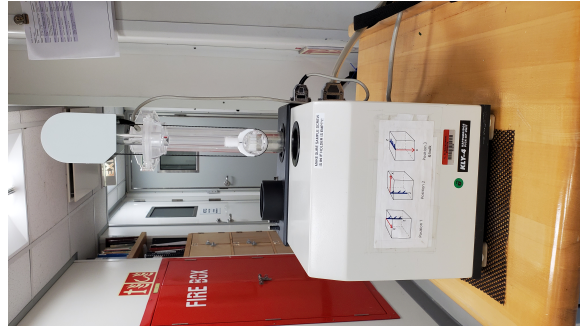


# Kappabridge User Guide KLY-4

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**NOTE : KLY-4 Kappabridge is no longer used on the JR**

## Introduction

This document is intended to guide scientists and technicians through the use of the Kappabridge KLY-4 Magnetic Susceptibility meter. Two software packages are available for measuring the anisotropy of magnetic susceptibility: The AGICO Sufar program and the AMSSpin program. Users are encouraged to use the AMSSpin software over the AGICO software when possible.

## AMSSpin Software

AMSSpin is a Labview program written by Jeff Gee for Anisotropy of Magnetic Susceptibility measurements ([Gee et al., AMSSpin: A LabVIEW program for measuring the anisotropy of magnetic susceptibility with the Kappabridge KLY-4S, 2008](#)). The code has been modified to meet the needs of IODP. For detailed instructions on the use AMSSpin and the files written by this program, see Gee's manual [AMSSpin – A LabVIEW Program for the Kappabridge KLY-4S and KLY-3S](#). This program is controlled with keyboard keystrokes. Be aware of what menu you are operating in as some keystrokes have multiple uses. The version of AMSSpin used by IODP includes a method for measuring bulk susceptibility only and outputs data to a .csv file as well as the original AMSSpin .asc files.

## To Start AMSSpin (Current version AMSSpin2)

1. Remove cloth cover from Kappabridge.
  - a. **It is important to remember this step. When the AMSSpin program is opened, the arm will raise automatically. If the cover is still on, damage may occur to the arm.**
2. Unstrap the Kappabridge from the metal pole
3. Slide the Kappabridge away from the pole (to the left). The sensors work best with distance from the support pole.
4. Turn on the power box.
5. Open AMSSpin from the desktop (**Figure 1**). The sample handler will move to the UP position immediately upon start up.
  - a. This is the AMSSpin program from Jeff Gee with updates. The desktop icon is a white box with yellow triangle.



Figure 1. AMSSpin desktop icon.

6. The software will open and be ready to run. The Kappabridge is on Com1.
7. There are three menus on the left hand side of the screen. When the program first opens, menu mode is selected (**Figure 2**).

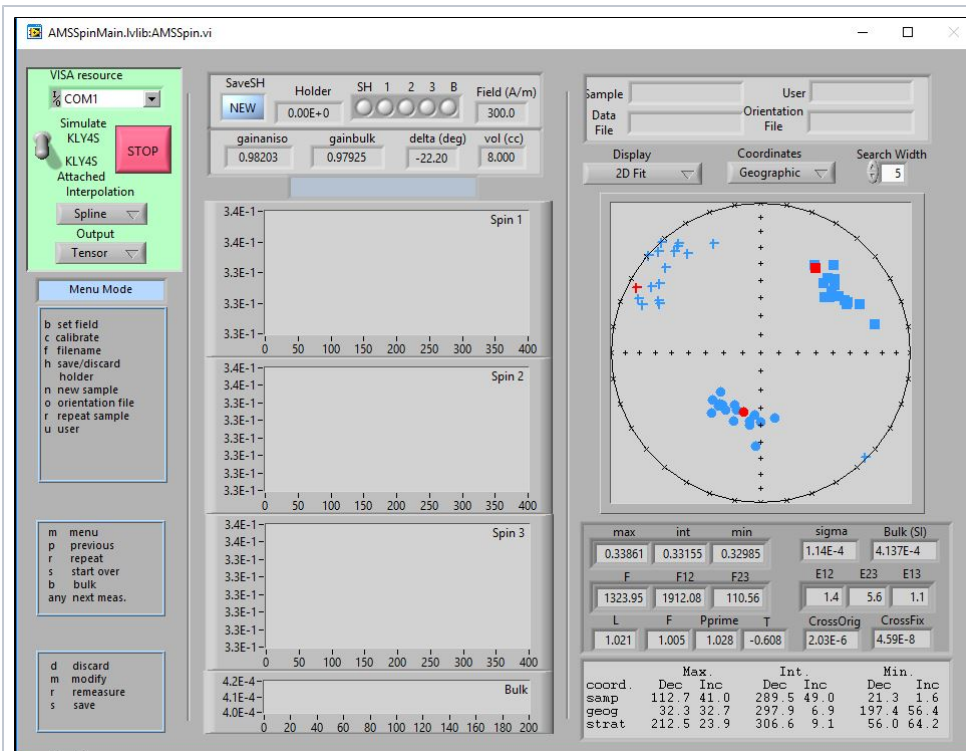


Figure 2. AMSSpin startup window.

- If the volume (in cc) displayed is not correct, close AMSSpin. Open the **SUFAR.SAV** file in *C:/AMSSpin/data* to change the volume in the line shown in Figure 3. Save the file after changing the volume and reopen AMSSpin.

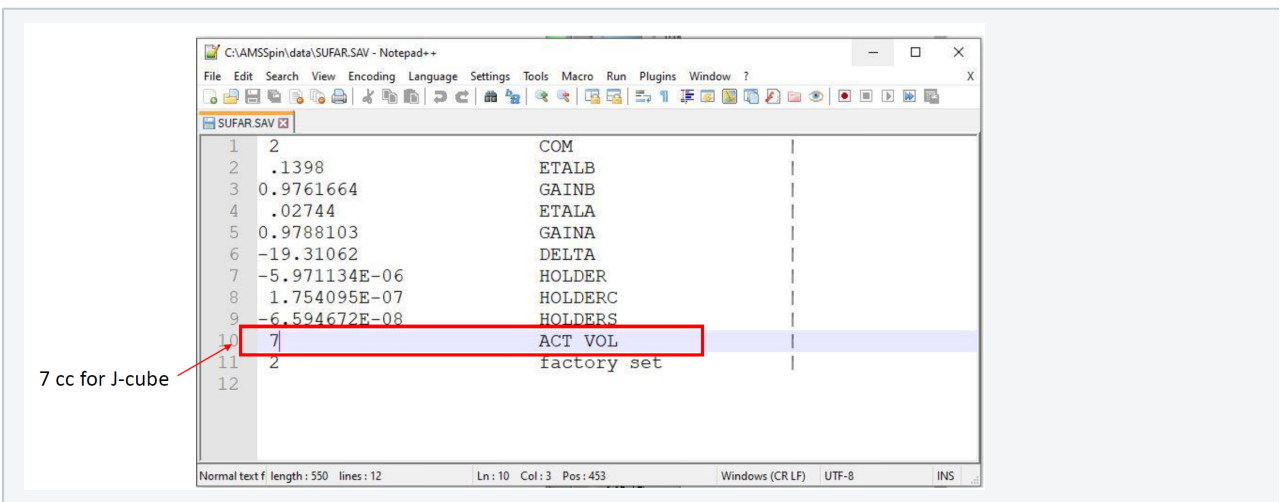


Figure 3. Changing volume in AMSSpin

- Press F to assign the file name and path for saving the measurements. This command will also allow the user to select an existing file. Choose a file name or select an existing file. You do not need to add any file extensions (i.e. .csv). However, if you do, AMSSpin will strip the extension and add the appropriate extension needed for output (see *File Writing* below) . The same goes for selecting an existing file; if you select a file with a .txt extension, the extension will be stripped and the data will be appended to the existing files which were initially created. For consistency, it may be a good idea to stick with selecting the .csv file (vs the .txt file) when opening an existing file.
  - The default directory that is opened when selecting a file will be the last folder you were in. It does not matter what folder you are in when naming a new file; the new file will still output to the *C:/data/in* folder. If you wish to select a file that has already been uploaded to LIMS, you will need to navigate to *C:/data/archive*. Files that have not yet been uploaded will be in *C:/data/in*.
  - Once a file is selected, the file name will appear in the **Data File** blank in the upper right hand corner of the screen.
  - Data will be saved to this file each time **SAVE** is selected at the end of a measurement.
  - The user may change this file at any time as long as the Menu mode of AMSSpin is active.
- Things to keep in mind when selecting and naming files:
  - If you choose to create a new file but select an existing file name (or name your file with an existing name), the previously recorded data in that file will be overwritten. You should receive the standard windows message that the file name already exists but care should be taken when naming files.

