



Notre réf.: OBS/WIS/DMA/WWR-VI

GENÈVE, le 8 juin 2016

Annexe: 1 (disponible en anglais seulement)

Objet: Collecte des données concernant la Région VI pour l'année 2015

Suite à donner: Communiquer les données au centre régional de coordination (voir l'adresse ci-après) dès que possible et **au plus tard le 31 juillet 2016**

Madame, Monsieur,

Des dispositions ont été prises concernant la préparation et la publication des *World Weather Records* (WWR) pour l'année 2015. Comme vous le savez peut-être, le Dix-septième Congrès météorologique mondial a noté que les nouvelles modalités de présentation annuelle des *World Weather Records* donnaient satisfaction et a prié les Membres de communiquer leurs données en temps opportun, tel que le prévoit la résolution 14 (EC-64) – Communication annuelle des *World Weather Records*.

La Commission des systèmes de base (CSB) a invité ses centres principaux pour le Système mondial d'observation du climat (SMOC) à participer activement à la collecte, à la compilation et à la diffusion des WWR, conformément à ladite résolution 14.

Centre principal de la CSB pour la Région VI, le Deutscher Wetterdienst (Service météorologique allemand, bureau de Hambourg) a accepté de jouer le rôle de centre régional de coordination pour la collecte des WWR, c'est-à-dire qu'il se chargera de rassembler et de contrôler les données pertinentes transmises par les Membres de la Région VI, puis de les communiquer au Centre mondial de données météorologiques, hébergé par le Centre national d'information sur l'environnement (NCEI, anciennement connu sous le nom de Centre national de données climatologiques) d'Asheville (États-Unis), afin qu'elles soient publiées.

Je vous invite donc à préparer les données de votre pays ainsi que les métadonnées des stations. Il s'agira de fournir les données pour l'année 2015 et, le cas échéant, celles couvrant les périodes 1991-2000, 2001-2010 ainsi que les années 2011, 2012, 2013 et 2014. En ce qui concerne ces périodes et années, nos bases de données sont encore très lacunaires pour la plupart des régions du monde.

Les paramètres à inclure sont les suivants: moyennes mensuelles et annuelles de la pression (à la station et au niveau de la mer), températures (moyennes, maximales et minimales) et totaux mensuels et annuels des précipitations. La liste des stations devant fournir ces données figure dans le Volume A – Stations d'observation de la publication OMM-N° 9 (voir <http://www.wmo.int/pages/prog/www/ois/volume-a/vola-home.htm>). Vous êtes invité(e) à inclure d'autres stations, sans omettre de fournir leurs données les plus anciennes.

Aux: Représentants permanents des Membres du Conseil régional VI (EUR-738)

cc: Président et vice-président du Conseil régional VI)
Président et vice-président de la Commission de climatologie)
Président et vice-président de la Commission de systèmes de base) (pour information)
Directeur des centres nationaux d'information)
sur l'environnement (NCEI), Asheville)

Les données doivent être numérisées et soumises en format Excel ou dans un fichier texte, **en suivant de préférence les nouvelles indications figurant dans l'annexe ci-jointe**. Un **nouveau modèle Excel** peut être téléchargé à l'adresse http://www.wmo.int/pages/prog/wcp/wcdmp/GCDS_2.php. En cas de problème, il est possible de suivre les modalités précédentes et d'utiliser l'ancien modèle, disponibles à la même adresse.

Veillez noter que le format ASCII n'est plus proposé dans le cadre de ces nouvelles indications. De plus, de légères modifications techniques et rédactionnelles ont été apportées et quelques informations pratiques ont été ajoutées. Je vous invite à nous faire part de vos observations concernant ces nouvelles modalités d'ici au 30 septembre 2016 (voir ci-après). En fonction de vos remarques, il est prévu de publier la nouvelle marche à suivre avant la fin de l'année 2016 afin qu'elle puisse être appliquée en 2017, c'est-à-dire lors de la collecte des données pour l'année 2016.

