Cave Drip Monitoring

FY 2019 Report



Prepared by 4CAVES Institute P.B.C.

For the City of Austin - Austin Water Utility - Wildland Conservation Division

4CAVES

INSTITUTE P.B.C.

Table of Contents

INTRODUCTION **2**

FLINT RIDGE CAVE **3**

Balcony Room Drips 6
Balcony Joint 8
Fondue Drip 10
Cheese and Chocolate Drip 11
Fault Dome 13
Drip Pit 15

TABOR CREVICE CAVE **18**

Zeus' Finger 20
Jupiter Drips 22
Sparkles Infeeder 24

DUNVEGAN DUNGEON CAVE **26**

Drip Above Dunvegan Pool 29
Dunvegan Drip 31

DISTRICT PARK CAVE **32**

Aquifer Room 34
Aggie Level 35

Cover Photo: Balcony Room in Flint Ridge Cave with Cave Specialist Dylan Beeler.



Cave Specialist Ethan Perrine in Flint Ridge Cave

Introduction

This report is an update to the status of ongoing cave drip monitoring activities within caves associated with the Balconies Canyonlands Preserve (BCP). This report covers monitoring conducted during the City of Austin 2019 fiscal year, which ran from October 1, 2018 through September 30, 2019.

This monitoring and research was conducted for the City of Austin – Austin Water Utility – Wildlands Conservation Division in assistance of compliance with their federal permit commitments associated with the Balconies Canyonlands Conservation Plan (BCCP).

In all we conducted automated drip measurements at 13 sites within 4 caves. Our efforts produced 270,339 new drip rate measurements. Overall we had great success, however the harsh cave environment continues to be a challenge for our deployed equipment.



Cave Specialists Alec Bellamy (L) and Dylan Beeler (R) in Tabor Crevice Cave.

Flint Ridge Cave

Flint Ridge Cave is one of the most significant caves of the 62 that were committed for protection under the Balconies Canyonlands Conservation Plan. The entrance of the cave serves as a significant recharge feature for the Barton Springs Segment of the Edwards Aquifer.

While the surface catchment can appear obvious, there is a cryptic subterranean network of passages which link numerous nearby karst features into the larger Flint Ridge Cave system. This is observable within Flint Ridge Cave as there are thousands of cave drips, each of which is feeding water through the vadose zone of the Edwards Aquifer.

Selected for study are 6 cave drip monitoring stations that are representative of the character of the cave drips throughout the cave. Some of these drip stations are individual speleothem formations, while others are groups of dripping formations captured on a tarp and funneled together.



Cave Specialist Justin Shaw observing a major recharge event occurring through the entrance to Flint Ridge Cave on May 3, 2019 at 20:23

Flint Ridge Cave

Travis County Texas

Traverse Length 1,738 ft
Maximum Depth Below Datum 153 ft
Maximum Depth Below Surface 151 ft

Cartography by Justin Shaw
June 2018
Magnetic Declination at Publication +3.8˚

DistoX2 Survey by

Justin Shaw
Mason Lewis
Kevin Walsh
Rich Zarria
Galen Falgout
Dylan Beeler
Amy Morton
Kraig Fenton
Devra Heyer
Ellie Watson
Peter "Dash" Gott
Mimi Alexander
Mary Hicks
Davey Siddons

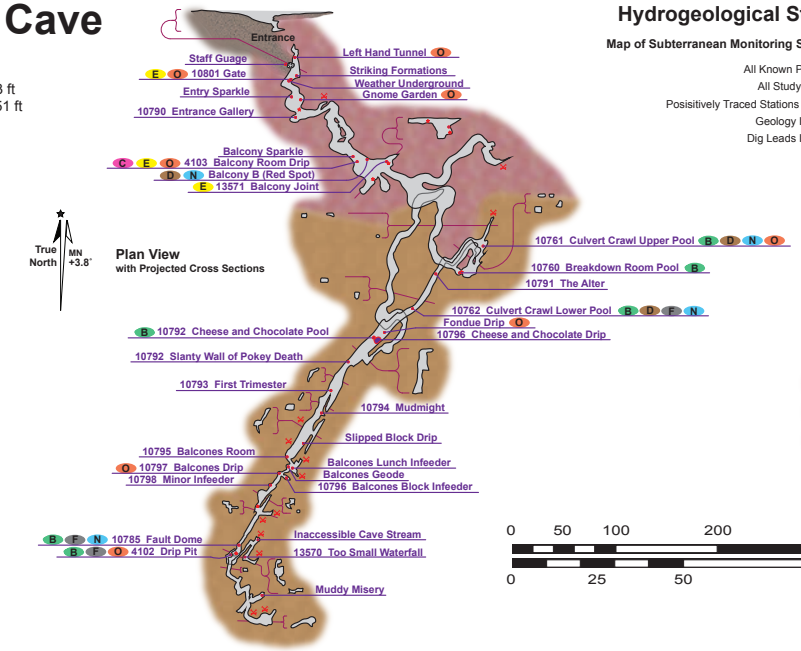
July 2017 through November 2017

Cave Radio Location Survey by

Keith Heuss
Nico Hauwert
Bill Russell
Julie Jenkins

April 2006

This map was drafted solely from the Distox2 data set.



