# Atmospheric Sounding Visualization

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## Outline

- Domain description
- Current presentation formats
- Proposed Solution
- Progress

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## Soundings

Pressure

Altitude

Temperature

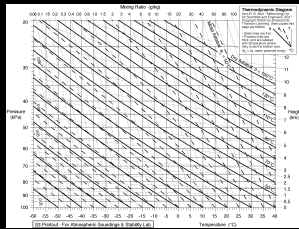Dewpoint



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## Soundings

```
72694 SLE Salem Observations at 12Z 08 Oct 2006
-----------------------------------------------------------------
  PRES   HGHT   TEMP   DWPT   RELH   MIXR   DRCT   SKNT   THTA   THTE   THTV
  hPa     m      C      C      %     g/kg    deg   knot    K      K      K
-----------------------------------------------------------------
 1020.0    61    6.0    3.8    86    4.95     0      0   277.6  291.2  278.4
 1000.0   224   10.0    6.9    81    6.28    15      4   283.1  300.7  284.2
  997.0   249   10.2    7.1    81    6.38    17      5   283.6  301.5  284.7
  990.3   305   10.0    6.8    80    6.30    20      6   284.0  301.6  285.0
  954.6   610    9.0    5.2    77    5.83    25      9   286.0  302.6  287.0
  925.0   871    8.2    3.8    74    5.46     5     12   287.7  303.4  288.6
  920.2   914    8.1    4.0    75    5.56     5     12   288.0  304.0  289.0
  909.0  1015    7.8    4.4    79    5.80     2     14   288.7  305.4  289.7
  902.0  1079    8.8  -11.2    23    1.81   360     15   290.4  296.0  290.7
```
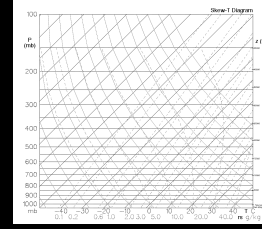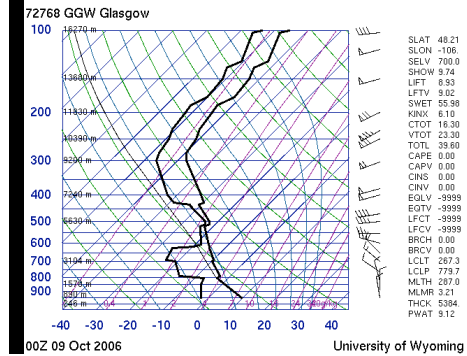
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## Current Presentation Methods



Emagram

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## Current Presentation Methods
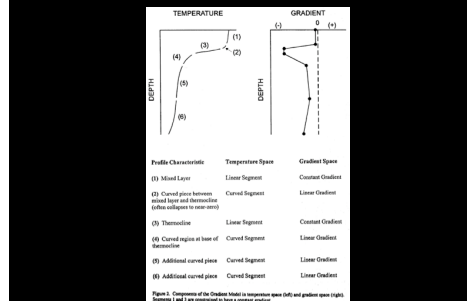


Skew-T Log-P

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## Critique

- Much training required
- Difficult to compare quickly
- Difficult to use for presentation to novice students
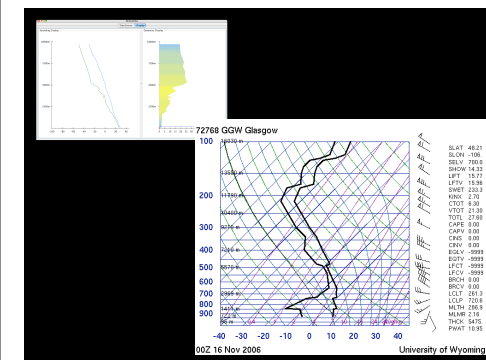- Easy to distribute
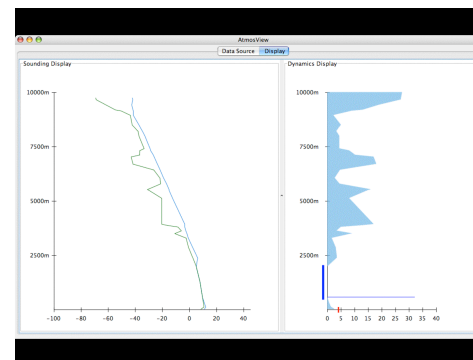- Complexity might aid understanding
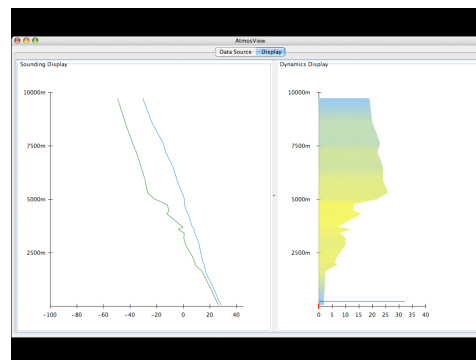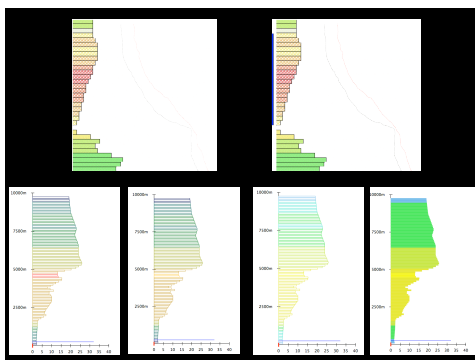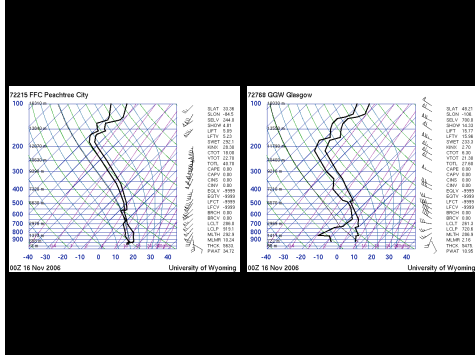
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## Previous Work

- Only modifications to Skew-T
- Haeger: Vertical ocean profiles

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S.D. Haeger. Vertical representation of ocean temperature profiles with a gradient feature model. In Proceedings of OCEANS '95. MTS/IEEE 'Challenges of Our Changing Global Environment'. San Diego, CA, 1995

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## Proposed Solution

- Derive variables
- Display on an annotated bar plot

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## Use

- 14-17 year olds that have just completed an introduction to meteorology class

## Implementation Details

- Data source:
  http://weather.uwyo.edu/upperair/sounding.html
- Java/swing in Eclipse

## Outstanding Issues

- Interaction with sounding plot
- Small multiple layout for comparisons by location or time
- How to force a visual link

  Slope of temperature ⟷ Stability