

SEDBA 检索系统及其应用

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SEDBA 检索系统(FOXSEDBA 3.1)用 FoxPro2.5 编程。它具有对 SEDBA 数据库进行查询、检索、打印输出、作图以及应用的工能,是用户对 SEDBA 进行检索和应用的工具。整个系统由全菜单驱动,并为用户提供了良好的人机对话界面。它不需要具备计算机的知识便易于驱动。系统可以直接在 DOS 下运行。

SEDBA Retrieval System and Its Application^①

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ABSTRACT

SEDBA retrieval system(FOX SEDBA3.1) is programmed by FoxPro 2.5 for DOS, which provides the functions about inquiry, retrieval, print out, graph as well as application on SEDBA data base. It is a tool of retrieval and application to SEDBA data for users. All of the system is completely menu driven and provides a good interface for users. It will be easy to drive, even though the user has not any knowledge about computer. The system can be executed directly under the DOS.

FEATURES OF RETRIEVAL SYSTEM

Searching Data

The heart of a database system is its retrieval function, which allows user to search data from any data file (data sheet). While entering retrieval, the full screen QUERY TABLE (as shown in Fig. 1), which looks like an empty data sheet, will be created for per data sheet so that useres select freely the data fields to set up complex logic expression according to the prompt of the screen. The retrieval conditions are composed of symbols and variables which are filled in appropriate fields in the QUERY TABLE and they will be-

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(QUERY TABLE) [F1]: HELP [Esc]: Completed 10:04:05 am
Chemical Analysis Sheet Page 1/2

SEDBA ID :	ORIGIN ID :	DR # :	BI # :
Collector's Name: Wu Mingqing		Analytical Date: / /	
Lab. :			
Name of The Analysed Item :		Method :	

Comment :

Major Elements (in wt. %)				
SiO ₂	#A	MgO	LOI	Corg
Al ₂ O ₃	#B	CaO	H ₂ O ⁺	SO ₂
Fe ₂ O ₃ T		Na ₂ O	H ₂ O ⁺	S ⁻
Fe ₂ O ₃		K ₂ O	H ₂ O ⁻	Sum
FeO		TiO ₂	#C	CO ₂
MnO		P ₂ O ₅		CO ₂ ⁻

Query Where...? (#A >= 65.0 * #A = 28) * (#B >= 1.3 * #C > 1.0)
CONNECTOR : * => AND + => OR - => NOT

Fig. 1 Query table screen

come logic expression. If you press F1 key while the cursor is staying on a field, a Screen Help will be displayed, which contains some message corresponding to the field. It is helpful for you to understand the meaning of the field and to correctly build a query. The "Link" function is convenient for user to search related information. Searched data may be viewed, printed out or graphed. The system has two retrieval methods and the number of retrieved fields have no limitation. The methods are described below:

Limited Retrieve

On the QUERY TABLE, fill the values or searched conditions into retrieved fields. At this moment, all of specified conditions are as logic AND relation.

Retrieve with Variables

Sometimes, users wish to definite a more complex logic expression. In this case, the variables can be used to build up a complex logic expression. It means that each retrieved field can be defined with a variable which is composed of a symbol "#" and a letter (A-Z or a-z) or a numeral (0-9). Of course, the variables should be different each other in a retrieval. At the moment, the another field 'Query Where? ...' will be shown and the cursor stays on this field, where you may build up a complex logic expression according to the screen prompt. For example, if you want to search SiO₂, FeO and TiO₂ from "Data Sheet for Chemical Analysis", you can simply move the cursor to the fields and enter the variables #A, #B and #C, respectively. While ESC key is pressed, you may type: (#A >= 3.25 * #A <= 28) * (#B >= 1.3 * #C > 1.0) on Query Where? ... field. The variables #A, #B and #C represent SiO₂, FeO and TiO₂ fields respectively. The above expression will be transferred as follows:

(SiO₂ >= 3.25 AND SiO₂ <= 28) AND (FeO >= 1.3 AND TiO₂ > 1.0)

The connectors, “*”, “+” and “-” indicate logical AND, OR and NOT, separately. The operators ‘=’ (equal), ‘ \neq ’ (not equal), ‘>’ (greater than), ‘ \geq ’ (greater or equal), ‘<’ (less than) and ‘ \leq ’ (less or equal) can be given in the numeric fields.

Two search methods can be combined together in the QUERY TABLE shown as Fig1.

REPORTS AND DATA OUTPUT

View and Output Data

When the data are retrieved from the database, **LOCATE/VIEW** sub-menu will be displayed at the bottom of the screen. “Quit” will make the operation terminated and returned to the main menu. **LOCATE/VIEW** sub-menu provides following selections:

Write:	Output the data.	Next:	View the next record.
Skip:	Skip forward/backward by record count.	Browse:	Browse the records with full screen.
PgUp:	Display the previous page of current record.	Link:	Link another data sheet.
PgDn:	Display the next page of current record.	Retrieve:	Retrieve current data sheet.
Prior:	View the prior record.	Quit:	Quit to the main menu/to graph with FoxGraph.