- b. If you save measurements to an existing file that has already been uploaded, the output .csv file that is saved in *C:/Data/IN* will not contain the previously measured samples. It will only contain the new measurements. When this file is uploaded to LIMS, a .csv.rep0 file will be added to the archive folder. This file will only open in a text editor such as notepad. All measurements will still be in LIMS.

## Calibration Measurement

1. Place the calibration standard cylinder (typically found in a bag on the metal pole) into the Kappabridge sample holder with the cylinder standing up so the flat ends are on the top and bottom (**Figure 3**). Azimuthal orientation does not matter as long as the axis of the cylinder is vertical.
  - a. Tighten the screw so that the specimen does not move, but do not over tighten.
2. Press the **C** key of the keyboard. The calibration measurement will begin.
3. When measurement is complete, press save if the calibration measurement looks good.
  - a. A good measurement is when the calibration measurement (see the "Std. (SI)" field) matches the value given on the standard (139.8 E-03 SI).
  - b. Two pop up windows will ask the user if they wish to replace the existing files. Select yes for both windows.



Figure 3. Kappabridge Holder with calibration standard.

## Anisotropy of Magnetic Susceptibility Measurements

1. Make sure the sample holder is empty and the screw is flush with the holder. Also check that there are no obstructions in the path of the sample handler.
2. Press **N** to name a new specimen and to begin a measurement. **Do not put a sample in the holder at this time**
3. Use the barcode scanner to enter the TextID as the sample name in the pop up window and select OK.
  - a. The TextID is required as the sample name for data upload.
  - b. After the sample name is populated, the program will move to the Measurement Mode menu. And the blue bar in the center of the screen above the empty graphs will display "Ready for Sample Holder."
4. Press the **space bar** to begin the sample holder measurement.
5. The sample holder value will be displayed at the top of the screen when the measurement is complete.
6. Evaluate the sample holder value
  - a. The value should be small (E-05 or E-06) and should be negative.
  - b. If the value looks acceptable, continue onward; Values less than about -5E-05 are generally acceptable.

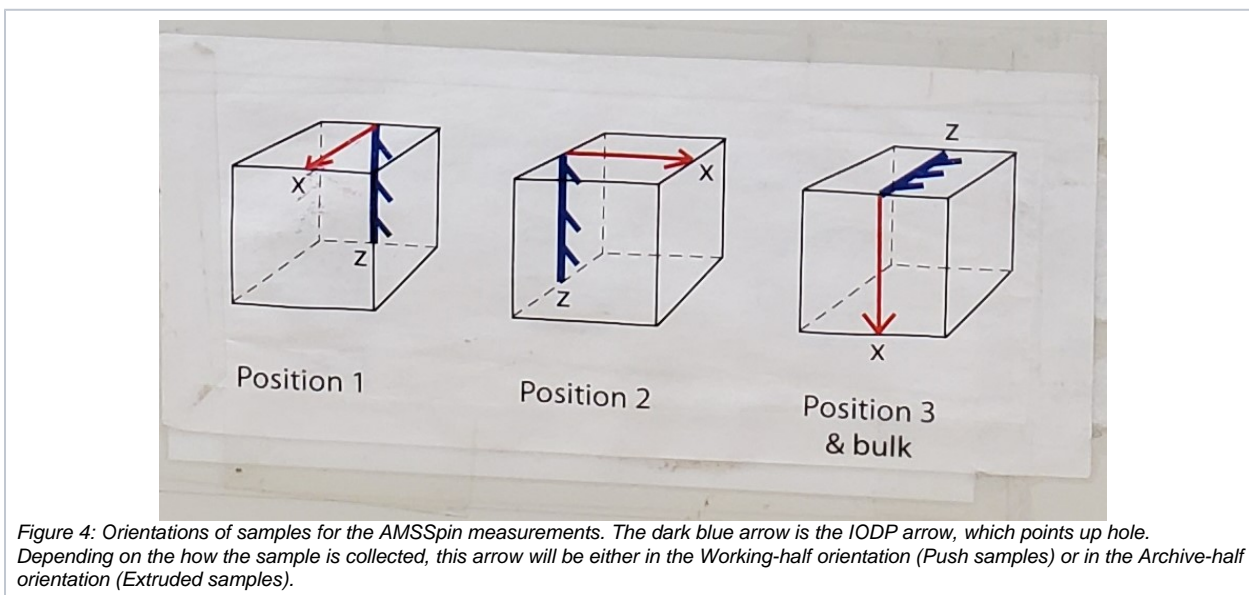
- c. If the value is high, the program will allow the user to complete the measurements, but will **not** allow the user to save the data. High values may result from noise from nearby metallic objects or electronics. Make sure the Kappabridge is away from the pole and that no computers/laptops/metal devices are next to the Kappabridge.
- If you move the Kappabridge, then recalibrate. You will need to press M and go back to the main menu and repeat the above steps.
  - If you did not move the Kappabridge, then press R to repeat the sample holder measurement. Repeat the measurement until an acceptable holder measurement is obtained. This may take several tries.

Between any of the measurements the user may:

- Repeat a measurement (press **R**),
- Start the entire measurement process over (press **S**), or
- Return to the main menu (press **M**).

Selecting bulk (press **B**) will only complete the bulk susceptibility measurement. If you wish to collect a sample holder measurement for a bulk susceptibility measurement, be sure to press the space bar before pressing B. Otherwise, a bulk susceptibility measurement will be taken with no sample holder measurement.

7. Place the sample in the sample holder following the orientation scheme shown on the front of the Kappabridge and press the **space bar** to initiate the measurement (*Figure 4*).



*Figure 4: Orientations of samples for the AMSSpin measurements. The dark blue arrow is the IODP arrow, which points up hole. Depending on the how the sample is collected, this arrow will be either in the Working-half orientation (Push samples) or in the Archive-half orientation (Extruded samples).*

- When the holder returns to the up position, rotate the specimen to the second position and then press the **space bar** to initiate the measurement.
- When the holder returns to the up position, rotate the specimen to the third position and then press the **space bar** to initiate the measurement.
- When the holder returns to the up position, press **space bar** to initiate the bulk susceptibility measurement. The sample should remain in position 3 for the bulk susceptibility measurement.
- When the bulk susceptibility measurement is complete, the program will automatically move you to the third menu, Data Mode (*Figure 5a*).

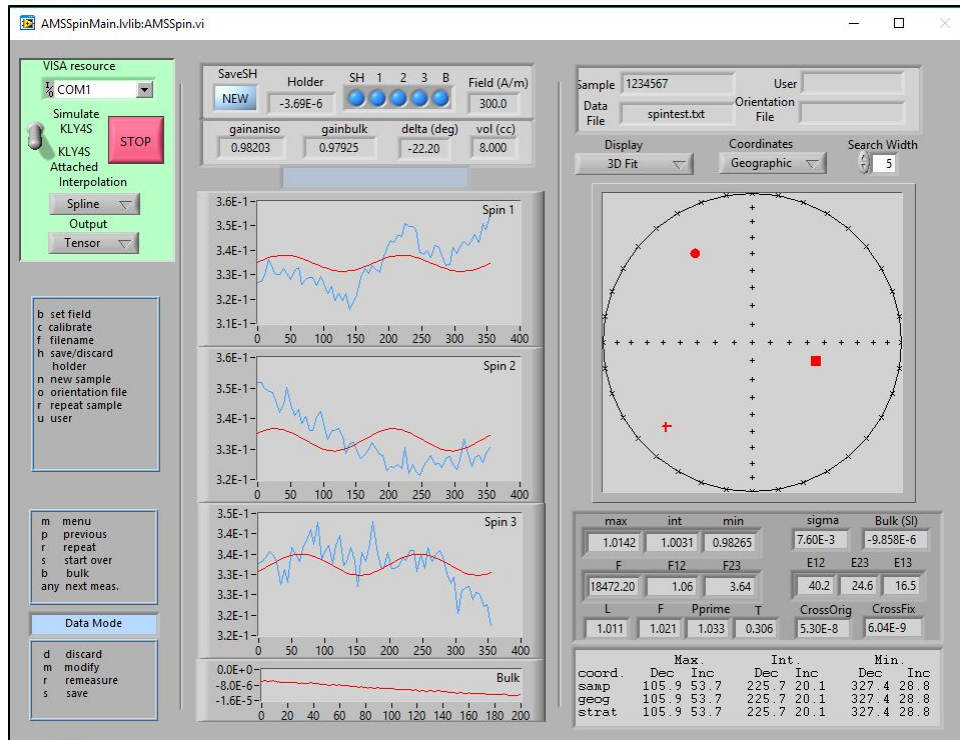


Figure 5a. Data Mode window of AMSSpin.