Hydrogeological Study

Map of Subterranean Monitoring Stations

All Known Passages
All Study Stations
Posisitively Traced Stations Denoted
Geology Indicated
Dig Leads Identified

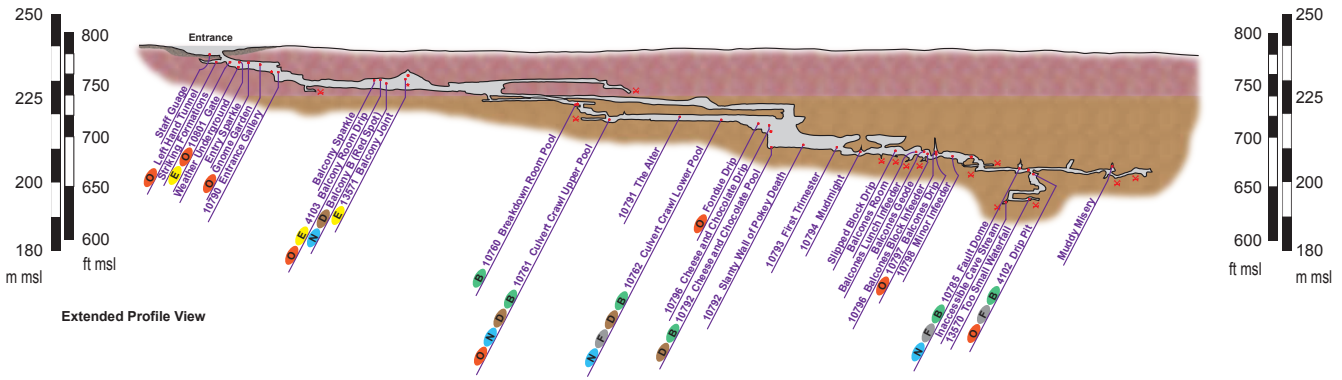
Positive Traces

- B TAB11 Funnel
- C Soil Pipe
- D F62a North Tributary Mudsink
- E MW
- F Honeycomb Drainage
- N Green Emerald Gate Sink
- O Agravita Cave