Produce Reports

To output the contents of the retrieved data file, the **WRITE** must be selected. When it is selected, a light bar menu allows to output the report to the **Screen, Printer, Disk File** or makes up **Applications**.

WRITE contains the following sub-menus:

Write to:	Screen Printer File Edit Application Cancel.		
Screen:	Report to screen with instant report.	Printer:	Report to printer.
File:	Report to a disk file(.TXT).	Edit:	Edit a report format file(.FRX).
Application:	Application software interface.	Cancel:	Cancel write data.

Application: ASCII WK1 DIF SYLK Graph Cancel [F10] : to DOS

ASCII:	ASCII text file.	WK1:	Used by Lotus1-2-3 revision 2. x.
XLS:	Used by <i>Microsoft Excel</i> version 2. 0.	DIF:	Data Interchange Format, used by VisiCalc.
SYLK:	symbolic Link interchange format, used in <i>Microsoft MultiPlan</i> .	Graph:	Graphed by FoxGraph .
		Cancel:	Cancel the data to an external file.

The “**Application**” bar provides an application software interface for users. The retrieved data can be transformed to different data format files so that they can be invoked by the applied softwares (**LOTUS1-2-3, Microsoft Excel, FoxGraph** etc.). In the **FOX SED-BA 3.1**, you can graph directly with “**Graph**” bar. In the “**Application**” band, the function key **F10** can make system exit to **DOS** where to make up an external application or to perform user’s own applied programs.

With **FOX SEDBA 3.1** report generator, a report format for the output must be defined. A report format file can be utilized as many times as you wish. User can produce instant reports with report generator. Like all **FOX SEDBA** features, the report generator is completely menu driven, so user can produce a sophisticated report with a minimum of effort.

When you start to edit a report form, all of things you need to do is to choose the fields from the field selection dialog. The dialog looks like a table on the screen, but it contains no data. You move and use **Checkmark F2** key to check off the fields you want to include in your report. The fields selection screen is shown in Fig. 2. Entering the report window, pressing the **Alt-O** open the **Report Menu** popup to arrange your report format. Then press the **Alt-F** keys to choose the **Save** option to save your report format or to select **Close** option to return to the **WRITE** menu.

[F2] : Choose a field to output [Esc] : Completed 3 : 10 : 28 pm
Chemical Analysis Sheet Page 1/2

SEDBA ID :	ORIGIN ID : ✓	DR # :	BI # :
Collector's Name :	Analytical Date : / /		
Lab. :			
Name of The Analysed Item :	Method :		

Comment :

Major Elements (in WT. %)			
SiO ₂	✓	MgO	LOI
Al ₂ O ₃	✓	CaO	H ₂ O ⁺
Fe ₂ O ₃ T		Na ₂ O	H ₂ O ⁺
Fe ₂ O ₃		K ₂ O	H ₂ O ⁻
FeO	✓	TiO ₂ #C	CO ₂
MnO	✓	P ₂ O ₅	CO ₃ ⁻
			Corg
			SO ₂
			S ⁻
			Sum

[PgUp] : Prior page [↑] : Prior field
[PgDn] : Next page [↓] : Next field

Fig. 2 Fields selection screen

Browse Data

Another way to display the content of the current data file is to use **BROWSE**. The records of the file can be browsed with a full screen mode. The only thing users need to do before browsing is to choose the fields in the field selection dialog. The dialog looks like a table on the screen, but it is empty, you move and use **Checkmark F2** key to check off the fields to be included in your browse. The field selection screen is shown in figure 2. In the browse window, the top line displays the name of fields rather than the prompt of fields. The cursor control keys-> and <- are used to browse the fields from left to right on the screen. The cursor control keys-> and <- are used to browse the fields from left to right on the screen. The **PgUp** and the **PgDn** keys will cause the previous or next 17 records to be displayed on the screen. Using **File Menu** popup you can exit **Browse Window** or **Browse**

Menu popup to change the mode of **Browse**.

Further Retrieve Data

When the option "**RETRIEVE**" is selected in **LOCATE/VIEW** sub-menu, the **QUERY TABLE** will be displayed again. The retrieval conditions may be filled in the specified fields in order to narrow down the searching range in the current data file.

How to Link Data Sheets

"**LINK**" is used to connect two of data files. If one data sheet must be connected with others, this data sheet is selected from the **Main Menu**, which is used as a retrieval entry, and it can be linked to other data sheets with one-to-one or one-to-more.

