GrADS
(Gridded Analysis Display Software)

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GrADS Overview

- **GrADS - Gridded Analysis Display System**
  - Displays 5-D data sets
    - X, Y, Z, time, and variables
    - XY plots, 1-D graphs, time series, cross sections, time-height cross section, Hovmoller plots, etc.
  - Interactive Command line/GUI interface
  - Batch Jobs (Scripting)
  - UNIX, LINUX, Windows 2000/XP, FreeBSD (Macintosh)
  - Freeware (No cost)

- **Developed at the Center for Ocean-Land-Atmosphere (COLA) studies**

- **http://www.iges.org/grads/**
Why Use GrADS?

Similar applications

MatLab\textsuperscript{a}, Interactive Data Language (IDL)\textsuperscript{a}, GEMPAK\textsuperscript{b}

1. Good at manipulating and displaying data
2. Runs under a variety of operating systems
3. Can use native grid formats e.g. GRIB, NetCDF, HDF-SDS, DODS, and binary
4. Freeware 😊

\textsuperscript{a}Commercial ($)
\textsuperscript{b}Must use Linux/Unix and requires a specific grid format
Introductory Tutorial

Prerequisites

1. Ability to ask questions and/or for help
2. 100% Participation

Tutorial Instructions

1. Start GrADS
   Start->All Programs->Win32e GrADS->GradsNC
   Press Enter for landscape mode
2. Open a web browser and go to
   http://grads.iges.org/grads/gadoc/tutorial.html
3. Follow tutorial instructions

“The only dumb question is the question you didn’t ask”
GrADS Scripting

- **What is a GrADS script?**
  - A list of multiple GrADS commands

- **Why use GrADS scripts?**
  - Simplifies complex tasks e.g. 4-panel and Skew-T plots
  - Scripts are reusable

- **Uses of GrADS scripts?**
  - Automated image generation
  - Customer configurable
  - Research applications
GrADS Scripting Mechanics

- GrADS scripts are created in a text editor
- Each line of the script acts as a command
- Simple arithmetic can be performed in a script
  - Addition/Subtraction
  - Multiplication/Division
- Simple looping/logical operators
  - while (looping)
  - if (logical)
- Intrinsic and input/out functionality
- Scripts can run other scripts

\(^a\)Details of the GrADS scripting language can be found in the documentation
Example of a GrADS Script

```
#Comments start with a #
'reinit'                        #GrADS commands are in single quotes
'open model.ctl'
'set gxout contour'
'set lev 500'
'set lat 20 50'
'set lon -120 -90'
i = 1                           #Scripting doesn’t use quotes
while (i<10)                     #Mixing GrADS commands with scripting
  'set t i'
  'd hcurl(u,v)'                 #This will display every other time step in model.ctl of the hcurl
  i = i +2
endwhile
```

\(^{a}\)This will display every other time step in model.ctl of the hcurl
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