Afin que les données relatives à l'Europe soient publiées rapidement dans les *World Weather Records*, je vous saurais gré de faire parvenir votre contribution le plus tôt possible à:

Mme Christiana Lefebvre
Deutscher Wetterdienst
Bernhard-Nocht-Str. 76
20359 Hamburg
Allemagne
Tél.: +49 (0) 69 80 62 62 30
Courriel: christiana.lefebvre@dwd.de

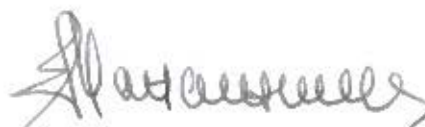
Vous pouvez également envoyer vos données à:

M. Peer Hechler (OBS/WIS/DMA)
Organisation météorologique mondiale
7 bis, avenue de la Paix
1211 Genève 2
Suisse
Tél.: +41 (0)22 730 82 24
Courriel: wcdmp@wmo.int

Je tiens à souligner qu'il est important de préparer ces données avec le plus grand soin, en respectant scrupuleusement les formats indiqués et en communiquant toutes les informations voulues relatives aux stations. Les métadonnées des stations représentent une partie essentielle des informations à communiquer et devraient systématiquement accompagner les listes de données.

Si vous souhaitez obtenir de plus amples informations, n'hésitez pas à prendre contact avec les responsables de la Division des applications de la gestion des données du SIO (M. Omar Baddour et M. Peer Hechler, à l'adresse wcdmp@wmo.int).

Veillez agréer, Madame, Monsieur, l'expression de ma considération distinguée.



(E. Manaenkova)
pour le Secrétaire général

New Draft Guidelines for the Submission of the World Weather Records 2011+

Version 2.0, May 2016, WMO/DMA/PH

Draft

Table of Contents

I. BACKGROUND	3
I.1 History	3
I.2 Submission Channels of the WWRs.....	3
I.3 Quality Assurance and Accessibility of WWRs	3
II. METHODOLOGY FOR REPRESENTING THE WWRs.....	3
II.1 Data Elements.....	3
II.2 Data Format.....	4
Option 1: Excel.....	5
(a) Station Header Records.....	5
(b) Yearly Data Records	5
Option 2: Text.....	7
(a) Station Header Records.....	7
(b) Yearly Data Records	7
II.3 History Metadata (Station Notes)	8
Annex I: Proposed Collection Mechanism By Region	9
Annex II: Example Excel File (single station per tab)	10
Annex III: Example Text File (single station per file).....	11
Annex IV: Station Notes Example.....	13

I. BACKGROUND

I.1 History

The World Weather Records (WWR) database contains historical monthly climatic data from land surface stations worldwide. First released in 1927, the WWR database has been widely employed in operational climate monitoring, international climate assessments, and numerous other applications. To date, there have been nine editions of WWR, the first containing data up through 1920, with each successive release containing data for another decade (i.e., 1921-1930, 1931-1940, 1941-1950, 1951-1960, 1961-1970, 1971-1980, 1981-1990, 1991-2000, 2001-2010). Since its inception, WWR has been produced by three different institutions: the Smithsonian Institution (1927, 1934, 1947); the U.S. Weather Bureau (1959, 1967); and the U.S. National Oceanic and Atmospheric Administration (NOAA; 1983, 1991, 2005). The current edition will also be produced by NOAA. It addresses the 2011+ period, consistent with WMO Secretariat guidance. However, the previous edition lacked data for many countries, posing an impediment to climate monitoring and assessment activities because of the decline in station coverage starting in 1991. The Sixteenth World Meteorological Congress, Geneva 2011, emphasized the importance of updating the World Weather Records continuously. It requested Members to complete the data sets for WWR 1991-2000, submit WWR for 2001-2010, and - starting from 2011- move towards annual updates of the WWR. This approach has been formalized through Resolution 14 (EC-64) - Submission of World Weather Records on an Annual Basis.

I.2 Submission Channels of the WWRs

Each WMO Member should submit two types of files to the responsible CBS Lead Center for GCOS or to WMO as appropriate (see suggested collection mechanisms in ANNEX-I). The first file type should contain station data for the country (single Excel file containing all stations OR single text file per station), and the second should contain a history Metadata file (ANNEX-IV). These files can be submitted via electronic mail following guidance provided by the WMO Secretariat or by a regional coordinating center. In the list of countries in ANNEX-I the responsible institutions are given for each Region including an E-mail address. In case of any question the Members are encouraged to contact WMO: wcdmp@wmo.int.

