Talking points for ACARS VISITVIEW

1. Screen displayed while waiting for participants to get on line
2. Title slide with instructor(s) name
3. Objectives of training
4. Definition of ACARS
5. Brief history of aircraft weather data - early days of aviation
6. Brief history of aircraft weather data - advent of radiosonde
7. Brief history of aircraft weather data - modern era
8. Data sources
9. Data facts
10. Accuracy statistics
11. ACARS impact of numerical models
12. Advantages and disadvantages compared to other data
13. Data acquisition and display
14. Introduction to ACARS web site
15. ACARS main web page (http://acweb.fsl.noaa.gov).
16. If you select "full ACARS display java version", you will get the most recent three hours of data, similar to this example. If you want another time period, click on the "Load button".
17. A window will appear that allows you to select data from any time period during the last thirty days. You can also discriminate by only displaying turbulence data in "g" forces or in "edr" (eddy dissipation rate)
18. If you move your cursor over any data point, the screen will display the data from the location (time, temperature, wind, flight plan, elevation, aircraft number).

19. If you hold down the left mouse button, you can drag out a box and zoom in. Here is a closer look at data from the southern United States. Notice the large number of flight tracks into the UPS hub in Louisville and Federal Express Hub in Memphis.
20. If you left click on a flight track near an airport, a sounding will be generated. Here is one from Columbia,South Carolina. Notice that there is wind and temperature data, but no dewpoint (more on that later). If you click on the "get text frame" button just below the sounding, you will get the text data that the sounding was constructed from.
21. Here is the text data. Let's go back to the sounding graphic.
22. Here is the sounding again. If you left click on the button that says "toggle", the plot in the upper left hand corner will change from a flight path display to a hodograph.
23. If you left click on a point along the sounding, a box will pop up allowing you to input a dewpoint and generate stability indices.
24. Here the program has computed CAPE, Convective Inhibition and height of the LCL. Note that CAPE may be under estimated if the aircraft did not fly very high.
25. If you click on "load other soundings", a window will appear offering to display the latest radiosonde, MAPS, or RUC sounding.
26. Here we have a RUC analysis for the same time as the ACARS sounding.
27. If you hold down the "shift" key and left click on one of the grey buttons, you can overlay two or more soundings.
28. Let's go back to the default map, and click on the "barbs" button.

29. Now the data points have been changed into wind barbs. You can see that they are color coded by altitude, and can be controlled by the slider bar on the right side.
30. If you left click on the “windspd” button near the top, the winds will be color coded by wind speed. Notice the strong jetstream coming across the southern Plains into the Ohio Valley. The ability to display real time winds has been a big asset to CWSU meteorologists, and to forecasters in general who want to see how well the models are initialized or verifying.
31. Here we have used the wind speed slider bar at the bottom to display winds over 100 knots.
32. In this example we only wanted to see winds between 30,000 and 33,000 feet. This is useful for finding jet streaks within jet streams.
33. Now we are back at the default page. Let’s click on the “World” button.
34. Here is an example of three and a half hours of ACARS data from around the world. Notice the great amount of ACARS from Europe and Australia.
35. We’ll zoom in over Europe to show how the overlay feature is used. You can display the airport names and VORs (only in the United States).
36. If you move your cursor over an airport point, you will see the airport name and it’s elevation.
37. That’s a pretty quick presentation of how you can access ACARS via the internet. How will it be displayed in AWIPS?
38. This is an example of how ACARS wind plots would be displayed in AWIPS . Notice they will be divided into 5 or 10 thousand foot bins.

39. There should be a convenient way to display soundings via the point tool. Might be more difficult at national centers that want to see soundings from all across the country.
40. Here is the AWIPS point tool.
41. ACARS soundings should look much like radiosonde soundings, except for lack of water vapor.
42. How are you doing so far? Any questions?
43. A listing of some forecast applications of ACARS data
44. Some additional uses of ACARS
45. ACARS can be used to validate other data sources such as radiosondes and profilers. Here is an example from December 1999 in Green Bay.
46. A portion of the radiosonde data from Green Bay at 00Z December 12, 1999. Notice the extremely high wind speeds above 35,000 feet.
47. ACARS data around 35,000 show winds no stronger than 130 knots.
48. Other uses of ACARS for data validation.
49. Turbulence forecasting - Pacific Northwest
50. ACARS from Pacific Northwest shows strong jet stream in great detail.
51. ACARS can be especially useful in data sparse areas such as the Carribean.
52. ACARS data from the Carribean from February 6, 1998.
53. Aviation forecasts of ceilings and visibilities can often be improved with ACARS data. The San Diego WFO utilized ACARS during the evening of April 30, 2001 to better forecast ceilings and visibilities near Ontario, California. Low clouds and fog often form near ONT if the marine layer (indicated by base of inversion) is greater than 1,500 feet.

54. TAF locations in San Diego and Los Angeles areas.
55. Terrain map of the region.
56. TAF issued for ONT at 2325Z predicting MVFR conditions.
57. GOES-10 Fog product showing stratus near the coast at 0230Z.
58. ACARS from SAN at 0233Z. Marine layer 1,200 feet.
59. ACARS from ONT at 0201Z. Notice that this is one of the few aircraft with water vapor sensors.
    Marine layer 1,900 feet.
60. GOES-10 Fog product at 0530Z showing low clouds and fog limited to coastal plain.
61. 06Z TAF for ONT included forecast of low clouds and fog (IFR vs MVFR conditions forecast earlier) based on ACARS soundings and fog product.
62. Loop of fog product from 0230Z-1200Z.
63. METARS from ONT showing low clouds and fog formed as forecast in the 06Z TAF (ceilings and visibilities got even lower than forecast).
64. A daring flight!
65. Thunderstorm forecasting example from Chicago area during the afternoon of May 5, 1997.
66. 500mb map from 12Z showing shortwave trof approaching.
67. ACARS from O'Hare at 1515Z shows surface based inversion and strong winds in low and mid levels.
68. Sounding at 1623Z shows inversion lifting and cold 500mb temperatures.
69. 1738Z sounding shows that cap has been broken.
70. Discussion of event
71. Excerpt from Storm Data publication.
72. Wintertime forecasting - December 24, 1997

73. NGM MOS guidance for O'hare from 00Z December 24, 1997 suggests that rain will fall during the afternoon and evening.
74. ACARS soundings from 0406Z and 0646Z shows that mid level warm layer has diminished with time. United Airlines meteorologist used these soundings to forecast 2 to 4 inches of snow despite guidance suggesting rain.
75. Plans to get water vapor sensors and data from regional aircraft.
76. Summary