

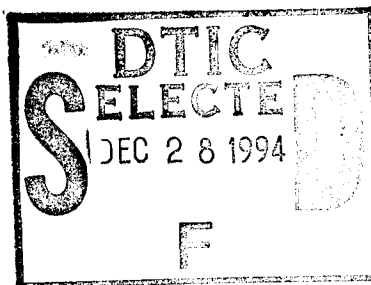


NRL/MR/5360--94-7618

Data Input for RADARPD: Window Version

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*Airborne Radar Branch
Radar Division*



December 13, 1994

Approved for public release; distribution unlimited.

19941223 063

REPORT DOCUMENTATION PAGE

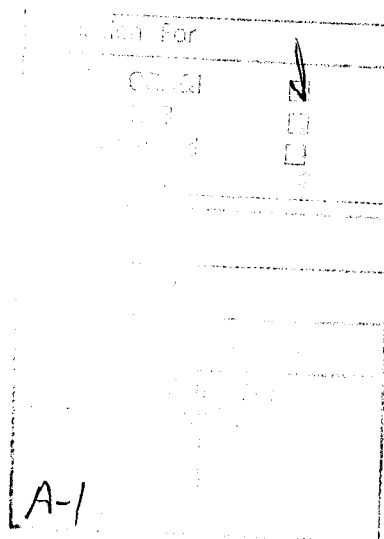
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OMB No. 0704-0188

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1. AGENCY USE ONLY (Leave Blank)		2. REPORT DATE December 13, 1994	3. REPORT TYPE AND DATES COVERED	
4. TITLE AND SUBTITLE Data Input for RADARPD: Window Version			5. FUNDING NUMBERS	
6. AUTHOR(S) Molly M. Yen				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Research Laboratory Washington, DC 20375-5320			8. PERFORMING ORGANIZATION REPORT NUMBER NRL/MR/5360-94-7618	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Naval Air Warfare Center Ad Patuxent River, MD 20670-5304			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) An X Window interface inputting data to the RADARPD computer program has been developed. The RADARPD program reads in an input data file and calculates the probability of detection. A brief introduction contrasts the previous VAX based text editor input interface with the new SUN based X Window input interface. After the introduction is a detailed description of the window interface that explains the organization and format of the input window; following that is step-by-step instructions on how to enter and edit data files using the new interface. Concluding the report is the source code.				
14. SUBJECT TERMS			15. NUMBER OF PAGES 58	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UL	

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DATA INPUT FOR RADARPD: WINDOW VERSION

I. INTRODUCTION

RADARPD is a computer program which calculates the probability of detection. The program reads in a user inputted data file and then performs the computation. Recently it has been converted from the VAX 11-750 VMS operating system to the SUN Solaris operating system. Previously on the VAX computer, the user had to use a text editor to create or edit the input data file. This input procedure was quite tedious since the data file usually consisted of a long string of numbers, simply separated by commas (Figure 1). The user not only had to remember the order in which to input the data values, but had to remember what each data value represented as well. A window interface for creating and editing the input data file has been developed for the SUN computer, using C language and the NRLx Toolkit, an X Window toolkit. The window interface uses graphical objects such as buttons and labeled text fields. It has not only simplified the input process, but is extremely user friendly as well.

II. WINDOW INTERFACE FORMAT

The window interface consists of a main menu window, Figure 2, and nineteen subwindows, Figure 3 through Figure 21. Each subwindow contains a group of related data values, such as Signal Parameters, Antenna Characteristics, etc. The user is able to open a subwindow or perform certain functions, such as saving the data file and executing the calculation, by simply clicking on a button from the main menu window. Different types of data can be entered, such as integers, floating points, and character strings. There are ten fields on each subwindow, four representing integer values (Item1, Item2, Item3, and Item4), and six representing floating point values (Var1, Var2, Var3, Var4, Var5, and Var6). Each field is labeled with its name and its unit (deg., dB, etc.), if applicable. Not all of the ten fields are used for each subwindow function. For example, only six fields are used for Signal Parameters, Figure 3, while all the fields are used for Antenna characteristics, Figure 8. Only one subwindow, Title for Printout and Plot, Figure 12, contains character string fields.

III. OPERATION PROCEDURE

The user can use this window interface program to create a new data file or edit an existing data file. Since each case has different requirements, the data file does not have a fixed size. The user can click and enter data for as many subwindows as needed. The Execute subwindow, Figure 21, is the only required subwindow for all cases, and should always be the last subwindow to be entered.

The input procedure is as follows:

- (1) Create a new data file:
 - (a) Click on "Open a new data file" button.
 - (b) Click the desired subwindow button on the main menu.
 - (c) Enter the values into the text fields.
 - (d) Save the window when completed by clicking on "Save this new window" button.
 - (e) Repeat b, c, and d as many times as needed.
 - (f) Close the new data file by clicking on the "Close the new data file" button.
- (2) Retrieve and edit an existing data file:
 - (a) Click on "Open an existing data file" button.
 - (b) Click on the desired subwindow button that needs to be edited.
 - (c) The old values will appear in the subwindow, Figure 10. Make the proper changes.
 - (d) Save the retrieved window when completed by clicking on the "Save this in window" button.
 - (e) Repeat b, c, and d as many times as needed.
 - (f) Close the retrieved data file by clicking on the "Close this existing data file" button.

IV. ACKNOWLEDGMENT

I would like to thank Mr. Fred Staudaher who gave me the idea to upgrade the RADARPD input data file to a window interface version.