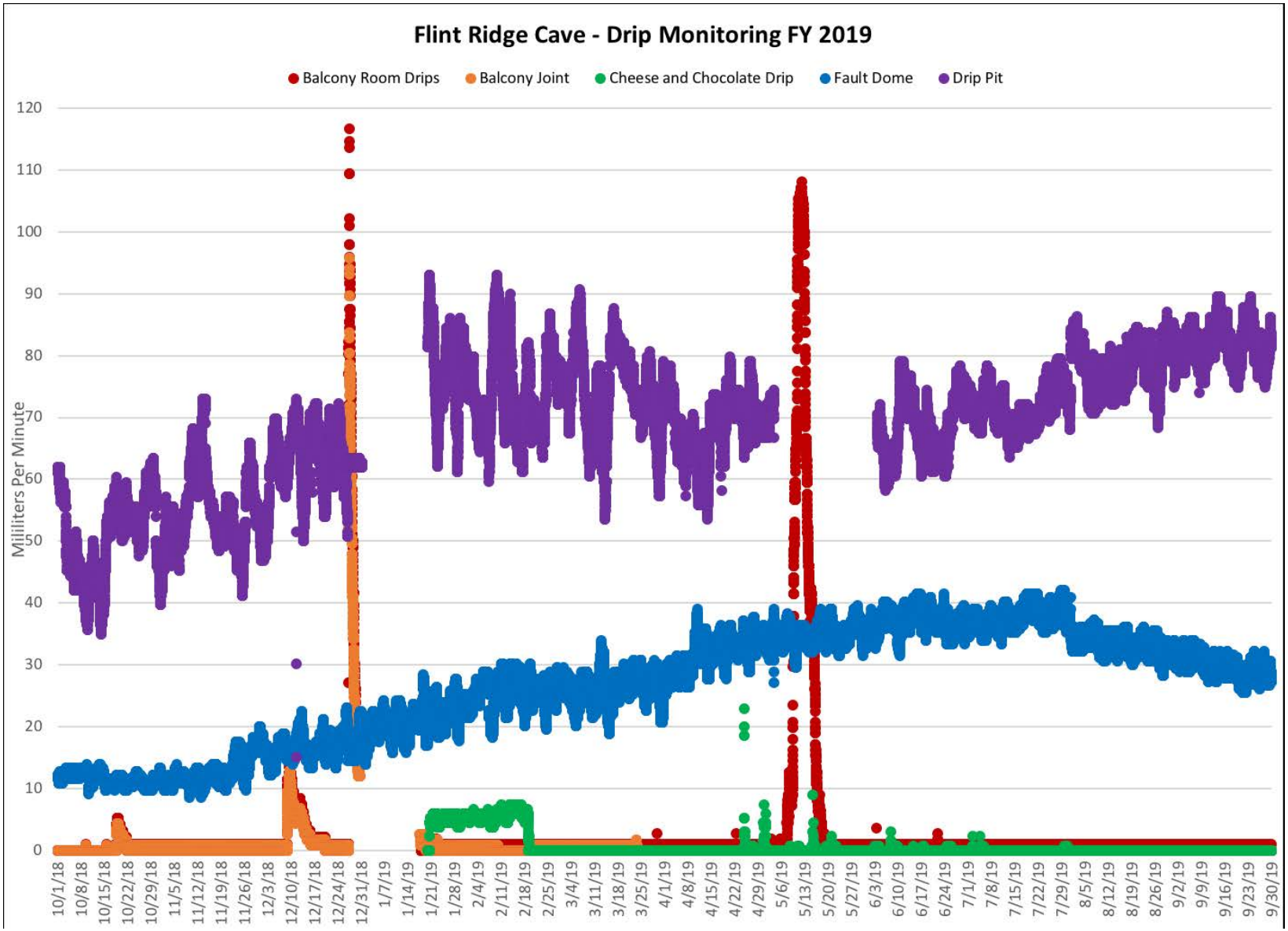
Key

- Monitoring Station
- Tracer Hit
- Cave Radio Station
- Dig Lead
- Kirschberg Member of the Edwards Group
- Dolomitic Member of the Edwards Group
- Anthropogenic Fill

0 50 100 200 300 400 500 Feet
0 25 50 100 150 Meters



Extended Profile View


Flint Ridge Cave - Drip Monitoring FY 2019
Balcony Room Drips
Balcony Joint
Cheese and Chocolate Drip
Fault Dome
Drip Pit
Milliliters Per Minute
120
110
100
90
80
70
60
50
40
30
20
10
0
10/1/18
10/8/18
10/15/18
10/22/18
10/29/18
11/5/18
11/12/18
11/19/18
11/26/18
12/3/18
12/10/18
12/17/18
12/24/18
12/31/18
1/7/19
1/14/19
1/21/19
1/28/19
2/4/19
2/11/19
2/18/19
2/25/19
3/4/19
3/11/19
3/18/19
3/25/19
4/1/19
4/8/19
4/15/19
4/22/19
4/29/19
5/6/19
5/13/19
5/20/19
5/27/19
6/3/19
6/10/19
6/17/19
6/24/19
7/1/19
7/8/19
7/15/19
7/22/19
7/29/19
8/5/19
8/12/19
8/19/19
8/26/19
9/2/19
9/9/19
9/16/19
9/23/19
9/30/19

Balcony Room Drips
Discrete Cave Drip

33,264 drip rate measurements.

Drip Rate in Milliliters Per Minute: Mean 2.15 – Minimum 0.00 – Maximum 116.70

Good data collected 10/1/2018 through 12/30/2018 and 1/18/2019 through 9/30/2018/

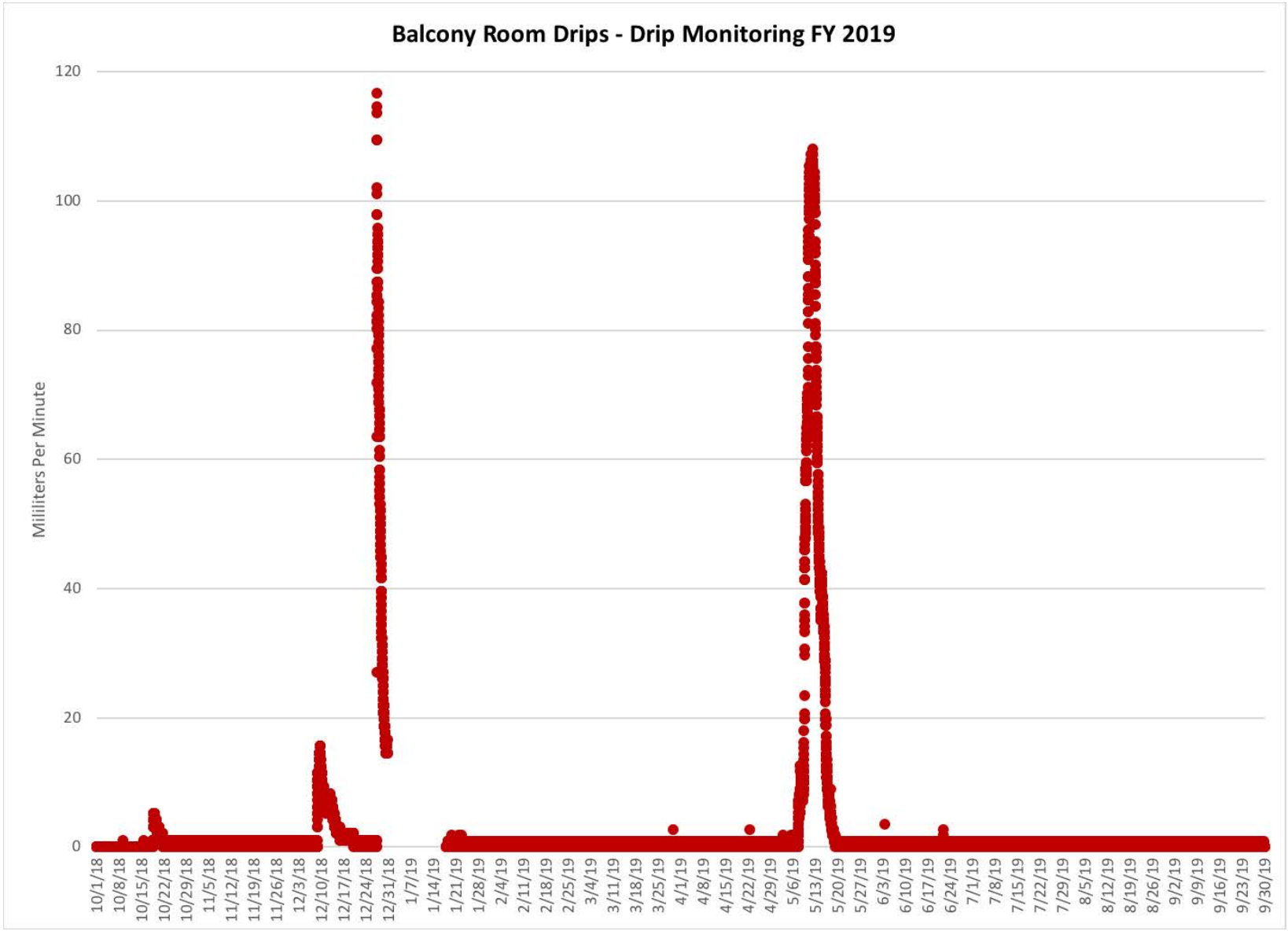
From 12/30/2018 to 1/18/2019 we suffered a data gap due to data logger failure from moisture penetrating into the datalogger. The datalogger had corrosion visible on the circuit board. Fortunately the data recorded, prior to failure on 12/30/2018, was able to be retrieved after drying the datalogger in silica gel desiccant.

