

# HAIC-HIWC GTS Mandatory and Significant Level Radiosonde Data Set

## 1.0 Contacts:

### Original Data Source:

NOAA/ESRL Radiosonde Database

<http://esrl.noaa.gov/raobs/>

## 2.0 Dataset Overview

This dataset contains the mandatory and significant level radiosonde data from locations in northeastern South America and the Caribbean during the 2015 High Altitude Ice Crystals – High Ice Water Content (HAIC-HIWC) campaign in Cayenne, French Guiana. Data are included from Belem, Boa Vista, Macapa, Manaus, Santarem, and Tirios in Brazil as well as Cayenne, French Guiana; San Juan, Puerto Rico; and Trinidad.



Figure 1. GTS radiosonde release sites included in this data set.

## 3.0 Project Overview

The 2015 HAIC/HIWC international field campaign was focused on collecting cloud data in deep convective clouds to obtain 99<sup>th</sup> percentile total water content statistics. The main purpose of this campaign was to complete the database and achieve rulemaking objectives to provide the first modern extensive data set of the core areas of deep convection that can be safely

penetrated. Further information on HAIC-HIWC is available at the HAIC-HIWC web site: [https://www.eol.ucar.edu/field\\_projects/haic-hiwc](https://www.eol.ucar.edu/field_projects/haic-hiwc) and information on HAIC-HIWC operations is available at the HAIC-HIWC Field Catalog: [http://catalog.eol.ucar.edu/haic-hiwc\\_2015/](http://catalog.eol.ucar.edu/haic-hiwc_2015/).

#### 4.0 NOAA/ESRL Radiosonde File Format Description

The official FSL data format is similar to the format used by the National Severe Storms Forecast Center (NSSFC) in Kansas City. The first 4 lines of the sounding are identification and information lines. All additional lines are data lines. An entry of 32767 (original format) or 99999 (new format) indicates that the information is either missing, not reported, or not applicable.

---COLUMN NUMBER---						
1	2	3	4	5	6	7
LINTYP						
			header lines			
254	HOUR	DAY	MONTH	YEAR	(blank)	(blank)
1	WBAN#	WMO#	LAT D	LON D	ELEV	RTIME
2	HYDRO	MXWD	TROPL	LINES	TINDEX	SOURCE
3	(blank)	STAID	(blank)	(blank)	SONDE	WSUNITS
			data lines			
9	PRESSURE	HEIGHT	TEMP	DEWPT	WIND DIR	WIND SPD
4						
5						
6						
7						
8						

#### LEGEND

LINTYP: type of identification line  
 254 = indicates a new sounding in the output file  
 1 = station identification line  
 2 = sounding checks line  
 3 = station identifier and other indicators line  
 4 = mandatory level  
 5 = significant level  
 6 = wind level (PPBB) (GTS or merged data)  
 7 = tropopause level (GTS or merged data)  
 8 = maximum wind level (GTS or merged data)  
 9 = surface level

HOUR: time of report in UTC  
 LAT: latitude in degrees and hundredths  
 LON: longitude in degrees and hundredths

D: direction latitude ('N' or 'S') or longitude ('E' or 'W') - note this only appears in the online archive containing international observations.

ELEV: elevation from station history in meters  
 RTIME: is the release time of radiosonde balloon  
 HYDRO: the pressure of the level to where the sounding passes the hydrostatic check (see section 4.3).\*\*  
 MXWD: the pressure of the level having the maximum wind in the sounding. If within the body of the sounding there is no "8" level then MXWN is estimated (see section 3.2).  
 TROPL: the pressure of the level containing the tropopause. If within the body of the sounding there is no "7" level, then TROPL is estimated (see section 3.3)\*\*  
 LINES: number of levels in the sounding, including the 4 identification lines.  
 TINDEX: indicator for estimated tropopause. A "7" indicates that sufficient data was available to attempt the estimation; 11 indicates that data terminated and that tropopause is a "suspected" tropopause.  
 SOURCE: 0 = National Climatic Data Center (NCDC)  
           1 = Atmospheric Environment Service (AES), Canada  
           2 = National Severe Storms Forecast Center (NSSFC)  
           3 = GTS or FSL GTS data only  
           4 = merge of NCDC and GTS data (sources 2,3 merged into sources 0,1)  
 SONDE: type of radiosonde code from TTBB. Only reported with GTS data  
           10 = VIZ "A" type radiosonde  
           11 = VIZ "B" type radiosonde  
           12 = Space data corp.(SDC) radiosonde.  
 WSUNITS: wind speed units (selected upon output)  
           ms = tenths of meters per second  
           kt = knots  
  
 PRESSURE: in whole millibars (original format)  
           in tenths of millibars (new format)  
 HEIGHT: height in meters (m)  
 TEMP: temperature in tenths of degrees Celsius  
 DEWPT: dew point temperature in tenths of a degree Celsius  
 WIND DIR: wind direction in degrees  
 WIND SPD: wind speed in either knots or tenths of a meter per second (selected by user upon output)

An example of fortran format statements necessary to read output rawinsonde data, according to LINTYP, is as follows:

```

      LINTYP
      254      (3i7,6x,a4,i7)
           1      (3i7,f7.2,a1,f6.2,a1,i6,i7)
           2      (7i7)
           3      (i7,10x,a4,14x,i7,5x,a2)
      4,5,6,7,8,9      (7i7)
  
```

Note the format descriptor for LINTYP=1 has changed to conform with the

CDROM archive.

\*\* - section of noaa tech memo on the data base (in print)

TECHNICAL INFORMATION: Schwartz, B.E., and M. Govett, 1992: "A hydrostatically consistent North American Radiosonde Data Base at the forecast Systems Laboratory, 1946-present." NOAA Technical Memorandum ERL FSL-4. Available from NOAA/ERL/FSL 325 Broadway, Boulder, CO 80303.

#### 4.1 Data Specifics

The files contain data at the mandatory and significant levels.

The data are in files by station. The file naming convention is:

WWWWW\_raob\_20150501\_20150531.txt where WWWWW is the WMO station identifier as defined in section 4.2.

#### 4.2 Station List

Site ID	WMO ID	Site Name	Country	Latitude	Longitude	Elev (m)
TJSJ	78526	San Juan	PR	18.43N	66.00W	3
TTPP	78970	Piarco	TT	10.58N	61.35W	12
SOCA	81405	Cayenne	GF	4.83N	52.37W	9
SBBV	82022	Boa Vista	BR	2.83N	60.70W	140
SBTS	82026	Tirios	BR	2.22N	55.95W	326
SBMQ	82099	Macapa	BR	0.05N	51.07W	17
SBBE	82193	Belem	BR	1.38S	48.48W	16
SBSN	82244	Santarem	BR	2.43S	54.72W	72
SBMN	82332	Manaus	BR	3.15S	59.98W	84

#### 5.0 Data Quality Control Procedures

NCAR/EOL conducted no processing or quality control on these data.

#### 6.0 References

None.