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```
2,,3000,,,1.,5.,5.66,732.6,20.,  
3,1,1,4,2,,229.,6.4,30.,,  
4,,,,,25000.,,,,,,  
5,,,,,10.,50.,2.,,,  
6,,,,,20.,200.,2.,,,  
7,,,,,3.,34.,18.,,,45.  
9,1,,,1,-43.8,0.8,0.2,10.,,  
112,,,,,,  
Test Run  
May 30, 1994  
1623,8,,,40.,0.2,5.,,,  
1,,,,,10.,,,,,
```

Figure 1 Old VAX Input Data File

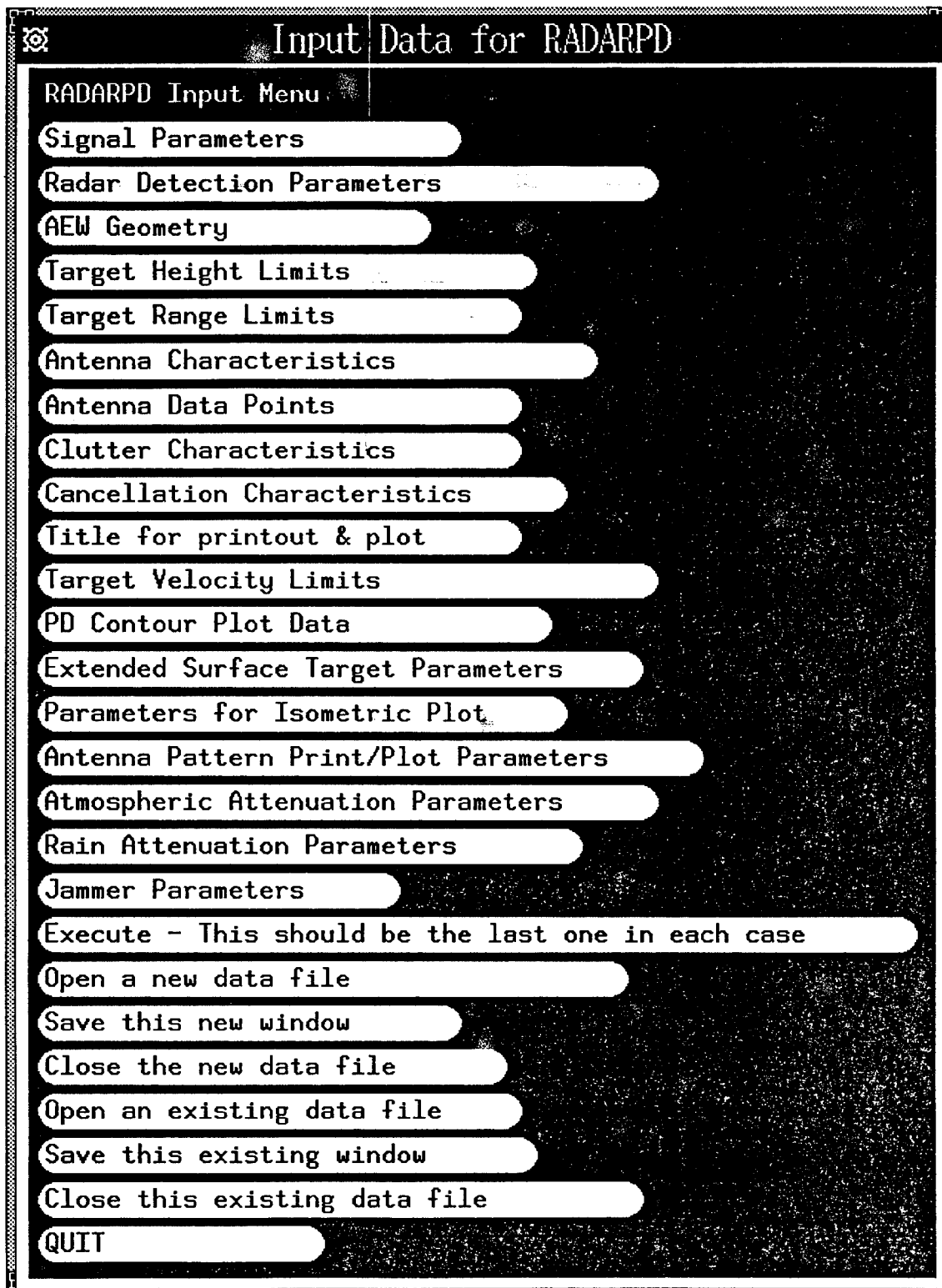


Figure 2 Main Menu

Signal Parameters

Item 1

>

RF Transmit Frequency (MHz)

>

Item 3

>

Item 4

>

Peak Power (Mw)

>

Instaneous Bandwidth (MHz)

>

Cumulative System Losses (dB)

>

System Noise Temp. (K)

>

Transmit Pulse Width (micro sec)

>

Var 6

>

Figure 3 Signal Parameters

⊙ **Radar Detection Parameters** ▽

0-Conolly's law, 1-Marcum/Swerling, 2-Shotland

⊙ >

0 - Fixed, # - Swerling Case

⊙ >

- Independent Groups

⊙ >

- Dependent Pulses in a Group

⊙ >

Var 1

⊙ >

Coherent Integration Gain

⊙ >

*Probability of False Alarm (-10*log(PFA))*

⊙ >

Target Cross Section (sq. meters)

⊙ >

Detection Sensitivity (dB)

⊙ >

Detection Slope (default=1)

⊙ >

Figure 4 Radar Detection Parameters

AEW Geometry	
☐	Item 1
☐	>
☐	Item 2
☐	>
☐	Item 3
☐	>
☐	Item 4
☐	>
☐	Platform Altitude (ft.)
☐	>
☐	Platform Pitch Angle (deg.)
☐	>
☐	Platform Roll Angle (deg.)
☐	>
☐	Var 4
☐	>
☐	Var 5
☐	>
☐	Var 6
☐	>

Figure 5 AEW Geometry

○

Target Height Limits

▽

Item 1

○ >

Item 2

○ >

Item 3

○ >

Item 4

○ >

Minimum Target Altitude (ft.)

○ >

Maximum Target Altitude (ft.)

○ >

Increment Altitude (ft.)

○ >

Var 4

○ >

var 5

○ >

Var 6

○ >

Figure 6 Target Height Limits

Target Range Limits	
Item 1	
Item 2	
Item 3	
Item 4	
Minimum Target Range (nmi)	
Maximum Target Range (nmi)	
Increment Range (nmi)	
Var 4	
Var 5	
Var 6	

Figure 7 Target Range Limits

⊙
▽
Antenna Characteristics

- of Antenna Pattern Data Points

⊙ >

Reference Count (10*full scale in dB)

⊙ >

0 - Horizontal Polarity, 1 - Vertical Polarity

⊙ >

0-T/R parameter, 1-Transmit pattern, 2-Receive pattern, 3-VPAT routine

⊙ >

Antenna az. pointing angle (deg.)

⊙ >

Antenna Reference Gain (dB)

⊙ >

Min Angle of Antenna Pattern(if H!=0), Vertical Beamwidth (deg)

⊙ >

Increment of Pattern (if H!=0)

⊙ >

Full Scale of Antenna Chart (dB)(if H!=0), Elevation offset Angle (deg)

⊙ >

Vertical Pattern Phase Parameter

⊙ >

Figure 8 Antenna Characteristics

Stored Antenna Data Points

– of Current Antenna Point

>

Recorder Count (10*value in dB)

>

Item 3

>

Item 4

>

Voltage Pattern Sign (0, +1, -1)

>

Var2

>

Var3

>

Var4

>

Var5

>

Var6

>

Figure 9 Antenna Data Points

Clutter Characteristics	
0-Land,1-Sea,Model Clutter Coeff func:2/3(L/S)-range, 4/5(L/S)-grazing	>1
Diffraction Option: 0-Interpolate,1-Multi Path,2-Fock	>0
0-(all cases except 2/3),Index# of Range Interval for coeff	>0
0-No Forward Scatter,1-Forward Reflection,Forward Power:2-Min,3-Ma	>1
Clutter Reflection Coeff(dB),(for cases 4/5 coeff taken at 10 (deg)	>-43.799999
Horizontal Beamwider(deg.)	>0.800000
Pulse Width (post-compressed) (micro sec.)	>0.200000
Wave Ht(ft):0-0',1-<1',2-(1-3)',3-(3-5)',4-(5-8)',5-(8-12)',6-(12-20)'	>5.000000
Min range (cases 2/3)(nmi), Slope of Coeff(case 4/5) (dB/decade)	>0.000000
Increment Range (cases 2/3) (nmi)	>0.000000

Figure 10 Clutter Characteristics

Cancellation Characteristics	
0-Single Cancellation ratio, #-Cancellation ratio for #th range value	
# - Pulses Per Antenna Beamwidth	
0-No Loss func., 1-Single Delay Canceller, 2-Double Delay Canceller	
Item 4	
Cancellation Ratio (dB)	
Threshold Loss Coefficient - A1 (if unknown use 0)	
Threshold Loss Coefficient - A2 (if unknown use 5)	
Threshold Loss Coefficient - B1 (if unknown use 1)	
Threshold Loss Coefficient - B2	
Threshold Loss Coefficient - B3	

Figure 11 Cancellation Characteristics

Title for Printout and Plot

of Title Line to follow (maximum is 4)

>

Line one

>

Line two

>

Line three

>

Line four

>

Figure 12 Title for Printout & Plot

A-13

Target Velocity Limits	
0-For Regular PD Calc, 1-For Cumulative PD Calc	
☐	>
Item 2	
☐	>
Item 3	
☐	>
Item 4	
☐	>
Minimum Target Range Rate (ft/sec)	
☐	>
Maximum Target Range Rate (ft/sec)	
☐	>
Increment Rate (ft/sec)	
☐	>
Scan Interval (sec)	
☐	>
Range Increment Between Printouts (nmi)	
☐	>
Cumulative Prob Level for Special Print	
☐	>

Figure 13 Target Velocity Limits

Extended Surface Target Parameters	
0 - Header, 1 - Detail	
☐	>
0-Point Model, 1-Area Model, # of point (if 11=1)	
☐	>
Total # of detail points (detail cards must follow)	
☐	>
Item 4	
☐	>
Height (ft.)	
☐	>
Area (sq. ft.)	
☐	>
Var 3	
☐	>
Var 4	
☐	>
Var 5	
☐	>
Var 6	
☐	>

Figure 15 Extended Surface Target Parameters

Parameters for Isometric Plot		
Item 1: 0 - None (1,2,3)		1 - Signal/Noise
2 - Signal/(Clutter + Noise)		3 - Probability of Detection
Height Independent Plots: 10 - Reset to zero(11,12,13)		
11 - sh 1	12 - sh 2	13 - sh 3
Height Dependent Plots: 20 - Reset to zero(21,22,23)		
21 - sh1	22 - sh2	23 - sh3
Item 2: 0 - Reset		Height Independent Plots: 1 - Clutter/Noise
2 - Threshold Loss		3 - Cancellation Ratio
Height Dependent Plots: 1 - Clutter/Noise		2 - Signal/Noise
4 - Signal/(Clutter+Noise)		8 - Prob. of Detection
Item 3		
⊙ >		
Item 4		
⊙ >		
Range Scale (nmi/in.)		
⊙ >		
dB or Pd scale (dB/in. or unit/in.)		
⊙ >		
Minimum dB or Pd (dB or unit)		
⊙ >		
Maximum Z Dimension (in.)		
⊙ >		
Height Scale (ft/in.)		
⊙ >		
Fixed XMAX for Plotting (nmi)		
⊙ >		

Figure 16 Parameters for Isometric Plot

Antenna Pattern Print/Plot Parameters

0-No print or plot, 1-Print, 2-Plot, 3-Print and Plot

☐ >

0 - Linear Scale, 1 - Polar Scale

☐ >

Item 3

☐ >

Item 4

☐ >

Minimum Phi (deg.)

☐ >

Maximum Phi (deg.)

☐ >

Delta Phi for Print & Plot (deg.)

☐ >

Scale Phi (deg./in.)

☐ >

Vertical Scale (dB/in.)

☐ >

Plot Height (in.)

☐ >

Figure 17 Antenna Pattern Print/Plot Parameters

Atmospheric Attenuation Parameters	
0-No Attenuation, 1-Linear Attenuation, 2-Asymtotic attenuation	0 >
0 - Reset, # of Element	0 >
variable NPOLY	0 >
Item 4	0 >
Attenuation value: (linear-dB/nmi) or (Asym.-dB/angle)	0 >
variable A	0 >
variable B	0 >
variable R	0 >
variable K	0 >
variable 4	0 >

Figure 18 Atmospheric Attenuation Parameters

Jammer Parameters	
Item 1	
Item 2	
Item 3	
Item 4	
Jammer Effective Radiated Power (W)	
Jammer Bandwidth (MHz)	
Jammer Range (nmi)	
Antenna Sidelobe Gain (dB)	
SLC Cancellation Ratio (dB)	
Var 6	

Figure 20 Jammer Parameters

Execute

0 – Clutter + Noise, 1 – Noise only

☐ >

0–No pattern,print,plot, 1–print,plot,pattern,continue/

☐ >

0 – Print, 1 – No Print

☐ >

Item 4

☐ >

Single Target Altitude (ft.)

☐ >

Var 2

☐ >

Var 3

☐ >

Var 4

☐ >

Var 5

☐ >

Var 6

☐ >

Figure 21 Execution

Appendix B

SOURCE CODE LISTINGS

Tue Nov 29 14:02:23 1994

```
#ifndef INDATA_H
#define INDATA_H
#include <NRLx.h>
#include <NRLxutil.h>
#endif
```

Wed Sep 21 16:37:04 1994

```

/* This program uses NRLx Toolkit to create a window interface */
/* version of RADARPD input data file */
/* M. Yen Aug., 1993 */
/* Revision: M. Yen Sept., 1994 */
/* Recompiled and relinked the program with the upgraded NRLx library */
/* routines. */

#include "indata.h"

struct nrlx
{
    *console;
}

struct nrlx
{
    *popup2, *popup3, *popup4, *popup5, *popup6, *popup7,
    *popup8, *popup9, *popup10, *popup12, *popup13, *popup15,
    *popup16, *popup17, *popup18, *popup19, *popup20, *popup1,
    *popup11;
}

struct nrlx
{
    *menu1,
    *entry_1, *entry_2, *entry_3, *entry_4, *entry_5, *entry_6,
    *entry_7, *entry_8, *entry_9, *entry_10, *entry_11, *entry_12,
    *entry_13, *entry_14, *entry_15, *entry_16, *entry_17,
    *entry_18, *entry_19;
}

struct nrlx
{
    *entry_30,
    *entry_31,
    *entry_32,
    *entry_33;
}

struct nrlx
{
    *entry_40, *entry_41, *entry_42;
}

struct nrlx
{
    *text, *text1, *text2, *text3, *text4, *text5,
    *text200, *text201, *text202, *text203;
}

struct nrlx
{
    *text6, *text7, *text8, *text9,
    *text10, *text11, *text12, *text13, *text14, *text204;
}

struct nrlx
{
    *text15, *text16, *text17,
    *text205, *text206, *text207, *text208, *text209,
    *text210, *text211;
}

struct nrlx
{
    *text18, *text19, *text20,
    *text212, *text213, *text214, *text215,
    *text216, *text217, *text218;
}

struct nrlx
{
    *text21, *text22, *text23,
    *text219, *text220, *text221, *text222,
    *text223, *text224, *text225;
}

struct nrlx
{
    *text24, *text25, *text26, *text27, *text32, *text33;
    *text28, *text29, *text30, *text31,
    *text35, *text36,
    *text226, *text227, *text228, *text229, *text230,
    *text231, *text232;
}

struct nrlx
{
    *text37, *text38, *text39, *text40, *text41, *text42,
    *text43, *text44, *text45, *text46;
}

struct nrlx
{
    *text47, *text48, *text49, *text50, *text51, *text52,
    *text53, *text54, *text55, *text233;
}

```

Wed Sep 21 16:37:04 1994

```

void signal();
void radarct();
void aewgeo();
void tarhgt();
void tarrng();
void antcha();
void antdata();
void cltchar();
void canchar();
void title();
void tarvelo();
void contour();
void surtar();
void isompt();
void antpat();
void atmtn();
void rainatt();
void jammer();
void execute();
void savewin();
void openfile();
void closefile();
void saveinf();
void openinfile();
void closeinfile();

str1=calloc(80,sizeof(char));
str2=calloc(80,sizeof(char));
str3=calloc(80,sizeof(char));
str4=calloc(80,sizeof(char));

s11=calloc(80,sizeof(char));
s12=calloc(80,sizeof(char));
s13=calloc(80,sizeof(char));
s14=calloc(80,sizeof(char));
s15=calloc(80,sizeof(char));
s16=calloc(80,sizeof(char));
s17=calloc(80,sizeof(char));
s18=calloc(80,sizeof(char));
s19=calloc(80,sizeof(char));
s20=calloc(80,sizeof(char));

console = NRLX (MainWindow, NULL,
XPos,10, YPos,10,
Label, "Input Data for RADARPD ",
Width, 500,
Height, 800,
Background, "white",
FrameColor, "turquoise",
NULL);

menu1 = NRLX (Menu, console, XPos,10, YPos,10,
Label, "RADARPD Input Menu
Background, "black",
Foreground, "white",
Pinned, TRUE,
Textfont, "10x20",
NULL);

entry_1 = NRLX (Entry, menu1,
Label, "Signal Parameters
Proc, signal,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_2 = NRLX (Entry, menu1,
Label, "Radar Detection Parameters
Proc, radarct,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_3 = NRLX (Entry, menu1,
Label, "AEW Geometry
Proc, aewgeo,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_4 = NRLX (Entry, menu1,
Label, "Target Height Limits
Proc, tarhgt,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_5 = NRLX (Entry, menu1,
Label, "Target Range Limits
Proc, tarrng,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_6 = NRLX (Entry, menu1,
Label, "Antenna Characteristics
Proc, antcha,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_7 = NRLX (Entry, menu1,
Label, "Antenna Data Points
Proc, antdata,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_8 = NRLX (Entry, menu1,
Label, "Clutter Characteristics
Proc, cltchar,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

```

