

Table 6.4
NSF/NCAR C-130Q Hercules (N130AR)
Aircraft Instrumentation Specifications
Chemistry Sensors

Variable Measured	Instrument Type	Manufacturer & Model No.	Range	Accuracy	Resolution
Ozone (TEO3C)	UV Absorbance	TECO 49 (NCAR modified)	0 to 1 ppmv	+4 ppbv	1 ppbv
<p>OPS Characteristics: Corrected ozone concentrations (TEO3C) are calculated from a raw concentration (TEO3) sampled at near ambient conditions which is then converted to standard temperature and pressure conditions (STP). Ozone concentrations generally increase with altitude and range from 10-30 ppb in a clean boundary layer to 80-100 ppb in the upper troposphere and greater than 100-200 ppb in the lower stratosphere. Stratospheric penetrations are usually associated with strong local jet stream winds. In more polluted urban areas, this expected vertical profile will be reversed with bad outbreaks exceeding 200 ppb (photochemical smog) and a sharp decrease at the top of the boundary layer. The instrument switches between two sampling paths every 10 seconds. Minor differences in these pathways can result in 1-3 ppb jumps in the TEO3 signal on this time scale. This is a normal occurrence and the system is functioning correctly. Larger jumps in TEO3 may indicate a flow problem in one or both pathways. The flow can be checked by viewing the mechanical flow meters on the front of the instrument.</p>					
Fast Response Ozone (O3FC)	NO2 Chemilumines.	NCAR	0 to 300 ppbv	+5%	0.5 ppbv
Carbon Monoxide (COMR)	Vac UV Resonance Fluor.	Aero-Laser	0 to 200 ppmv	+3%	3 ppbv
Carbon Dioxide (CO2MR)	NDIR	NCAR Modified Licor 6252	0 to 700 ppmv	+0.4 ppmv	0.2 ppmv