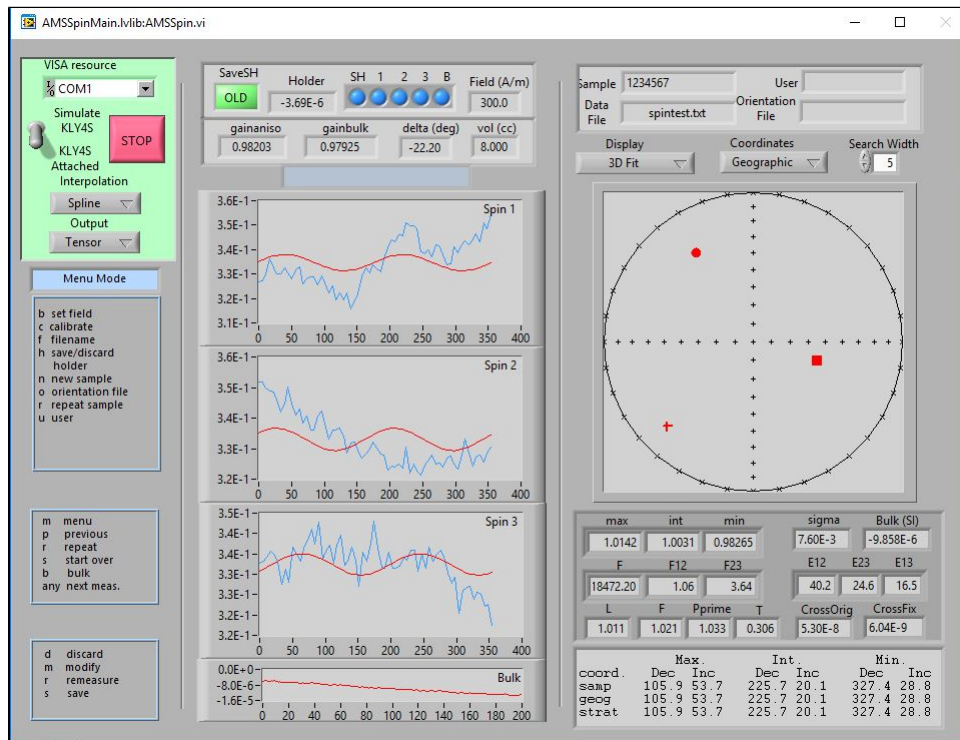


Figure 5b. Menu Mode of AMSSpin.

12. You can choose to:
  - a. Discard (**D**) the measurement,
  - b. Modify (**M**); The modify option allows you to change the sample name before saving the data.
  - c. Remeasure (**R**) the specimen; The remeasure option allows you to select which of the positions you wish to remeasure/
  - d. Save (**S**) the measurement.
13. Once you are satisfied with the data, press **S** to save.
  - a. If a file is already selected, the new data will be added to the file.
  - b. If no file name was assigned at the start of the measurement, the program will prompt the user to designate a file name or select a file.

14. When the save is complete, the user is returned to the main menu (**Figure 5b**).
15. User may save the current holder value at this time by pressing **H**.
  - a. This will save the holder value and you will not need to remeasure the holder for every specimen
  - b. When the holder measurement is being held it will say "OLD" under the Save SH heading at the top of the screen.
16. To continue measurements, press **N** to assign the next sample name.
17. If the holder value is saved, place the next specimen in position 1 and continue the measurements as in steps 6-11.
18. Continue this process for each sample.

To stop the program press the **red STOP button**. This will move the Kappabridge arm back down and the Kappabridge can be put away.

## File Writing

AMSSpin will save the file as a .csv file in the folder the user selects. The default and recommended location for saving the files is *C:/Data/IN*. All other files generated by AMSSpin will be written directly to the *C:/AUX\_Data* folder. The .txt file that is generated by AMSSpin can be opened in the Anisoft5 program. When selecting a file to open in Anisoft5, the user must change the file type from .ams to .txt in Anisoft or the files will not be visible.

## Uploading Data to LIMS (AMSSpin)

For AMS measurements from the AMSSpin program, MUT requires 2 files in order to upload data. The first file is the .csv file which contains the data for the LORE report. The second file is the .txt file which gets saved to *C:/aux\_data*. To complete an upload, place the .csv and the .txt files to be uploaded in the IN folder and select upload. If both of the files are not in the *in* folder, MUT will have a purple question mark next to the files. MUT will not recognize if the same file has already been uploaded and will upload it again. This will result in duplicate data being uploaded. The Text ID must be the sample name for upload to work.

If you click upload, but do not see your file(s) in LIMS, the file(s) may have an error preventing their upload. Check the folder directory *C:/Data/Error* to see if your file(s) are there. If so, there is an error associated with the file. The file(s) may also go to *C:/Data* if they contain errors. To check for errors, right click on the suspect .csv file and open/edit with a text editor such as notepad. Most errors will be associated with a space after the sample name (**Figure 6**). Delete the space and save. Then move the edited .csv file back to the *IN* folder and upload.

```

1 Sample Name,Volume,Field,K11,K22,K33,K12,K23,K13,Standard deviation,Holder Value,Bulk Susceptibility,Date,K1,K2,K3,K1 DEC,K1 INC,K2 DEC,K2 INC,K3 DEC,K3 INC,L,F,F,F'
2 CUBEL10775911,8,300,0.3381,0.3351,0.3268,0.0002,0.0004,-0.0112,2.14E-02,-3.64E-06,-7.41E-06,1/25/2020,1.0348,1.0054,0.9598,179.8,31.6,89.1,1.2,357.1,58.4,1.029,1.048,1.078,1.079
3 CUBEL10776011,8,300,0.3454,0.3397,0.345,0.0067,0.0057,0.0427,7.83E-02,-3.64E-06,2.89E-06,1/25/2020,1.2299,0.9836,0.7866,31.2,31.3,244.6,54,131.3,16.1,1.25,1.251,1.564,1.564
4 CUBEL10776071,8,300,0.3333,0.3321,0.3347,0.0034,0.0007,-0.01,1.11E-02,-3.64E-06,1.34E-05,1/25/2020,1.0327,0.9984,0.9689,192.5,45.82,3.19,336.1,36.8,1.034,1.03,1.066,1.066
5 CUBEL10778441,8,300,0.3382,0.334,0.3278,0.0095,-0.0189,-0.0089,2.80E-02,3.64E-06,1.07E-05,1/25/2020,1.0744,0.9891,0.9365,229.2,33.1,332.4,19.3,87.4,50.4,1.086,1.056,1.147,1.148
6 CUBEL10776071,8,300,0.3289,0.3374,0.3339,0.0019,-0.0016,-0.0121,1.62E-02,-3.64E-06,-1.18E-05,1/25/2020,1.0334,1.0096,0.957,209.4,46.9,101.15,7.357,9,30,9,1.024,1.055,1.00,1.002
7 CUBEL10779551,8,300,0.3259,0.3332,0.341,0.012,-0.0221,-0.0104,3.08E-02,3.64E-06,6.80E-06,1/25/2020,1.0784,1.0111,0.9104,269.1,50.2,151.2,21.3,47.2,31.8,1.067,1.111,1.185,1.186
8 CUBEL10779541,8,300,0.3356,0.3314,0.333,0.0026,0.0041,-0.0052,8.34E-03,-3.64E-06,-1.93E-05,1/25/2020,1.0192,1.0053,0.9755,174.0,39.9,60.9,25.9,307.6,39.1,1.014,1.031,1.045,1.046
9 CUBEL10779001,8,300,0.3372,0.3269,0.3359,0.0148,0.0072,0.0011,1.42E-02,-3.64E-06,1.67E-05,1/25/2020,1.0493,1.0057,0.945,38.9,21.2,181.1,63.9,303.1,14.5,1.043,1.064,1.11,1.111
10 CUBEL10776861,8,300,0.3386,0.3266,0.3349,0.004E-06,1.27E-05,1/25/2020,1.0299,0.995,0.9781,18.9,34.8,163.2,49.5,275.7,18.2,1.035,1.02,1.056,1.057
11 CUBEL10776861,8,300,0.331,0.3379,0.3361,0.004E-06,2.75E-05,1/25/2020,1.045,0.9975,0.9574,71.5,44.5,190.5,26.3,300,34,1.048,1.042,1.092,1.092
12 CUBEL10776031,8,300,0.3241,0.3393,0.3366,0.0064E-06,-7.19E-06,1/25/2020,1.0687,0.9928,0.9388,113.7,34.2,333.9,48.4,218,720.8,1.077,1.057,1.138,1.139
13 CUBEL10776061,8,300,0.332,0.3368,0.3312,3.64E-06,-1.43E-05,1/25/2020,1.026,0.9918,0.9822,295.3,27.8,189.8,26.9,63.4,49.5,1.034,1.01,1.045,1.047
14 CUBEL10779011,8,300,0.3344,0.3335,0.3321,3.64E-06,-1.82E-05,1/25/2020,1.0125,1.0041,0.9833,297.9,30.2,187.6,30.8,62.3,44.1,1.008,1.021,1.03,1.031
15 CUBEL107760301,8,300,0.3466,0.3263,0.3271,3.64E-06,-4.24E-06,1/25/2020,1.2089,0.9724,0.8107,344.3,40.2,75.1,0.9,166.2,49.8,1.243,1.168,1.477,1.478
16 CUBEL10774771,8,300,0.3329,0.3336,0.3335,3.64E-06,-3.83E-05,1/25/2020,1.0235,0.996,0.9806,214.9,42.1,113.8,12.1,11.3,45.4,1.028,1.016,1.044,1.044
17 CUBEL10790311,8,300,0.3324,0.3326,0.335,3.64E-06,-1.30E-05,1/25/2020,1.0119,1.0071,0.9916,183.57,6.303,3,177.7,42.3,26.1,1.004,1.026,1.03,1.033
18 CUBEL10779911,8,300,0.3301,0.3394,0.3304,0.0009,-0.0038,0.0143,1.69E-02,-3.64E-06,-1.05E-05,1/25/2020,1.0362,1.0173,0.9465,330.9,43.8,68.8,5.1,168.9,44.8,1.018,1.075,1.095,1.1
19 CUBEL10776001,8,300,0.3238,0.3067,0.3695,-0.2989,0.2142,-0.2594,4.59E-01,-3.64E-06,-2.31E-07,1/25/2020,2.5472,0.4167,0.0361,137.1,35,290.4,53.5,40.8,9,6,112.1,556,70.634,71.762
20 CUBEL10780961,8,300,0.3334,0.3383,0.3283,0.0198,-0.0047,0.0002,1.67E-02,-3.64E-06,-1.55E-05,1/25/2020,1.0687,0.9861,0.9451,229.7,1,345.1,74.2,137.3,14.1,1.084,1.043,1.131,1.133
21 CUBEL10779021,8,300,0.3702,0.2794,0.3503,0.2011,0.239,0.0539,3.34E-01,-3.64E-06,1.26E-06,1/25/2020,1.9997,0.9208,0.0789,49.7,34.6,176.5,40.3,296.8,30.6,2,172,11.582,25.153,28.982
22 CUBEL10774541,8,300,0.3339,0.3335,0.3335,0.0022,0.0063,0.0052,1.00E-02,-3.64E-06,-2.20E-05,1/25/2020,1.0281,0.9932,0.9787,50.41,7,141,1,1,232.2,48.3,1.035,1.015,1.051,1.052
23 CUBEL10779921,8,300,0.3318,0.3339,0.3343,0.0083,-0.0103,-0.0189,2.54E-02,-3.64E-06,-9.75E-06,1/25/2020,1.0767,0.9809,0.9424,218,40.7,112.8,17.3,3,44.4,1.098,1.041,1.142,1.146
24