```

entry_9 = NRLX (Entry, menu!,
Label, "Cancellation Characteristics",
Proc, canchar,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_19 = NRLX (Entry, menu!,
Label, "Title for printout & plot",
Proc, title, "black",
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_10 = NRLX (Entry, menu!,
Label, "Target Velocity Limits",
Proc, tarvelo,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_11 = NRLX (Entry, menu!,
Label, "PD Contour Plot Data",
Proc, contour,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_12 = NRLX (Entry, menu!,
Label, "Extended Surface Target Parameters",
Proc, surtar,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_13 = NRLX (Entry, menu!,
Label, "Parameters for Isometric Plot",
Proc, isompt,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_14 = NRLX (Entry, menu!,
Label, "Antenna Pattern Print/Plot Parameters",
Proc, antpat,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_15 = NRLX (Entry, menu!,
Label, "Atmospheric Attenuation Parameters",
Proc, atmattn,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_16 = NRLX (Entry, menu!,
Label, "Rain Attenuation Parameters",
Proc, rainatt,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_17 = NRLX (Entry, menu!,
Label, "Jammer Parameters",
Proc, jammer, "black",
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_18 = NRLX (Entry, menu!,
Label, "Execute - This should be the last one in each case",
Proc, execute,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_30 = NRLX (Entry, menu!,
Label, "Open a new data file",
Proc, openfile,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_31 = NRLX (Entry, menu!,
Label, "Save this new window",
Proc, savewin,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_32 = NRLX (Entry, menu!,
Label, "Close the new data file",
Proc, closefile,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

entry_40 = NRLX (Entry, menu!,
Label, "Open an existing data file",
Proc, openinfile,
Foreground, "black",
Background, "white",
Shape, oval,
NULL);

```

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```

entry_42 = NRLX (Entry, menu1,
Label, "Save this in window",
Proc, saveinf,
Foreground, "black",
Background, "white",
Shape, Oval,
NULL);

entry_41 = NRLX (Entry, menu1,
Label, "Close this existing data file",
Proc, closeinfile,
Foreground, "black",
Background, "white",
Shape, Oval,
NULL);

entry_33 = NRLX (Entry, menu1,
Label, "QUIT",
Proc, quit,
Foreground, "black",
Background, "white",
Shape, Oval,
NULL);

NRLXStartInterface (console);

}

/* Popup Window 2 - signal Parameters */
void signal()
{
    ycount=5, inc=70, xcount=10;
    cardno=2;
    il=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;

    popup2 = NRLX (Popup, console, XPos, 530, YPos, 20,
Label, "Signal Parameters",
Width, 600,
Height, 800,
Background, "white",
FrameColor, "red",
NULL);

    text200 = NRLX (TextEntry, popup2, XPos, xcount, YPos, ycount,
Label, "Item 1",
Width, 550,
Height, 25,
Proc, stoil,
NULL);

    text = NRLX (TextEntry, popup2, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "RF Transmit Frequency (MHz)",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

    text201 = NRLX (TextEntry, popup2, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 3",
Width, 550,
Height, 25,
Proc, stoil3,
NULL);

    text202 = NRLX (TextEntry, popup2, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

    text1 = NRLX (TextEntry, popup2, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Peak Power (Mw)",
Width, 550,
Height, 25,
Proc, stof1,
NULL);

    text2 = NRLX (TextEntry, popup2, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Instantaneous Bandwidth (MHz)",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

    text3 = NRLX (TextEntry, popup2, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Cumulative System Losses (dB)",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

    text4 = NRLX (TextEntry, popup2, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "System Noise Temp. (K)",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

    text5 = NRLX (TextEntry, popup2, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Transmit Pulse Width (micro sec)",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

    text203 = NRLX (TextEntry, popup2, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "var 6",
Width, 550,
Height, 25,
Proc, stof6,
NULL);

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/* read in an existing file, make changes on card 2 */
if (cndt == 1) {
    rewind (fpl);
    fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    while (cardno != 2) {
        fseek (fpl, 1, 1);
        fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    }
    loc = ftell (fpl);
    printf("win 1st loc = %d\n", loc);
    loc = loc - 80;
    printf("win 2 2nd loc=%d\n", loc);
    printf (si1, "%d", i1);
    printf (si2, "%d", i2);
    printf (si3, "%d", i3);
    printf (si4, "%d", i4);
    printf (sv1, "%f", v1);
    printf (sv2, "%f", v2);
    printf (sv3, "%f", v3);
    printf (sv4, "%f", v4);
    printf (sv5, "%f", v5);
    printf (sv6, "%f", v6);
    NRLxLoadTextEntry (text200, si1);
    NRLxLoadTextEntry (text, si2);
    NRLxLoadTextEntry (text201, si3);
    NRLxLoadTextEntry (text202, si4);
    NRLxLoadTextEntry (text1, sv1);
    NRLxLoadTextEntry (text2, sv2);
    NRLxLoadTextEntry (text3, sv3);
    NRLxLoadTextEntry (text4, sv4);
    NRLxLoadTextEntry (text5, sv5);
    NRLxLoadTextEntry (text203, sv6);
}

/* Popup Window 3 - Radar Detection Parameters */
void radardet()
{
    ycount=5, inc=70, xcount=10;
    cardno=3;
    i1=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;
    popup3 = NRLx (Popup, console, XPos, 530, YPos, 10,
        Label, "Radar Detection Parameters",
        Width, 600,
        Height, 800,
        Background, "white",
        FrameColor, "purple",
        NULL);
    text6 = NRLx (TextEntry, popup3, XPos, xcount, YPos, ycount,
        Label, "0-Conolly's law, 1-Marcum/Swerling, 2-Shotland ",
        Width, 550,
        Height, 25,
        Proc, stoil,
        NULL);
    text7 = NRLx (TextEntry, popup3, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "0 - Fixed, # - Swerling Case ",
        Width, 550,
        Height, 25,
        Proc, stoil2,
        NULL);
    text8 = NRLx (TextEntry, popup3, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "# - Independent Groups ",
        Width, 550,
        Height, 25,
        Proc, stoil3,
        NULL);
    text9 = NRLx (TextEntry, popup3, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "# - Dependent Pulses in a Group ",
        Width, 550,
        Height, 25,
        Proc, stoil4,
        NULL);
    text204 = NRLx (TextEntry, popup3, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "var 1",
        Width, 550,
        Height, 25,
        Proc, stof1,
        NULL);
    text10 = NRLx (TextEntry, popup3, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Coherent Integration Gain ",
        Width, 550,
        Height, 25,
        Proc, stof2,
        NULL);
    text11 = NRLx (TextEntry, popup3, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Probability of False Alarm (-10*log(PFA))",
        Width, 550,
        Height, 25,
        Proc, stof3,
        NULL);
    text12 = NRLx (TextEntry, popup3, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Target Cross Section (sq. meters)",
        Width, 550,
        Height, 25,
        Proc, stof4,
        NULL);
    text13 = NRLx (TextEntry, popup3, XPos, xcount, YPos, (ycount-ycount+inc),

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Label, "Detection Sensitivity (dB)",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

text14 = NRLX (TextEntry, popup3, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Detection Slope (default=1)",
Width, 550,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card 3 */
if (cndt == 1) {
rewind (fp1);

fscanf (fp1, "%d%d%d%d%d%d%d%d%d", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);

while (cardno !=3) {
fseek (fp1, 1, 1);
fscanf (fp1, "%d%d%d%d%d%d%d%d%d", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
}

loc = ftell (fp1);
printf("win 3 1st loc = %d\n", loc);
loc = loc - 80;
printf("win 3 2nd loc=%d\n", loc);

printf (s11, "%d", i1);
printf (s12, "%d", i2);
printf (s13, "%d", i3);
printf (s14, "%d", i4);
printf (sv1, "%f", v1);
printf (sv2, "%f", v2);
printf (sv3, "%f", v3);
printf (sv4, "%f", v4);
printf (sv5, "%f", v5);
printf (sv6, "%f", v6);

NRLXLoadTextEntry (text6, s11);
NRLXLoadTextEntry (text7, s12);
NRLXLoadTextEntry (text8, s13);
NRLXLoadTextEntry (text9, s14);
NRLXLoadTextEntry (text204, sv1);
NRLXLoadTextEntry (text10, sv2);
NRLXLoadTextEntry (text11, sv3);
NRLXLoadTextEntry (text12, sv4);
NRLXLoadTextEntry (text13, sv5);
NRLXLoadTextEntry (text14, sv6);
}

}

/* Popup Window 4 - AEW Geometry */
void acwgeo()