I.3 Quality Assurance and Accessibility of WWRs

WWRs can be accessed through the World Data Centre for Meteorology, National Centers for Environmental Information (NCEI), Asheville, United States of America at <http://www1.ncdc.noaa.gov/pub/data/wwr/>. It is planned to provide access to quality-controlled WWRs within six months of the WMO's submission deadline annually. Routine quality assurance reviews of NCEI focus on gross data problems and include format consistency checks, determination of duplication and reasonableness of submitted values and metadata.

II. METHODOLOGY FOR REPRESENTING THE WWRs

II.1 Data Elements

This document provides guidance on how to format data for submission to the current edition of WWR. As in the previous edition, the database will contain six climatic elements:

- (code 2) Monthly mean station pressure,
- (code 3) Monthly mean sea level pressure,
- (code 4) Monthly mean temperature,
- (code 5) Monthly mean maximum temperature,
- (code 6) Monthly mean minimum temperature,
- (code 7) Total monthly precipitation.

As practiced in recent years, monthly means of daily relative humidity can be submitted too:

- (code 8) Monthly mean relative humidity.*

The primary goal is to capture year-by-year, month-by-month data for each element at each station (e.g., total monthly precipitation for Geneva in January 2011, February 2011, ..., December 2015+). However, station metadata are also of particular importance. At a minimum these metadata should include station name, coordinates, and elevation. Preferably,

observation times, averaging formulas, instrumentation types, and station changes will also be documented. WMO Members should submit data for all of their surface stations that have an official WMO station index number.

II.2 Data Format

Each WMO Member should submit the WWRs data in either Excel or text file format. This section describes the format of these files, which are similar to previous editions of WWR. There are generally two record types in these formats:

- (a) Station Header records documenting basic station characteristics;
- (b) Yearly Data records with monthly and annual data for a particular year.

Note that Decadal Average (MEAN) and Climate Normal (CLINO) records are no longer necessary with this data submission.

Draft

Option 1: Excel

An example of a properly formatted Excel submission is given in ANNEX-II, and an electronic template is provided to Members. *A single Excel file should contain all stations for a given country, with a single station on each tab, and each tab containing a single station's elements.*

The first line for each station must be a Station Header record. There must be only one Station Header record for each station, and it should contain the most recent information for the station.

The next Yearly Data record section contains data for each climatic element for that station. Leave the element section blank if the station does not report that element.

(a) Station Header Records

Station Header records contain 14 fields documenting basic station characteristics. These characteristics should represent the most recent location of the station. Stated in tabular form, the contents include the following:

FIELD	COLUMNS	CONTENTS	NOTES
	1-2		Leave these columns blank
1	3-7	WMO number	5-digit with leading 0 if applicable, right-justified
2	8-8	Record type	1 = Station Header record
3	9-10	Degrees of latitude (0-90)	Right-justified
4	11-12	Minutes of latitude (0-59)	Right-justified
5	13-14	Seconds of latitude (if available, 0-59)	Right-justified
6	15-15	Hemisphere of latitude	N (Northern) or S (Southern)
7	16-18	Degrees of longitude (0-180)	Right-justified
8	19-20	Minutes of longitude (0-59)	Right-justified
9	21-22	Seconds of longitude (if available, 0-59)	Right-justified
10	23-23	Hemisphere of longitude	E (Eastern) or W (Western)
11	24-47	Name of country in English	Left-justified
12	48-71	Name of station in English	Left-justified
13	72-76	Height of station above sea level (whole meters)	Right-justified
14	77-83	Height of barometer above sea level (tenths of meters)	Right-justified

(b) Yearly Data Records

Each Yearly Data record contains monthly and annual data for a particular year. These records contain 17 fields documenting the WMO number, element type, year, monthly data values, and the annual value. Stated in tabular form, the contents include the following:

FIELD	COLUMNS	CONTENTS	NOTES
	1-2		Leave these columns blank
1	3-7	WMO number	5-digit with leading 0 if applicable, right-justified
2	8-8	Element type	2 = mean station pressure in tenths of hpa. 3 = mean sea level pressure in tenths of hpa. 4 = mean daily air temperature in tenths of a °C. 5 = total precipitation in tenths of a mm. 6 = mean daily maximum air temperature in tenths of a °C. 7 = mean daily minimum air temperature in tenths of a °C. 8 = mean of the daily relative humidity in whole percent.
3	9-12	Year	4-digits
4	13-13	Record type	Blank = Yearly Data record
5	14-18	January	If a value is missing, then leave the field blank. All values should be right-justified. Decimal points are implied (e.g., 1014.1 hpa should be entered as "10141"). If there is no value after the decimal, the last character should be
6	19-23	February	
7	24-28	March	
8	29-33	April	
9	34-38	May	
10	39-43	June	
11	44-48	July	
12	49-53	August	

