

Graphical Packages



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Topics:

- Available graphical packages
- Which package is best for you
- Samples of graphics
- Details
 - GRAPH (Now)
 - RIP (Tomorrow)
 - MM5toGrADS (Thursday)

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Available Packages:

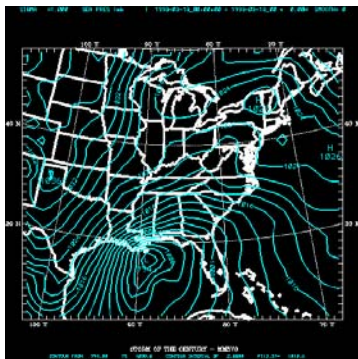
- **GRAPH**
 - Original package supported by NCAR
- **RIP**
 - Developed by Mark Stoelinga (UW / NCAR)
 - Very popular under MM5 users
 - Supported for a number of years already
- **MM5toGrADS**
 - Converter developed by George Bryan from PSU
 - Popular under MM5 users
 - Supported since January 2002

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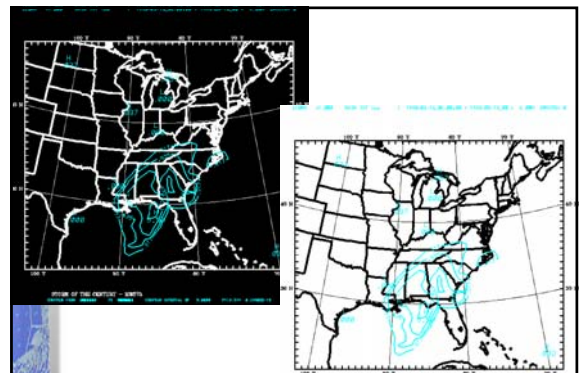
Features: GRAPH

- Easy to use
- Nice for a quick look at output
- Runs fast
- Does not create extra (large) data files
- No shaded plots (contours only)
- Only 2 overlaid fields possible
- Need NCAR Graphics to run
- Adding diagnostic variables require code changes
- Must rerun if new images are needed

