذا البرنامج ست حالات للبحث، البحث عن اي كلمة و البحث عن وحدة تردد مثل (MHZ) و البحث في قيم معينة للتردد بين قيمة عليا و قيمة دنيا و البحث عن كلمات البعد الزاوي و كلمات المطلع المستقيم. بيانات الملفات لهذا البرنامج أُخذت من شبكة الانترنت من موقع CDS catalogue، ٨٦ ملف للمصادر الراديوية حُملت الى نظامنا كمجموعة اولى لتأسيس ذاكرة لنا، يمكننا ان نُحدث هذ الذاكرة بأضافة المريد من الملفات الى نظامنا. ان اختبار هذا البرنامج أفذ عن طريق هذه الحالات الستة.

Introduction

Since 1950 to present time, many astronomical catalogues are arranged to collected the astronomical observations date (such as 1C, 2C, 3C, 3CR[1], CDS). Each such catalogue has it special information arranged, so a search program through these catalogue files

was used to enable the astronomical user to select any information from such catalogue in this research. CDS catalogue has been chosen to design its search program, the files of this catalogue were studied and classified them information in six groups (word, emission frequency, declination, right ascension, author, and journal).

The visual basic language was selected to write research program for its communication facility between the user and computer.

CDS catalogue

Many astronomical sources in our universe are emitting radio electromagnetic radiation [2] at different frequencies such as radio galaxies, black holes, pulsars, neutron stars, some planets in our solar system (sun, Jupiter), and other cosmic objects.

In this research CDS catalogues files were used as a data base for testing our program. This catalogue including an information about any source such as its position (Right Ascension (RA), Declination (DEC)), flux density radiation, observation, authors, observation published journals.

The first version of this document was published as the paper adopted standards for catalogues at CDS published in the bulletin d'information du center donnees astronomiques de Strasbourg (BICDS).

Version 1.4 of the document was dated 12 September 1994, and result from discussion with ADS colleagues, mainly N. Paul kuin.Common conventions the standard filename conventions -ReadMe as the description file, extensions .dat for the data files—and the basic label definitions.

Version 1.5 is dated 12 June 1996, and contained a few more convention on file names and label definitions.

Version 2.0 is dated February 2000, and resulted from discussions with G. Schwarz (AAS, Tucson). Each catalogue available at CDS is made of several files stored in a directory of a Unix-like file system.

The directory tree naming conventions exactly follow the standards adopted at CDS in the mid 70's, astronomical catalogue has been assigned a chronological number in categories numbered I to IX (see table 1) reflecting the main scientific interest of the catalogue; this numbering system is shared by the CDS and the participating data center, mainly NSSDS-ADC (astronomical data center at NASA space science data center) [3]. Before the program designed a full study for CDS catalogue files, such as data, important and interesting information we need. These files contain many astronomical information like: the names of astronomical radio sources like galaxies or quasars....etc, the names of observatories, the frequencies of radio emission radio sources, right ascension and declination for these sources, flux density, the longitude and latitude of the observed sky, journals names and the names of authors.

Program algorithm

This algorithm has been designed to execute a six searching cases within all files of CDS catalogue. These files were collected and loaded from internet web site of this catalogue; figure (1) explained the flowchart of this program.

Visual basic language was chosen [4], to execute this algorithm for the reason that this program language has the capability of making a communication window between the user and computer. Figure (2) explain the main program execution window, where the user can be select any desired catalogues, which is interested. The radio catalogue type (VIII) is used in propose program only as shown in figure (3). The all files in this catalogue, 85 files are loaded from website of CDS catalogue. These files were carried out rearrangement and then they were saved as text files. The execution windows for six searching cases explained in the figures (4), (5), (6), (7), (8), and (9).

CDS catalogue files contents

Table 1[:] Directory tree of catalogues at CDS [3]

I/numberAstrometric CataloguesII/numberPhotometric Catalogues (except Radio)III/numberSpectroscopic CataloguesIV/numberCross-IdentificationsV/numberCombined DataVI/numberMiscellaneous CataloguesVII/numberNon-stellar ObjectsVIII/numberRadio CataloguesIX/numberHigh Energy Catalogues
J/abbr/Volume/fiest page Publications ordered by Journals, with abbr: A+A = A&A A+AS = A&A Suppl. AJ = Astron. J. ApJ = Astrophys. J. ApJS = Astrophys. J. Suppl. MNRAS = Mon. Not. R. Astron. Soc. PASP = Publ. Astron. Soc. Pacific
AZh= Astron. Zhurnal (Russia)PAZh= Pis'ma Astron. Zhurnal (Russia)Other= Form J/other/abbr/Volumerst page= for other journals, abbr being written as the bibcodea



Figure 1: the proposed program flowchart.

🖻 Rami Work								
	Radio catalouge(VIII)	Astrometric catalouge(l)	Photometric catalogue(II)					
	Spectroscopic catalogue(III)	Cross-Identifications catalogue(IV)	Combined Data catalogue(V)					
	Miscellaneous catalouge(VI)	Non-Steller Objects catalouge(VII)	High Energy catalogue(IX)					

Figure 2: the main program window.



Figure 3: program window when we press on radio catalogue (VIII) command.