This site is a group of stalactites located at an elevation of 755.8 ft msl and is within the Kirschberg Member of the Edwards Group. These formations only drip as a rapid response to rain events.

This station is currently deployed and operational. The current configuration consists of a plastic sheet tarp hung to collects the drips and funnel them through an isco 674 tipper connected to an Onset HOBO USB Micro Station Data Logger H21-USB.



Cave Specialist Dylan Beeler in front of the Balcony Room Drips station.


Balcony Room Drips - Drip Monitoring FY 2019
Milliliters Per Minute
120
100
80
60
40
20
0
10/1/18
10/8/18
10/15/18
10/22/18
10/29/18
11/5/18
11/12/18
11/19/18
11/26/18
12/3/18
12/10/18
12/17/18
12/24/18
12/31/18
1/7/19
1/14/19
1/21/19
1/28/19
2/4/19
2/11/19
2/18/19
2/25/19
3/4/19
3/11/19
3/18/19
3/25/19
4/1/19
4/8/19
4/15/19
4/22/19
4/29/19
5/6/19
5/13/19
5/20/19
5/27/19
6/3/19
6/10/19
6/17/19
6/24/19
7/1/19
7/8/19
7/15/19
7/22/19
7/29/19
8/5/19
8/12/19
8/19/19
8/26/19
9/2/19
9/9/19
9/16/19
9/23/19
9/30/19

Balcony Joint
Infeeder

33,296 drip rate measurements

Drip Rate in Milliliters Per Minute: Mean 0.57 – Minimum 0.00 – Maximum 95.72

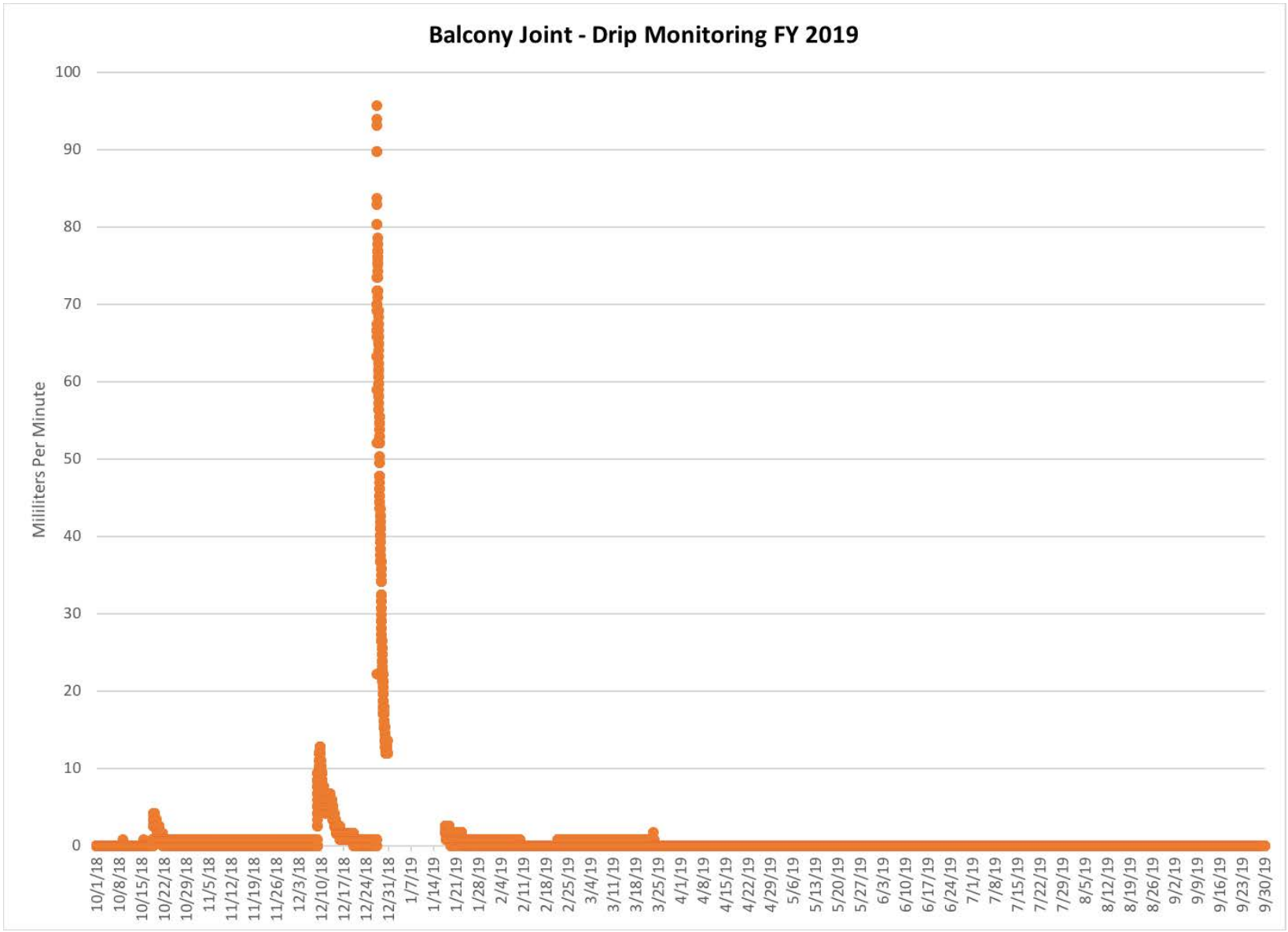
Good data collected 10/1/2018 through 12/30/18 and 1/18/2019 through 9/30/2018.