```

Figure 6. Example AMSSpin data file with an error that would cause the data to fail to upload into LIMS.

## AGICO Sufar Software

Sufar.exe does not run on the Windows PC operating system. Instead, use DOSbox, which simulates the proper operating environment. To launch Sufar.exe and complete measurements, do the following.

### Start the Sufar Software:

1. Remove cloth cover from Kappabridge
2. Unstrap the Kappabridge from the metal pole.
3. Slide the Kappabridge away from the pole (to the left). The sensors work best with distance from the support pole.
4. Turn on the power box. The Kappabridge will move into the Up position if not already there.
5. There are two ways to start the DOS software on which Sufar runs.
  - a. The easiest way is to click on the shortcut "DOSBox in SUFAR folder"
  - b. Alternatively open DOSBox 0.74 folder from the desktop (**Figure 7**).
  - c. Open DOSbox.exe: In the DOSbox 0.74 window that opens, the cursor should be flashing behind the prompt `Z:\>`. All commands will be entered following a prompt of this type. **Figure 8** illustrates what the screen will look like after all commands have been entered.
6. At the prompt `Z:\>`, enter the command: `mount c "c:\Kappabridge\Agico software\KLY4CS\Sufar"`
  - a. If the directory is correct, user will receive the message "Drive C is mounted as local directory c:\Kappabridge\Agico software\KLY4CS\Sufar"
    - i. This mounts the C drive and the directories. If Sufar is moved to a different directory, this path will differ.
  - b. At the prompt `Z:\>` enter the command `c:`
    - i. This command changes the current directory from Z to the C drive
  - c. At the prompt `C:\>`, enter the command `Sufar.exe` or `Sufar`

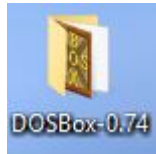
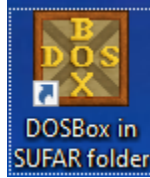


Figure 7. Direct access to DOS Box by clicking on the **DOSBox in SUFAR folder** (top) icon on the Desktop or mount the C drive as described above by clicking on the **DOSbox- 0.74** (bottom) icon.

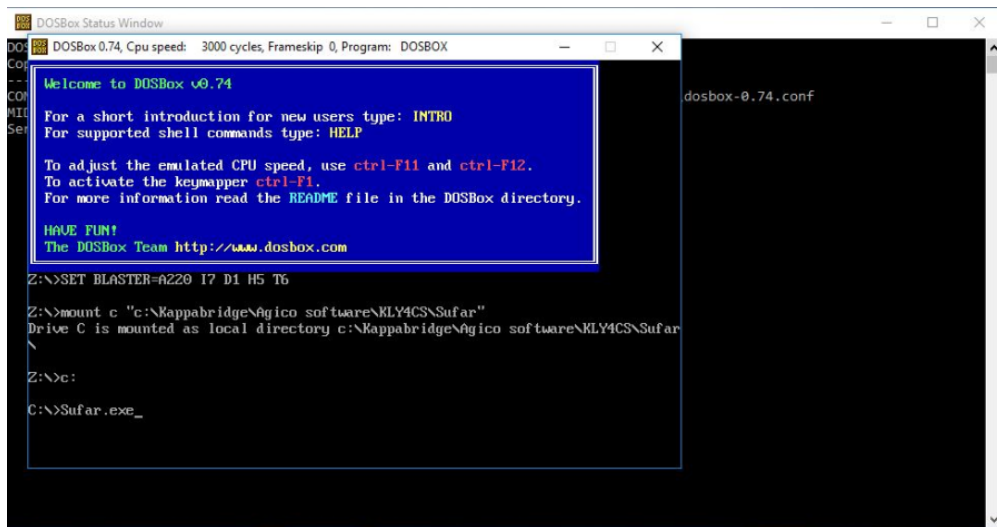


Figure 8. DOSbox.exe with commands for opening Sufar entered

The Sufar program should open, initialize, and be ready for measuring once the main Sufar window is displayed (**Figure 9a and b**). Sufar.exe is controlled by the F keys of the keyboard and the arrow keys. The mouse will not work within this program. The number pad to the right of the keyboard will also not work for entering any commands.

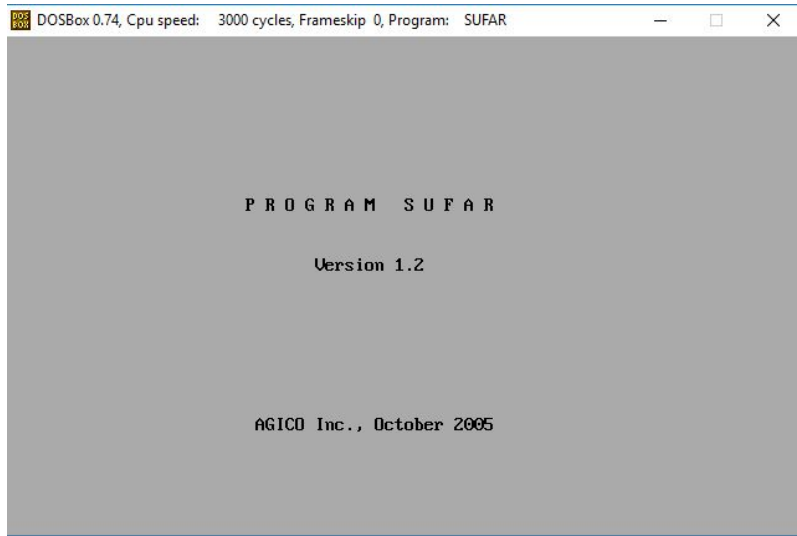


Figure 9a Sufar.exe startup window

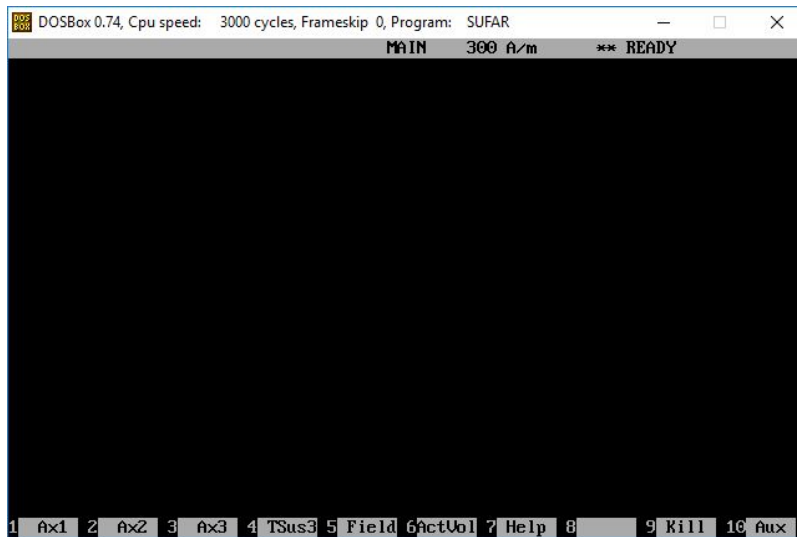


Figure 9b Main Sufar Window

### Calibration Measurement:

1. Press F10 to access the auxiliary menu (Aux) in Sufar (**Figure 10**). When in the Auxiliary menu the AUX will be displayed in the grey bar at the top of the window.