(b)

Figure 4: case 1: (a) when we press on case 1 command, (b) When we press ok on previous window.



G Form2							
(2	se 1: searching for any word se 4: searching for Right Ascension coordinate	Radio catalouge case 2: searching for emission frequency case 5: searching for Journals names	case 3: searching for Declination coordinate case 6: searching for Authors names Project1	Ţ	Ve Search This word(s): No. of Files =	MHZ 50	
(MHZ)is exist in (MHZ)is exist in	n File: 1.5xt n File: 2.5xt n File: 3.5xt n File: 4.5xt n File: 5.5xt n File: 12.5xt n File: 13.5xt n File: 13.5xt n File: 13.5xt n File: 16.5xt n File: 16.5xt n File: 16.5xt n File: 17.5xt n File: 18.5xt n File: 19.5xt		Enter Min		((4	DK	
<u><</u>				<u>></u>			

(b)



(c)



Figure 5: case 2: (a) When we press on case 2 command, (b) when we press ok on previous window , (c) When we press ok on previous window, (d) when we press ok on previous window.

6 Form2			
	case 1: searching for any word case 4: searching for Right Ascension coordinate	Radio catalouge case 2: searching for emission frequency case 5: searching for Journals names	case 3: searching for Declination coordinate case 6: searching for Authors names
			Project1 Decination word may be found as:Decination,DE,DEC,DEC.,Decinations,DEC1,DECB OK



Figure 6: case 3: (a) When we press case 3 command, (b) When we press ok on previous window.





Figure 7: case 4: (a) When we press on case 4 command, (b) When we press ok on previous window.





Figure 8: case 5: (a) When we press on case 5 command, (b) When we press ok on previous window.

🗘 Form2				
		Radio catalouge		
	case 1: searching for any word	case 2: searching for emission frequency	case 3: searching for Declination coordinate	
	case 4: searching for Right Ascension coordinate	case 5: searching for Journals names	case 6: searching for Authors names	
			Project1	
			Enter author name like (Shakeshaft J.R.) (Large M.I.) OK Cancel	
			Lage M.I.	
<			(a)	



Figure 9: case 6: (a) when we press on case 6 command, (b) When we press ok on previous window.

Description for The program cases algorithm

Case 1(word searching): in this case (figure (4)) the program makes searching through catalogue files about any entry word (for any

length character) for example the file in figure (10), the user can be enter any word such (H I 21-cm), the program will be search in all files about this word.

🕻 10 - Notepad	. 7 X							
Fle Edit Format Wew Help								
VIII/10 Bell Laboratories H I Profiles (Stark+ 1992)	^							
he Bell Laboratories H I Survey Stark A.A., Gammie C.F., Wilson R.W., Bally J., Linke R.A. <astrophys. (1992)="" 77="" 79,="" j.="" suppl.,=""> =1992ApJS7977S</astrophys.>								
ADC_Keywords: Radio sources ; Surveys ; Radio lines ; H I data								
Description:								
This survey consists of H I 21-cm spectra covering galactic latitudes b >10degrees, North of Declination -40deg, observed with the 20-foot horn reflector at AT&T Bell Laboratories, Crawford Hill. The instrument beam is 2° (FWHM).	8							
The data consist of 124-channel profiles sorted in Galactic latitude and longitude; each channel has a width of 5.3km/s. The data were obtained by holding the telescope fixed and letting the sky drift through. Then the natural coordinate system for the data is in equatorial coordinates, so the data are not gridded in Galactic coordinates.								
Note that this catalog represents the Bell Laboratories H I Survey in a preliminary version; it is superseded by Catalog VIII/28.								
File Summary:								
FileName Lrecl Records Explanations								
ReadMe 80 . This file catalog.dat 703 22261 The Bell Labs HI Survey software.for 80 459 Two Fortran main codes and several subroutines								
Byte-by-byte Description of file: catalog.dat								
Bytes Format Units Label Explanations								
1- 6 I6 mdeg GLONC Galactic longitude, in 0.001 degrees 7-12 I6 mdeg GLATC Galactic latitude , in 0.001 degrees 13-14 I2 h RAh Right ascension (hours) [B1950] 15-16 I2 min RAm Right ascension (minutes) 17-18 I2 s RAs Right ascension (seconds)	v							
Start Di destre tyree - Mano, Di Neu Manoch Word 🐁 Project - Manoch V. 🍃 neu Ries 🖉 M. Data es 🗖 10. Material	EN 🗶 07/14 o							
	Y **							

Figure 10: some information from part of file in CDS catalogues [5].

Case 2 (frequency emission searching)(figure (5)): These frequencies are to important to us to determine the energy and wavelength for the radio emission sources (figure (11) some frequencies), in this case the searching for the

frequencies according to its unit such as (MHZ) and the program can also searching for KHZ, GHZ,...etc.

