



# Data Management & Data Rescue

Jacqueline Spence /Adrian Shaw  
Meteorological Service  
Jamaica

# Structure of the Met Office

## **WEATHER BRANCH**

- National Met Centre
- Synoptic Sub-Station
- Upper-Air Station
- Radar Station
- Instruments Section

## **ADMINISTRATIVE/ SUPPORT SERVICES BRANCH**

- Accounting Services
- Clerical Services
- Secretarial Services
- Ancillary Services

## **CLIMATE BRANCH**

- Data Acquisition Section
- Data Processing Section
- Applied Meteorology Section
- Climate Change Activities

# CLIMATE BRANCH

Quality  
Controlled  
& Processed

Archived

Analyzed for  
Research as  
well as  
Requests

| Station name | Year | Month   | Day | Rainfall | Daily Temp Maximum (°C) | Daily Temp Minimum (°C) | Daily Temp Mean (°C) |
|--------------|------|---------|-----|----------|-------------------------|-------------------------|----------------------|
| Bodes        | 2002 | January | 1   |          | 31.50                   | 21.20                   | 26.35                |
| Bodes        | 2002 | January | 2   |          | 31.20                   | 21.30                   | 26.25                |
| Bodes        | 2002 | January | 3   |          | 30.20                   | 22.20                   | 26.20                |
| Bodes        | 2002 | January | 4   |          | 29.20                   | 20.20                   | 24.70                |
| Bodes        | 2002 | January | 5   |          | 29.10                   | 22.40                   | 25.75                |
| Bodes        | 2002 | January | 6   |          | 30.80                   | 19.00                   | 24.90                |
| Bodes        | 2002 | January | 7   |          | 30.80                   | 19.40                   | 25.10                |
| Bodes        | 2002 | January | 8   |          | 25.60                   | 20.20                   | 22.90                |
| Bodes        | 2002 | January | 9   |          | 28.80                   | 20.60                   | 24.70                |
| Bodes        | 2002 | January | 10  |          | 28.40                   | 21.80                   | 25.10                |
| Bodes        | 2002 | January | 11  |          | 31.20                   | 20.00                   | 25.60                |
| Bodes        | 2002 | January | 12  |          | 30.30                   | 19.20                   | 24.75                |
| Bodes        | 2002 | January | 13  |          | 31.30                   | 18.70                   | 25.00                |
| Bodes        | 2002 | January | 14  |          | 32.10                   | 19.30                   | 25.70                |
| Bodes        | 2002 | January | 15  |          | 31.30                   | 21.80                   | 26.55                |
| Bodes        | 2002 | January | 16  |          | 30.80                   | 19.60                   | 25.20                |
| Bodes        | 2002 | January | 17  |          | 30.50                   | 22.80                   | 26.65                |
| Bodes        | 2002 | January | 18  |          | 31.30                   | 21.70                   | 26.50                |
| Bodes        | 2002 | January | 19  |          | 31.70                   | 19.20                   | 25.45                |
| Bodes        | 2002 | January | 20  |          | 32.20                   | 20.40                   | 26.30                |
| Bodes        | 2002 | January | 21  |          | 31.90                   | 19.30                   | 25.60                |
| Bodes        | 2002 | January | 22  |          | 32.80                   | 20.40                   | 26.60                |
| Bodes        | 2002 | January | 23  |          | 31.90                   | 22.70                   | 27.30                |

# 1992

- Fire in 1992
- Destroyed most of daily records which were in hard copy format
- Internal Backup was not properly structured at the time
- Data rescue was necessary

# 1992-1995

- First attempt was by Data acquisition to retrieve historical data from persons/companies currently collecting data. E.g. sugar estates, private personnel
- Some data was rescued from microfiche Tapes but technology and cost have prevented the office from accessing the data
- Data rescue was also attempted by going to persons who received data monthly from the Met Office-not very successful.
- Data rescue was also done from the 'charred' remains of paper records which could still be deciphered. Pictures were taken of the papers.