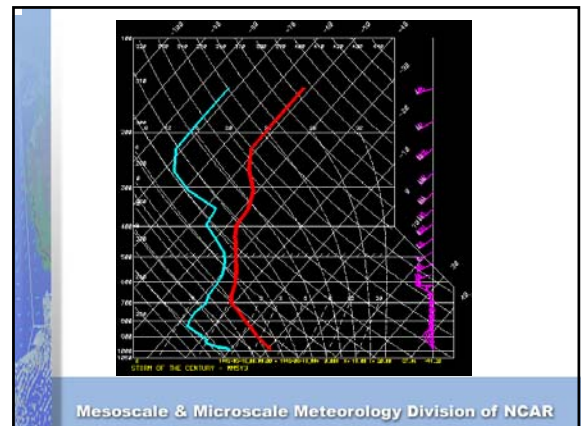
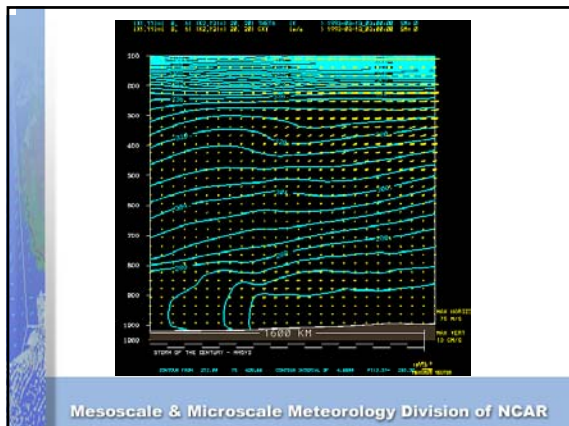
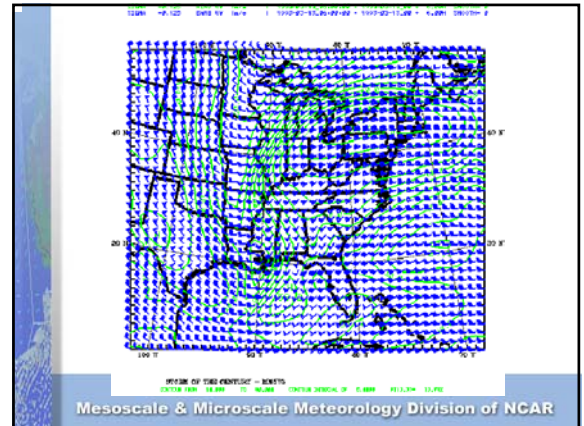
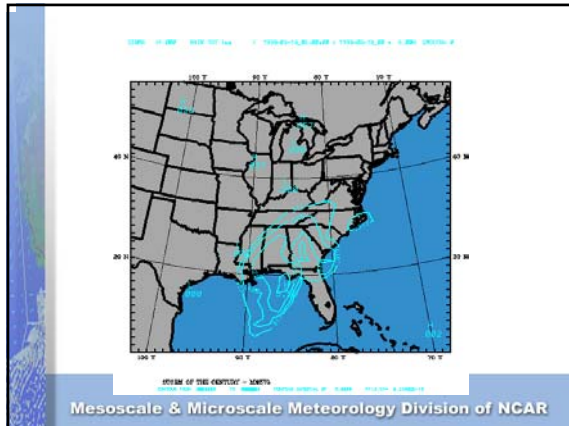
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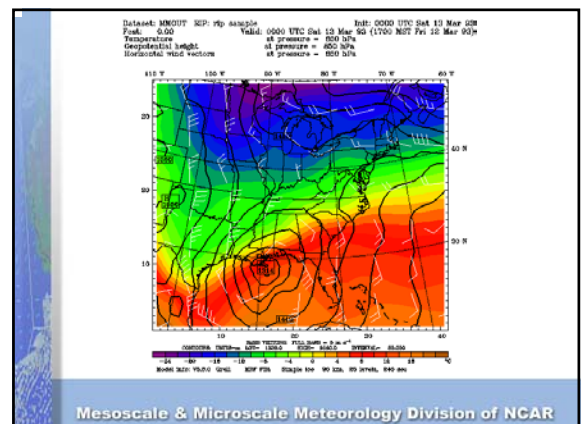


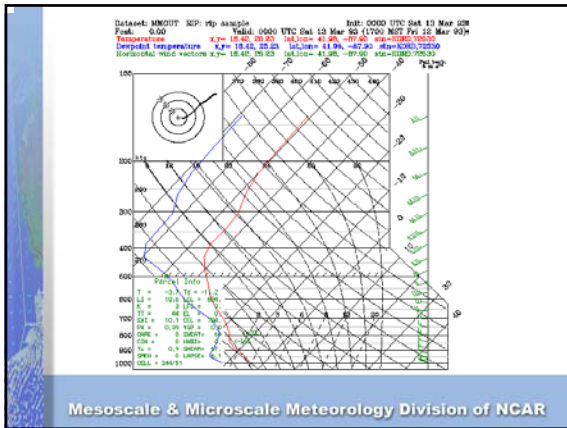
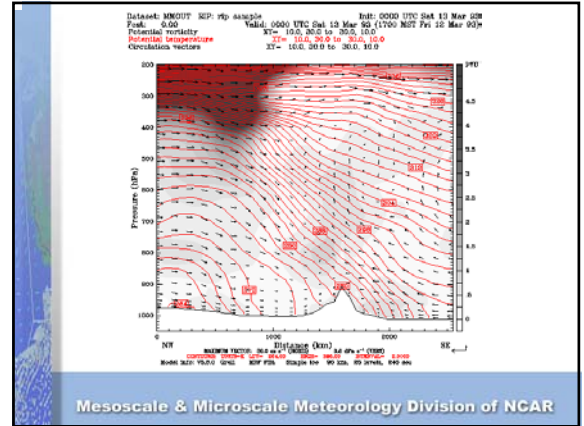
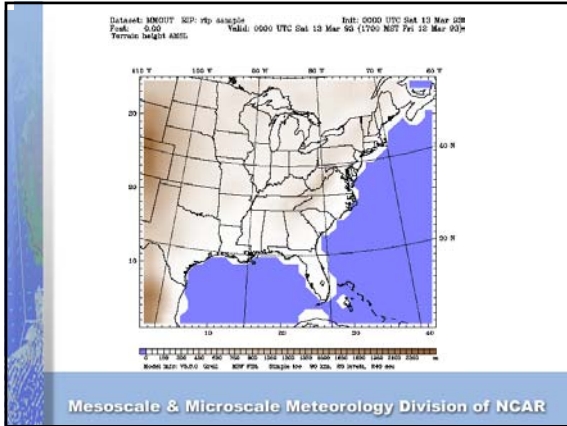
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Features: RIP

