

CARIBBEAN
TROPICS

KENYAN
WETLANDS

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DESERT

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TUNDRA



WeatherEze[®]

The Next Generation of Chamber Control Software

*Helping researchers address
climate changes*

PERCIVAL



WeatherEze®

Revolutionary WeatherEze is an innovative tool for climate control based research.

WeatherEze allows your chamber to have real-time control of the temperature, relative humidity, and solar lighting for any global location. Data entry is accomplished either by latitude and longitude or simply clicking on a world map. Updating of actual conditions is accomplished through continuous connection to the internet and a real-time link to METAR data. This allows unsurpassed realism in duplicating the natural environment within the chamber. The ability to fully duplicate temperatures are limited by the maximum and minimum temperature control of the chamber, typically 4° – 44°C (lights off) and 10° – 44°C (lights on).

A. Climate Change Scenarios

By linking to the quality data provided by IPCC AR4 WeatherEze allows researchers to run climate change model scenarios with just a few clicks. Twenty different models and seven emission scenarios are currently supported through public data (World Bank: Open Data Catalog).

B. The Real-Time Control Option

Select real-time control for any location across the globe. While the United States and Europe have ample real-time weather data available, some limitations exist in isolated areas because of gaps in real-time weather data. WeatherEze enables users to select the newest weather station or it can provide an integrated weather condition for geographic points of interest that lie between weather stations.

C. The Simulated Environment Option

Select any location on the globe. This program will simulate the average weather and sunlight conditions at the site with a user-selected starting date and time.

D. Upload and Edit Weather Data

Users can edit weather data generated by the software or upload their own data sets.



Key Features

- WeatherEze opens the door for reproducible research examining climate change scenarios. If real-time duplication is not desired, the control software has the ability to model the last 30-year average climatic conditions of temperature, relative humidity and solar quantity and quality for any site on the globe. Even without the real-time link, WeatherEze still achieves the next level of environmental simulation.
- Complete file logging of set points, current conditions and climate data gives you a record to document the temperature, relative humidity, lighting and corresponding actual values in a convenient comma-spaced value (CSV) or excel formatted file or for later processing and documentation.
- Real-time daily graphs of temperature, relative humidity and CO₂ let you see at a glance where the chamber set points and actual values are, as well as what the next values will be for that day. Sunrise and sunset times can be overlaid on these graphs.

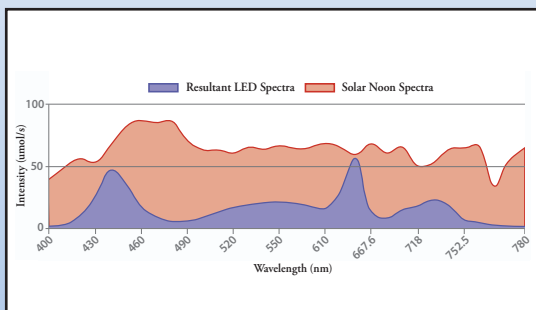
WeatherEze is the result of a cooperative research and development agreement (CRADA) with the United States Department of Agriculture-Agricultural Research Service to incorporate their environmental simulation models into this revolutionary chamber control software.



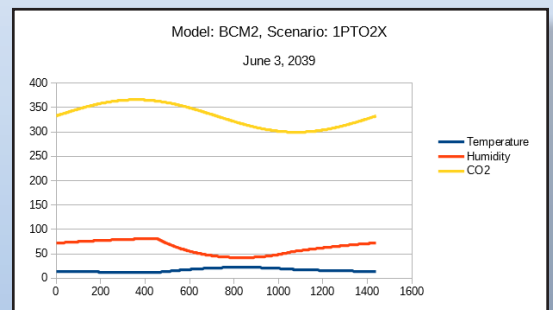
Solar Quality and Lighting

The WeatherEze program has three options for lighting control:

1. Solar quality at any location is modeled and simulated, limited only to the capacity of the lighting outputs available, as seen in the graph.
2. Solar intensity is used to establish lighting control, matching intensity rather than quality of light.
3. Manual settings are also available.