13	54-58	September	"0" (e.g., 1014.0 hpa should be "10140").
14	59-63	October	
15	64-68	November	If the temperature is negative, the 1 st value of the field should be "-" (e.g., -13).
16	69-73	December	
17	74-78	Annual	If precipitation is zero, the field should be "0". If there was trace precipitation, the field should be "T".

If data are missing for an entire year, then only complete Fields 1-4.

Yearly Data can be provided only for the data-year in question but also for other data-years where data were not previously submitted or need to be corrected.

Draft

Option 2: Text

An example of a properly formatted text file submission is given in ANNEX-III, and a template is provided. A single text file should contain one station containing that single station's elements.

The first section for each station must be a Station Header record. There must be only one Station Header record for each station, and it should contain the most recent information for the station.

The next Yearly Data record section contains data for each climatic element for that station. Leave the element section blank by using spaces if the station does not report that element. Do not use 9's or -9's or tabs to represent missing data.

(a) Station Header Records

Station Header records contain 7 rows documenting basic station characteristics. These characteristics should represent the most recent location of the station.

LINE	POSITION	CONTENTS	NOTES
1	40-44	WMO number	5-digit with leading 0 if applicable, left-justified
2	40-63	Name of station in English	Left-justified
3	40-63	Name of country in English	Left-justified
4	40-49	Latitude Degrees (0-90) Minutes (0-59) Seconds (0-59) Direction (N or S)	Left-justified, example 09 04 00N
5	40-50	Longitude Degrees (0-180) Minutes (0-59) Seconds (0-59) Direction (E or W)	Left-justified, example 000 45 59S
6	40-49	Height of station above sea level	Left-justified, whole meters
7	40-49	Height of barometer above sea level	Left-justified, tenths of meters, explicit decimal

(b) Yearly Data Records

Each Yearly Data record contains monthly and annual data for a particular year. These records contain 14 fields documenting the year, element type, monthly data values, and the annual value. Stated in tabular form, the contents include the following:

FIELD	COLUMNS	CONTENTS	NOTES
1	1-4	Year	4-digits
2	6-11	January	If a value is missing, then leave the field blank. All values should be right-justified. Decimal points should be explicitly noted except for relative humidity (which is rounded to whole percent). If there is no value after the decimal, the last character should be "0" (e.g., 1014 hpa should be "1014.0"). If the temperature is negative, the 1 st value of the field should be "-" (e.g., -13). If precipitation is zero, the field should be "0". If there was trace precipitation, the field should be "T".
3	13-18	February	
4	20-25	March	
5	27-32	April	
6	34-39	May	
7	41-46	June	
8	48-53	July	
9	55-60	August	
10	62-67	September	
11	69-74	October	
12	76-81	November	
13	83-88	December	
14	90-95	Annual	

If data are missing for an entire year, then only complete Field 1. *If data are missing for any months, use spaces to fill (not the tab key).*

Yearly Data can be provided only for the data-year in question but also for other data-years where data were not previously submitted or need to be corrected.

II.3 History Metadata (Station Notes)

Each WMO Member should submit one file containing all of the Metadata (station notes) for all of the stations in their country. There is no required format for this information, but there is some preferred content to make the greatest possible use of the submitted climatic data. Critical content includes the times of observation, the formulas used in computing means, and the types of instrumentation. To the extent possible, this information should be specific to each climatic element. Furthermore, it is extremely helpful if historical changes are explicitly documented for all types of metadata, including observation times, averaging formulas, instrumentation types, and basic parameters such as location and elevation. An example of station notes is given in ANNEX-IV.

Draft

Annex I: Proposed Collection Mechanism By Region

Note: Members may choose to submit their WWRs through any of the below mentioned CBS Lead Centers for GCOS. Members are invited to notify WMO (wcdmp@wmo.int) should they decide to deviate from the below proposed scheme.