- **Quality slides (publish quality)**
- **Can do shaded plots**
- **More than 2 overlays**
- **Relatively easy to use**
- **Not as easy as GRAPH, but one can get up to speed fast**
- **Makes LOTS of extra data files**
- **Need NCAR Graphics**
- **Adding diagnostic variables require code changes**
- **Must rerun if new images are needed**

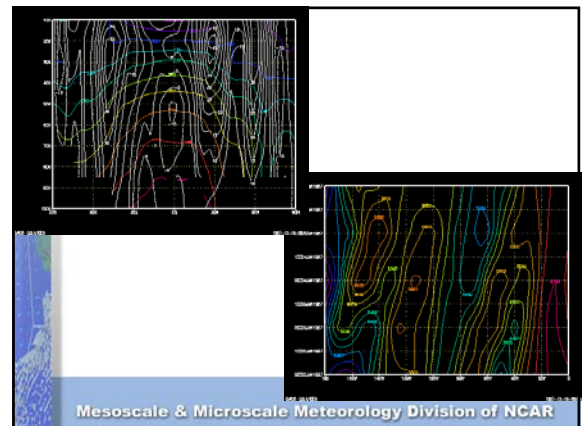
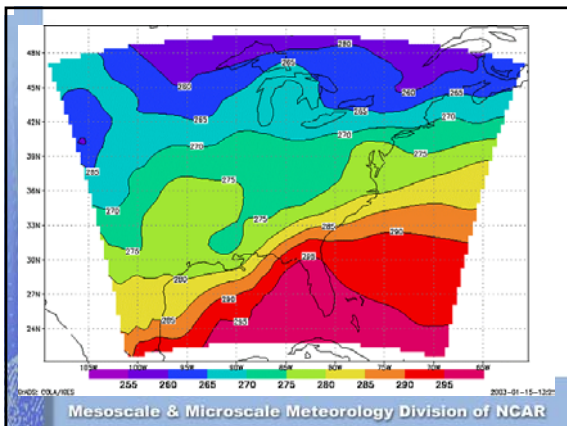




Features: MM5toGrADS

- Quality slides (publish quality)
- Can do shaded plots
- More than 2 overlays
- Not as easy to use, but can also get up to speed fast
- Take some time to learn the commands that is needed to generate the pictures
- Good online documentation
- Create large data files
- Interactive (nice feature)
- Adding diagnostics on the fly
- Animations in XYZT
- Don't have to rerun to generate new images
- Need GrADS (free)

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g_plots.tbl

```
TIME LEVELS: FROM 1993-03-13_00:00:00 TO 1993-03-
14_00:00:00 BY 21600
PRESSURE LEVEL MANDATORY: FROM SFC TO PTOF
PRESSURE LEVEL NON STANDARD: FROM SFC TO PTOF BY 3
SIGMA LEVEL: FROM 23 TO KMAX BY 5
TITLE: MM5 Tutorial
```