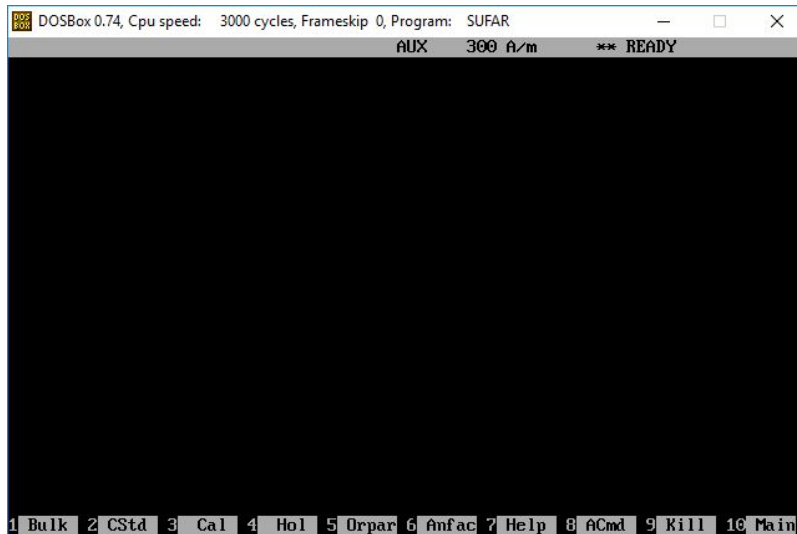


Figure 10. Sufar Auxiliary Menu window

2. Place the calibration standard (found in the bag on the pole next to Kappabridge) into the Kappabridge holder standing upright (**Figure 3**).
3. Press F3 (Cal) to initiate calibration measurement.
  - a. The sample holder will move down into the coils and calibration measurement will be completed. The Old and New calibration information will be displayed (**Figure 11**).

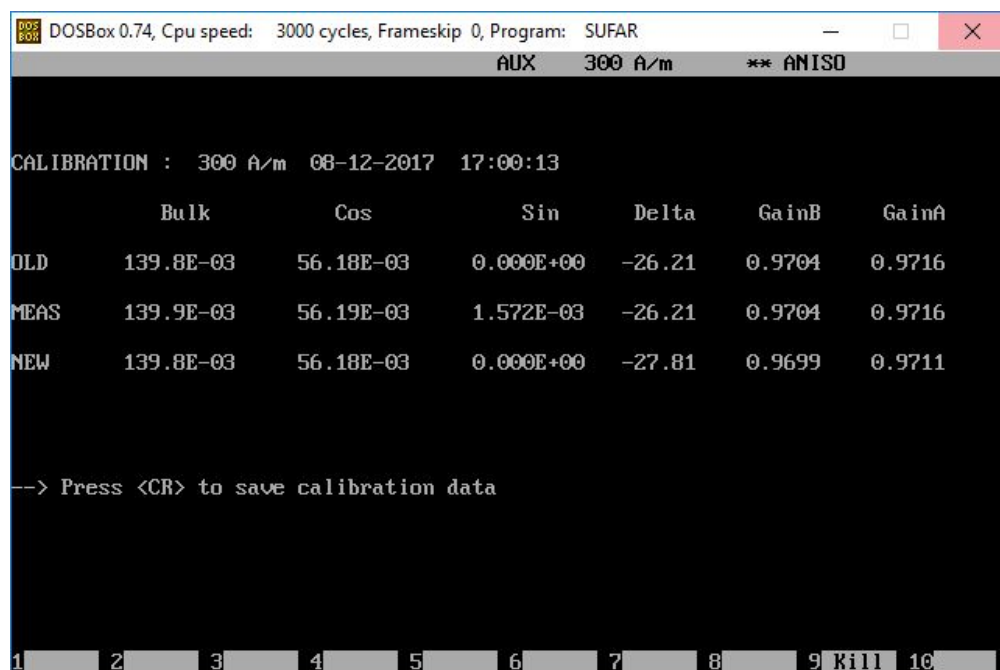


Figure 11 Calibration window when measurement is complete

4. To Save the new calibration information press Return
  - a. If you do not wish to save, press F9 (Kill) to exit the calibration window

### Holder Measurement:

1. Press F10 to access the auxiliary menu (Aux) in Sufar.
  - a. Make sure the Kappabridge holder is empty and clean and that the screw for holding the specimens is secured in place (**Figure 12**).



Figure 12. Empty Kappabridge Holder prepared for holder measurement. Note that the screw (indicated by white arrow) must be flush with the holder before starting the measurement.

3. Press F4 (Hol)

- a. The holder measurement sequence will begin. Do not touch the holder until the display indicates the measurements are completed.
- b. Flashing values are 'suspicious' values. They may exceed the allowable range of error as determined by AGICO. Often our standard error value for TSus is suspicious, but still very low.
  - i. It is possible to get non-suspicious values for the holder, but it often takes multiple attempts. It is recommended that no one walk past the Kappabridge during the holder measurements and that the user remain very still. Do not swivel in the chair or walk around the system.

4. When the measurement is complete, the display will prompt the user to save (Figure 13).

- a. To save the data press Y. If you do not wish to save, press N.

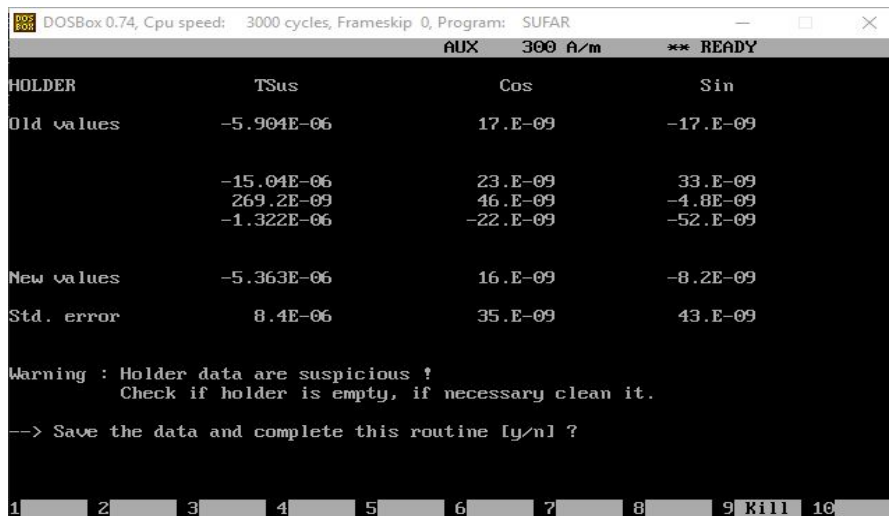


Figure 13. Holder Correction window after measurement is complete. For this measurement, the values are considered suspicious and a warning is given.

## Anisotropy of Magnetic Susceptibility Measurement:

1. Place a specimen in the holder in position 1 (*Figure 4*).
  - a. The specimen should be centered in the holder and secured using the small screw in the right side of the holder.
  - b. Use small pieces of foam to help keep the sample secure in the holder.
2. Navigate to the Sulfar Main window (press F10 if in the Auxiliary window). From the Sulfar Main window (*Figure 9b*), press **F1** to initiate Ax1 measurement
  - a. The Kappabridge will move the specimen into the measurement region and spin the specimen.
  - b. An asterisk will flash above the active measurement during the process. The screen will also display percentage of measurement that is completed (Transferred) and the Range that the Kappabridge is using (*Figure 14*).
  - c. When each measurement finishes, the data will be displayed on the screen (*Figure 15*).
  - d. Monitor the error percentage values as you measure. If they are high, try to remeasure the sample. This can be done by simply pressing the appropriate F command again while the specimen is in the correct position.