REGION	Countries (ENG)	Collection mechanism	Alternative
RA I	All Members of RA I	CBS Lead Center for GCOS Africa, Morocco (DMN); cbs.lead.centre.4gcos@gmail.com	WMO, Geneva; wcdmp@wmo.int
RA II	All Members of RA II	CBS Lead Center for GCOS Asia, Japan (JMA); climatemonitor@met.kishou.go.jp	WMO, Geneva; wcdmp@wmo.int
RA III	All Members of RA III	CBS Lead Center for GCOS South America, Chile (DMC)	WMO, Geneva; wcdmp@wmo.int
RA IV	All countries of RA IV	CBS Lead Center for GCOS North and Central America, Caribbean, USA (NCEI); gcos.ncdc@noaa.gov	WMO, Geneva; wcdmp@wmo.int
RA V	All Members of RA V	CBS Lead Center for GCOS South West Pacific, Australia, (BOM); GCOS_Lead_Centre_RAV@bom.gov.au	WMO, Geneva; wcdmp@wmo.int
RA VI	All Members of RA VI	CBS Lead Center for GCOS Europe, Germany (DWD); christiana.lefebvre@dwd.de	WMO, Geneva; wcdmp@wmo.int

Annex III: Example Text File (single station per file)

WMO Number: 85629
 Station Name: CURICO GENERAL FREIRE
 Country Name: CHILE
 Latitude (DD MM SS N/S): 34 58 00 S
 Longitude (DDD MM SS E/W): 071 14 00 W
 Station Height (whole meters): 228
 Barometer Height (meters, to tenths): 228.0

(2) Mean Station Pressure (tenths of hPa)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN
2011	989.0	986.9	989.1	989.8	990.0	993.8	993.2	992.9	993.5	991.6	989.9	988.3	990.7
2012	988.3	988.5	988.7	990.7	990.5	991.5	990.7	991.3	990.9	991.6	988.6	986.3	989.8
2013	985.2	986.3	987.3	988.3	989.5	991.4	991.2	991.9	992.9	990.1	989.1	987.8	989.3
2014	986.9	986.2	987.3	989.8	990.7	992.0	989.0	992.7	990.9	990.7	990.0	986.2	989.4
2015	987.5	986.1	986.3	990.3	990.1	990.0	991.4	992.7	990.4	989.6	988.7	988.1	989.3
2016													

(3) Mean Sea Level Pressure (tenths of hPa)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN
2011	1015.1	1012.9	1015.4	1016.5	1016.9	1021.2	1020.6	1020.2	1020.6	1018.4	1016.3	1014.4	1017.4
2012	1014.3	1014.6	1015.0	1017.5	1017.7	1018.8	1017.9	1018.5	1017.8	1018.5	1015.0	1012.3	1016.5
2013	1011.0	1012.3	1013.6	1015.1	1016.7	1019.0	1018.6	1019.2	1020.0	1016.7	1015.3	1013.7	1015.9
2014	1012.8	1012.3	1013.6	1016.7	1018.0	1019.5	1016.3	1020.0	1017.8	1017.4	1016.6	1012.3	1016.1
2015	1013.5	1012.1	1012.6	1017.3	1017.2	1017.1	1018.7	1020.1	1017.3	1016.3	1015.0	1014.2	1016.0
2016													

(4) Mean Daily Air Temperature (tenths of degrees Celsius)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN
2011	19.4	19.3	16.7	13.6	12.0	7.2	7.7	8.2	9.8	12.8	15.9	18.8	13.5
2012	19.9	18.6	16.4	12.7	9.6	8.3	9.3	8.8	11.7	12.5	14.9	19.7	13.5
2013	20.5	19.1	16.1	12.2	7.9	5.4	6.5	8.6	9.7	14.0	17.3	19.9	13.1
2014	20.3	18.2	16.4	11.4	8.3	6.1	7.4	7.6	10.9	13.1	15.1	18.1	12.7
2015	19.3	18.6	15.8	10.6	9.6	9.6	7.6	7.6	11.0	13.0	16.2	18.6	13.1
2016													