```

```

Proc, stof3,
NULL);

text209 = NRLX (TextEntry, popup4, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text210 = NRLX (TextEntry, popup4, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 5",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

text211 = NRLX (TextEntry, popup4, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 6",
Width, 550,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card 4*/
if (cndt == 1) {
rewind (fpl);

fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);

while (cardno !=4) {
fseek (fpl, 1, 1);
fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);

loc = ftell (fpl);
printf("win 4 1st loc = %d\n", loc);
loc = loc - 80;
printf("win 4 2nd loc=%d\n", loc);

printf (i1, "%d", i1);
printf (i2, "%d", i2);
printf (i3, "%d", i3);
printf (i4, "%d", i4);
printf (v1, "%f", v1);
printf (v2, "%f", v2);
printf (v3, "%f", v3);
printf (v4, "%f", v4);
printf (v5, "%f", v5);
printf (v6, "%f", v6);

NRLXLoadTextEntry (text205, i1);
NRLXLoadTextEntry (text206, i2);
NRLXLoadTextEntry (text207, i3);
NRLXLoadTextEntry (text208, i4);
NRLXLoadTextEntry (text215, v1);
NRLXLoadTextEntry (text216, v2);
NRLXLoadTextEntry (text17, sv3);
NRLXLoadTextEntry (text209, sv4);
NRLXLoadTextEntry (text210, sv5);
NRLXLoadTextEntry (text211, sv6);
}

/* Popup Window 5 - Target Height Limits */
void tarhgt()
{
ycount=5, inc=70, xcount=10;
cardno=5;
i1=i2=i3=i4=0;
v1=v2=v3=v4=v5=v6=0;

popup5 = NRLX (Popup, console, XPos, 530, YPos, 20,
Label, "Target Height Limits",
Width, 600,
Height, 800,
Background, "white",
FrameColor, "gold",
NULL);

text212 = NRLX (TextEntry, popup5, XPos, xcount, YPos, ycount,
Label, "Item 1",
Width, 550,
Height, 25,
Proc, stof1,
NULL);

text213 = NRLX (TextEntry, popup5, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 2",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

text214 = NRLX (TextEntry, popup5, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 3",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

text215 = NRLX (TextEntry, popup5, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text18 = NRLX (TextEntry, popup5, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Minimum Target Altitude (ft.)",
Width, 550,
Height, 25,
Proc, stof1,
NULL);

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text19 = NRLX (TextEntry, popup5, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Maximum Target Altitude (ft.)",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

text20 = NRLX (TextEntry, popup5, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Increment Altitude (ft.)",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

text216 = NRLX (TextEntry, popup5, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text217 = NRLX (TextEntry, popup5, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 5",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

text218 = NRLX (TextEntry, popup5, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 6",
Width, 550,
Height, 25,
NULL);

/* read in an existing file, make changes on card 5 */
if (cndt == 1) {
    rewind (fpl);
    fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &il, &si2, &si3, &si4, &sv
1, &sv2, &sv3, &sv4, &sv5, &sv6);
    while (cardno != 5) {
        fseek (fpl, 1, 1);
        fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &il, &si2, &si3, &si4, &sv
1, &sv2, &sv3, &sv4, &sv5, &sv6);
    }
    loc = ftell (fpl);
    printf("win 5 1st loc = %d\n", loc);
    loc = loc - 80;
    printf("win 5 2nd loc=%d\n", loc);
    printf (sil, "%d", il);
    printf (si2, "%d", i2);
    printf (si3, "%d", i3);
    printf (si4, "%d", i4);
    printf (sv1, "%f", v1);
    printf (sv2, "%f", v2);
    printf (sv3, "%f", v3);
    printf (sv4, "%f", v4);
    printf (sv5, "%f", v5);
    printf (sv6, "%f", v6);
    NRLXLoadTextEntry (text212, sil);
    NRLXLoadTextEntry (text213, si2);
    NRLXLoadTextEntry (text214, si3);
    NRLXLoadTextEntry (text215, si4);
    NRLXLoadTextEntry (text18, sv1);
    NRLXLoadTextEntry (text19, sv2);
    NRLXLoadTextEntry (text20, sv3);
    NRLXLoadTextEntry (text216, sv4);
    NRLXLoadTextEntry (text217, sv5);
    NRLXLoadTextEntry (text218, sv6);
}

/* Popup Window 6 - Target Range Limits */
void tarrng()
{
    ycount=5, inc=70, xcount=10;
    cardno=6;
    il=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;
    popup6 = NRLX (Popup, console, XPos, 530, YPos, 20,
Label, "Target Range Limits",
Width, 600,
Height, 800,
Background, "White",
FrameColor, "magenta",
NULL);
    text219 = NRLX (TextEntry, popup6, XPos, xcount, YPos, ycount,
Label, "Item 1",
Width, 550,
Height, 25,
Proc, stof1,
NULL);
    text220 = NRLX (TextEntry, popup6, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 2",
Width, 550,
Height, 25,
Proc, stof2,
NULL);
    text221 = NRLX (TextEntry, popup6, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 3",
Width, 550,
Height, 25,
Proc, stof3,
NULL);
    text222 = NRLX (TextEntry, popup6, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 4",

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width, 550,
height, 25,
proc, stof14,
NULL);

text21 = NRLX (TextEntry, popup6, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Minimum Target Range (nmi)",
width, 550,
height, 25,
proc, stof1,
NULL);

text22 = NRLX (TextEntry, popup6, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Maximum Target Range (nmi)",
width, 550,
height, 25,
proc, stof2,
NULL);

text23 = NRLX (TextEntry, popup6, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Increment range (nmi)",
width, 550,
height, 25,
proc, stof3,
NULL);

text223 = NRLX (TextEntry, popup6, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 4",
width, 550,
height, 25,
proc, stof4,
NULL);

text224 = NRLX (TextEntry, popup6, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 5",
width, 550,
height, 25,
proc, stof5,
NULL);

text225 = NRLX (TextEntry, popup6, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 6",
width, 550,
height, 25,
proc, stof6,
NULL);

/* read in an existing file, make changes on card 6 */
if (cndt == 1) {
    rewind (fpl);
    fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &il, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    while (cardno != 6) {
        fseek (fpl, 1, 1);
        fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &il, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    }

width, 550,
height, 25,
proc, stof14,
NULL);

loc = ftell (fpl);
printf("win 6 1st loc = %d\n", loc);
loc = loc - 80;
printf("win 6 2nd loc=%d\n", loc);

sprintf (sil, "%d", il);
sprintf (si2, "%d", i2);
sprintf (si3, "%d", i3);
sprintf (si4, "%d", i4);
sprintf (sv1, "%f", v1);
sprintf (sv2, "%f", v2);
sprintf (sv3, "%f", v3);
sprintf (sv4, "%f", v4);
sprintf (sv5, "%f", v5);
sprintf (sv6, "%f", v6);

NRLXLoadTextEntry (text219, sil);
NRLXLoadTextEntry (text220, si2);
NRLXLoadTextEntry (text221, si3);
NRLXLoadTextEntry (text222, si4);
NRLXLoadTextEntry (text221, sv1);
NRLXLoadTextEntry (text22, sv2);
NRLXLoadTextEntry (text23, sv3);
NRLXLoadTextEntry (text223, sv4);
NRLXLoadTextEntry (text224, sv5);
NRLXLoadTextEntry (text225, sv6);
}

/* Popup Window 7 - Antenna Characteristics */
void antcha()
{
    ycount=5, inc=70, xcount=10;
    cardno=7;
    il=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;

    popup7 = NRLX (Popup, console, XPos, 530, YPos, 10,
Label, "Antenna Characteristics",
width, 600,
height, 800,
Background, "white",
FrameColor, "dark turquoise",
NULL);

text24 = NRLX (TextEntry, popup7, XPos, xcount, YPos, ycount,
Label, "# - of Antenna Pattern Data Points ",
width, 550,
height, 25,
proc, stof1,
NULL);

text25 = NRLX (TextEntry, popup7, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Reference Count (10*full scale in dB)",
width, 550,
height, 25,

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Proc, stoi2,
NULL);

text26 = NRLX (TextEntry, popup7, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "0 - Horizontal Polarity, 1 - Vertical Polarity",
Width, 550,
Height, 25,
Proc, stoi3,
NULL);

text27 = NRLX (TextEntry, popup7, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "0-1/R parameter, 1-Transmit Pattern, 2-Receive Pattern, 3-VPA
T routine",
Width, 550,
Height, 25,
Proc, stoi4,
NULL);

text28 = NRLX (TextEntry, popup7, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Antenna az. pointing angle (deg.)",
Width, 550,
Height, 25,
Proc, stof1,
NULL);

text29 = NRLX (TextEntry, popup7, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Antenna Reference Gain (dB)",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

text30 = NRLX (TextEntry, popup7, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Min Angle of Antenna Pattern (if il!=0), Vertical Beamwidt
h (deg)",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

text31 = NRLX (TextEntry, popup7, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Increment of Pattern (if il != 0)",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text32 = NRLX (TextEntry, popup7, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Full Scale of Antenna Chart (dB) (if il!=0), Elevation off
set Angle (deg)",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

text33 = NRLX (TextEntry, popup7, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Vertical Pattern Phase Parameter",
Width, 550,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card */
if (cndt == 1) {
rewind (fpl);
fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &il, &si2, &si3, &si4, &sv
1, &sv2, &sv3, &sv4, &sv5, &sv6);
while (cardno != 7) {
fseek (fpl, 1, 1);
fscanf (fpl, "%d%d%d%d%d%f%f%f%f", &cardno, &il, &si2, &si3, &si4, &sv
1, &sv2, &sv3, &sv4, &sv5, &sv6);
}
loc = ftell (fpl);
printf ("win 7 1st loc = %d\n", loc);
loc = loc - 80;
printf ("win 7 2nd loc = %d\n", loc);
printf (sil, "%d", il);
printf (si2, "%d", i2);
printf (si3, "%d", i3);
printf (si4, "%d", i4);
printf (sv1, "%f", v1);
printf (sv2, "%f", v2);
printf (sv3, "%f", v3);
printf (sv4, "%f", v4);
printf (sv5, "%f", v5);
printf (sv6, "%f", v6);
NRLXLoadTextEntry (text24, sil);
NRLXLoadTextEntry (text25, si2);
NRLXLoadTextEntry (text26, si3);
NRLXLoadTextEntry (text27, si4);
NRLXLoadTextEntry (text28, sv1);
NRLXLoadTextEntry (text29, sv2);
NRLXLoadTextEntry (text30, sv3);
NRLXLoadTextEntry (text31, sv4);
NRLXLoadTextEntry (text32, sv5);
NRLXLoadTextEntry (text33, sv6);
}
}

/* Popup Window 8 - Stored Antenna Data Points */
void antdata()
{
ycount=5, inc=70, xcount=10;
cardno=8;
il=i2=i3=i4=0;
v1=v2=v3=v4=v5=v6=0;
popup8 = NRLX (Popup, console, XPos, 530, YPos, 20,
Label, "Stored Antenna Data Points",
Width, 600,
Height, 800,
Background, "White",
}

```

```

FrameColor, "violet red",
NULL);

text34 = NRLX (TextEntry, popup8, XPos, xcount, YPos, ycount,
Label, "# - of Current Antenna Point",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

text35 = NRLX (TextEntry, popup8, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Recorder Count (10*value in dB)",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

text226 = NRLX (TextEntry, popup8, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Item 3",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

text227 = NRLX (TextEntry, popup8, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Item 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text36 = NRLX (TextEntry, popup8, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Voltage Pattern Sign (0, +1, -1)",
Width, 550,
Height, 25,
Proc, stof1,
NULL);

text228 = NRLX (TextEntry, popup8, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 2",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

text229 = NRLX (TextEntry, popup8, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 3",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

text230 = NRLX (TextEntry, popup8, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text231 = NRLX (TextEntry, popup8, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 5",

```

```

Width, 550,
Height, 25,
Proc, stof5,
NULL);

text232 = NRLX (TextEntry, popup8, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 6",
Width, 550,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes */
if (cndt == 1) {
    rewind (fp1);
    fscanf (fp1, "%d%d%d%d%d%f%f%f%f", &cardno, &il, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    while (cardno != 0) {
        fseek (fp1, 1, 1);
        fscanf (fp1, "%d%d%d%d%d%f%f%f%f", &cardno, &il, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    }
    loc = ftell (fp1);
    printf("win 8 1st loc = %d\n", loc);
    loc = loc - 80;
    printf("win 8 2nd loc=%d\n", loc);

    sprintf (s11, "%d", il);
    sprintf (s12, "%d", i2);
    sprintf (s13, "%d", i3);
    sprintf (s14, "%d", i4);
    sprintf (sv1, "%f", v1);
    sprintf (sv2, "%f", v2);
    sprintf (sv3, "%f", v3);
    sprintf (sv4, "%f", v4);
    sprintf (sv5, "%f", v5);
    sprintf (sv6, "%f", v6);

    NRLXLoadTextEntry (text34, s11);
    NRLXLoadTextEntry (text35, s12);
    NRLXLoadTextEntry (text226, s13);
    NRLXLoadTextEntry (text227, s14);
    NRLXLoadTextEntry (text36, sv1);
    NRLXLoadTextEntry (text228, sv2);
    NRLXLoadTextEntry (text229, sv3);
    NRLXLoadTextEntry (text230, sv4);
    NRLXLoadTextEntry (text231, sv5);
    NRLXLoadTextEntry (text232, sv6);
}

/* Popup Window 9 - Clutter Characteristics */
void cltchar()
{