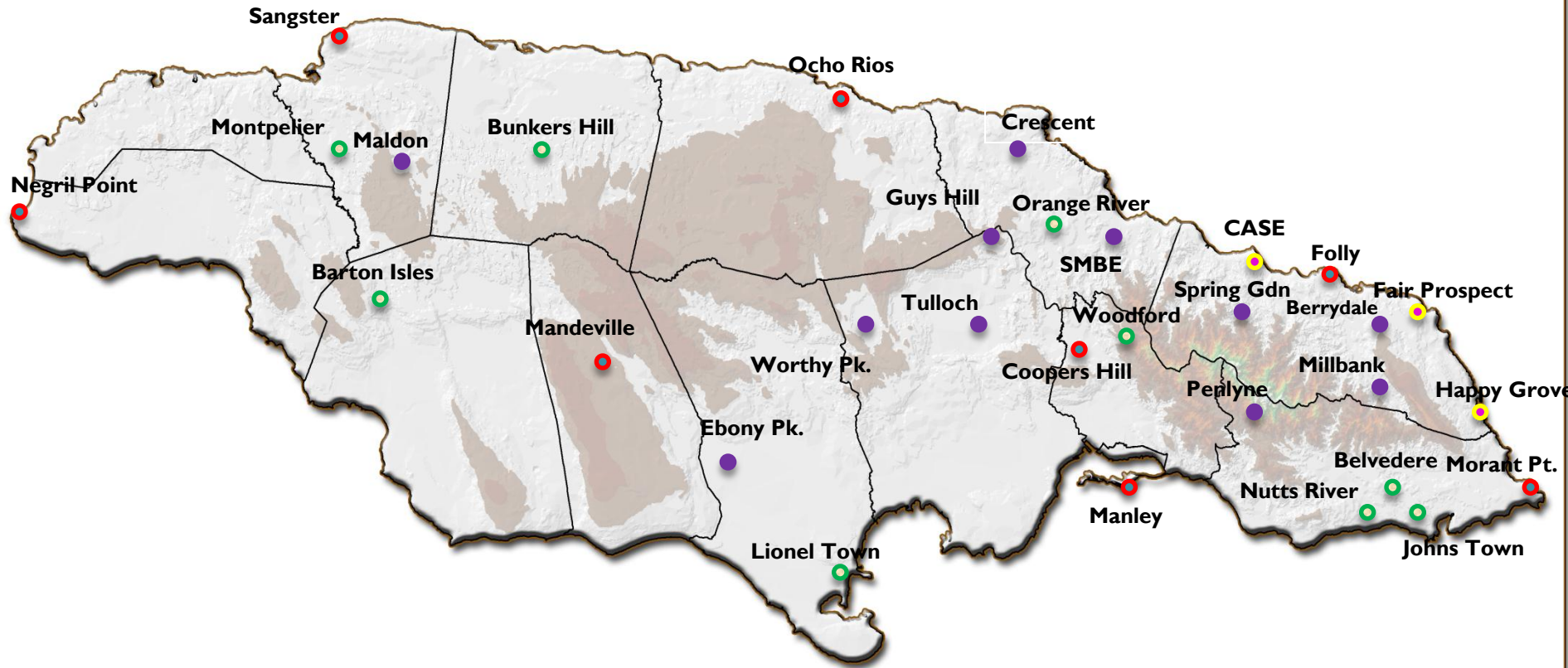
# | 1995-2001 |

- Daily data was also entered in CLICOM which was the database in use at the time.
- This system crashed and the data entered has still not been recovered.