D 19 - Notepad	
File Edit Format View Help	
MIII/19 Catalogues from a deep 327 MHz Westerbork Survey (Wieringa 1991,1993)	^
Catalogues from a deep 327 MHz Westerbork Survey Wieringa M.H.: 1991, 1993 <bull. (1991)="" (1993),="" 17="" 43,="" and="" cds="" inf.="" leiden="" thesis,="" univ.=""> =1993BICDS4317W</bull.>	
ADC_Keywords: Radio sources; Surveys	E
Description:	
We present the results of a deep survey of six fields with the Westerbork Synthesis Radio Telescope at 327 MHz. In total we have detected ~4500 sources brighter than our 5-sigma noise level, which ranges from 2.4-3.5 mJy/beam, over an area of ~95 square degrees. For four fields we also obtained 608 MHz observations, for the remaining two fields 608 MHz observations were already available. We present the source catalogues at both frequencies and derive source counts and spectral indices.	
The data were calibrated using the DWARF redundancy package and absolute calibration is based on 3C286, using a flux of 26.93 Jy at 327 Mhz and 21.47 Jy at 608 MHz. The source parameters were determined using a gaussian fitting procedure for all but the most complex sources and statistical corrections for noise bias were applied.	
As part of my PhD-thesis at Leiden Observatory I made the following surveys at 327 and 608 MHz using the Westerbork Synthesis Radio Telescope:	
 64W2: Lynx, 327 MHz only (this field has been mapped at this frequency before by M.1.A. Oort (thesis), I've added a 2 after the W to indicate the revised list), numbers do not correspond because the present survey is more sensitive. 69W : Draco, a survey of 2 overlapping fields at 327 MHz and 6 fields at 608 MHz. 70W : Umi, 327 MHz only, one field. 75W : OH471, one 327 MHz field and three 608 MHz fields 76W : Cam, one 327 MHz field and three 608 MHz fields 	
Sources detected at both frequencies have corresponding numbers in the 327 MHz (92cm) and 608 MHz (50cm) lists. Multiple sources are indicated by a '*' after the name, their components by 'A','B', etc. Components of multiple sources do not necessarily correspond between the	<u>v</u>
S	
21911 — A nifore, nies unori — A new unoron runo … A underri - unosori c Diekurese — A vice	

Figure 11: a part of file contains some frequencies [6].

Case 3 (declination searching): in this case (figure (6)) a searching for declination of any radio objects. After we studied our files we found the declination word is written in different

\ways such as: declination, DE, DEC, DEC., DECJ, DECB and declinations, all these options are studied. Figure (12) shows declination written in different way.

40		- 1 -		
48	• [l019	nac	

a no manyar			
File Edit Format View I	telp		
VIII/48	the FIRST S	urvey (White+1997)	^
The FIRST Surve White R.L <astrophys =1997ApJ</astrophys 	ey Catalog ., Becker R.H., H . j. 475, 479 (19 .475479w	elfand D.J., Gregg M.D. 97)>	E
ADC_Keywords:	Radio sources ; S	urveys	
Description: This version observation and 31,870 covers aboo	on of the FIRST S ns, and contains sources for the ut 2575 square de	urvey is derived from the 1993 through 1996 236,177 sources for the north Galactic cap, south Galactic cap. The northern catalog grees of sky, including most of the area:	-
7h20m -	< RA(2000) < 17h2	Om 22.2° < Dec < 42.5°	
The southe most of th	rn catalog covers e area:	about 350 square degrees of sky, including	
21h20m -	< RA(2000) < 3h2	Om −2.5° < Dec < 1.6°	
File Summary:			
FileName	Lrecl Records	Explanations	
ReadMe north.dat	80 124 236177	This file North Galactic Cap (7h20kR4k17h20, 22.2deokDeck42.5deo)	
south.dat	124 31870	South Galactic Cap (21h2O <ra<3h2o, -2.5deg<dec<+1.6deg)<="" td=""><td></td></ra<3h2o,>	
Byte-by-byte D	escription of fil	e: *.dat	
Bytes Forma	t Units Label	Explanations	
1-16 A16 18-19 I2 21-22 I2 24-29 F6.3 31 A1 32-33 I2	FIRST h RAh min RAm s RAs DE- deg DEd	*FIRST Source designation *Right Ascension J2000 (hours) *Right Ascension J2000 (minutes) *Right Ascension J2000 (seconds) *Declination J2000 (sign) *Declination J2000 (degrees)	5
🕌 start 🔛 🖷	apter three - Micro 📲 Nev	r Maasaft Ward 👌 Projecti - Maasaft Y 🍃 rew files 🔮 Wy Pictures 🚺 48 - Natepad	EN 🔇 📮 07:19 p

Figure 12: a part file from CDS catalogues has declination written in different way [7].

Case 4 (right ascension searching): In this case (figure (7)) of the program we are searching for right ascension words. We open and read all files we have to known what the words we want in this search, after we read these files we found

right ascension word is written in many kinds like: RA, R.A., RAJ, RAB, RA., and right ascension, so in this case we search for these words. See figure (13) some abbreviations for right ascension.