```

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```

ycount=5, inc=70, xcount=3;
cardno=9;
il=12=i3=i4=0;
v1=v2=v3=v4=v5=v6=0;

popup9 = NRLX (PopUp, console, XPos, 530, YPos, 20,
Label, "Clutter Characteristics",
Width, 600,
Height, 800,
Background, "White",
FrameColor, "blue",
NULL);

text37 = NRLX (TextEntry, popup9, XPos, xcount, YPos, ycount,
(L/S)-grazing angle",
Label, "0-Land, 1-Sea, Model Clutter Coeff func: 2/3(L/S)-range, 4/5
width, 580,
Height, 25,
Proc, stoil,
NULL);

text38 = NRLX (TextEntry, popup9, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Diffraction Option: 0-Interpolate, 1-Multi Path, 2-Fock",
Width, 580,
Height, 25,
NULL);

text39 = NRLX (TextEntry, popup9, XPos, xcount, YPos, (ycount-ycount+inc),
ff",
Label, "0-(all cases except 2/3), index# of Range Interval for coe
width, 580,
Height, 25,
Proc, stoil3,
NULL);

text40 = NRLX (TextEntry, popup9, XPos, xcount, YPos, (ycount-ycount+inc),
-Min, 3-Max",
Label, "0-No Forward Scatter, 1-Forward Reflection, Forward Power: 2
width, 580,
Height, 25,
Proc, stoil4,
NULL);

text41 = NRLX (TextEntry, popup9, XPos, xcount, YPos, (ycount-ycount+inc),
at 10 (deg)",
Label, "Clutter Reflection Coeff (dB), (for cases 4/5 coeff taken
width, 580,
Height, 25,
Proc, stofl,
NULL);

text42 = NRLX (TextEntry, popup9, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Horizontal Beamwidth (deg.)",
Width, 580,
Height, 25,
Proc, stof2,
NULL);

text43 = NRLX (TextEntry, popup9, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Pulse Width (post-compressed) (micro sec.)",
width, 580,
Height, 25,
Proc, stof3,
NULL);

text44 = NRLX (TextEntry, popup9, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Wave Ht(ft): 0-0', 1-1', 2-(1-3)', 3-(3-5)', 4-(5-8)', 5-(8-12)
', 6-(12-20)', 7-(20-40)',
width, 580,
Height, 25,
Proc, stof4,
NULL);

text45 = NRLX (TextEntry, popup9, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Min range (cases 2/3)(nmi), Slope of Coeff (case 4/5) (dB
/decade)",
width, 580,
Height, 25,
Proc, stof5,
NULL);

text46 = NRLX (TextEntry, popup9, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Increment Range (cases 2/3) (nmi)",
width, 580,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card 9 */
if (cndt == 1) {
rewind (fp1);

fscanf (fp1, "%d%d%d%d%d%d%f%f%f", &cardno, &il, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);

while (cardno != 9) {
fseek (fp1, 1, 1);
fscanf (fp1, "%d%d%d%d%d%d%f%f%f", &cardno, &il, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
}

loc = ftell (fp1);
printf("win 9 list loc = %d\n", loc);
loc = loc - 80;
printf("win 9 2nd loc=%d\n", loc);

printf (sil, "%d", il);
printf (si2, "%d", i2);
printf (si3, "%d", i3);
printf (si4, "%d", i4);
printf (sv1, "%f", v1);
printf (sv2, "%f", v2);
printf (sv3, "%f", v3);
printf (sv4, "%f", v4);
printf (sv5, "%f", v5);
printf (sv6, "%f", v6);
}

```

```

NRLxLoadTextEntry (text37, si1);
NRLxLoadTextEntry (text38, si2);
NRLxLoadTextEntry (text39, si3);
NRLxLoadTextEntry (text40, si4);
NRLxLoadTextEntry (text41, sv1);
NRLxLoadTextEntry (text42, sv2);
NRLxLoadTextEntry (text43, sv3);
NRLxLoadTextEntry (text44, sv4);
NRLxLoadTextEntry (text45, sv5);
NRLxLoadTextEntry (text46, sv6);
}

/* Popup Window 10 - Cancellation Characteristics */
void canchar()
{
    ycount=5, inc=70, xcount=3;
    cardno=10;
    il=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;

    popup10 = NRLx (Popup, console, XPos, 530, YPos, 20,
        Label, "Cancellation Characteristics",
        Width, 600,
        Height, 800,
        Background, "white",
        FrameColor, "medium sea green",
        NULL);

    text47 = NRLx (TextEntry, popup10, XPos, xcount, YPos, ycount,
        range value",
        Label, "0-Single Cancellation ratio, #-cancellation ratio for #th",
        Width, 580,
        Height, 25,
        Proc, stoil,
        NULL);

    text48 = NRLx (TextEntry, popup10, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "# - Pulses Per Antenna Beamwidth",
        Width, 580,
        Height, 25,
        Proc, stoil2,
        NULL);

    text49 = NRLx (TextEntry, popup10, XPos, xcount, YPos, (ycount-ycount+inc),
        canceller",
        Label, "0-No Loss func., 1-Single Delay Cancellation, 2-Double Delay c",
        Width, 580,
        Height, 25,
        Proc, stoil3,
        NULL);

    text233 = NRLx (TextEntry, popup10, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Item 4",
        Width, 580,
        Height, 25,
        Proc, stoil4,
        NULL);

    text50 = NRLx (TextEntry, popup10, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "cancellation Ratio (dB)",
        Width, 580,
        Height, 25,
        Proc, stof1,
        NULL);

    text51 = NRLx (TextEntry, popup10, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Threshold Loss Coefficient - A1 (if unknown use 0)",
        Width, 580,
        Height, 25,
        Proc, stof2,
        NULL);

    text52 = NRLx (TextEntry, popup10, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Threshold Loss Coefficient - A2 (if unknown use 5)",
        Width, 580,
        Height, 25,
        Proc, stof3,
        NULL);

    text53 = NRLx (TextEntry, popup10, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Threshold Loss Coefficient - B1 (if unknown use 1)",
        Width, 580,
        Height, 25,
        Proc, stof4,
        NULL);

    text54 = NRLx (TextEntry, popup10, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Threshold Loss Coefficient - B2",
        Width, 580,
        Height, 25,
        Proc, stof5,
        NULL);

    text55 = NRLx (TextEntry, popup10, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Threshold Loss Coefficient - B3",
        Width, 580,
        Height, 25,
        Proc, stof6,
        NULL);