# Data Gaps

- Historically Public Works Dept. was responsible for a very large number of stations across the island. Changes to structure and management resulted in the loss of some of these collection areas.
- Most of the data was manually collected and this can create gaps in the datasets for e.g. accumulation of rainfall due to inability to access station in extreme events.
- Divestment of the sugar industry in 2008 also reduced the number of stations across several parishes.
- Maintenance of equipment (cost and replacement of instrument) also contributed to data loss.
- Death of observers with reliable replacements being very difficult to find

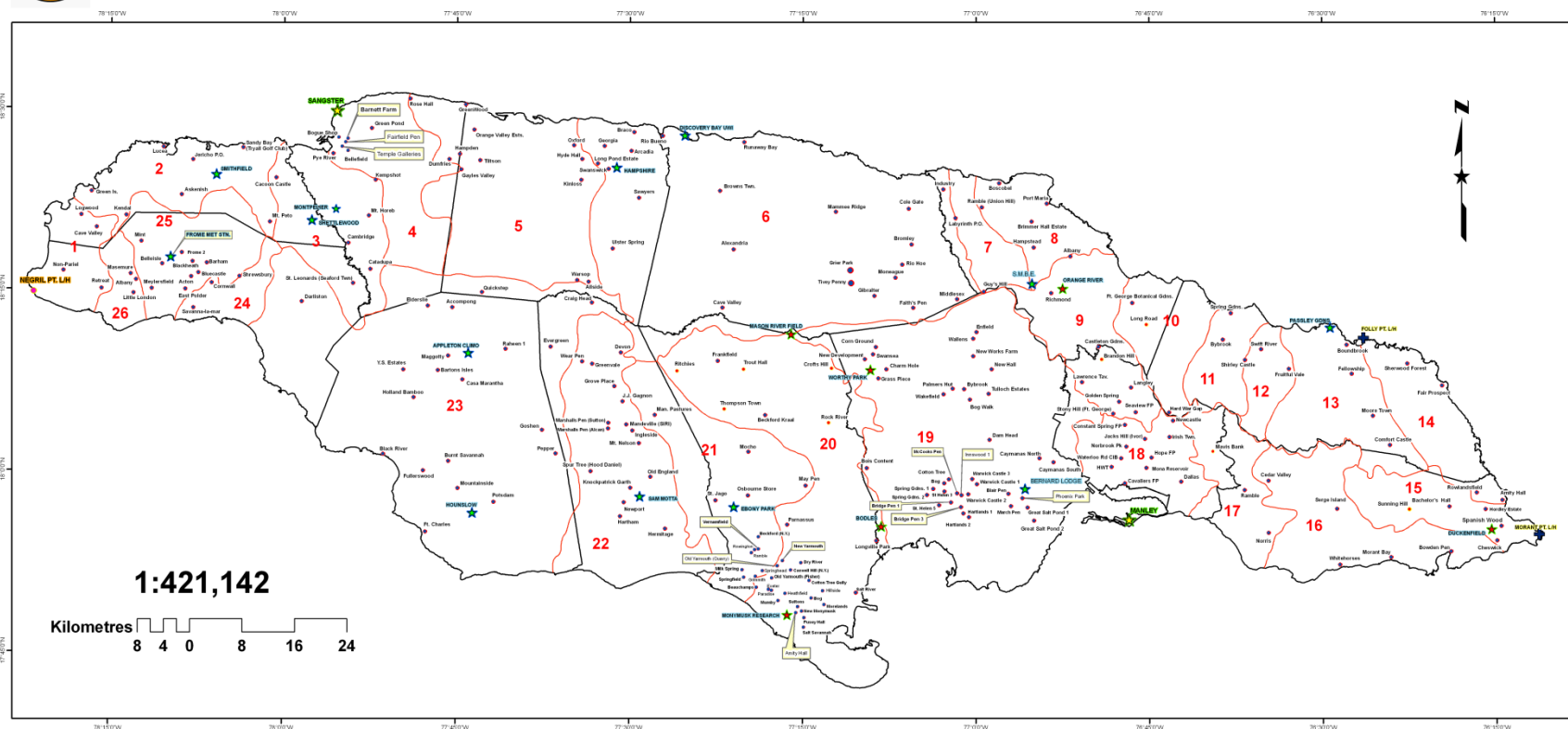
# AUTOMATIC WEATHER STATION LOCATIONS





METEOROLOGICAL SERVICE, JAMAICA

# CURRENT METEOROLOGICAL INSTRUMENTS



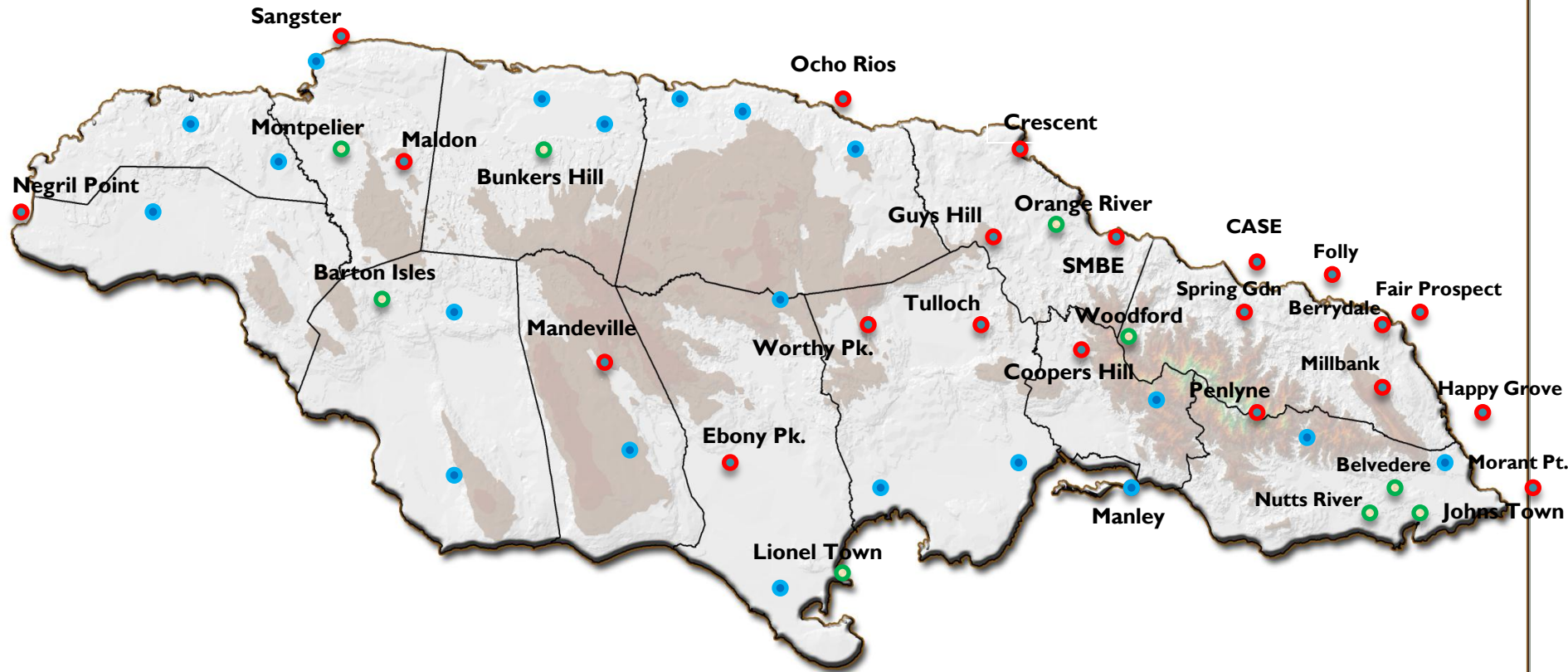
## Legend

- Standard Climatological Station
- Climatological Station with Rainfall Intensity Logger
- Climatological Station with Intensity Logger and AWS Unit
- 24-Hour Standard Raingauge and AWS Unit
- AWS Unit Only
- 24-Hour Standard Raingauge
- 24-Hour Raingauge & Intensity Logger Station
- Watershed Management Unit Divide
- Watershed Management Unit Number