📕 45 - Notepad							- 8 🛛
File Edit Format View	Help						
VIII/45	Sc	outhern fl	at-spectrum sources	(White+ 1987-199	1)		^
Radio positior flat-spectrum White G.L <mon. not.<br="">=1987MNRAS =1991MNRAS</mon.>	ns and Op radio so ., Batty . R. Astr 5.22770 5.24839	ptical Ide purces / M.J., Bu Mon. Soc. 25W 28W	ntifications for a samp nton J.D., Brown D.R., (227, 705 (1987); 248, 39	le of Southern Corben J.B. 98 (1991)>			
ADC_Keywords:	Radio sc	ources ; C	ross identifications				
Description:							
Optical ic sources (7 18h <ra(b19 array of t complete s flat-spect between De included. 1'' (2'' i declinatic reference uncertaint scale and 0.5 to 1.0 limit of t There are some radic sources, f fields (14</ra(b19 	dentifica 73 in Pap 950)<06h) the Fleur sample dr trum sour ec(B1950) The new in Paper on. The c system a ties of a are accu Dmag for the SERC- 198 sour structu there are 4%) sugge	ations hav ber I, O6h) using ne rs synthes rawn from rces stron) -80 and radio pos I, 1'' in optical po as defined about 0.5a urate to a galaxies. -J sky atl rces in th ure with t = 124 QSOs ested.	e been sought for 198 sc <ra(b1950)<18h 125="" <sup="" and="">4 w positions determined w is telescope. These sour the Parkes 2700-MHz cata ger than 0.25 Jy at 270(-50°. Sources with b < itions have standard dev Paper II) in right asce sitions are with respect by the Perth catalogues rcsec. Magnitude estimat bout 0.4mag for stellar- The sample is complete as. e complete sample. 31 sc he 2'' beam. For the 175 (71%), 26 galaxies (155</ra(b1950)<18h>	outhern radio in Paper II, vith the six-dish rces constitute a alogue. They are al) MHZ and lie of are not viations of about ension and t to the FK4 s and have position tes are on the J -like objects and to the 22.5-mag burces (16%) show 5 unresolved %) and 25 empty	1		
File Summary:							
FileName	Lrecl	Records	Explanations				
ReadMe table1.dat table2.dat notes.dat	80 122 91 80	212 212 127	This file Radio positions and op Radio and optical ider Notes (to table1)	otical identificati ntifications	ons		v
3		1.00	Ì.	15	1.2	_	2
🧃 start 🔛 🔛	chapter three - M	ficro 💾 Nev	v Microsoft Word 🐐 Project1 - Microsoft	t Y 🗀 new files8	💾 My Pictures	👂 45 - Notepad	EN 🔇 📮 07:21 p

Figure 13: some right ascension abbreviations from part of file in CDS catalogues [8].

Case 5 (journals searching): In this case (figure (8)) we are searching for publication journals names like (Mon. Not. R. Astron. Soc.), see figure (14) another journal name from this catalogues.