    /* read in an existing file, make changes on card 10*/
    if (cndt == 1) {
        rewind (fp1);
        fscanf (fp1, "%d%d%d%d%d%d%d%d", &scardno, &si1, &si2, &si3, &si4, &sv
            1, &sv2, &sv3, &sv4, &sv5, &sv6);
        while (cardno != 10) {
            fseek (fp1, 1, 1);
            fscanf (fp1, "%d%d%d%d%d%d%d%d", &scardno, &si1, &si2, &si3, &si4, &sv
            1, &sv2, &sv3, &sv4, &sv5, &sv6);
        }
    }

```

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```

loc = ftell (fp1);
printf("win 10 1st loc = %d\n", loc);
loc = loc - 80;
printf("win 10 2nd loc=%d\n", loc);

sprintf (s11, "%d", i1);
sprintf (s12, "%d", i2);
sprintf (s13, "%d", i3);
sprintf (s14, "%d", i4);
sprintf (sv1, "%f", v1);
sprintf (sv2, "%f", v2);
sprintf (sv3, "%f", v3);
sprintf (sv4, "%f", v4);
sprintf (sv5, "%f", v5);
sprintf (sv6, "%f", v6);

NRLxLoadTextEntry (text47, s11);
NRLxLoadTextEntry (text48, s12);
NRLxLoadTextEntry (text49, s13);
NRLxLoadTextEntry (text233, s14);
NRLxLoadTextEntry (text50, sv1);
NRLxLoadTextEntry (text51, sv2);
NRLxLoadTextEntry (text52, sv3);
NRLxLoadTextEntry (text53, sv4);
NRLxLoadTextEntry (text54, sv5);
NRLxLoadTextEntry (text55, sv6);
}

/* Popup window 12 - Target Velocity Limits */
void tarvelo()
{
    ycount=5, inc=70, xcount=10;
    cardno=12;
    i1=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;

    popup12 = NRLx (Popup, console, XPos, 530, YPos, 20,
        Label, "Target Velocity Limits",
        Width, 600,
        Height, 800,
        Background, "White",
        FrameColor, "Dark Orchid",
        NULL);

    text56 = NRLx (TextEntry, popup12, XPos, xcount, YPos, ycount,
        Label, "0-For Regular PD Calc, 1-For Cumulative PD Calc",
        Width, 580,
        Height, 25,
        Proc, stoil,
        NULL);

    text234 = NRLx (TextEntry, popup12, XPos, xcount, YPos, (ycount=ycount+inc),
        Label, "Item 2",
        Width, 580,
        Height, 25,
        Proc, stoil2,
        NULL);

    loc = ftell (fp1);
    printf("win 10 1st loc = %d\n", loc);
    loc = loc - 80;
    printf("win 10 2nd loc=%d\n", loc);

    text235 = NRLx (TextEntry, popup12, XPos, xcount, YPos, (ycount=ycount+inc),
        Label, "Item 3",
        Width, 580,
        Height, 25,
        Proc, stoil3,
        NULL);

    text236 = NRLx (TextEntry, popup12, XPos, xcount, YPos, (ycount=ycount+inc),
        Label, "Item 4",
        Width, 580,
        Height, 25,
        Proc, stoil4,
        NULL);

    text57 = NRLx (TextEntry, popup12, XPos, xcount, YPos, (ycount=ycount+inc),
        Label, "Minimum Target Range Rate (ft/sec)",
        Width, 580,
        Height, 25,
        Proc, stof1,
        NULL);

    text58 = NRLx (TextEntry, popup12, XPos, xcount, YPos, (ycount=ycount+inc),
        Label, "Maximum Target Range Rate (ft/sec)",
        Width, 580,
        Height, 25,
        Proc, stof2,
        NULL);

    text59 = NRLx (TextEntry, popup12, XPos, xcount, YPos, (ycount=ycount+inc),
        Label, "Increment Rate (ft/sec)",
        Width, 580,
        Height, 25,
        Proc, stof3,
        NULL);

    text60 = NRLx (TextEntry, popup12, XPos, xcount, YPos, (ycount=ycount+inc),
        Label, "Scan Interval (sec)",
        Width, 580,
        Height, 25,
        Proc, stof4,
        NULL);

    text61 = NRLx (TextEntry, popup12, XPos, xcount, YPos, (ycount=ycount+inc),
        Label, "Range Increment Between Printouts (nmi)",
        Width, 580,
        Height, 25,
        Proc, stof5,
        NULL);

    text62 = NRLx (TextEntry, popup12, XPos, xcount, YPos, (ycount=ycount+inc),
        Label, "Cumulative Prob Level for Special Print",
        Width, 580,
        Height, 25,
        Proc, stof6,
        NULL);

    /* read in an existing file, make changes on card 12 */
    if (cndt == 1) {

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```

rewind (fp1);
    fscanf (fp1, "%d%d%d%d%d%f%f%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    while (cardno != 12) {
        fseek (fp1, 1, 1);
        fscanf (fp1, "%d%d%d%d%d%f%f%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    }
    loc = ftell (fp1);
    printf("win 12 1st loc = %d\n", loc);
    loc = loc - 80;
    printf("win 12 2nd loc=%d\n", loc);
    printf (s11, "%d", i1);
    printf (s12, "%d", i2);
    printf (s13, "%d", i3);
    printf (s14, "%d", i4);
    printf (sv1, "%f", v1);
    printf (sv2, "%f", v2);
    printf (sv3, "%f", v3);
    printf (sv4, "%f", v4);
    printf (sv5, "%f", v5);
    printf (sv6, "%f", v6);
    NRLXLoadTextEntry (text56, s11);
    NRLXLoadTextEntry (text234, s12);
    NRLXLoadTextEntry (text235, s13);
    NRLXLoadTextEntry (text236, s14);
    NRLXLoadTextEntry (text37, sv1);
    NRLXLoadTextEntry (text58, sv2);
    NRLXLoadTextEntry (text59, sv3);
    NRLXLoadTextEntry (text60, sv4);
    NRLXLoadTextEntry (text61, sv5);
    NRLXLoadTextEntry (text62, sv6);
}

/* Popup Window 13 - PD Contour Plot Data */
void contour()
{
    ycount=5, inc=70, xcount=10;
    cardno=13;
    i1=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;
    popup13 = NRLX (Popup, console, XPos, 530, YPos, 20,
        Label, "PD Contour Plot Data",
        Width, 600,
        Height, 800, "white",
        Background, "brown",
        FrameColor, "brown",
        NULL);
    text63 = NRLX (TextEntry, popup13, XPos, xcount, YPos, ycount,
        Label, "0-Regular Plots only, 1-Automatic Contour Plots",
        Width, 580,
        Height, 25,
        Proc, stoil,
        NULL);
    text64 = NRLX (TextEntry, popup13, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "# of Contour Levels (1+1/step_size)",
        Width, 580,
        Height, 25,
        Proc, sto12,
        NULL);
    text237 = NRLX (TextEntry, popup13, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "item 3",
        Width, 580,
        Height, 25,
        Proc, sto13,
        NULL);
    text238 = NRLX (TextEntry, popup13, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "item 4",
        Width, 580,
        Height, 25,
        Proc, sto14,
        NULL);
    text65 = NRLX (TextEntry, popup13, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Maximum Target Altitude (ft.)",
        Width, 580,
        Height, 25,
        Proc, sto11,
        NULL);
    text66 = NRLX (TextEntry, popup13, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Range Scale (mmi/in.)",
        Width, 580,
        Height, 25,
        Proc, sto12,
        NULL);
    text67 = NRLX (TextEntry, popup13, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Height Scale (ft/in.)",
        Width, 580,
        Height, 25,
        Proc, sto13,
        NULL);
    text239 = NRLX (TextEntry, popup13, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Var 4",
        Width, 580,
        Height, 25,
        Proc, sto14,
        NULL);
    text240 = NRLX (TextEntry, popup13, XPos, xcount, YPos, (ycount-ycount+inc),
        Label, "Var 5",
        Width, 580,
        Height, 25,

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```

Proc, stof5,
NULL);

text241 = NRLX (TextEntry, popup13, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 6",
Width, 580,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card 13*/
if (cndt == 1) {
rewind (fpl);

fscanf (fpl, "%d%d%d%d%d%f%f", scardno, si1, si2, si3, si4, sv
1, sv2, sv3, sv4, sv5, sv6);

while (cardno != 13) {
fseek (fpl, 1, 1);
fscanf (fpl, "%d%d%d%d%d%f%f", scardno, si1, si2, si3, si4, sv
1, sv2, sv3, sv4, sv5, sv6);
}

loc = ftell (fpl);
printf("win 13 list loc = %d\n", loc);
loc = loc - 80;
printf("win 13 2nd loc=%d\n", loc);

printf (si1, "%d", il);
printf (si2, "%d", i2);
printf (si3, "%d", i3);
printf (si4, "%d", i4);
printf (sv1, "%f", v1);
printf (sv2, "%f", v2);
printf (sv3, "%f", v3);
printf (sv4, "%f", v4);
printf (sv5, "%f", v5);
printf (sv6, "%f", v6);

NRLXLoadTextEntry (text63, si1);
NRLXLoadTextEntry (text64, si2);
NRLXLoadTextEntry (text237, si3);
NRLXLoadTextEntry (text238, si4);
NRLXLoadTextEntry (text65, sv1);
NRLXLoadTextEntry (text66, sv2);
NRLXLoadTextEntry (text67, sv3);
NRLXLoadTextEntry (text239, sv4);
NRLXLoadTextEntry (text240, sv5);
NRLXLoadTextEntry (text241, sv6);
}

/* Popup Window 15 - Extended Surface Target Parameters */
void surtar()
{
ycount=5, inc=70, xcount=10;
cardno=15;
il=i2=i3=i4=0;
v1=v2=v3=v4=v5=v6=0;

popup15 = NRLX (Popup, console, XPos, 530, YPos, 20,
Label, "Extended Surface Target Parameters",
Width, 600,
Height, 800,
Background, "white",
FrameColor, "forest green",
NULL);

text68 = NRLX (TextEntry, popup15, XPos, xcount, YPos, ycount,
Label, "0 - Header, 1 - Detail",
Width, 580,
Height, 25,
Proc, stof1,
NULL);

text69 = NRLX (TextEntry, popup15, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "0-Point Model, 1-Area Model, # of point (if 11-1)",
Width, 580,
Height, 25,
Proc, stof2,
NULL);

text70 = NRLX (TextEntry, popup15, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Total # of detail points (detail cards must follow)",
Width, 580,
Height, 25,
Proc, stof3,
NULL);

text242 = NRLX (TextEntry, popup15, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Item 4",
Width, 580,
Height, 25,
Proc, stof4,
NULL);

text71 = NRLX (TextEntry, popup15, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Height (ft.)",
Width, 580,
Height, 25,
Proc, stof1,
NULL);

text72 = NRLX (TextEntry, popup15, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Area (sq. ft.)",
Width, 580,
Height, 25,
Proc, stof2,
NULL);

text243 = NRLX (TextEntry, popup15, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Var 3",
Width, 580,
Height, 25,
Proc, stof3,
NULL);

text244 = NRLX (TextEntry, popup15, XPos, xcount, YPos, (ycount-ycount+inc),

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Label, "Var 4",
Width, 580,
Height, 25,
Proc, stof4,
NULL);

text245 = NRLx (TextEntry, popup15, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 5",
Width, 580,
Height, 25,
Proc, stof5,
NULL);

text246 = NRLx (TextEntry, popup15, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 6",
Width, 580,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card 15 */
if (cndt == 1) {
rewind (fpl);

fscanf (fpl, "%d%d%d%d%d%d%d%d", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);

while (cardno != 15) {
fseek (fpl, 1, 1);
fscanf (fpl, "%d%d%d%d%d%d%d%d", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);

loc = ftell (fpl);
printf("win 15 1st loc = %d\n", loc);
loc = loc - 80;
printf("win 15 2nd loc=%d\n", loc);

printf (s11, "%d", i1);
printf (s12, "%d", i2);
printf (s13, "%d", i3);
printf (s14, "%d", i4);
printf (sv1, "%f", v1);
printf (sv2, "%f", v2);
printf (sv3, "%f", v3);
printf (sv4, "%f", v4);
printf (sv5, "%f", v5);
printf (sv6, "%f", v6);

NRLxLoadTextEntry (text68, s11);
NRLxLoadTextEntry (text69, s12);
NRLxLoadTextEntry (text70, s13);
NRLxLoadTextEntry (text242, s14);
NRLxLoadTextEntry (text71, sv1);
NRLxLoadTextEntry (text72, sv2);
NRLxLoadTextEntry (text243, sv3);
NRLxLoadTextEntry (text244, sv4);
NRLxLoadTextEntry (text245, sv5);
NRLxLoadTextEntry (text246, sv6);

}

}

/* Popup Window 16 - Parameters for Isometric Plot */
void isompt()
{
ycount=5, inc=65, xcount=5, ycount=290;
cardno=16;
i1=i2=i3=i4=0;
v1=v2=v3=v4=v5=v6=0;

popup16 = NRLx (Popup, console, XPos, 530, YPos, 20,
Label, "Parameters for Isometric Plot ",
Width, 600,
Height, 800,
Background, "White",
FrameColor, "magenta",
NULL);

text73 = NRLx (Button, popup16, XPos, xcount, YPos, ycount,
Label, "Item 1: 0 - None (1,2,3)",
Proc, item16,
Data, 0,
Foreground, "salmon",
NULL);

text74 = NRLx (Button, popup16, XPos, 400, YPos, ycount,
Label, "1 - Signal/Noise",
Proc, item16,
Data, 1,
Foreground, "black",
NULL);

text75 = NRLx (Button, popup16, XPos, xcount, YPos, 30,
Label, "2 - Signal/(Clutter + Noise)",
Proc, item16,
Data, 2,
Foreground, "black",
NULL);

text76 = NRLx (Button, popup16, XPos, 300, YPos, 30,
Label, "3 - Probability of Detection",
Proc, item16,
Data, 3,
Foreground, "black",
NULL);

text77 = NRLx (Button, popup16, XPos, xcount, YPos, 55,
Label, "Height Independent Plots : 10 - Reset to zero(11,12,13)",
Proc, item16,
Data, 10,
Foreground, "black",
NULL);

text78 = NRLx (Button, popup16, XPos, xcount, YPos, 80,
Label, "11 - sh 1",
Proc, item16,
Data, 11,

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    Foreground, "black",
    NULL);
text79 = NRLX (Button, popup16, XPos, 200, YPos, 80,
    Label, "12 - sh 2",
    Proc, item16,
    Data, 12,
    Foreground, "black",
    NULL);

text80 = NRLX (Button, popup16, XPos, 400, YPos, 80,
    Label, "13 - sh 3",
    Proc, item16,
    Data, 13,
    Foreground, "black",
    NULL);

text81 = NRLX (Button, popup16, XPos, xcount, YPos, 105,
    Label, "Height Dependent Plots: 20 - Reset to zero(21,22,23)",
    Proc, item16,
    Data, 20,
    Foreground, "black",
    NULL);

text82 = NRLX (Button, popup16, XPos, xcount, YPos, 130,
    Label, "21 - sh1",
    Proc, item16,
    Data, 21,
    Foreground, "black",
    NULL);

text83 = NRLX (Button, popup16, XPos, 200, YPos, 130,
    Label, "22 - sh2",
    Proc, item16,
    Data, 22,
    Foreground, "black",
    NULL);

text84 = NRLX (Button, popup16, XPos, 400, YPos, 130,
    Label, "23 - sh3",
    Proc, item16,
    Data, 23,
    Foreground, "black",
    NULL);

text85 = NRLX (Button, popup16, XPos, xcount, YPos, 160,
    Label, "Item 2: 0 - Reset",
    Proc, item2,
    Data, 0,
    Foreground, "salmon",
    NULL);

text86 = NRLX (Button, popup16, XPos, 200, YPos, 160,
    Label, "Height Independent Plots: 1 - Clutter/Noise",
    Proc, item2,
    Data, 1,
    Foreground, "black",
    NULL);

text87 = NRLX (Button, popup16, XPos, xcount, YPos, 185,
    Label, "2 - Threshold Loss",
    Proc, item2,
    Data, 2,
    Foreground, "black",
    NULL);

text88 = NRLX (Button, popup16, XPos, 400, YPos, 185,
    Label, "3 - Cancellation Ratio",
    Proc, item2,
    Data, 3,
    Foreground, "black",
    NULL);

text89 = NRLX (Button, popup16, XPos, xcount, YPos, 215,
    Label, "Height Dependent Plots: 1 - Clutter/Noise",
    Proc, item2,
    Data, 1,
    Foreground, "black",
    NULL);

text90 = NRLX (Button, popup16, XPos, 400, YPos, 215,
    Label, "2 - Signal/Noise",
    Proc, item2,
    Data, 2,
    Foreground, "black",
    NULL);

text91 = NRLX (Button, popup16, XPos, xcount, YPos, 240,
    Label, "4 - Signal/(Clutter+Noise)",