A) TIME – units of date and interval must match

Time format:

YYYY-MM-DD_HH

YYYY-MM-DD_HH:MM

YYYY-MM-DD_HH:MM:SS

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g_plots.tbl

```
TIME LEVELS: FROM 1993-03-13_00 TO 1993-03-14_00 BY 6
PRESSURE LEVEL MANDATORY: FROM SFC TO PTOF
PRESSURE LEVEL NON STANDARD: FROM SFC TO PTOF BY 3
SIGMA LEVEL: FROM 23 TO KMAX BY 5
TITLE: MM5 Tutorial
```

- A) TIME – units of date and interval must match
- B) P-level input, mandatory levels to plot, in mb
- C) P-level input, new levels to plot, increment by level numbers
- D) The σ -level input, top-down, integer level increment
- E) Title under plot, no imbedded “:”

Format very important

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g_plots.tbl

```
-----
PLOT | FIELD| UNITS| CONTOUR | SMOOTH ||..
T/F |    |    | INTERVAL| PASSES ||..
-----
  T | TER | m | 100 | 0 | | ...
TP500|HEIGHT| m | 30 | 0 | | ...
TI305| PV | PVU | 1 | 0 | | ...
```

FIELDS: Pages 12-14 to 12-18

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g_plots.tbl

```
-----
PLOT | FIELD| UNITS| CONTOUR | SMOOTH ||..
T/F |    |    | INTERVAL| PASSES ||..
-----
  T | TER | m | 100 | 0 | | ...
TP500|HEIGHT| m | 30 | 0 | | ...
TI305| PV | PVU | 1 | 0 | | ...
T |WIND |m/s| 5 | 0 || BARB | m/s | 2 | 0
```

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g_plots.tbl

```
-----
PLOT | FIELD | UNITS | CONTOUR | SMOOTH
T/F |    |    | INTERVAL| PASSES
-----
T | SKEWTLL | 72469| 39 .75 | -104.87 ||...
T | SKEWTXY | LOCATION | 19 | 30 || ...
```

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g_plots.tbl

```
-----
PLOT | FIELD | UNITS | CONTOUR | SMOOTH
T/F |    |    | INTERVAL| PASSES
-----
X | 5 | 5 | 23 | 8 | PSLV | mb | 2 | 0
X | THETA | K | 3 | 0 || ...
```

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How to Run GRAPH:

- ftp <ftp.ucar.edu> NCAR's anonymous ftp
- Login as ftp, email address as password
- cd mesouser/MM5V3
- binary
- get GRAPH.TAR.gz
- quit

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How to Run GRAPH:

- gunzip GRAPH.TAR.gz
- tar -xf GRAPH.TAR
- May need to edit src/scratch.incl and src/data.incl (200x200x40)
- make

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How to Run GRAPH:

- Edit:
 - g_plots.tbl
 - g_defaults.nml (optional)
- Run GRAPH script (page 12-12)
 - graph.csh 1 1 filename
 - graph.csh 1 3 file_00 file_01 file_03
- idt gmeta
- ctrans -d ps.mono gmeta >! gmetabw.ps
- ctrans -d ps.color gmeta >! gmetaco.ps

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Hints:

- **NCARG_ROOT** environment variable
- Use .incl files if larger than 200x200x40
- Vertical interpolation for σ -levels only
- New architectures may require fiddling with direct access file counter length (bytes or words)

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Hints:

- Only one input file **type** permitted per GRAPH run
- NCAR Graphics 4.1 is default, but can run with earlier and later versions of NCAR Graphics
 - Change -DNCARG41 to -DNCARG42 (v4.2)
 - Delete -DNCARG41 (v4.0)
- Change ncgm file in other formats
 - <http://ngwww.ncar.edu/info/faq.html#ConvertGif>

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