

Readme for SAMOS_high_wind_v02.nc

Author: Adam Stallard, Shawn R. Smith

Last revision: 15 November 2016

Version: 2

The SAMOS_high_wind_v02.nc file contains individual marine reports collected during the period 2005-6 August 2016 from a select set of research vessels (R/Vs). The marine wind data were extracted from reports submitted to, quality assessed, and distributed by the Shipboard Automated Meteorological and Oceanographic System (SAMOS; <http://samos.coaps.fsu.edu/>) initiative. Only reports with unadjusted true (earth-relative) wind speeds greater than or equal to 20 m/s are included. The wind data must also pass a series of quality control processes (see below). The original data used are the intermediate level (v200) SAMOS files (automated QC only) which are available from the SAMOS web site, ftp, and THREDDS services (with the root of the source data file name stored within each record as a unique record identifier (uid)).

File Format:

The data are stored in a network common data form (netCDF) file using a combination of COARDS and CF conventions. The file is self-describing and the primary dimension is the uid (one for each record). All values are stored with SI units. Data fields include:

uid	Unique record identifier string of the format callsign_YYYYMMDDvVVVOO_RRRR, where callsign is the vessel alpha numeric call sign (4-7 characters), DD=day, MM=month, YYYY=year, VVV=file version number (typically 200 for intermediate SAMOS files), OO=file order number, and RRRR is the record number in the original file (maximum=1440).
time	Observation time in minutes since 1-Jan-1980 @ 00:00 UTC. Note time conversion codes available at: http://samos.coaps.fsu.edu/html/tools_invtime.php
lat	Convention: -90 to 90 degrees (+N)
lon	Convention: 0 to 360 degrees (+E)
flag	Five character flag string containing alphabetic flags for time, lat, lon, SPD, and DIR
SPD	True (earth-relative) wind speed in m/s.
SPD_height	Height at which the wind speed is measured in m.
DIR	True (earth-relative) wind direction. Convention is direction from which wind blows (from north = 0, from east = 90)
DIR_height	Height at which the wind direction is measured in m.

Missing (-9999) and special (-8888) values can exist for the wind speed, direction, and height values and should be eliminated from any analysis. Note that missing and special values are all assigned a "Z" flag and are considered good observations.

Note that the wind values are reported at the anemometer height, which varies from ship to ship and is provided in the SPD_height and DIR_height when known.

Quality control flags are also provided for the time, latitude, longitude, speed, and direction. The variable attribute qcindex is the pointer for a given variable to the correct position within flag for a given uid.

Quality Control:

All records have undergone automated quality control. Flag meanings are included in the attributes for the flag array, but can also be found along with the flag procedures at http://samos.coaps.fsu.edu/html/samos_quality_flag.php. Each time, latitude, longitude, wind speed and

direction in the original SAMOS record is assigned an alphabetic flag that has been transferred to the high wind speed netCDF file.

These flags can be used to eliminate suspect observations prior to data analysis. In addition to the 20 m/s criteria, the SAMOS high wind speed records only include SPD values flagged with A, G, I, O, R, or Z flags. Note that the G flag denotes values that exceed 4 standard deviations from the monthly climatological value. The flag is often applied to realistic, yet extreme, values (near storms or in regions where climatology is not well known [Southern Ocean]).

Most parameters in the netCDF file have an associated flag. Only the flags on SPD were used to exclude records, so flags on all other parameters should be examined by the user. The A, G, I, O, R, or Z flags would be the SAMOS recommendation for data that passes our quality control. Position values (lat, lon) may have "L" flags for a position that is considered land in the 2-minute land mask used by the SAMOS QC. These records are maintained in the high wind dataset as they may represent ship positions very near the coast with high winds (positions that cannot be resolved as over water by the 2-minute land mask).

As a final note, no quality control system is perfect, particularly when no visual quality inspection of the data is applied. Our evaluation of the data at SAMOS makes us confident that major problems in the data are appropriately flagged. Subtle problems (flow distortion, ship heating) are difficult to identify and may not have been flagged in all cases.

Questions about these data should be addressed to:

Mr. Shawn R. Smith

Senior Research Associate

Director, Marine Data Center

Center for Ocean Atmospheric Prediction Studies

Florida State University

Tallahassee, FL 32306-2741 USA

Email: smith@coaps.fsu.edu