Solar Spectrum control panel



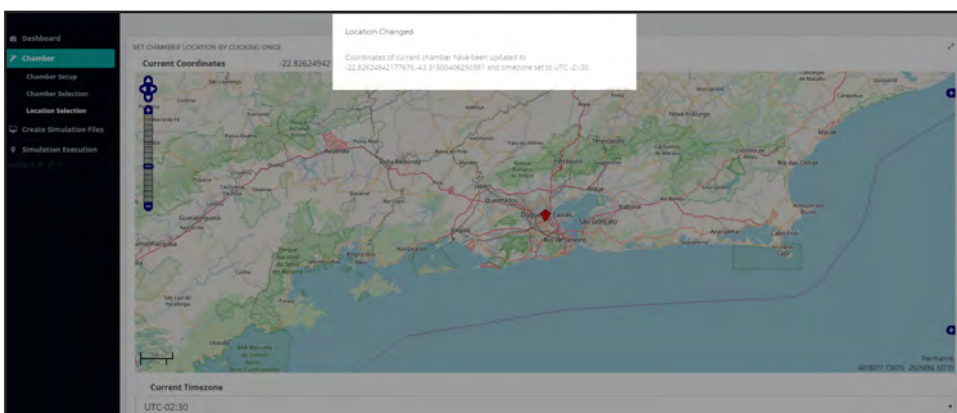
Climate Change screen status control panel



METAR screen

The METAR tab allows for real-time synchronization with weather anywhere on the globe, and the METAR screen shows the current conditions for the locations selected in the setup wizard. These real-time readings are used to control the set points for the chamber, the heart of the real-time linkage. Real-time weather data is updated as frequently as the station updates are available. This data is what allows WeatherEze to control the chamber and mimic conditions anywhere on the globe.

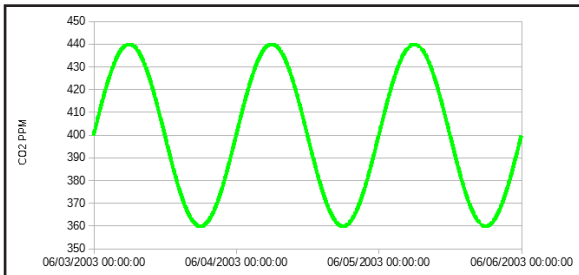
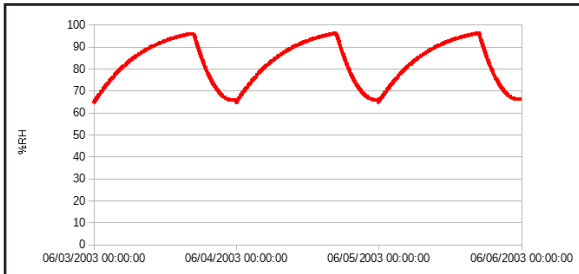
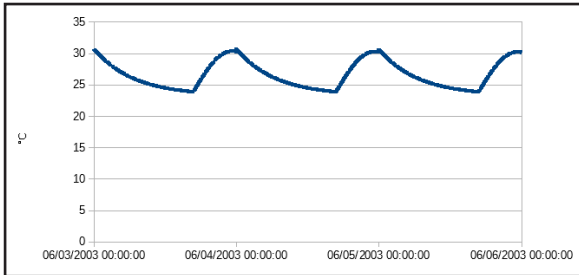
The METAR screen offers two options if interruptions are encountered with the real-time data. WeatherEze will hold the last reading until a new reading is retrieved, or default to simulated data. There is also a check box on the METAR tab that allows you to toggle back and forth between real-time and simulated data. In the case of a dropped METAR, it just holds the previous set point.



METAR control panel



WeatherEze®



Control panels for Temperature, Humidity and CO₂

Temperature, Humidity and CO₂ screens

All living organisms respond to alterations in environmental conditions, particularly from fluctuations in air temperature, CO₂, and variations in incident solar radiation quality and duration. In addition to the lighting control panel, the temperature, humidity and CO₂ control panels shown allow you to simulate conditions around the globe.

Chamber requires the current Intellus Ultra, Intellus Web Server, and specific options for proper functionality. Please contact factory for details.

Neither this CRADA nor the results of this CRADA are an endorsement by USDA-ARS of Percival's products or services, including this software.



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