From 12/30/2018 to 1/18/2019 we suffered a data gap due to data logger failure from moisture penetrating into the datalogger. The datalogger had corrosion visible on the circuit board. Fortunately the data recorded, prior to failure on 12/30/18, was able to be retrieved after drying the datalogger in silica gel desiccant.

This site is an infeeder located at an elevation of 756.8 ft msl and is within the Kirschberg Member of the Edwards Group. This infeeder only flows or drips as a rapid response to rain events.

The station is currently deployed and operational. The current configuration consists of a plastic sheet tarp hung to collects the flow and funnel it through a RainWise tipper connected to an Onset HOBO Pendant Event Data Logger UA-003-64




Balcony Joint - Drip Monitoring FY 2019
Milliliters Per Minute
100
90
80
70
60
50
40
30
20
10
0
10/1/18
10/8/18
10/15/18
10/22/18
10/29/18
11/5/18
11/12/18
11/19/18
11/26/18
12/3/18
12/10/18
12/17/18
12/24/18
12/31/18
1/7/19
1/14/19
1/21/19
1/28/19
2/4/19
2/11/19
2/18/19
2/25/19
3/4/19
3/11/19
3/18/19
3/25/19
4/1/19
4/8/19
4/15/19
4/22/19
4/29/19
5/6/19
5/13/19
5/20/19
5/27/19
6/3/19
6/10/19
6/17/19
6/24/19
7/1/19
7/8/19
7/15/19
7/22/19
7/29/19
8/5/19
8/12/19
8/19/19
8/26/19
9/2/19
9/9/19
9/16/19
9/23/19
9/30/19

Fondue Drip
Discrete Cave Drip

338 drip rate measurements.
(due to the low measurement count, a graph is not presented for this station.)

Drip Rate in Milliliters Per Minute: Mean 0.04 – Minimum 0.00 – Maximum 0.95

Good data collected 1/20/2019 through 1/21/2019 and 6/3/2019 through 6/5/2019. This stations datalogger twice failed shortly after deployment. The cause of these failures could not be determined. This datalogger was replaced on 10/8/2019.

This site is a dripping formation area located at an elevation of 712.9 ft msl and is within the Dolomitic Member of the Edwards Group.

The station is currently deployed and operational. The current configuration is a RainWise tipper connected to an Onset HOBO Pendant Event Data Logger UA-003-64



Cave Specialist Dylan Beeler calibrating the tipper at Fondue Drip.

Cheese and Chocolate Drip
Discrete Cave Drip

24,374 drip rate measurements.

