IDL Tutorials

Day 3

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Today's Topics

- Displaying images on the screen
- Color tables and xloadct
- Making Functions and Procedures
- Variable Handling
- !p.multi
- Examples of using plot, oplot, and loadct

Displaying data

- Image data is often stored in column-major 2-arrays
- Two-D image data can by displayed using the following IDL routines
  - tv, data ;Images data on screen
  - tvscl, data ;This method scales data for display
- Two-D image data are just arrays of numbers.
- Many image arrays are of Byte type (integer ranging from 0->255
- Colors are arbitrarily assigned to each number depending on color table
- The colors assign to each number can be changed using the following routines
  - loadct, number
  - tvlct,[vectors defining each color to be used]
  - xloadct
- Many routines to read and write images
  - read_gif, write_gif, etc.
- For more advanced routines go to /ssw/gen/idl/ and look through the imaging and display folders
- See ex_display_data.pro for an example

Procedures & Functions

- Are very similar to macros
- Procedures start with the line

  pro pro_name, param, …,KEY_NAME= KEY_NAME,…,
- Functions start with the line

  function func_name, param, …,KEY_NAME= KEY_NAME,…
- Functions have the statement

  return, output_variable ; before the final END
- Must be compiled after every saved change

  (.run or .rnew or restarting IDL)

Variable Handling

- Whenever you use procedures or functions the variables used in those procedures and functions are put in a box
- Variables contained in that box are not accessible when the procedures and functions are finished running.
- Variables can be accessible to the main level if
  - Output parameters or keywords are used
  - Common blocks are used
  - System variables (defsysv,”!var_name”,value)

!p.multi Variable

- !p is a system variable (structure type) that tells IDL how to handle plots
- !p.multi is used to control how many plots are put on a "page"
  - !p.multi=[a,b,c,d]
    - a=Controls when the plot is erased. Usually left set to 0
    - b=Number of columns
    - c= Number of rows
    - d=Number stacked in the z direction (3-D plotting)
- Examples
  - !p.multi=[0,2] ;2 columns, 1 row
  - !p.multi=[0,2,2] ;2 columns, 2 rows
  - !p.multi=[0,1,1] ;resets the variable