When you select "**Link**" option in **LOCATE/VIEW** sub-menu, a popup menu will be displayed on the screen, which lists the name of all data sheets. At the moment, if the cursor is moved to the item you need to link, it will be highlighted. After you press **Enter** key, the current sheet will be linked with the highlighted data sheet. Then, a light bar menu will further prompt you to select the common fields of two sheets to be used to link, which is as follows:

Set linked field: SEDBA ID ORG ID SET ID

Once the data are retrieved from a linked data sheet, the screen will enter into the data sheet. Linked data sheet is stored in a file named **ANSWER.DBF**, and it will be replaced if another data sheet is further linked. Therefore, before the next data sheet is linked, you must select **WRITE** to save, or output the retrieved results in time.

APPLICATIONS

Graph

In the **FOX SEDBA 3.1**, **FoxGraph**, 3-D commercial graphic software, has been included. It provides a visual representation of your data or the results of a query. To graph for the retrieved data, **FoxGraph** must be installed into the same directory with **FOX SEDBA 3.1**. There are two ways for graphing. One way is to choose the **System Pad's FoxGraph** bar from the **Main Menu**, then entering into a data sheet to search data as you wish. When you have retrieved data and selected "**Quit**" option from the **LOCATE/VIEW** sub-menu, you will enter a procedure to arrange data for graphing. The another way is directly to operate in the sub-menu "**Application**" of **WRITE** to choose '**Graph**' bar. It will invoke **FoxGraph** to generate graph. All of thing, user needs to do before graphing is to select data type or to regulate your data according to the graphing type. Figs. 3 and 4 respectively showed examples about 2-D pie and 3-D mapped surface charts on "Major Elements on Chinese Malan Loess" from Chemical Analysis Sheet.

All of the loess samples in figs. 3 and 4 were collected from Northwest China.

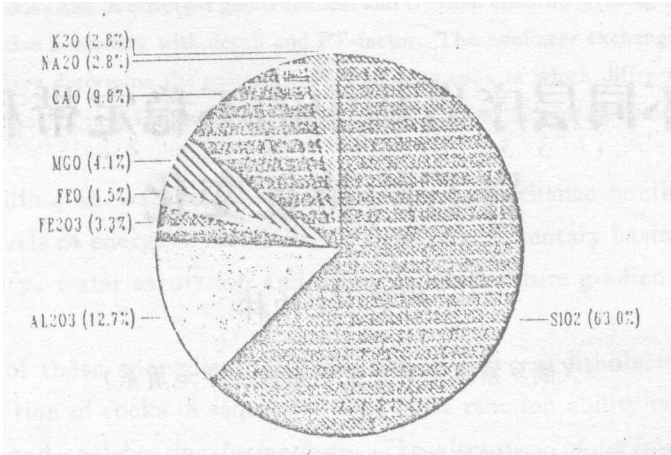


Fig. 3 2-D pie chart on major elements on Chinese Malan Loess

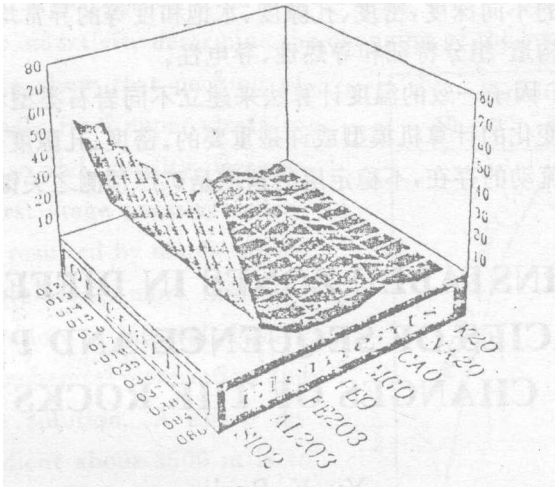


Fig. 4 3-D mapped surface chart on major elements on Chinese Malan Loess

CONCLUSION

This system is an information management program of powerful capabilities, complex and multiple functions. What is more, it is easy to learn, swift to act, and intuitive to use for different users. In the past a few years, **FOX SEDBA**, as an important tool of the IGCP Project 269 (SEDBA), has been used by the most parts of the world. This system has gone beyond the higher performance set by previous versions to bring you new levels of power and usability. Of course, the system itself has also some insufficiency and it will be further perfected. Therefore, any comments and suggestions would be welcome.

Continued on page 161

Geology and Mineral Resources.

3. Chengdu Institute of Technology.

4. Calculation Center of China University of Science and Technology.

5. Calculation Center of Anhui Bureau of Geology and Mineral Resources.

6. Computer Calculation Station, Geochemical Prospecting Party, Sichuan Bureau of Geology and Mineral Resources.

7. The Related Offices of Geochemical Prospecting Center, Bureau of Petroleum and Mineral Geology, MGMR.

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Continued from page 149

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