

A series of flights (grayed areas) from airports on the West Coast and Great Lakes; temperature, relative humidity and barometric pressure were measured every two minutes. As the temperature drops on long flights, the outside air creates a dryer atmosphere.

Data were downloaded from this Reno Air MD-80 during an overnight maintenance check. Many thanks to the cooperative staff from Reno Air during these tests by their Cargo Sales & Services Department.

Summer Air Cargo

Bear Facts -- #82

These data add to those gathered over the past few years to show the environment to which cargo is exposed in air transport. The twin evils of too dry and too hot can be observed; shipments should be packaged accordingly.



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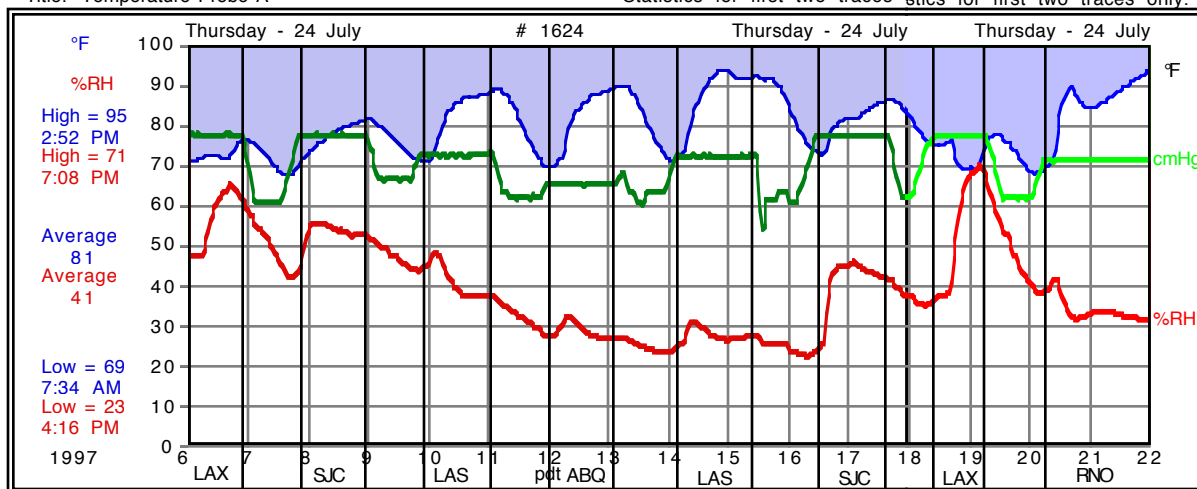
the DataBear

Bear Facts are published to provide useful insights into the operation and applications for the DataBear™ Measurer and associated complete instruments.

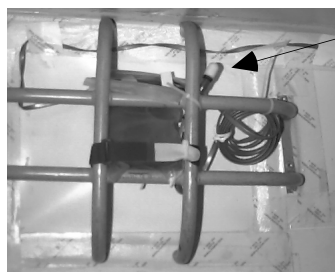
A day filled with commuter flights from California to the Southwest shows the desert heat and dry atmosphere. These are not extremes, but some materials and people are effected.

Title: Temperature Probe A

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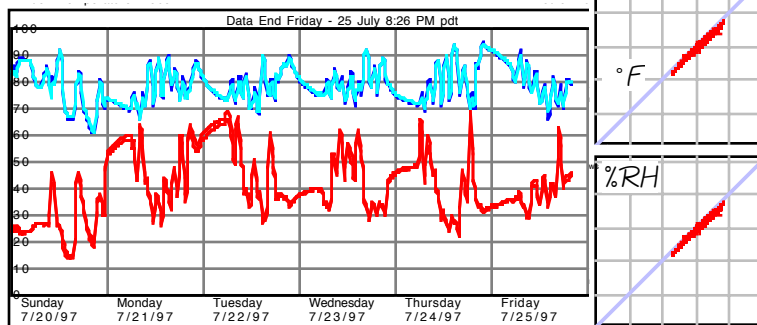
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A Langan T12 Hygrothermograph is strapped within a barrier in the cargo compartment of the MD-80 aircraft; the point of sensing is at the white probe (arrow). A second sensor (attached to the wire at top) extended to the center of the space.

Ongoing experiments to define cargo environments have been conducted over the past two years with additional data reported in Bear Facts #58, #67 and #73. The focus of this set is to take a random glimpse of hot summer weather. The two day plots surely show the heat, but not to extreme. While deplaning and boarding passengers, the cargo compartment warms to the outside temperatures. Enroute it cools (and dries). Properly packaged perishables, and even animals, should be adequately protected in these environments. Of course, days can be hotter and stays can be longer. That is why we measure!

Six days of measurements at two points within the same compartment show close correlation; one point would be representative.



Creating these plots. Two software programs were used to create the plots: Langan's *Sense-Your-World!* plots the calendar 'views' of gathered data and calculates the statistics. These graphics are copied from SYW! and pasted into *NisusWriter*, a Macintosh authoring word processor. Here they are scaled, overlain, then trimmed. The graphic 'tools' in NW provide a rectangle to place the grayed areas over the plots (where the barometric pressure shows the aircraft is aloft.) Corrections were made to the graphics text where appropriate. To finish the BearFacts, the digital photo was added together with text-- all in *NisusWriter*. The finished application note was printed on an Apple LaserWriter 12/640, using the duplex accessory to print both sides.

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**Data are easy to accumulate over weeks in the restricted environment of a
By observing barometric pressure the results show when the plane is fly
Flexible calendar-based graphics facilitate data reduction.
Langan hygrothermographs and software combine to create cost-effective mea**