

In-situ Sensing Facility Calibration Laboratory

The EOL calibration laboratory is used in the evaluation and calibration of in-situ meteorological sensors. The laboratory has the capability to simulate the full range of pressure, temperature, humidity, altitude, and wind speed to which meteorological sensors are normally exposed. The lab can also be used to evaluate the performance of instrumentation when exposed to varying environmental conditions.

Recently the lab has added new capabilities of an altitude/temperature chamber. All systems are under computer control. This allows the user to define the operating parameters of the system, start a run and come back later when the run is complete. Additionally, most instruments or sensors under test can be interfaced to the computer system to collect user data. The user has a data file consisting of the cal-lab system reference(s) and the user data. Pressure, humidity, and temperature references are traceable to the National Institute of Standards and Technology (NIST) primary standards.



SLOW SPEED WIND TUNNEL

Providing a linear flow up to 25 m/s, the open loop wind tunnel was specifically designed for testing of meteorological instrumentation.

Specifications

Tunnel size	218 cm (D) x 732 cm (L)
Test section	89 cm (D) x 152 cm (L)
Velocity Range	0 m/s to 25 m/s
Accuracy	0.1 m/s
Computer controlled	

**AVAILABLE
FACILITY**





FLUKE (HART SCIENTIFIC) 7061 PRECISION OIL BATHS

The laboratory maintains two FLUKE (Hart Scientific) 7061 temperature oil bath systems. The design of the baths produces stabilities better than $+0.003^{\circ}\text{C}$. A silicone oil is used as the bath fluid which provides a wide operating temperature range. Each bath has its own temperature reference probe which can be used as a reference.

7061 Specifications

Temperature range	-60°C to 110°C
Set-point accuracy	$+0.5^{\circ}\text{C}$ (bath reference probe)
Set-point resolution	$+0.01^{\circ}\text{C}$ (bath reference probe)
Typical bath stability	$+0.002^{\circ}\text{C}$
Working area	33 cm x 33 cm x 33 cm



THUNDER SCIENTIFIC MODEL 2500 HUMIDITY GENERATOR

This generator uses a two-pressure method where 100% saturated air at a high pressure flows through an expansion valve to the ambient pressure. If the gas temperature is held constant from saturated pressure to ambient, the humidity is a ratio of the chamber pressure to saturator pressure times 100.

2500 Specifications

Humidity range	10% to 95%
Humidity accuracy	$+0.5\%$
Temperature range	-18°C to 50°C
Temperature accuracy	$+0.1^{\circ}\text{C}$
Working area	
Full Automated computer control and data collection	



ALTITUDE/TEMPERATURE ENVIRONMENTAL CHAMBER

The Thermotron Model FA-96-CH-5-5-RAC Altitude/Temperature chamber combines altitude and temperature to provide a simulation of real-life conditions. This will allow for testing of instrumentation on the ground, versus an aircraft, in a controlled environment.

Specifications

Temperature range	-73°C to 177°C
Altitude range	Sea level to 30,480 m (100,000 ft)
Working chamber size	117 cm (W) x 120 cm (H) x 183 cm (D)
Computer controlled	



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ON THE WEB

<https://www.eol.ucar.edu/content/calibration-laboratory>



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