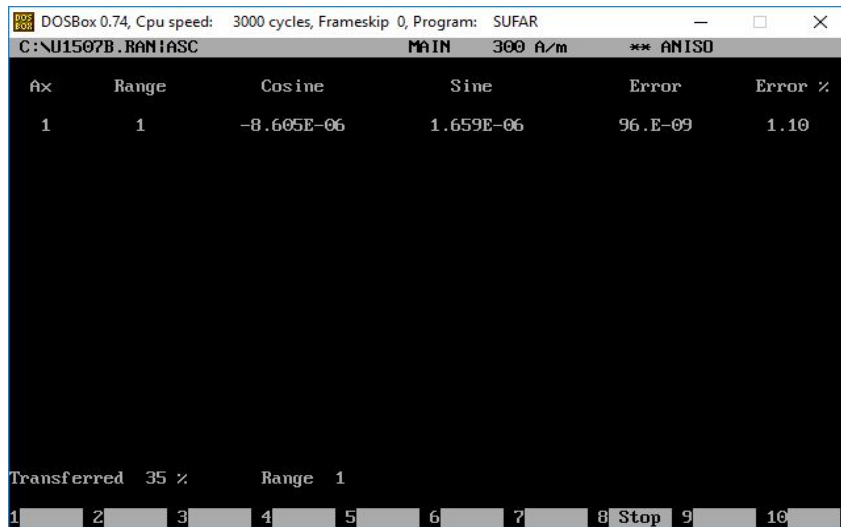


Figure 14' Sulfar Display during the AX2 measurement



Figure 15. Sulfar display when Ax1 measurement complete

3. Place the specimen in position 2
4. Press the **F2** key to initiate the Ax2 measurement. Data will be displayed upon measurement completion.
5. Place the specimen in position 3
6. Press the **F3** key to initiate the Ax3 measurement. Data will be displayed upon measurement completion.

7. Press **F4** to complete the bulk susceptibility measurement.

- a. The sample should be left in the holder in position 3 for this measurement.
- b. When the measurement is complete, the data for all 3 axes and the bulk susceptibility measurement will be displayed (**Figure 16**).
- c. Press **F5** to evaluate and save the data. If this is the first measurement made Sufar will display **Path ?** (**Figure 17**).

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: SUFAR  
 C:\U1507B.RAN\ASC MAIN 300 A/m \*\* BULK

Ax	Range	Cosine	Sine	Error	Error %
1	1	-8.605E-06	1.659E-06	96.E-09	1.10
2	1	-8.328E-06	719.5E-09	120E-09	1.47
3	1	-198.3E-09	1.137E-06	100E-09	8.68
	Range	Tsus			
	2	401.8E-06			

1 \*Ax1 2 \*Ax2 3 \*Ax3 4\*TSus3 5 Eval 6ActUo1 7 Help 8 9 Kill 10 Aux

Figure 16. Sufar display after Ax1-Ax3 and bulk susceptibility measurements

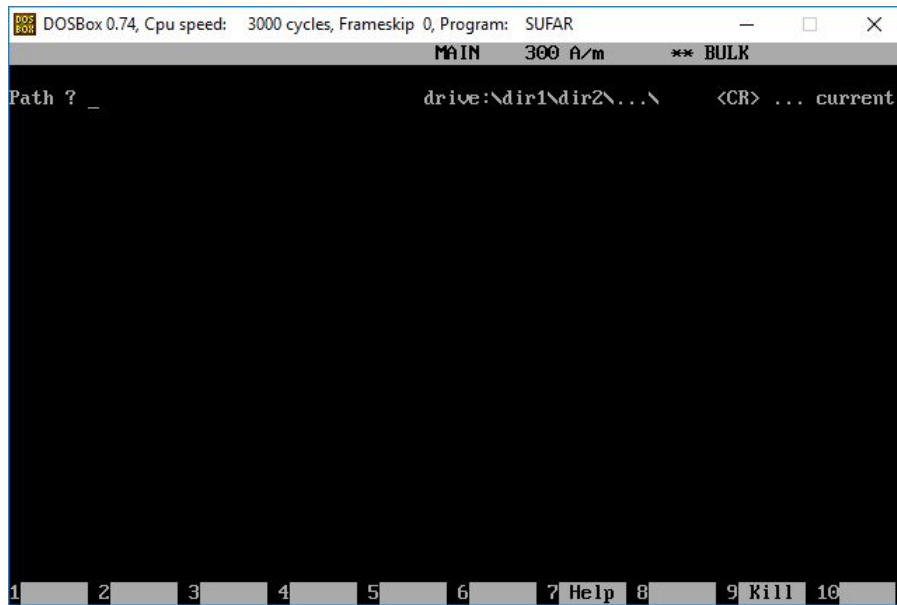


Figure 17. Sufar window requesting path to save data.

Window is displayed if F5 is pressed and no file has already been selected

8. If you wish to save to the current path, press return

- a. If you wish to save to a new path, enter the path now and press return
  - i. If the path is invalid, you will be prompted again
  - ii. The program assumes that the C drive is the location c:\Kappabridge\Agico software\KLY4CS\Sufar

9. At the prompt **Name of file?**, enter a file name that is less than 8 characters with no extension (**Figure 18**).

- a. It is recommended that file names be the Site and Hole i.e. U1508C
- b. If the file name is more than 8 characters, the program will not accept the name.

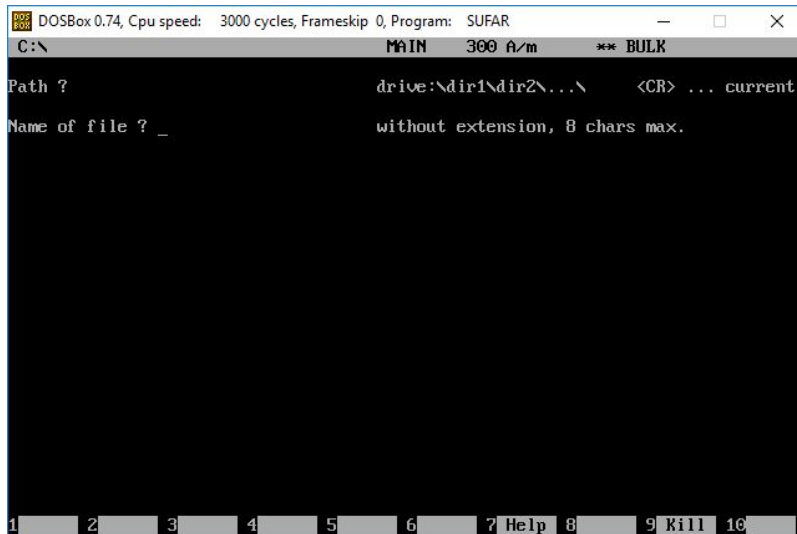


Figure 18. Sufar window prompting user to enter a file name with a maximum of eight characters

10. A new command line is now visible on the screen.

- a. If this is a file with existing measurements, the window will display the number of measurements already in the file, and ask for the new specimen name (**Figure 19**).
- b. If this is a new file, the window will only display the prompt asking for the specimen name.

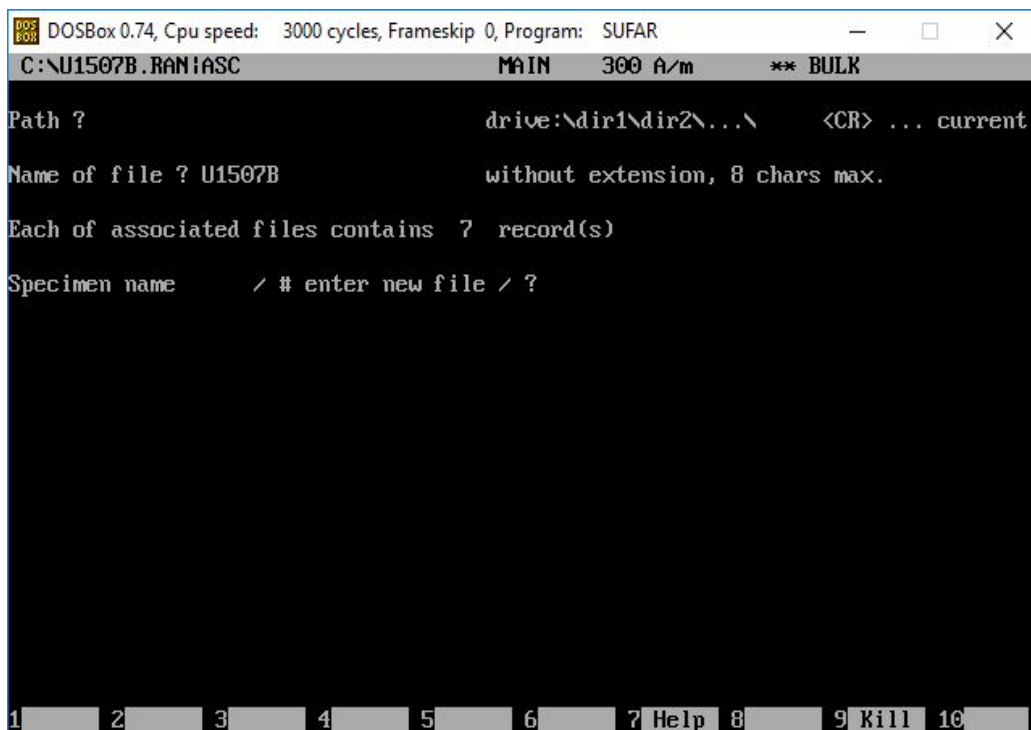


Figure 19. Sufar window prompting user to enter a specimen name or to use the # sign to indicate they wish to put the data in a new file.

