

Las Trancas – Met Station Dataset Documentation

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Dataset Overview:

This dataset includes data collected by a weather station between May 15 and October 07, 2016, located in Valle Las Trancas, Chile.

Site Description:

Weather station was located in the yard of a cabin, flanked to the west and east by deciduous trees.

Latitude: -36.909017
Longitude: -71.484262
Elevation: 1258 m

View towards the south:



View towards the north:



View towards the east:



Instrument Description:

A tripod held the anemometer, temperature and relative humidity sensor, and the datalogger box which contained the barometer. The precipitation gauge was located about 2 m away from the tripod.

Anemometer: *RM Young 05103*

The anemometer was mounted on top of the tripod at a height of approximately 3 m above the ground. The purpose of mounting the anemometer in this location was primarily to provide information about wind conditions that might affect the precipitation gauge measurements.

Temperature and relative humidity probe: *CS215*

The temperature and relative humidity probe was mounted in a radiation shield on the north side of the tripod at approximately 1.5 m above the ground.

Weighing precipitation gauge: *ETI NOAH II*

The precipitation gauge was mounted on a levelable board on top of a 0.5-meter tall tower of cement cinder blocks. The gauge was surrounded by an Alter shield to reduce undercatch. The precipitation gauge was filled with a few inches of an antifreeze/hydraulic oil mixture, then was drained and refilled periodically. The body of the precipitation gauge was wrapped in heat tape to keep the liquid in the chamber from freezing at very cold temperatures and/or during high snowfall rates.

Pressure Sensor: *CS106 Barometric Pressure Sensor*

The barometer was mounted inside a weather-proof datalogger box on the tripod, at a height of about 1 meter above the ground.

Sensor specifications:

Anemometer: *RM Young 05103*

Wind speed: 0-224 mph

Wind direction: 0 to 360 degrees

Operating temperature: -50C to +50C

Temperature and relative humidity probe: *CS215*

Temp range: -40C to +70C

Relative humidity 0% to 100%

Accuracy: +/- 0.3C at 25C

Weighing precipitation gauge: *ETI NOAH II*

Capacity: 12 inch

Accuracy: +/- 0.01 in

Operating temperature: -30C to +50C

Pressure Sensor: *CS106 Barometric Pressure Sensor*

Accuracy: +/- 0.3 mb at +20C, +/- 0.6 mb at 0 to +40C

Operating temperature: -40C to +60C

Data Collection and Processing:

All variables passed basic quality control measures (i.e. checking for realistic values) and were not changed.

Data Quality and Missing Data:

There was no missing data for the extent of the field project.

Data Format:

Weather station data is available in comma delimited (.dat) format, in five minute and hourly intervals. The two files can be found in the data directory:

lastrancas_fivemin_20160516-20161007.txt

and

lastrancas_hourly_20160516-20161007.txt

Where the time stamp represents date and time (UTC) that data was collected from the data logger. Each data file includes data for the entire period of collection.

Five Minute Data Interval Header:

Timestamp (‘YYYY-MM-DD HH:MM:SS’), timestamp number, air temperature (°F), air temperature (°C), relative humidity (%), average wind speed (m s^{-1}), wind direction, wind gust speed (m s^{-1}), battery voltage, panel temperature (°C), five minute precipitation (cm), pressure (mb), total precipitation since last reset (cm)

Hourly Data Interval Header:

Timestamp(‘YYYY-MM-DD HH:MM:SS’), timestamp number, pressure (mb), hourly precipitation (cm), and total precipitation since last data collection (in)

* These headers are also at the top of each file

Sampling and Averaging Times:

<u>Variable</u>	<u>Sampling Interval</u>	<u>Averaging or Reporting Interval</u>	<u>Quantity Reported</u>
Wind speed (m s^{-1})	10 sec	5 min	Mean horizontal wind speed
Wind direction	10 sec	5 min	Unit vector mean wind direction
Max wind gust (m s^{-1})	10 sec	5 min	Maximum instantaneous horizontal wind speed
Air temperature (°C)	10 sec	5 min	Mean air temperature
Relative humidity (%)	10 sec	5 min	Mean relative humidity
Pressure (mb)	10 sec	5 min	Instantaneous pressure
Precipitation (cm)	10 sec	5 min	Total interval snow water equivalent