We be the the set of the	D 64 - Notepad	. 7 🛛
All 1/64 Westerhout's Catalogue of 82 Discrete Sources (Westerhout 1958) A groupy of the Continuous Radiation from the Galactic System at a Frequency of 1390 Nc/s. Westerhout G. Guill, Astron. Inst. Wetherlands, 14, 215 (1950)> =1958am1415b BUCL/eqwords: Konstellar objects; Radio sources (eqwords: Konstellar objects; Radio sources (eqwords: Konstellar objects; Radio sources (eqwords: Konstellar objects; Radio sources - Nonstellar objects - Westerhout's objects bescription: This catalogue was created based on the original published catalogue in the article by westerhout G. 1930 Nc/s. Wils article describes the results of a survey of the radiation along the galactic ridge and a search forscrete sources. The docervations were made with the 2-1 m addo testalogue as 1937.0. Positions referred to 2000.0 are shown in this machine-readable catalogue. Sile Sommary: FileSommary: FileS	File Edit Format View Help	
<pre>syney of the Continuous Radiation from the Galattic System at a Frequency of 1390 Mc/s. Mesterhout G. dull. Astron. Inst. Netherlands, 14, 215 (1930)> =39380M14213W MCL'Reywords: Nonstellar objects; Radio sources (eywords: Nonstellar objects; Radio sources (eywords: Radio sources - Nonstellar objects - Nesterhout's objects Description: This catalogue was created based on the original published catalogue in the article by Westerhout G., 1930, Bull. Astron. Inst. Netherlands, vol.14, .015, "A Survey of the Continuous Radiation from the Galattic System at a Frequency of 1390 Mc/s." who article describes the results of a survey of the radiation along the galattic ridge and a search fun discrete sources. The costavitors were made with the 21-m radio telescope at Dwingeloo, which has a beamdith of D.97 degree at a frequency of 1390 Mc/s. The catalogue contains positions of D10 degree to a frequency of 1390 Mc/s. The catalogue contains positions of D10 degree ta streau sources. FileRume Leecl Records Explanations ReadMe 00 . This file catalog.dat 32 D07 The Kesterhout's Catalogue notes.dat 00 61 Notes on Supplemented Name Syste-by-byte Description of file: catalog.dat Bytes Format Units Label Explanations 1 3 J1 (M) Usual abbreviation 9 3 21 W V[1/01] D0ject Name in Mesterhout's Catalogue 11 14 44 W V[1/01] D0ject Name in Mesterhout's Catalogue 11 14 44 W VI/01] D0ject Name in Mesterhout's Catalogue 11 14 44 W Norther Mane 17 13 D h RAM Right Ascension 2000 (nours) Astrone Market Name Ascension 2000 (nours)</pre>	VIII/64 Westerhout's Catalogue of 82 Discrete Sources (Westerhout 1958)	^
WQCLKeywords: Konstellar objects; Radio sources Keywords: Konstellar objects - Westerhout's objects Description: This catalogue was created based on the original published catalogue in the article by Westerhout G., 1958, BUIL. Astron. Inst. Netherlands, vol.14, p.215, "A Survey of the Continuous Radiation from the Galactic System at a Frequency of 1950 WC/s." His article describes the results of a survey of the radiation along the galactic ridge and a search for discrete surves. The observations were made with the 25-m radio telescope at Dvingeloo, which has a beamvidto of 0.25 degree at a frequency of 1390 WC/s. The catalogue cortains positions of 82 discrete sources. The epoch for positions in the original published catalogue was 1957.0. Positions referred to 2000.0 are shown in this machine-readable catalogue. File Summary: Syte-by-byte Description of file: catalog.dat Byte-by-byte Description of file: catalog.dat Bytes Format Units Label Explanations 1- 3 I3 Seq [1/L07]+ Running number in this file 6 A1	A Survey of the Continuous Radiation from the Galactic System at a Frequency of 1390 Mc/s. Westerhout G. <bull. (1958)="" 14,="" 215="" astron.="" inst.="" netherlands,=""> =1958BAN14215W</bull.>	
Keywords: Radio sources - Nonstellar objects - Westerhout's objects Description: This catalogue was created based on the original published catalogue in the article by Westerhout G., 1958, Bull. Astron. Inst. Netherlands, vol.14, p.215, "A Survey of the Continuous Radiation from the Galactic System at a Frequency of 1990 Mc/s." Wis article describes the results of a survey of the radiation along the galactic rigide and a search for discrete sources. The observations were made with the IS-m radio telescope at Wingeloo, which has a beamwidth of 0.57 degree at a frequency of 1990 Mc/s. The catalogue contains positions of \$2 discrete sources. The epoch for positions in the original published catalogue was 1957.0. Positions referred to 2000.0 are shown in this machine-readable catalogue. Sile Summary: FileName Lrecl Records Explanations ReadMe 80 . This file catalog.dat 32 107 The Westerhout's Catalogue notes.dat 80 61 Notes on Supplemented Name Styte-by-byte Description of file: catalog.dat Bytes Format Units Label Explanations 1- 3 13 Seq [[/107]+ Aurning number in this file 6 A1 [M] Usual abbreviation 8- 9 12 W Y[1/81] Object Name in Westerhout's Catalogue 11-14 AA m_W * Supplemented Mame 7- 18 12 h RAH Right Ascension 2000 (hours)	ADC_Keywords: Nonstellar objects; Radio sources	