## WATERSHED MANAGEMENT UNITS

| NO | NAME                      | Km <sup>2</sup> | NO | NAME                  | Km <sup>2</sup> | NO | NAME               | Km <sup>2</sup> |
|----|---------------------------|-----------------|----|-----------------------|-----------------|----|--------------------|-----------------|
| 1  | SOUTH NEGRIL-ORANGE RIVER | 146.6           | 10 | PENCAR-BUFF BAY RIVER | 201.9           | 19 | RIO COBRE          | 1219.7          |
| 2  | LUCEA RIVER               | 267.4           | 11 | SPANISH RIVER         | 127.4           | 20 | RIO MINHO          | 865.7           |
| 3  | GREAT RIVER               | 327.7           | 12 | SWIFT RIVER           | 94.2            | 21 | MILK RIVER         | 464.4           |
| 4  | MONTEGO RIVER             | 289.2           | 13 | RIO GRANDE            | 309.7           | 22 | GUT-ALLIGATOR HOLE | 561.4           |
| 5  | MARTHA BRAE RIVER         | 615.8           | 14 | DRIVERS RIVER         | 216.6           | 23 | BLACK RIVER        | 1638.8          |
| 6  | RIO BUENO-WHITE RIVER     | 1507.7          | 15 | PLANTAIN RIVER        | 192.6           | 24 | DEANS VALLEY       | 89.1            |
| 7  | RIO NUEVO                 | 107.7           | 16 | MORANT RIVER          | 307.8           | 25 | CABARITA RIVER     | 273.2           |
| 8  | ORACABESSA-PAGEE RIVER    | 173.4           | 17 | YALLAHS RIVER         | 214.5           | 26 | NEW SAVANNAH RIVER | 71.9            |
| 9  | WAGWATER RIVER            | 309.4           | 18 | HOPE RIVER            | 225.8           |    |                    |                 |

# FUTURE INSTRUMENTATION



# Current Practice

- Daily data is entered in rainfall sheets routinely as well as CL1, CL2, CL6 and CL4 forms and the hard copy is still kept.
- Routine backup of data is done and sent offsite.
- Data is also sent to some institutions including CIMH, UWI CSGM.
- Climat Surface data collected at the two Int'l airports is sent monthly to National Climatic Data Center in Asheville.
- Clidata which is the current Database system is now being populated with all collected meteorological data.

# Collaboration

- Large volume of data which needs to be put into electronic format (current and historical)
- Collaboration with private entities were sought to assist in this process.

# Problem

- Determining climatological changes, developing means, modeling, return periods and other analyses requires long term data.
- Monthly historical data dating back to 1900s is available for rainfall but the data usually required is daily.
- Only a few stations have historical data for other parameters e.g. Worthy Park in St. Catherine
- Daily records for larger number of stations begin in the period 1992-1996.

# Data Rescue

- Caribbean Agro-Meteorological Initiative (CAMI) begun data rescue efforts in ten Caribbean countries including Jamaica.
- CDB project in the Caribbean then sought to rescue data in all the Caribbean countries – CIMH was responsible for the assignment of personnel for collection.
- Daily rainfall data has been retrieved for two stations; Sutton and Tulloch, this data dates back to 1940s and 1900s respectively.

# Looking ahead

- Data rescue will continue but due to human resource issues the entry and quality control is not a quick process.
- Aim is to recover historical data for at least one station for the smaller parishes and two for the larger parishes.

# PARTNERSHIPS

- European Union Banana Support Project/RADA
- Climate Studies Group- UWI Mona
- NEPA
- Coconut Industry Board
- CEAC Solutions
- Chinese Government
- IADB-PPCR

# Lessons learnt

- Rebuilding of datasets for various parameters is slow but sure.
- Lessons have been learnt from the setbacks
- Better procedures have been put in place to prevent reoccurrence.
- We still invite persons who may have daily historical data for even one station to contact the Met Office so that it can be captured.

**THANK YOU**