

**Title:** CCOPE-2015 radiosonde data

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**1.0 Data Set Overview:**

This dataset contains data from radiosondes launched during CCOPE-2105. Information on the overall goals of CCOPE, deployment strategy, and some results are found in Massmann et al. (2017). All but one sounding was launched from Carampangue, Chile. A single sounding was launched from Curanilahue, Chile. Carampangue is located ~60 km upstream of the foothills of Nahuelbuta Mountains, in coastal southern Chile. The location of Carampangue (CPG) and Curanilahue (CRL) are provided in Table 1 and Figure 1 below.

Time period covered: 24 June 2015 – 6 August 2015

*Table 1: Summary of location and duration of CPG radiosonde launches*

Abbreviated name	Full name	Latitude [deg.]	Longitude [deg.]	Elevation [m, MSL]	Observation period
CPG	Carampangue	-37.2431	-73.2307	13	24 June 2015 – 6 August 2015
CRL	Curanilahue	-37.4753	-73.3423	137	6 August 2015

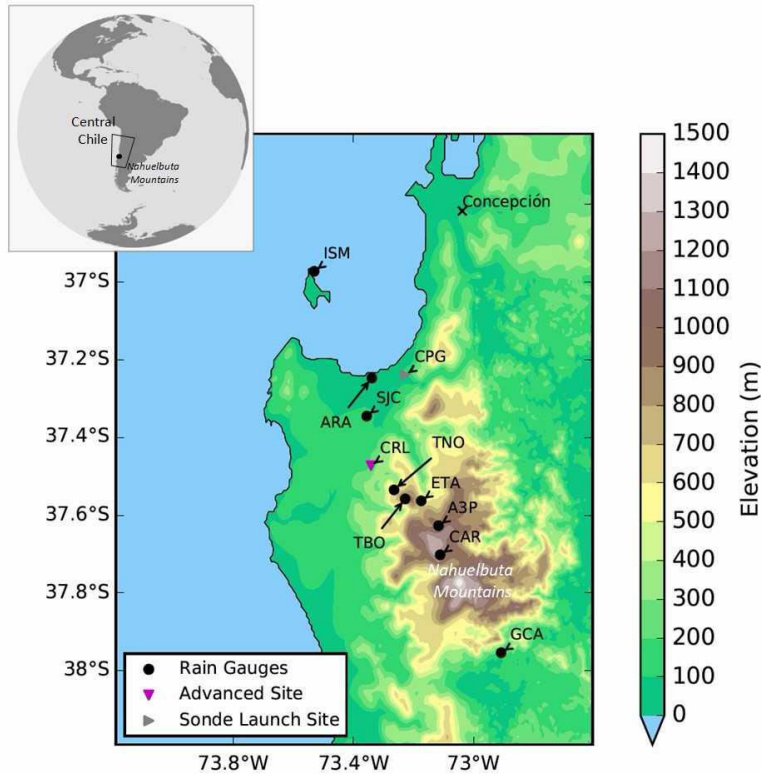


Figure 1: Locations of Carampangue (CPG) and Curanilahue (CRL) sounding launch locations as well as other CCOPE observations sites. Adapted from Massmann et al. (2017).

Sondes were launched during CCOPE intensive observing periods (IOPs), focused on precipitation events of interest. 26 sondes were launched during 6 IOPs. A listing of IOPs and launch times is provided in Table 2.

Table 2: IOP #, launch site, and launch time for CCOPE soundings

IOP #	Launch site	UTC launch time (yyyy-mm-dd_HHMM)
1	CPG	2015-06-24_1701
1	CPG	2015-06-25_0448
1	CPG	2015-06-25_0751
1	CPG	2015-06-25_1532
1	CPG	2015-06-25_1956
2	CPG	2015-07-04_2006
2	CPG	2015-07-05_0143
2	CPG	2015-07-05_0737
3	CPG	2015-07-08_0021
3	CPG	2015-07-08_0228
3	CPG	2015-07-08_0557
3	CPG	2015-07-08_1027