Description: This catalogue was created based on the original published catalogue in the article by Westerhout G., 1958, Bull. Astron. Inst. Netherlands, vol.14, p.215, "A Survey of the Continuous Radiation from the Galactic System at a frequency of 1390 W.c/s." His article describes the results of a survey of the radiation along the galactic ridge and a search for discrete sources. The observations were made with the JS-m radio telescope at Dwingeloo, which has a beamwidth of 0.57 degree at a frequency of 1390 W.c/s. The catalogue contains positions of R2 discrete sources. The catalogue contains positions of R2 discrete sources. File Summary: FileName Lrecl Records Explanations ReadWe 80 . This file catalog.dat 32 107 The Westerhout's Catalogue notes.dat 80 61 Motes on Supplemented Name byte-by-byte Description of file: catalog.dat Bytes Format Units Label Explanations 1 - 3 IJ Seq [1/107]+ Running number in this file 6 Al [W] Usual abbreviation 8 - 9 IZ W Y[1/81] Object Name in Westerhout's Catalogue 11 - 14 A4 m_W * Supplemented Name 17 - 18 IZ h RAM Right Ascension 2000 (hours)	Keywords: Radio sources - Nonstellar objects - Westerhout's objects	E
This catalogue was created based on the original published catalogue in the article by Westerhout G., 1958, Bull. Astron. Inst. Netherlands, vol.14, p.215, "A Survey of the Continuous Radiation from the Galactic System at a Frequency of 1390 Mc/s." His article describes the results of a survey of the radiation along the galactic ridge and a search for discrete sources. The observations were made with the 25-m radio telescope at Dwingeloo, which has a beamwidth of 0.57 degree at a frequency of 1390 Mc/s. The catalogue contains positions of 80 discrete sources. The epoch for positions in the original published catalogue was 1957.0. Positions referred to 2000.0 are shown in this machine-readable catalogue. File Summary: FileName Lrecl Records Explanations ReadNe 80 . This file catalog.dat 32 107 The Westerhout's Catalogue notes.dat 80 fol Notes on Supplemented Name Syte-by-byte Description of file: catalog.dat Bytes Format Units Label Explanations 1 3 13 Seq [1/107]+ Running number in this file 6 Al [M] Usual abbreviation 8 - 9 12 W *[1/21] Object Name in Westerhout's Catalogue 11 -14 AA m_W * Supplemented Name 7. 18 12 h RAA Right Ascension 2000 (hours)	Description:	
File Summary: FileName Lrecl Records Explanations ReadMe 80 . This file catalog.dat 32 107 The Westerhout's Catalogue notes.dat 80 61 Notes on Supplemented Name Byte-by-byte Description of file: catalog.dat Bytes Format Units Label Explanations 1 - 3 I3 Seq [1/107]+ Running number in this file 6 Al [W] Usual abbreviation 8 - 9 I2 W *[1/81] Object Name in Westerhout's Catalogue 11 - 14 AA m_W * Supplemented Name 17 - 18 I2 h RAh Right Ascension 2000 (hours)	This catalogue was created based on the original published catalogue in the article by Westerhout G., 1958, Bull. Astron. Inst. Netherlands, vol.14, p.215, "A Survey of the Continuous Radiation from the Galactic System at a Frequency of 1390 Mc/s." His article describes the results of a survey of the radiation along the galactic ridge and a search for discrete sources. The observations were made with the 25-m radio telescope at Dwingeloo, which has a beamwidth of 0.57 degree at a frequency of 1390 Mc/s. The catalogue contains positions of 82 discrete sources. The epoch for positions in the original published catalogue was 1957.0. Positions referred to 2000.0 are shown in this machine-readable catalogue.	
FileName Lrecl Records Explanations ReadMe 80 . This file catalog.dat 32 107 The Westerhout's Catalogue notes.dat 80 61 Notes on Supplemented Name Byte-by-byte Description of file: catalog.dat Bytes Format Units Label Explanations 1- 3 I3 Seq [1/107]+ Running number in this file 6 A1 [W] Usual abbreviation 8- 9 I2 W *[1/81] Object Name in Westerhout's Catalogue 11- 14 A4 m_W * Supplemented Name 17- 18 I2 h RAh Right Ascension 2000 (hours)	File Summary:	
ReadMe 80 This file catalog.dat 32 107 The Westerhout's Catalogue notes.dat 80 61 Notes on Supplemented Name Byte-by-byte Description of file: catalog.dat Bytes Format Units Label Explanations 1-3 I3 Seq [1/107]+ Running number in this file 6 A1 [W] Usual abbreviation 8-9 I2 [W] Usual abbreviation 8-9 I2 W *[1/81] Object Name in Westerhout's Catalogue 11-14 A4 m_W * Supplemented Name 17-18 I2 h RAh Right Ascension 2000 (hours)	FileName Lrecl Records Explanations	
Byte-by-byte Description of file: catalog.dat Bytes Format Units Label Explanations 1- 3 I3 Seq [1/107]+ Running number in this file 6 A1 [W] Usual abbreviation 8- 9 I2 W *[1/81] Object Name in Westerhout's Catalogue 11- 14 A4 m_W * Supplemented Name 17- 18 I2 h RAh Right Ascension 2000 (hours)	ReadMe 80 . This file catalog.dat 32 107 The Westerhout's Catalogue notes.dat 80 61 Notes on Supplemented Name	
Bytes Format Units Label Explanations 1- 3 I3 Seq [1/107]+ Running number in this file 6 A1 [W] Usual abbreviation 8- 9 I2 W *[1/81] Object Name in Westerhout's Catalogue 11- 14 A4 m_W * Supplemented Name 17- 18 I2 h RAh Right Ascension 2000 (hours)	Byte-by-byte Description of file: catalog.dat	
1- 3 I3 Seq [1/107]+ Running number in this file 6 A1 [W] Usual abbreviation 8- 9 I2 W *[1/81] Object Name in Westerhout's Catalogue 11- 14 A4 m_W * Supplemented Name 17- 18 I2 h RAh Right Ascension 2000 (hours)	Bytes Format Units Label Explanations	
S Start D dagter three - Mico 🕞 new files 64 - Notesed	1- 3 I3 Seq [1/107]+ Running number in this file 6 A1 [W] Usual abbreviation 8- 9 I2 W *[1/81] Object Name in Westerhout's Catalogue 11- 14 A4 m_W * Supplemented Name 17- 18 I2 h RAh Right Ascension 2000 (hours)	<u>v</u>
	A start D rooter three - Mm. Prew flest 64 - Notenad	