11. At the prompt: **Specimen name /# enter new file/?**, enter the **TextID** of the sample. Press return

- a. TextIDs are required as sample names for upload.

12. The Sufar window now displays the options for entering the orientation scheme you wish to use (**Figure 20**). Enter 1,2, or 3 and press return.

- a. This will likely be number 3, Non-oriented specimen

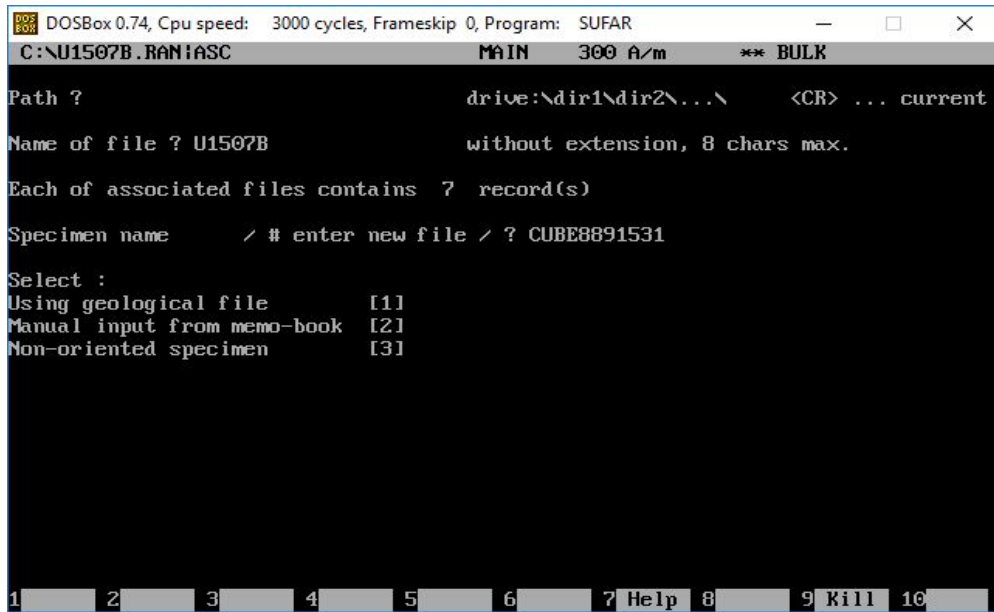


Figure 20. Sufar window displaying options for entering specimen orientation information

13. The specimen data will now be displayed on the screen for you to evaluate (Figure 21). To leave this window, press ESC (the escape key).

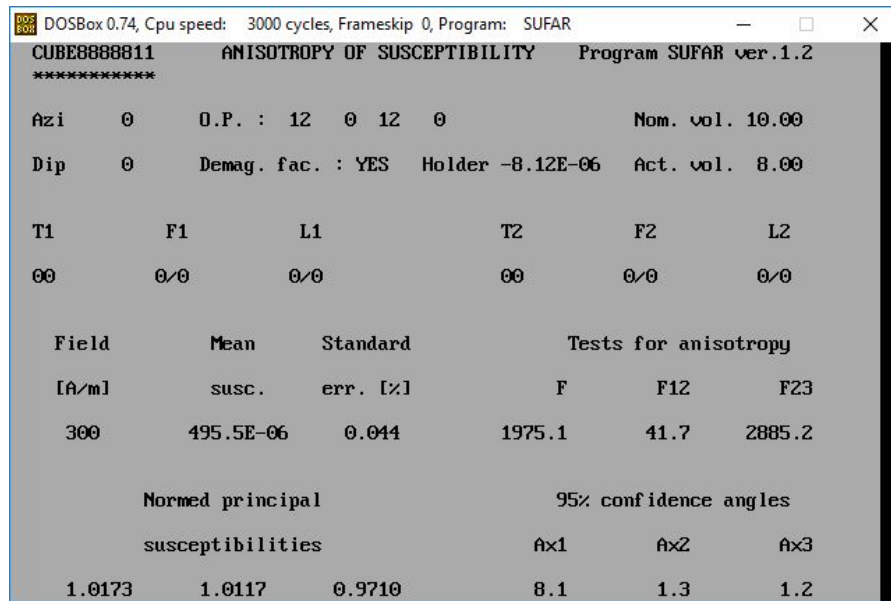


Figure 21. Sufar data evaluation window

14. Sufar will now display: Output to file (Y/N)? (Figure 22).

- a. Pressing Y and return saves the data. You may also press return as saving the data is the default action
- b. Pressing N and return will result in your data not being saved.

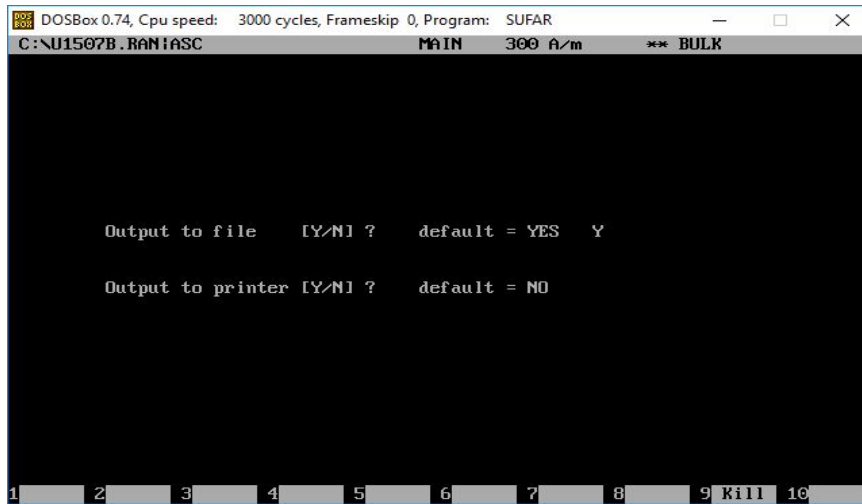


Figure 22. Sufar display asking user to choose to output data to a file and if they wish to print.

15. User is now prompted: Output to printer (Y/N)? (Figure 22). Pressing return will trigger the default response of N (no).

- a. Entering Y will result in data being sent to a printer

16. User will be returned to the Main Sufar window (Figure 9b). You may begin the next measurement now by repeating steps one through seven.

- a. The saving process will look different after the first measurement is made. The program will only prompt the user for a specimen name (Figure 23).
- b. If you wish to change the file that the data is saved to, enter # and press return. The display will now show a prompt for a Path (Figure 17).

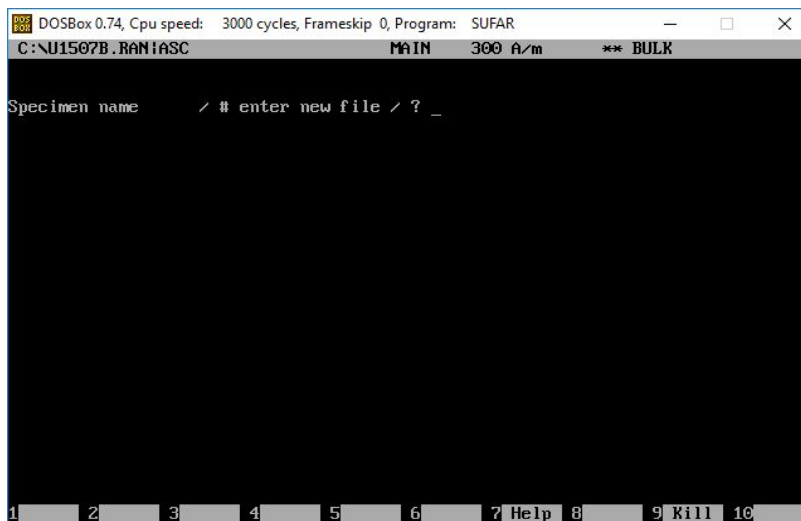


Figure 23. Sufar prompt window after initial file has been set

17. When measurements are completed and the user wishes to switch off the software, press **F1** to trigger an Ax1 measurement.