3	CPG	2015-07-08_1443
3	CPG	2015-07-08_1842
4	CPG	2015-07-17_1437
4	CPG	2015-07-17_1725
4	CPG	2015-07-17_2112
4	CPG	2015-07-18_0024
5	CPG	2015-08-01_0003
5	CPG	2015-08-01_0300
5	CPG	2015-08-01_1841
6	CPG	2015-08-05_1239
6	CPG	2015-08-05_1420
6	CPG	2015-08-05_1634
6	CPG	2015-08-05_2031
6	CRL	2015-08-06_1242

## 2.0 Instrument Description:

All soundings are InterMet iMet-1 Balloon Radiosondes (<http://www.intermetsystems.com/products/imet-1>) using a iMet-3150 403MHz GPS ground system (<http://www.intermetsystems.com/products/imet-3150>) and the iMetOS-II software (InterMet, 2014). The attributes of the sensors on the iMet-1 radiosonde are summarized in Table 3.

*Table 3: Sensor attributes for iMet-1 radiosonde (based on: [http://www.intermetsystems.com/ee/pdf/202060\\_iMet-1-ABxn\\_Data\\_161006.pdf](http://www.intermetsystems.com/ee/pdf/202060_iMet-1-ABxn_Data_161006.pdf))*

<b>Pressure</b>	
Type	Piezoresistive
Range	2 to 1070 hPa
Accuracy	0.5 hPa
Resolution	< 0.01 hPa
Response Time	< 1.0 Sec
<b>Temperature</b>	
Type	Bead Thermistor
Range	-95 to +50 deg. C
Accuracy	0.2 deg. C
Resolution	< 0.01 deg. C
Response Time	2.0 sec @ 1000hPa
<b>Humidity</b>	
Type	Capacitive
Range	0 to 100% RH
Accuracy	5% RH
Resolution	< 0.1% RH

Response Time	2 sec @ 25 deg. C; 60 sec @ -35 deg. C
<b>GPS</b>	
Type	C/A code, 12 Channel
Tracking	Continuous
Update Rate	1 Hz
Position accuracy	10 m
Wind velocity accuracy	1.0 m/s
Altitude accuracy	15 m

### 3.0 Data Collection and Processing:

All launches used 200 g balloons. Data was collected until loss of radio signal. Data were collected at 1Hz sampling rate. Raw data were post-processed using interMet's iMetOS-I (InterMet, 2015) default processing. No other post-processing was applied.

### 4.0 Data Format:

The files are named with the following format:

*sounding\_NNN\_YYYYMMDD\_HHMM.txt*

where NNN is the abbreviated site name (CPG or CRL, as in Table 1) and "YYYYMMDD\_HHMM" denotes the date and time that the sounding was launched (UTC).

Data files are in fixed-width ASCII text. The first three lines are a header that label the names and units of the columns of data. The columns correspond to the following:

Variable	Abbreviated name in header	Units
Date	UTC_Date	UTC (d/m/yyyy)
Time	UTC_Time	UTC (HH:MM:SS AM/PM)
Time since launch	Time	Seconds
Longitude	Long/E	Degrees-East
Latitude	Lat/N	Degrees-North
Altitude above sea level	Alt_MSL	Meters
Geopotential height above ground level	GPM_AGL	Meters
Pressure	Press	hPa
Temperature	Temp	Degrees Celsius
Dew point	DP	Degrees Celsius

Relative Humidity	RelHum	Percentage
Wind speed	WSpeed	m/s
Wind direction	WDirn	Degrees

### 5.0 Data Remarks:

Several soundings experienced loss of signal at low range, sometimes due to problems with the radio receiver. As a result, several soundings, particularly during IOPs 2, 3, and 5, only collected data through the lower-to-mid troposphere.

### 6.0 References:

Massmann, A.K., J.R. Minder, R.D. Garreaud, D.E. Kingsmill, R.A. Valenzuela, A. Montecinos, S.L. Fuels, and J.R. Snider, (Accepted, 2017): The Chilean Coastal Orographic Precipitation Experiment: Observing the influence of microphysical rain regime on coastal orographic precipitation. *J. Hydrometeor.*, <https://doi.org/10.1175/JHM-D-17-0005.1>

InterMet, 2014: Software reference manual for the iMetOS-II Meteorological Operating Software, Document No. 200,850, Revision 3.34.0.