Figure 14 :name of publication journal from a part of file in CDS catalogues [9].

Case 6 (authors searching): This case (figure (9)) is searching for authors names like (Large

M.I.), figure (15) shows many other authors names.

🕼 78 - Notepad	
File Edit Format View Help	
VIII/78 Sydney University Molonglo Sky Survey (SUMSS) (Mauch+ 2006)	^
The Sydney University Molonglo Sky Survey (SUMSS), Version Ol June 2006. Mauch T., Murphy T., Buttery H.J., Curran J., Hunstead R.W., Piestrzynski B., Ropbertson J.G., Sadler E.M. «Mon. Not. R. Astron. Soc. 342, 1117 (2003)> =2003MNRAS.342.1117M	
ADC_Keywords: Radio sources ; Surveys ; Radio continuum	
Keywords: catalogues - surveys - methods: data analysis - astrometry - galaxies: statistics - radio continuum: general	3
Description:	
The Sydney University Molonglo Sky Survey (SUMSS) is being carried out at 843MHz with the Molonglo Observatory Synthesis Telescope (MOST) in its upgraded wide-field capability. The survey consists of 4.3x4.3° mosaic images with 45x45''cosec? resolution, covering 8000 square degrees from -30 degrees declination southwards. The survey resolution and sensitivity (1-sigma noise limit 1mJy) are well-matched to the NRAO VLA Sky Survey (NVSS) so that together NVSS and SUMSS will provide a complete survey of the radio sky.	
The version 1.7 (01-Jun-2006) of the catalogue consists of 205676 radio sources made by fitting elliptical gaussians in 671 SUMSS mosaics to a limiting peak brightness of 6mJy/beam at declination <-50°, and 10mJy/beam at declination >-50°. Positional accuracies are 1-2'' for sources with Sp>=20mJy/beam, and are always better than 10''. The internal flux density scale is accurate to 3%. Image artefacts have been classified using a decision tree, which correctly identifies and rejects spurious sources in over 96% of cases.	
See the SUMSS site at http://www.astrop.physics.usyd.edu.au/sumsscat/ for details about all versions of the SUMSS, and an access to the mosaic images.	
File Summary:	
FileName Lrecl Records Explanations	
ReadMe 80 . This file sumsscat.dat 135 205676 The SUMSS Catalog, Version 1.7 (2006-06-01)	×
	2
🚺 Stall 📲 Chapter three - Noro 🔮 New Microsoft Word 📚 Project I - Microsoft V 🦆 new Hest 🗧 My Pictures 🚺 78 - Notepad	EN 🔇 📮 07:22 p

Figure 15: many authors names from a part of file in CDS catalogues [10].

Results and conclusions

The program was tested on the 85 files (text files); the results can be explained in following:

_ Most of these files talk about group of objects like galaxies cluster or radio galaxies cluster...etc, as shown in figures (16) and (17).

👂 3.txt - Notepad					
File Edit Format View Help					
VIII/3 An Optical Catalogue	of Radio Galaxies	(Burbidge+ 1979)			٨
An Optical Catalogue of Radio Gal Burbidge G., Crowne A.H. <astrophys. 40,<br="" journ.="" suppl.="">=1979ApJS40583B</astrophys.>	axies 583 (1979)>				E
ADC_Keywords: Galaxies, radio; Re	dshifts; Radio sources;	; Galaxy catalogs			
Description:					
This catalog contains basic o galaxies (with L[radio] great been identified as of 1979 an available. The data include t (1950); galaxy (optical) type redshift (z) and the spectral were based; coordinate design spectral index; other names; identification, photometric d index, and radio map number. differs somewhat from the ori were added or modified and ot catalog data file itself, two references for the catalog ar list is in alphabetical order	ptical information on a er than about 10**[41] d for which measured rr, he right ascension and ; visual magnitude; pho lines on which the rec ations; radio flux and and the references for lata, redshift, radio f Note that the ADC versi ginal printed catalog her fields reordered. additional files cont. e also available. The i , and the second is in	all known radio ergs/s) that had edshifts were declination otoelectric colors; dshift measurements frequency; radio the galaxy lux, radio spectral ion of this catalog in that some fields In addition to the aining the list of first reference numerical order.			
File Summary:	,				
FileName Lrecl Records	Explanations				
ReadMe 80 . catalog.dat 272 495 refs.dat 130 412	This file Radio sources identif References in numerio	fied with optical ga c order	llaxies		
Byte-by-byte Description of file:	catalog.dat				
Bytes Format Units Label	Explanations				
1- 2 IZ h RAh 4- 5 IZ min RAm 7-11 F5.2 S RAS 12 II q_RAs 13 AI DE- 14-15 IZ deg DEd 17-18 IZ arcmin DEm 20-23 F4.1 arcsec DEs 24 II q_DEs 25-27 I3 refID 28 AI EqPos 29-31 I3 FCRnum 33-36 A4 Optrype 38-39 A2 Rdesc	Right Ascension 1950 Right Ascension 1950 ? Right Ascension 1950 Precision indicator of Declination 1950 (dei ? Declination 1950 (dei ? Declination 1950 (dei ? Declination 1950 (si "Precision indicator of ? Reference identifica " [R] Code for equator ? Finder chart refer "Optical type code "Radio description	(hours) (minutes) 50 (seconds) of the right ascensin gnees) minutes) seconds) of declination ation number (file "n rial position ence number (file "n	on 'refs") efs")		
<)
🛃 start 📓 אין	يدن مهم 📴 ميم doc - Micros	🕽 new files8	My Pictures	📙 3.txt - Notepad	EN 🔇 💭 9/41 AM

Figure 16: a file from CDS catalogue [11].