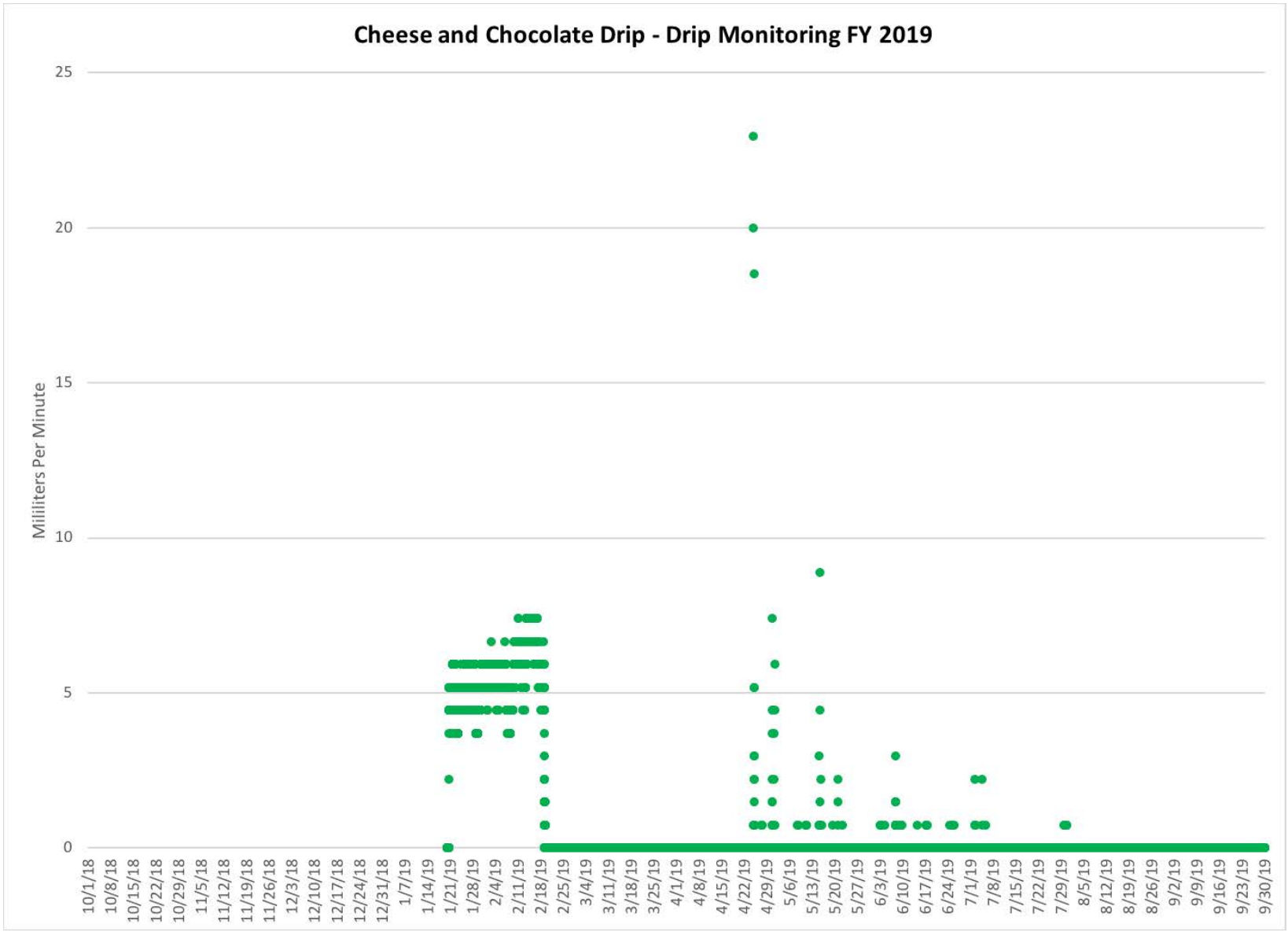
Drip Rate in Milliliters Per Minute: Mean 0.65 – Minimum 0.00 – Maximum 22.96

Good data collected 1/20/2019 through 10/1/2019. There is a gap in data from the beginning of the year until 1/20/2019 due to failure of the isco 764 tipper gauge. The defective tipper was replaced on 1/20/2019 with a RainWise tipper.

This site is a collection of drips located at an elevation of 712.9 ft msl and is within the Dolomitic Member of the Edwards Group.

The station is currently deployed and operational. The current configuration consists of a plastic sheet tarp hung to collects the drips and funnel them through a RainWise tipper connected to an Onset HOBO USB Micro Station Data Logger H21-USB




Cheese and Chocolate Drip - Drip Monitoring FY 2019
Milliliters Per Minute
25
20
15
10
5
0
10/1/18
10/8/18
10/15/18
10/22/18
10/29/18
11/5/18
11/12/18
11/19/18
11/26/18
12/3/18
12/10/18
12/17/18
12/24/18
12/31/18
1/7/19
1/14/19
1/21/19
1/28/19
2/4/19
2/11/19
2/18/19
2/25/19
3/4/19
3/11/19
3/18/19
3/25/19
4/1/19
4/8/19
4/15/19
4/22/19
4/29/19
5/6/19
5/13/19
5/20/19
5/27/19
6/3/19
6/10/19
6/17/19
6/24/19
7/1/19
7/8/19
7/15/19
7/22/19
7/29/19
8/5/19
8/12/19
8/19/19
8/26/19
9/2/19
9/9/19
9/16/19
9/23/19
9/30/19

Fault Dome
Discrete Cave Drip

35,027 drip rate measurements.