18. Then press **F8** to stop the measurement

19. Use **ctrl + Q** to quit the program.

- a. Improperly quitting the program may result in the loss of data. The last lines of the .ASC file will not be properly written.

20. Data should now appear in the .ASC file. Check the data file to ensure all data was written properly.

- a. Do not complete measurements with the .ASC file open
- b. Data will not appear in the .ASC file immediately. Data will be written to the .RAN file and transferred to the .ASC file when the program is closed.

## Bulk Susceptibility Measurement:

1. Press **F10** to access the AUX menu
2. Press **F1** to initiate Bulk Susceptibility measurements
3. Sufar will prompt the user to decide if new holder measurement is necessary. Enter Y or N and press return (**Figure 24**).
  - a. The default response is N.

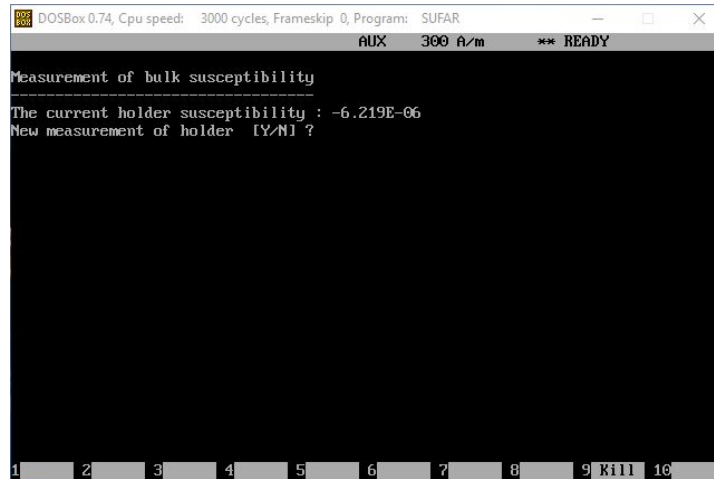


Figure 19 Prompt Window allowing user to measure the holder before bulk susceptibility measurements

4. User is prompted to select to measure in the current field or k-H Curve. Pressing Return will trigger the default response: current field (**Figure 25**).

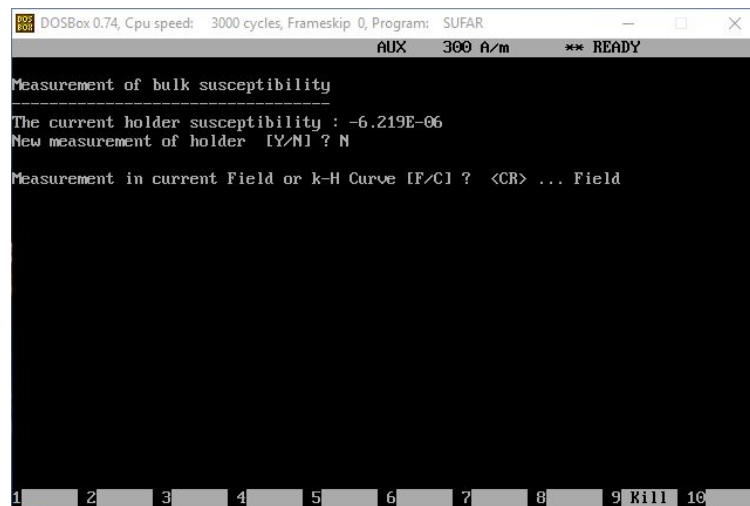


Figure 25. Prompt Window allowing user to select field for bulk susceptibility measurements

5. Place sample in holder in Position 1.
6. Enter the Specimen name at the prompt (**Figure 26**).



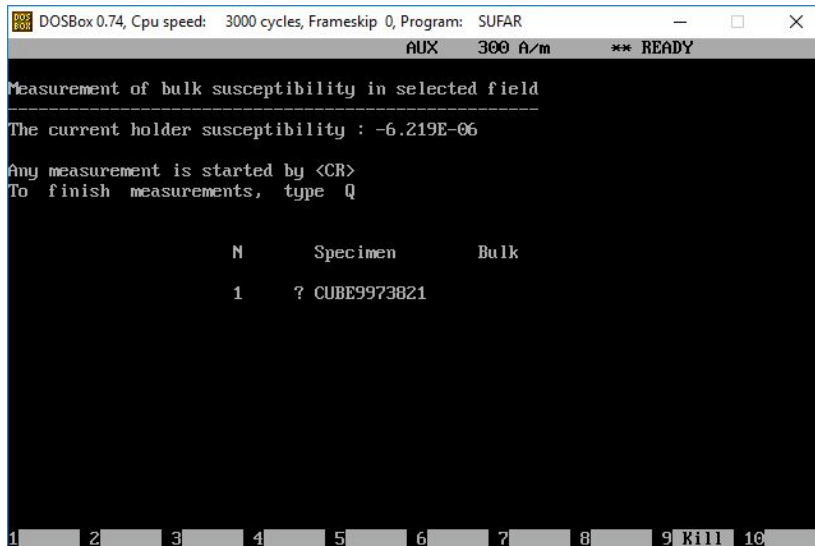


Figure 26. Bulk Susceptibility Measurement Window

7. Use the TextID as the specimen name
8. Press Return to initiate the bulk susceptibility measurement
9. When the measurement is complete, user is prompted for the next specimen. Repeat steps 5 through 7 for all specimens.
10. When measurements are complete, enter **Q** and press return (**Figure 27**).

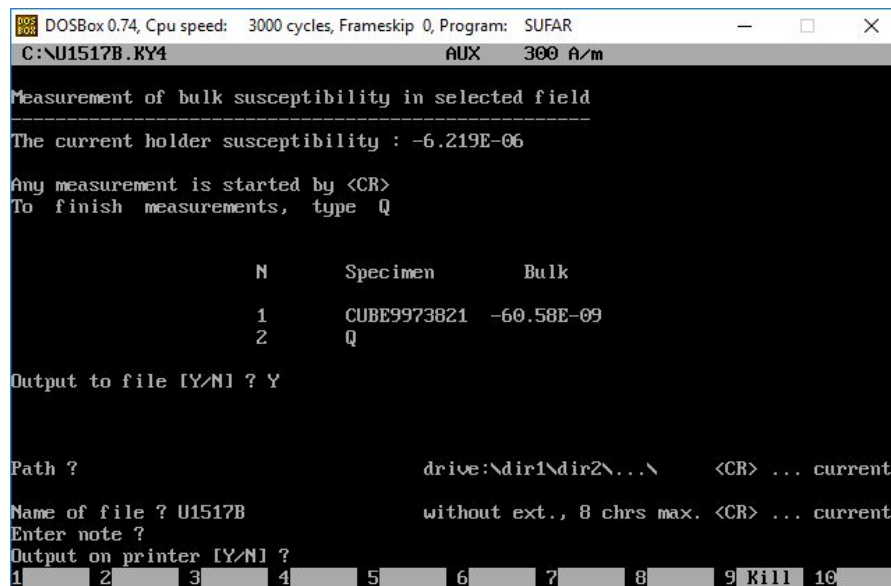


Figure 27 Saving Bulk Susceptibility data

11. User will be prompted to Output the data to a file. Enter **Y** and press return to save data (**Figure 27**).
12. User is prompted for the file path. Press return to use default file path (**Figure 27**).
13. At the Name of File? Prompt, enter a file name under 8 characters in length. Recommended file name is Site and Hole (ex. U1517B). Press return (**Figure 27**).
14. User is prompted to enter a note. This field can be left blank.
15. User is prompted to output data on a printer. Enter **N**.
16. Data should now be written to a .ky4 file at the path set by the user. Check to make sure the file has been written.

When done, you can kill the program by hitting F9 and clicking on the X in the upper right corner of the DOS window. To get the Kappabridge arm to return to the down position, start up AMSSpin and then press the **red STOP button**. This will move the Kappabridge arm back down and the Kappabridge can be put away.

## Uploading data to LIMS (SUFAR)

Uploads are completed using the MegaUploadTron (MUT) application. For Anisotropy of Magnetic Susceptibility measurements generated by the AGICO Sufar program, MUT requires an .asc and a .ran file. To upload bulk susceptibility files, MUT requires the .ky4 file.

To complete an upload, place the files to be uploaded in the IN folder and select upload. MUT will not recognize if the same file has already been uploaded and will upload it again. This will result in duplicate data being uploaded. The Text ID must be the sample name for upload to work. It is not possible to edit the names after the fact because the names need to be altered in the .ran file.

## Archive Versions:

[KappabridgeUserGuide\\_exp378.pdf](#): PDF version of this wiki page as of 2020-02-24