8.2B DATA BASE FOR THE COLORADO PROFILING NETWORK

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The Colorado profiling system developed by the Wave Propagation Laboratory (WPL) (HOGG et al., 1983) includes five (soon to be six) Doppler radar wind Profilers; four operate at 49 MHz (6 m) and are located at Platteville, Fleming, Lay Creek, and Cahone, and one operates at 915 MHz (33 cm) and is located at Denver. The sixth radar, now under construction, will operate at 405 MHz (UHF) and will be located at Boulder. Microwave radiometers and surface meteorological stations are at some of the radar sites. This note describes only the data base for the wind Profilers.

Each radar site has its own computer and can be controlled remotely. Information from the various sites is transmitted to Boulder by dedicated or dial-up telephone lines. Since the radar control software is driven by tables of parameters which are accessible and modifiable via remote terminal, both temporal and spatial resolutions can be changed so the host data base must be as flexible as possible. The wind profiles measured at each site are received by the data base as a time series (or "stream") of information in temporal order regardless of the operating mode of the radar. At each site (except Platteville) there can be as many as three separate horizontal wind profiles measured during the same averaging period, each with a different height resolution. In addition, the UHF sites can measure three separate vertical profiles with different resolutions during the same period. The profiles may be obtained in any order with different temporal resolution. Therefore, to maintain flexibility, the data base separates and separately stores (in temporal order) the series of profiles measured with each height resolution at each site.

The information stored for each profile is as follows:

a) For each measurement height (maximum = 32):

Wind speed	m/s	
Wind direction	deg.	(from North)
Height	km	(MSL)
Number East		(The number of individual wind profiles in
Number North		the consensus set)
Received power	dB	(not range normalized)

b) Identification information:

1. Date and time at start of data acquisition
2. Number of individual profiles used in the averaging process
3. Number of time-domain averages of radar pulses
4. Number of Doppler spectra averaged for the individual profiles
5. Pulse width (μs)
6. Pulse repetition period (μs)
7. Maximum unambiguous horizontal speed (each direction) m/s
8. First height km (MSL)
9. Number of heights
10. Height spacing km
11. Antenna selected for power information (power information is stored for only one antenna; this indicates which)

The data are stored as single precision floating point values (six or seven decimal digits of precision) as calculated and transmitted by the computers at the sites. Data can be accessed for real-time display by selecting the desired site, time, and type of data. Approximately three days of data are kept in the data base at any time; the data base is dumped to magnetic tape about every three days for permanent storage.

REFERENCE

Hogg, D. C., M. T. Decker, F. O. Guiraud, K. B. Earnshaw, D. A. Merritt, K. P. Moran, W. B. Sweezy, R. G. Strauch, E. R. Westwater and C. G. Little (1983), An automatic Profiler of the temperature, wind, and humidity in the atmosphere, J. Climate Appl. Meteorol., 22, 807-831.