    Proc, item2,
    Data, 4,
    Foreground, "black",
    NULL);

text92 = NRLX (Button, popup16, XPos, 300, YPos, 240,
    Label, "8 - Prob. of Detection",
    Proc, item2,
    Data, 8,
    Foreground, "black",
    NULL);

text247 = NRLX (TextEntry, popup16, XPos, xcount, YPos, yycount,
    Label, "Item 3",
    Width, 550,
    Height, 25,
    Proc, sto13,
    NULL);

text248 = NRLX (TextEntry, popup16, XPos, xcount, YPos, (yycount=yycount+inc),
    Label, "Item 4",
    Width, 550,
    Height, 25,
    Proc, sto14,
    NULL);

text93 = NRLX (TextEntry, popup16, XPos, xcount, YPos, (yycount=yycount+inc),
    Label, "Range Scale (nmi/in.)",
    Width, 550,
    Height, 25,
    Proc, stof1,
    NULL);

text94 = NRLX (TextEntry, popup16, XPos, xcount, YPos, (yycount=yycount+inc),

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Label, "db or pd scale (db/in. or unit/in.)",
Width, 50,
Height, 25,
Proc, stof2,
NULL);

text95 = NRLX (TextEntry, popup16, XPos, xcount, YPos, (yycount=yycount+inc),
Label, "Minimum db or pd (db or unit)",
Width, 50,
Height, 25,
Proc, stof3,
NULL);

text96 = NRLX (TextEntry, popup16, XPos, xcount, YPos, (yycount=yycount+inc),
Label, "Maximum Z Dimension (in.)",
Width, 50,
Height, 25,
Proc, stof4,
NULL);

text97 = NRLX (TextEntry, popup16, XPos, xcount, YPos, (yycount=yycount+inc),
Label, "Height Scale (ft/in.)",
Width, 50,
Height, 25,
Proc, stof5,
NULL);

text98 = NRLX (TextEntry, popup16, XPos, xcount, YPos, (yycount=yycount+inc),
Label, "Fixed XMAX for Plotting (nmi)",
Width, 50,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card 16 */
if (cndt == 1) {
    rewind (fpl);

    fscanf (fpl, "%d%d%d%d%d%f%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);

    while (cardno != 16) {
        fseek (fpl, 1, 1);
        fscanf (fpl, "%d%d%d%d%d%f%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    }

    loc = ftell (fpl);
    printf("win 16 1st loc = %d\n", loc);
    loc = loc - 80;
    printf("win 16 2nd loc = %d\n", loc);

    printf (s11, "%d", i1);
    printf (s12, "%d", i2);
    printf (s13, "%d", i3);
    printf (s14, "%d", i4);
    printf (s15, "%f", v1);
    printf (s16, "%f", v2);
    printf (s17, "%f", v3);
    printf (s18, "%f", v4);
    printf (s19, "%f", v5);
    printf (s20, "%f", v6);

    NRLXLoadTextEntry (text247, s13);
    NRLXLoadTextEntry (text248, s14);
    NRLXLoadTextEntry (text93, s1);
    NRLXLoadTextEntry (text94, s2);
    NRLXLoadTextEntry (text95, s3);
    NRLXLoadTextEntry (text96, s4);
    NRLXLoadTextEntry (text97, s5);
    NRLXLoadTextEntry (text98, s6);
}

/* Popup Window 17 - Antenna Pattern Print/Plot Parameters */
void antpat()
{
    ycount=5, inc=70, xcount=10;
    cardno=17;
    i1=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;

    popup17 = NRLX (Popup, console, XPos, 530, YPos, 10,
Label, "Antenna Pattern Print/Plot Parameters",
Width, 600,
Height, 800,
Background, "white",
FrameColor, "blue violet",
NULL);

    text100 = NRLX (TextEntry, popup17, XPos, xcount, YPos, ycount,
Label, "0-No Print or Plot, 1-Print, 2-Plot, 3-Print and Plot",
Width, 550,
Height, 25,
Proc, stof1,
NULL);

    text101 = NRLX (TextEntry, popup17, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "0 - Linear Scale, 1 - Polar Scale",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

    text249 = NRLX (TextEntry, popup17, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 3",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

    text250 = NRLX (TextEntry, popup17, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

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width, 550,
Height, 25,
Proc, stof3,
NULL);

text251 = NRLx (TextEntry, popup18, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text113 = NRLx (TextEntry, popup18, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Attenuation value:(linear-dB/nmi) or (Asym.-dB/angle)",
Width, 550,
Height, 25,
Proc, stof1,
NULL);

text114 = NRLx (TextEntry, popup18, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "variable A",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

text115 = NRLx (TextEntry, popup18, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "variable B",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

text116 = NRLx (TextEntry, popup18, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "variable R",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text117 = NRLx (TextEntry, popup18, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "variable K",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

text118 = NRLx (TextEntry, popup18, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "variable 4",
Width, 550,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card 18 */
if (cndt == 1) {
    rewind (fp1);

    fscanf (fp1, "%d%d%d%d%d%f%f%f%f", scardno, si1, si2, si3, si4, sv
1, sv2, sv3, sv4, sv5, sv6);

    while (cardno != 18) {
        fseek (fp1, 1, 1);
        fscanf (fp1, "%d%d%d%d%d%f%f%f%f", scardno, si1, si2, si3, si4, sv
1, sv2, sv3, sv4, sv5, sv6);
    }

    loc = ftell (fp1);
    printf("win 18 1st loc = %d\n", loc);
    loc = loc - 80;
    printf("win 18 2nd loc=%d\n", loc);

    sprintf (si1, "%d", il);
    sprintf (si2, "%d", i2);
    sprintf (si3, "%d", i3);
    sprintf (si4, "%d", i4);
    sprintf (sv1, "%f", v1);
    sprintf (sv2, "%f", v2);
    sprintf (sv3, "%f", v3);
    sprintf (sv4, "%f", v4);
    sprintf (sv5, "%f", v5);
    sprintf (sv6, "%f", v6);

    NRLxLoadTextEntry (text110, si1);
    NRLxLoadTextEntry (text111, si2);
    NRLxLoadTextEntry (text112, si3);
    NRLxLoadTextEntry (text251, si4);
    NRLxLoadTextEntry (text113, sv1);
    NRLxLoadTextEntry (text114, sv2);
    NRLxLoadTextEntry (text115, sv3);
    NRLxLoadTextEntry (text116, sv4);
    NRLxLoadTextEntry (text117, sv5);
    NRLxLoadTextEntry (text118, sv6);
}

/* Popup Window 19 - Rain Attenuation Parameters */
void rainatt()
{
    ycount=5, inc=70, xcount=10;
    cardno=19;
    il=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;

    popup19 = NRLx (Popup, console, XPos, 530, YPos, 10,
Label, "Rain Attenuation Parameters",
Width, 600,
Height, 800,
Background, "white",
FrameColor, "orange",
NULL);

    text120 = NRLx (TextEntry, popup19, XPos, xcount, YPos, ycount,
Label, "0 - None, 1 - Rain",
Width, 550,
Height, 25,
Proc, stof1,
NULL);
}

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        NULL);
text252 = NRLx (TextEntry, popup19, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 2",
Width, 550,
Height, 25,
Proc, stoif2,
NULL);

text253 = NRLx (TextEntry, popup19, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 3",
Width, 550,
Height, 25,
Proc, stoif3,
NULL);

text254 = NRLx (TextEntry, popup19, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 4",
Width, 550,
Height, 25,
Proc, stoif4,
NULL);

text121 = NRLx (TextEntry, popup19, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Attenuation (dB/nmi)",
Width, 550,
Height, 25,
Proc, stoif1,
NULL);

text122 = NRLx (TextEntry, popup19, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Minimum Range (nmi)",
Width, 550,
Height, 25,
Proc, stoif2,
NULL);

text123 = NRLx (TextEntry, popup19, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Maximum Range (nmi)",
Width, 550,
Height, 25,
Proc, stoif3,
NULL);

text255 = NRLx (TextEntry, popup19, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "var 4",
Width, 550,
Height, 25,
Proc, stoif4,
NULL);

text256 = NRLx (TextEntry, popup19, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "var 5",
Width, 550,
Height, 25,
Proc, stoif5,
NULL);

text257 = NRLx (TextEntry, popup19, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "var 6",
Width, 550,
Height, 25,
Proc, stoif6,
NULL);

/* popup window 20 - Jammer Parameters */
void jammer()
{
    ycount=5, inc=70, xcount=10;
    cardno=20;
    il=i2=i3=i4=0;
    vl=v2=v3=v4=v5=v6=0;

    popup20 = NRLx (Popup, console, XPos, 530, YPos, 10,
Label, "Jammer Parameters",
Width, 600,
Height, 800,
Background, "white",
FrameColor, "yellow",
NULL);

    text258 = NRLx (TextEntry, popup20, XPos, xcount, YPos, ycount,
Label, "Item 1",
Width, 550,
Height, 25,
Proc, stoif1,
NULL);

    text259 = NRLx (TextEntry, popup20, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 2",
Width, 550,
Height, 25,
Proc, stoif2,
NULL);

    text260 = NRLx (TextEntry, popup20, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 3",
Width, 550,
Height, 25,
Proc, stoif3,
NULL);

    text261 = NRLx (TextEntry, popup20, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 4",
Width, 550,
Height, 25,
Proc, stoif4,
NULL);

    text130 = NRLx (TextEntry, popup20, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Jammer Effective Radiated Power (W)",
Width, 550,

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Height, 25,
Proc, stof1,
NULL);

text131 = NRLX (TextEntry, popup20, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Jammer Bandwidth (MHz)",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

text132 = NRLX (TextEntry, popup20, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Jammer Range (nmi)",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

text133 = NRLX (TextEntry, popup20, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Antenna Sidelobe Gain (dB)",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text134 = NRLX (TextEntry, popup20, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "SLC Cancellation Ratio (dB)",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

text362 = NRLX (TextEntry, popup20, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 6",
Width, 550,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card 20 */
if (cndt == 1) {
    rewind (fpl);

    fscanf (fpl, "%d%d%d%d%d%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);

    while (cardno != 20) {
        fseek (fpl, 1, 1);
        fscanf (fpl, "%d%d%d%d%d%f%f", &cardno, &i1, &i2, &i3, &i4, &v
1, &v2, &v3, &v4, &v5, &v6);
    }

    loc = ftell (fpl);
    printf("win 20 1st loc = %d\n", loc);
    loc = loc - 80;
    printf("win 20 2nd loc=%d\n", loc);

    sprintf (s11, "%d", i1);
    sprintf (s12, "%d", i2);

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    sprintf (s13, "%d", i3);
    sprintf (s14, "%d", i4);
    sprintf (sv1, "%f", v1);
    sprintf (sv2, "%f", v2);
    sprintf (sv3, "%f", v3);
    sprintf (sv4, "%f", v4);
    sprintf (sv5, "%f", v5);
    sprintf (sv6, "%f", v6);

    NRLXLoadTextEntry (text258, s11);
    NRLXLoadTextEntry (text259, s12);
    NRLXLoadTextEntry (text260, s13);
    NRLXLoadTextEntry (text261, s14);
    NRLXLoadTextEntry (text130, sv1);
    NRLXLoadTextEntry (text131, sv2);
    NRLXLoadTextEntry (text132, sv3);
    NRLXLoadTextEntry (text133, sv4);
    NRLXLoadTextEntry (text134, sv5);
    NRLXLoadTextEntry (text262, sv6);
}

/* popup window 1 - Execute */
void execute()
{
    ycount=5, inc=70, xcount=10;
    cardno=1;
    i1=i2=i3=i4=0;
    v1=v2=v3=v4=v5=v6=0;

    popup1 = NRLX (Popup, console, XPos, 530, YPos, 10,
Label, "Execute",
Width, 600,
Height, 800,
Background, "white",
FrameColor, "dark turquoise",
NULL);

    text140 = NRLX (TextEntry, popup1, XPos, xcount, YPos, ycount,
Label, "0 - Clutter + Noise, 1 - Noise only",
Width, 550,
Height, 25,
Proc, stoil,
NULL);

    text141 = NRLX (TextEntry, popup1, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "0 - No pattern, print, plot, 1 - print, plot, pattern, continue",
Width, 550,
Height, 25,
Proc, stoil2,
NULL);

    text142 = NRLX (TextEntry, popup1, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "0 - Print, 1 - No Print",
Width, 550,
Height, 25,
Proc, stoil3,
NULL);

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text263 = NRLx (TextEntry, popup1, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Item 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text143 = NRLx (TextEntry, popup1, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Single Target Altitude (ft.)",
Width, 550,
Height, 25,
Proc, stof1,
NULL);

text264 = NRLx (TextEntry, popup1, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 2",
Width, 550,
Height, 25,
Proc, stof2,
NULL);

text265 = NRLx (TextEntry, popup1, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 3",
Width, 550,
Height, 25,
Proc, stof3,
NULL);

text266 = NRLx (TextEntry, popup1, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 4",
Width, 550,
Height, 25,
Proc, stof4,
NULL);

text267 = NRLx (TextEntry, popup1, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 5",
Width, 550,
Height, 25,
Proc, stof5,
NULL);

text268 = NRLx (TextEntry, popup1, XPos, xcount, YPos, (ycount=ycount+inc),
Label, "Var 6",
Width, 550,
Height, 25,
Proc, stof6,
NULL);

/* read in an existing file, make changes on card 1 */
if (cndt == 1) {
    rewind (fp1);
    fscanf (fp1, "%d%d%d%d%d%f%f%f", scardno, si1, si2, si3, si4, sv
1, sv2, sv3, sv4, sv5, sv6);
    while (cardno != 1) {
        fseek (fp1, 1, 1);
        fscanf (fp1, "%d%d%d%d%d%f%f%f", scardno, si1, si2, si3, si4, sv
1, sv2, sv3, sv4, sv5, sv6);
    }

    loc = ftell (fp1);
    printf ("win 1 1st loc = %d\n", loc);
    loc = loc - 80;
    printf ("win 1 2nd loc=%d\n", loc);

    sprintf (si1, "%d", il);
    printf (si2, "%d", i2);
    printf (si3, "%d", i3);
    printf (si4, "%d", i4);
    printf (sv1, "%f", v1);
    printf (sv2, "%f", v2);
    printf (sv3, "%f", v3);
    printf (sv4, "%f", v4);
    printf (sv5, "%f", v5);
    printf (sv6, "%f", v6);

    NRLxLoadTextEntry (text140, si1);
    NRLxLoadTextEntry (text141, si2);
    NRLxLoadTextEntry (text142, si3);
    NRLxLoadTextEntry (text263, si4);
    NRLxLoadTextEntry (text143, sv1);
    NRLxLoadTextEntry (text264, sv2);
    NRLxLoadTextEntry (text265, sv3);
    NRLxLoadTextEntry (text266, sv4);
    NRLxLoadTextEntry (text267, sv5);
    NRLxLoadTextEntry (text268, sv6);
}

}

/* Popup Window 11 - Title for printout and plot */
void title()
{
    cardno=11;
    ycount=5, xcount=10, inc=70;
    il=i2=i3=i4=0;
    vl=v2=v3=v4=v5=v6=0;

    popup11 = NRLx (Popup, console, XPos, 530, YPos, 20,
Label, "Title for Printout and Plot",
Width, 600,
Height, 800,
Background, "white",
FrameColor, "dark green",
NULL);

    text150 = NRLx (TextEntry, popup11, XPos, xcount, YPos, ycount,
Label, "# of Title Line to follow (maximum is 4)",
Width, 580,
Height, 25,
Proc, stof1,
NULL);
}