(5) Total Precipitation (tenths of mm)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN
2011	11.7	0	0	2.4	191.1	75.2	44.6	110.8	33.7	18.9	0.2	0	488.6
2012	7.0	0	37.7	14.7	168.9	408.8	208.7	115.1	186.7	43.9	2.0	0	1193.5
2013	8.3	1.0	0.3	17.5	55.9	147.9	139.7	116.0	24.9	0.4	0	0.2	512.1
2014	0	1.5	3.0	22.4	203.7	135.2	390.3	108.3	65.2	47.4	6.7	0	983.7
2015	0.3	0	29.9	25.0	127.1	26.1	126.5	6.6	46.7	71.9	0.2	0	460.3
2016													

(6) Mean Daily Maximum Air Temperature (tenths of degree Celsius)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN
2011	1.3	3.6	13.9	20.4	29.5	30.8	32.3	30.5	26.7	19.1	11.1	1.6	18.2
2012	5.9	10.1	16.3	20.0	27.9	28.5	32.7	30.6	27.1	16.1	8.3	0.5	18.7
2013	1.6	6.1	11.0	20.8	26.8	30.4	31.0	31.7	25.5	18.6	7.1	5.3	18.0
2014	2.6	8.2	13.4	22.3	26.4	30.4	30.7	29.3	26.7	20.0	11.9	3.1	18.8
2015	2.1	1.3	12.5	22.7	25.6	31.5	32.7	30.3	27.2	20.6	13.4	1.6	18.5
2016													

(7) Mean Daily Minimum Air Temperature (tenths of degree Celsius)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN
2011	9.3	6.0	1.3	8.3	15.8	20.7	22.7	21.2	16.0	8.8	0.3	6.6	7.7
2012	5.2	2.8	3.2	8.9	15.4	19.4	22.8	21.5	14.3	5.7	1.6	6.2	8.0
2013	1.6	6.1	11.0	20.8	26.8	30.4	31.0	31.7	25.5	18.6	7.1	5.3	18.0
2014	2.6	8.2	13.4	22.3	26.4	30.4	30.7	29.3	26.7	20.0	11.9	3.1	18.8
2015	2.1	1.3	12.5	22.7	25.6	31.5	32.7	30.3	27.2	20.6	13.4	1.6	18.5
2016													

(8) Mean of the Daily Relative Humidity (whole percent)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN
2011	57	62	31	46	44	63	68	71	63	73	56	42	56
2012	19	22	29	35	41	45	46	46	42	37	28	22	34
2013	20	22	25	33	41	45	47	46	43	38	27	20	34
2014	20	22	29	31	39	45	47	46	43	38	27	18	34
2015	18	20	26	34	40	45	47	47	43	37	25	23	34
2016													

Draft

Annex IV: Station Notes Example

TRINIDAD AND TOBAGO (2 stations)

General:

All observation hours were in local time. A total of 24 hourly observations per day were used in computing the means of temperature and pressure except at Crown Point. At this station, part time operation existed during June to December 1980; January 1976; 1977, and 1978; February, March, April 1976; and for February, March, and April 1978. Observation hours during these periods were 0700 to 2300 hours or 0800 to 22 hours.

At Piarco, the period of record of CLINO values for sea level pressure and temperature was 1946-1975. For precipitation it was 1946-1980. No CLINO exists for Crown Point since past records begin only in 1970.

Pressure:

Pressure was measured by a Kew Pattern barometer until 1974 after which a precision Aneroid type was used. Heights of the barometers were 13.4 meters at Piarco and 6.7 meters at Crown Point.

Temperature:

Thermometers, housed in a standard Stevenson Screen, were 1.2 meters above ground at both stations.

Precipitation:

Rainfall was measured by a pot gauge. A Tilting – Siphon rain recorder adjusted the pot gauge. Rainfall was measured four times daily at 0200, 0800, 1400, and 2000 hours local time at both stations except during part time operations at Crown Point. Heights of the rain gauges were .3 meters at Piarco, and 3 meters at Crown Point.

URUGUAY (13 stations)

General:

CLINO values correspond to the period 1951-80 for precipitation and 1946-1980 for other elements. Rain gauges and thermometers were located 1.5 meters above the ground.

Pressure and Temperature:

The monthly pressure and temperature values were both computed from the equation:
 $1/10(00+03+06+09+12+15+18+21 \text{ hours GMT} + \text{Mean Max} + \text{Mean Min})$

Precipitation:

The daily values were measured at 0900 hours GMT.