🕽 29.txt - Notepad							
File Edit Format View Help							
VIII/29A 1400-MHz Survey of 1478 Abell Clusters of Galaxies (Owen+ 1982)	^						
v1400-MHz Survey of 1478 Abell Clusters of Galaxies Owen F.N., White R.A., Hilldrup K.C., Hanisch R.J. <astron. (1982)="" 1083="" 87,="" journ.=""> =1982AJ87.10830</astron.>							
ADC_Keywords: Radio sources ; Galaxies, radio ; Clusters, galaxy ; Surveys							
Description:							
This catalog contains observations of Adeli Clusters of galaxies which were obtained with the Green Bank 91-m telescope at 1400 MHz with an angular resolution of 10'x11' (RAXDEC). This catalog extends the sample of clusters originally published in Owen (1974A)794270). The primary goals of this survey were to observe all Abell (1958ApJS3211A, Cat.VII/4) clusters with m10 (magnitude of the tenth brightest galaxy in the cluster) less than or equal to 17.0 and declinations north of -19 degrees, to observe all clusters with richnessx=3 regardless of m10, and to obtain observations of a representative sample of the rest of the catalog (m10>=17.0; richness<=2). The abelclus.dat file contains ALL 957 detected sources (also beyond 0.5 corrected Abell radii). It contains 525 sources within 0.5 corrected Abell radii, while the published table1.dat file contains 487 entries corresponding to 485 distinct sources (in 442 clusters). The catalog entries contains the flux density at 1400 MHz, the Abell cluster number, richness class, distance class, m10, redshift estimate (2), corrected Abell cluster radius, right ascension (B1950), declination (B1950), deconvolved major and minor source axis lengths, position angle, and distance of the source from the cluster center.							
File Summary:							
FileName Lrecl Records Explanations							
ReadMe 80 . This file table1.dat 92 487 *Sources detected within 0.5 corrected Abell							
abelclus.dat 92 957 *1400-MHz survey of Abell Clusters							
Note on table1.dat: IDENTICAL to the original published version.							
Two sources are attached to more than one cluster: A1941 at B143529.2+303706 is also in A1944 A2196 at B162544.3+412828 is also in A2197							
Two sources are below the formal flux limit of 0.10Jy stated in the original paper: A 428 at B031337.7-191616 s1400=0.09±0.04 A 999 at B102034.2+125722 s1400=0.09±0.04							
	>						
🐉 start 🔯 lag, dag, dag, dag, dag, dag, dag, dag, d	EN 🤇 📮 10:47 AM						

Figure 17: another file from CDS catalogue [12].

When the program was tested on radio sources emission frequency band, the results of searching were:-

- 1. 8 files have frequency between 1000 2000 MHZ.
- 2. 6 files have frequency between 2000 3000 MHZ.
- 3. 1 file has frequency between 3000 4000 MHZ.
- 4. 6 files have frequency between 4000 5000 MHZ.
- 5. 3 files have frequency between 5000 6000 MHZ.
- 6. No files have frequency between 6000 7000 MHZ.
- 7. 2 files have frequency between 8000 9000 MHZ.
- 8. 7 files have frequency between 1 100 GHZ.
- 9. 2 files have frequency between 100 200 GHZ.
- 10. No files have frequency between 200 300 GHZ.
- 11. 1 file has frequency between 300 400 GHZ.

The program can be also searching for name of journal, and name of author. This program can be modified for searching any observation data in files for other catalogues which are including in table (1). The number of cases in each type of catalogues can be determined from the observation data analysis.

References

- 1. Pacholczyk, A. G., **1970**. *Radio Astrophysics; Nonthermal Processes in Galactic and Extragalactic Sources*. W. H. Freeman and Company. pp. 244-248.
- 2. Diane F. M., **1997**. Basics of Radio Astronomy for the Goldston-Apple Valley Radio Telescope. California Institute of Technology. pp. 19.
- 3. Ochsenbein F., **2000**. Astronomical catalogues and tables adopted standards version 2.0 (http://vizier.u-strasbg.fr/doc/catstd.htx).
- 4. Al-Kateib B., **2001**. *Learn Visual Basic 6 with Examples*. Dar Al-Reda for publication. pp. 13. (In Arabic).
- Stark, A.A.; Gammie, C.F.; Wilson, R.W.; Bally, J. and Linke, R.A., **1992**. The bell laboratories HI survey, *Astrophys. J. Suppl.*, **79**: 77.
- 6. Wieringa, M.H., **1993**. Catalogues from a deep 327 MHz westerbork survey, *Bull. Inf. CDS*, **43**:17.
- 7. White, R.L.; Becker, R.H.; Helfand, D.J. and Gregg, M.D., **1997**. The first survey catalog, *Astrophys. J.*, **475**: 479.
- 8. White, G.L.; Batty, M.J.; Bunton, J.D.; Brown, D.R. and Corben, J.B., **1987**. Radio positions and optical identifications for a sample of southern flat-spectrum radio sources, *Mon. Not. R. Astron. Soc.*, **227**: 705.
- 9. Westerhout, G., **1958**. A survey of the continuous radiation from the galactic system at a frequency of 1390 Mc/s, *Bull. Astron. Inst. Netherlands*, **14**: 215.
- Mauch, T.; Murphy, T.; Buttery, H.J.; Curran, J.; Hunstead, R.W.; Piestrzynski, B.; Ropbertson, J.G. and Sadler, E.M., 2003. The Sydney university molonglo sky survey (SUMSS), *Mon. Not. R. Astron. Soc.*, 342: 1117.
- 11. Burbidge, G. and Crowne, A. H., **1979.** An optical catalogue of radio galaxies, *Astrophys. J. Suppl.*, **40**: 583.
- 12. Owen, F. N.; White, R. A.; Hilldrup, K. C. and Hanisch, R. J., **1982**. A 1400-MHz survey of 1478 abell clusters of galaxies, *Astron. J.*, **87**: 1083