

# NCAR ISFF Met Station at RICO

Final QC'd dataset is available.



RICO Station viewed from the North

## Introduction

This document describes the operation and measurements of the [Integrated Surface Flux Facility \(ISFF\)](#) meteorological station during RICO.

## Site Description

The GPS coordinates for the site are 17 deg 33.047' N, 61 deg 44.259' W (from the RICO Project Information book).

## Schedule

3 Dec 2004

Data collection starts

25 Jan 2005

Data collection ends

## Instrumentation

The instrumentation consists of:

- Barometer, [Vaisala PTB220B](#), with a single-disk static [pressure port](#)

- [Vaisala 50Y Humitters](#) to measure air temperature and RH at 2m AGL in NCAR aspirated radiation shield
- RMYoung Prop Vane at 10 meters
- Long and short wave radiometers
- Rain gauge

## Sensor Notes

No major sensor problems occurred during this project.

### Propeller-Vanes

No problems occurred. The mast was down on both Dec 30 and 31 to move communications antennae. These data have been removed.

### T/RH

The first 5 hours of data collected on Dec 3 were from a bad sensor. The rest of the data were okay. The Gortex filter was replaced approximately weekly (and had some salt build-up). We don't think this should affect the data. The fan also was inspected (at least by ear) almost daily and was always working. The fan was removed from its housing a few times during the project and moisture and crystallized salt was found on the housing, but the blade appeared to be unaffected.

Derived values of specific humidity have been added to the data files.

### Barometer

No problems occurred. The pressure signal is dominated by a semidiurnal oscillation associated with a solar "tide", typical of tropical conditions (see [example](#)).

### Radiometers

Both the pyranometer and pyrgeometer behaved properly throughout the program. However, persistent winds built up a thin coating of salt spray on the windward (east) side. For this reason, both radiometers were cleaned every day (usually in the morning). Because cloud-free skies almost never happened, it is quite difficult to estimate the error caused by this spray, but it could actually enhance the measured radiation due to increased specular reflections. With the frequent cleanings, we have ignored this error.

Two unusual characteristics in the short-wave data are short-duration spikes, due to shadowing by small (~100m) quickly-moving (15m/s) clouds, and enhancement of radiation above the cosine-weighted attenuated solar constant at the edges of clouds due to direct sunlight collected by the optically-thin clouds. Examples of this are [1 day](#), [a few clouds](#).

Values of long-wave radiation derived simply as:  $R_{pile} + \sigma T_{case}^4$  have been added to the data files. This should be sufficient since Kipp-and-Zonen pyrgeometers were used.

### Rain Gauge

This operated normally as far as we can tell. Total accumulation was only 40mm, which seems somewhat low and may be due to high winds affecting the collection efficiency. (Though this usually is not a problem for liquid precipitation.) A few test tips on Dec 4 and Dec 29 have been removed from the data set.

## Photographs

Photos of the station and environment around Spanish Point are [here](#). Here are [Ned Chamberlain's](#), [Mike Susedik's](#), and [Steve Oncley's](#) tourist photos.

Here are unedited STATION PANORAMAS taken from on top of the tripod and rotating around the mast:

# Field Logbook

A computer-readable [field logbook](#) of comments by NCAR and other personnel is available in read-only html form.

This document is based on a [web page](#) prepared by Gordon Maclean of NCAR.