Cassidy International Airport weather station data on Kiritimati in the Northern Line Islands sampled between 2006-2015 (RAPID Kiritimati project)

Website: https://www.bco-dmo.org/dataset/660093
Data Type: Other Field Results
Version:
Version Date: 2016-09-29

Project
» RAPID: Tracking coral reef impacts of the 2014/2015 El Nino event (RAPID Kiritimati)

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Coverage

Spatial Extent: **Lat**:1.985472 **Lon**:-157.349778

Dataset Description

These weather data include air temperature, humidity, precipitation, wind speed, wind direction, and visibility from Cassidy International Airport (PLCH) on Kiritimati in the Northern Line Islands between 2006 to 2015.

Methods & Sampling

Information collected from a weather station at Cassidy International Airport, Kiritimati. Rain information collected with a splayed base rain gauge.

Data Processing Description

BCO-DMO Data Manager Processing Notes:
* added a conventional header with dataset name, PI name, version date
* modified parameter names to conform with BCO-DMO naming conventions
* removed unnecessary columns such as snowfall accumulation.
* removed undocumented columns such as wind_speed_high and wind_speed_low due to unknown "high" and "low" limits. wind_speed_mean is still included.
* lat/lon added for Cassidy International Airport
* parameter description source (daily data section) being verified with data contributor.

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Data Files

File
AIRPORT.csv (Comma Separated Values (.csv), 605.21 KB) MD5:a4fa4044386c9245c0d15d5b922ba98b Primary data file for dataset ID 660093

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Parameters

Parameter	Description	Units
date	Date (local UTC+14:00) in yyyy-mm-dd	unitless
dew_point_high	Dew Point (max of hourly values)	degrees Celsius
dew_point_low	Dew Point (min of hourly values)	degrees C
humidity_fraction_high	Relative humidity expressed as a fraction (max of hourly values)	dimensionless
humidity_fraction_low	Relative humidity expressed as a fraction (min of hourly values)	dimensionless
humidity_fraction_avg	Relative humidity expressed as a fraction (average of hourly values)	dimensionless
precip_per_hour_avg	Precipitation (average of hourly values)	millimeters per hour
precip_per_hour_sum	Precipitation (sum of hourly precipitation)	millimeters per day
pressure_avg	Pressure (average of hourly values)	millibars (mbar)
temp_high	Air temperature (max of hourly values)	degrees Celsius
temp_low	Air temperature (min of hourly values)	degrees Celsius
visibility_avg	Visibility (average of hourly values)	kilometers (km)
wind_direction	Angular mean wind direction (from hourly values)	degrees
wind_speed_high	Wind speed (max of hourly values)	meters per second (m/s)
wind_speed_low	Wind speed (min of hourly values)	meters per second (m/s)
wind_speed_avg	Wind speed (average of hourly values)	meters per second (m/s)
lat	Latitude of Cassidy International Airport	decimal degrees
lon	longitude of Cassidy International Airport	decimal degrees

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Instruments

Dataset-specific Instrument Name	Weather station at Cassidy International Airport
Generic Instrument Name	Automated Weather Station
Generic Instrument Description	Land-based AWS systems are designed to record meteorological information.

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Deployments

Cassidy_Airport_Weather_1996-2015

Website	https://www.bco-dmo.org/deployment/660100
Platform	Kiritimati
Start Date	1996-01-01
End Date	2015-12-14
Description	Weather from Cassidy International Airport [PLCR]

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Project Information

RAPID: Tracking coral reef impacts of the 2014/2015 El Nino event (RAPID Kiritimati)

Coverage: Christmas Island (2N, 157W)

Extracted from the NSF award abstract:

As anthropogenic climate change intensifies, coral reefs face growing threats from associated decreases in ocean pH and increases in ocean temperature. While such stressors increase steadily through time, coral reefs also experience natural climate extremes, such as El Niño events, that rapidly reshape reef structure and function over a period of months. The El Niño event forecast for 2014/2015 presents the opportunity to study how such events affect coral reef ecosystems. This research will identify which species are most resilient to high temperature stress, and determine whether the presence of specific types of algal endosymbionts in the corals is predictive of the capacity of their coral hosts to survive temperature stress. By studying the reefs at remote sites with documented gradients in human use and pollution, the investigators will be able to tease apart the influence of El-Nino induced temperature changes from local impacts on the reef. This information will ultimately help to identify which components of the coral reef ecosystem are most vulnerable and provide a prognosis for the survival of different types of corals and endosymbionts in a warming world.

This project focuses on reefs at Christmas Island (2N, 157W) - a site that is predicted to be heavily affected by warming during El Niño. In September 2014, roughly 3 months prior to peak El Niño warming, the investigators will install an array of ocean monitoring equipment around Christmas Island. During that field trip, they will also conduct extensive ecological surveys of the reef, collect coral, water and sediment samples for the analysis of Symbiodinium communities that will be analyzed at the University of Hawaii using high throughput sequencing approaches, and characterize ocean geochemistry at both windward and leeward sites on Christmas Island. These activities will be repeated in subsequent trips during peak El Niño conditions, and post El Niño conditions, to allow the investigators to monitor the acute responses of the environment and ecosystem and their near-term recovery, respectively. During the last trip, they will drill several coral colonies to assess how the corals

record such a large thermal stress in terms of skeletal morphological and skeletal geochemistry changes.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1446274

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