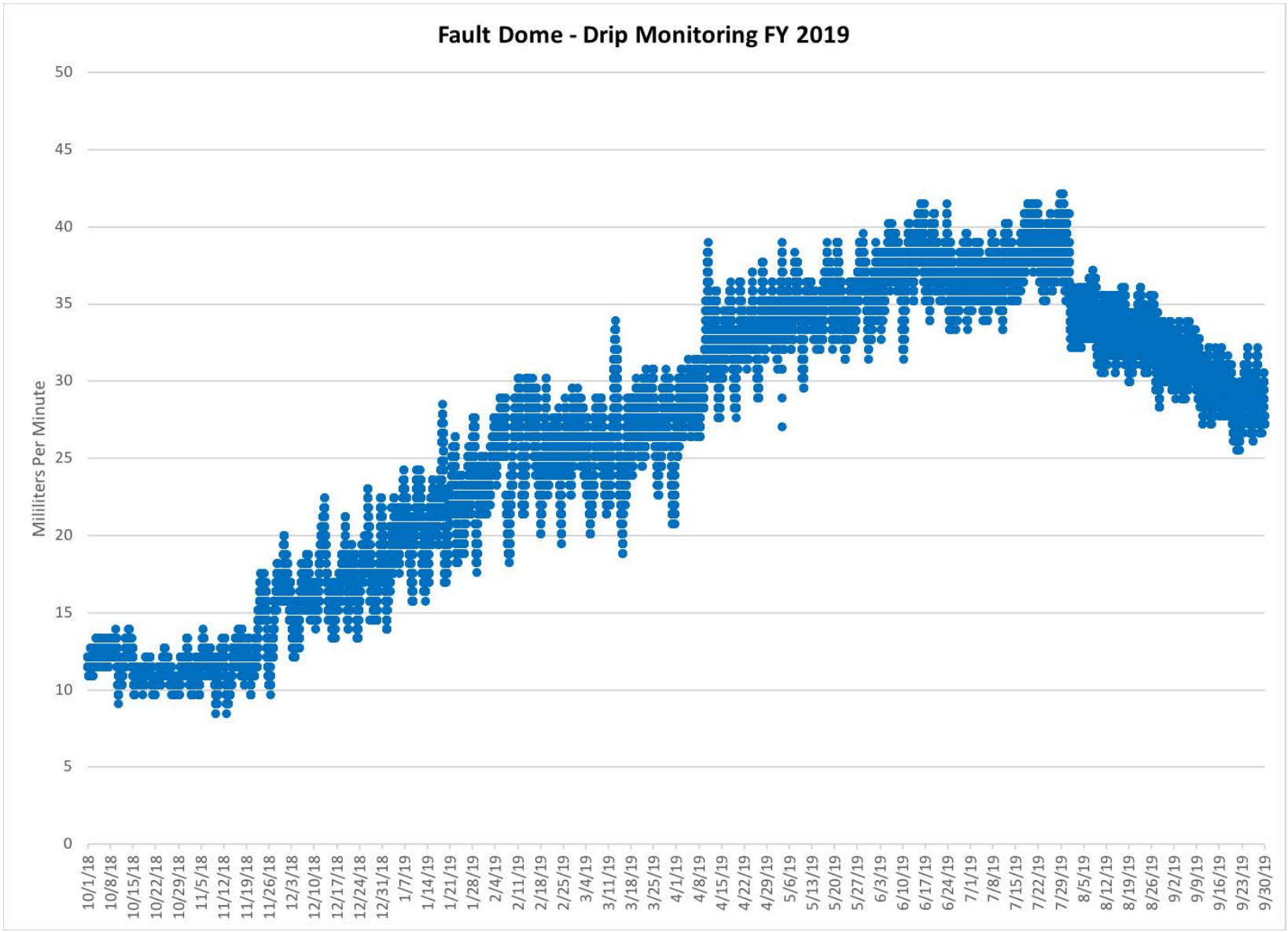
Drip Rate in Milliliters Per Minute: Mean 26.45 – Minimum 8.48 – Maximum 42.12

Good data collected all year.

This site is a discrete cave drip located at an elevation of 669.1 ft msl and is within fault breccia of the primary fault the cave is formed along.

The station is currently deployed and operational. The current configuration funnels a two foot diameter area of drips through an Onset RG3 tipper connected to an Onset HOBO USB Micro Station Data Logger H21-USB




Fault Dome - Drip Monitoring FY 2019
Milliliters Per Minute
50
45
40
35
30
25
20
15
10
5
0
10/1/18
10/8/18
10/15/18
10/22/18
10/29/18
11/5/18
11/12/18
11/19/18
11/26/18
12/3/18
12/10/18
12/17/18
12/24/18
12/31/18
1/7/19
1/14/19
1/21/19
1/28/19
2/4/19
2/11/19
2/18/19
2/25/19
3/4/19
3/11/19
3/18/19
3/25/19
4/1/19
4/8/19
4/15/19
4/22/19
4/29/19
5/6/19
5/13/19
5/20/19
5/27/19
6/3/19
6/10/19
6/17/19
6/24/19
7/1/19
7/8/19
7/15/19
7/22/19
7/29/19
8/5/19
8/12/19
8/19/19
8/26/19
9/2/19
9/9/19
9/16/19
9/23/19
9/30/19

Drip Pit

Discrete Cave Drip

30,154 drip rate measurements.

Drip Rate in Milliliters Per Minute: Mean 68.75 – Minimum 15.07 – Maximum 93.04

Good data collected 10/1/2018 through 12/31/2019 and 1/20/2019 through 5/3/2019 and 6/3/2019 through 9/30/2019.

This station continues to be the most difficult station to maintain, as it is both the deepest and wettest station. Twice we had failures from moisture penetrating into the datalogger.