```

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text151 = NRLx (TextEntry, popup11, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Line one",
Width, 580,
Height, 25,
Proc, string1,
NULL);

text152 = NRLx (TextEntry, popup11, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Line two",
Width, 580,
Height, 25,
Proc, string2,
NULL);

text153 = NRLx (TextEntry, popup11, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Line three",
Width, 580,
Height, 25,
Proc, string3,
NULL);

text154 = NRLx (TextEntry, popup11, XPos, xcount, YPos, (ycount-ycount+inc),
Label, "Line four",
Width, 580,
Height, 25,
Proc, string4,
NULL);

/* read in an existing file, read a line and check for cardno 11 */
if (cndt == 1) {
    rewind (fpl);
    fscanf (fpl, "%d%d%d%d%d%d%d%d%d%d", &cardno, &sil, &i2, &i3, &i4, &sv1, &sv2, &sv
3, &sv4, &sv5, &sv6);
    while (cardno != 11) {
        fseek (fpl, 1, 1);
        fscanf (fpl, "%d%d%d%d%d%d%d%d%d%d", &cardno, &sil, &i2, &i3, &i4, &sv
1, &sv2, &sv3, &sv4, &sv5, &sv6);
    }
    loc = ftell (fpl);
    printf(" card 11 - read in loc = %d\n", loc);
    sprintf (sil, "%d", il);
    NRLxLoadTextEntry (text150, sil);
    loc2=loc+3;
    printf(" card 11 - read in loc2 = %d\n", loc2);
    if (il == 1) {
        fseek (fpl, loc2, 0);
        fgets (rstr1, 78, fpl);
        NRLxLoadTextEntry (text151, rstr1);
    }
    else if (il == 2) {
        fseek (fpl, loc2, 0);
        fgets (rstr1, 78, fpl);
        fseek (fpl, loc2+81, 0);
        fgets (rstr2, 78, fpl);
    }
    else if (il == 3) {
        fseek (fpl, loc2, 0);
        fgets (rstr1, 78, fpl);
        fseek (fpl, loc2+81, 0);
        fgets (rstr2, 78, fpl);
        fseek (fpl, loc2+162, 0);
        fgets (rstr3, 78, fpl);
        NRLxLoadTextEntry (text151, rstr1);
        NRLxLoadTextEntry (text152, rstr2);
        NRLxLoadTextEntry (text153, rstr3);
    }
    else if (il == 4) {
        fseek (fpl, loc2, 0);
        fgets (rstr1, 78, fpl);
        fseek (fpl, loc2+81, 0);
        fgets (rstr2, 78, fpl);
        fseek (fpl, loc2+162, 0);
        fgets (rstr3, 78, fpl);
        fseek (fpl, loc2+243, 0);
        fgets (rstr4, 78, fpl);
        NRLxLoadTextEntry (text151, rstr1);
        NRLxLoadTextEntry (text152, rstr2);
        NRLxLoadTextEntry (text153, rstr3);
        NRLxLoadTextEntry (text154, rstr4);
    }
}

/* title for printout and plot */
void string1 (String ln1)
{
    /* printf("string1 - str1=%d\n", str1); */
    /* printf("C - line one : %s\n", ln1); */
    printf(str1, "%s", ln1);
    printf ("string1 - str1= %s\n", str1);
    printf (astr1, "%-78s", str1);
    if (cndt == 1) line1=1;
}

void string2 (String ln2)
{
    printf(str2, "%s", ln2);
    printf ("string2 - str2= %s\n", str2);
    printf (astr2, "%-78s", str2);
    if (cndt == 1) line2=1;
}

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void string3 (String ln3)
{
    sprintf(str3, "%s", ln3);
    printf("string3 - str3=%s\n", str3);
    sprintf (astr3, "%-78s", str3);
    if (cndt == 1) line3=1;
}

void string4 (String ln4)
{
    sprintf(str4, "%s", ln4);
    printf("string4 - str4=%s\n", str4);
    sprintf (astr4, "%-78s", str4);
    if (cndt == 1) line4=1;
}

/* item 1 on card 16 */
void item16 (long data)
{
    printf("item 1 on card 16: %d\n", data);
    il=data;
}

/* item 2 on card 16 */
void item2 (long data)
{
    printf("item 2 on card 16: %d\n", data);
    i2=data;
}

/* string to integer */
void stoi1 (String var1)
{
    printf("Incoming from text widget: %s\n", var1);
    sscanf (var1, "%d", &i1);
    printf("Result of conversion: %d\n", i1);
}

void stoi2 (String var2)
{
    sscanf (var2, "%d", &i2);
}

void stoi3 (String var3)
{
    sscanf (var3, "%d", &i3);
}

void stoi4 (String var4)
{
    sscanf (var4, "%d", &i4);
}

/* string to floating point */
void stof1 (String var5)
{
    printf("Incoming from text widget: %s\n", var5);
    /* MUST use ADDRESS of numeric variable---- %v1 -----*/
    sscanf (var5, "%f", &v1);
    printf("Result of conversion: %f\n", v1);
}

void stof2 (String var6)
{
    sscanf (var6, "%f", &v2);
}

void stof3 (String var7)
{
    sscanf (var7, "%f", &v3);
}

void stof4 (String var8)
{
    sscanf (var8, "%f", &v4);
}

void stof5 (String var9)
{
    sscanf (var9, "%f", &v5);
}

void stof6 (String var10)
{
    sscanf (var10, "%f", &v6);
}

/* Open a new data file */
void openfile()
{
    cndt=2;
}

/* get the filename */
printf (" File name = ");
gets (fname);
if ((fp = fopen(fname, "w")) == NULL)
{
    printf("Unable to open %s\n", fname);
    exit(1);
}

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```

    }

    /* Close the data file */
    void closeinfile()
    {
        cardno=0;
        il=i2=i3=i4=0;
        v1=v2=v3=v4=v5=v6=0;

        fprintf(fp,"%2d%4d%6d%4d%10.4f%10.4f%10.4f%10.4f%10.4f\n", ca
rdno,il,i2,i3,i4,v1,v2,v3,v4,v5,v6);

        fclose(fp);
    }

    /* save the window */
    void saveinf()
    {
        if (cardno == 11) {
            loc1=loc-80;
            fseek (fpl, loc1, 0);
            printf ("% saveinf-loc= %d\n", loc1);

            fprintf (fpl,"%2d%4d%6d%4d%10.4f%10.4f%10.4f%10.4f%10.4f\n",
cardno,il,i2,i3,i4,v1,v2,v3,v4,v5,v6);

            printf ("% saveinf-line1= %d\n", line1);
            printf ("% saveinf-line2= %d\n", line2);
            printf ("% saveinf-line3= %d\n", line3);
            printf ("% saveinf-line4= %d\n", line4);
            printf ("% saveinf-loc2 = %d\n", loc2);

            fseek (fpl, loc2, 0);

            if (il == 1 && line1 == 1) fputs (astr1, fpl);

            else if (il == 2 && line1 == 1) fputs (astr1, fpl);
            else if (il == 2 && line2 == 1) {
                fseek (fpl, loc2+81, 0);
                fputs (astr2, fpl);
            }

            else if (il == 3 && line1 == 1) fputs (astr1, fpl);
            else if (il == 3 && line2 == 1) {
                fseek (fpl, loc2+162, 0);
                fputs (astr3, fpl);
            }

            else if (il == 4 && line1 == 1) fputs (astr1, fpl);
            else if (il == 4 && line2 == 1) {
                fseek (fpl, loc2+81, 0);
                fputs (astr2, fpl);
            }
            else if (il == 4 && line3 == 1) {
                fseek (fpl, loc2+162, 0);
                fputs (astr3, fpl);
            }
            else if (il == 4 && line4 == 1) {
                fseek (fpl, loc2+243, 0);
            }
        }
    }

    /* open an existing data file */
    void openinfile()
    {
        cndt=1;

        printf ("% File name for read = ");
        gets (infname);
        if ((fpl = fopen(infname, "r+")) == NULL)
        {
            printf("Unable to open %s\n", infname);
            exit(1);
        }
    }

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```
fputs (astr4, fpl);
}
}
else if (cardno != 11) {
    fseek (fpl, loc, 0);
    fprintf (fpl, "%12d%4d%6d%4d%10.4f%10.4f%10.4f%10.4f%10.4f%10.4f\n",
cardno, i1, i2, i3, i4, v1, v2, v3, v4, v5, v6);
}
}

/* Quit function */
void quit()
{
    exit(0);
}
```