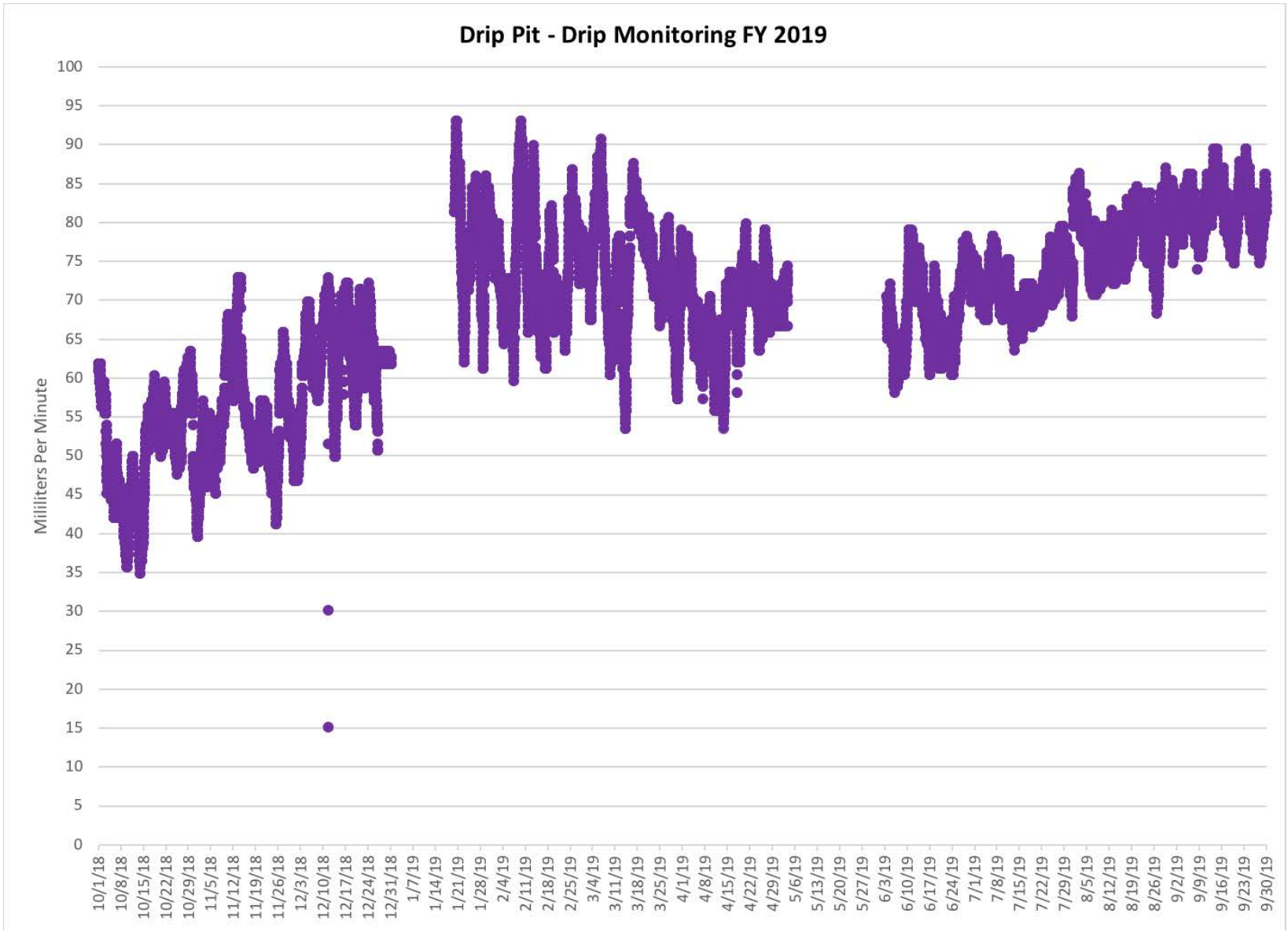
On 5/3/2019 between 19:30 and 19:45 a significant flood pulse flowed through the Drip Pit and inundated the tipper. The 19:30 measurement is nominal at 86 tips. The 19:45 measurement is 208 tips and is followed with 271 tips at 20:00. After 20:00 the data logger failed. When we attempted to download data on 6/3/2019 the datalogger was swamped and corroded. The datalogger was removed from the cave, cleaned and then dried in silicate gel, and then after several failed attempts the data was successfully readout. The spike in tip rate recorded on 5/3/2019 is interpreted to be a recharge event flood pulse flowing through the cave, and not the result of an actual increase in the drip rate of the monitored stalactite; therefore this data is not included in the plotting of drip rate data.

This site is the most active single dripping speleothem in the cave. It is a prominent stalactite, the tip of which is at an elevation of 663.6 ft msl and from which a constant drip of water issues. This is within the Dolomitic Member of the Edwards Group.

This station is currently deployed and operational. Current configuration funnels the water from the single stalactite through a RainWise tipper connected to an Onset HOBO USB Micro Station Data Logger H21-USB



Cave Specialist Wyatt Armstrong in the Drip Pit.


Drip Pit - Drip Monitoring FY 2019
Milliliters Per Minute
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
10/1/18
10/8/18
10/15/18
10/22/18
10/29/18
11/5/18
11/12/18
11/19/18
11/26/18
12/3/18
12/10/18
12/17/18
12/24/18
12/31/18
1/7/19
1/14/19
1/21/19
1/28/19
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2/25/19
3/4/19
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3/18/19
3/25/19
4/1/19
4/8/19
4/15/19
4/22/19
4/29/19
5/6/19
5/13/19
5/20/19
5/27/19
6/3/19
6/10/19
6/17/19
6/24/19
7/1/19
7/8/19
7/15/19
7/22/19
7/29/19
8/5/19
8/12/19
8/19/19
8/26/19
9/2/19
9/9/19
9/16/19
9/23/19
9/30/19

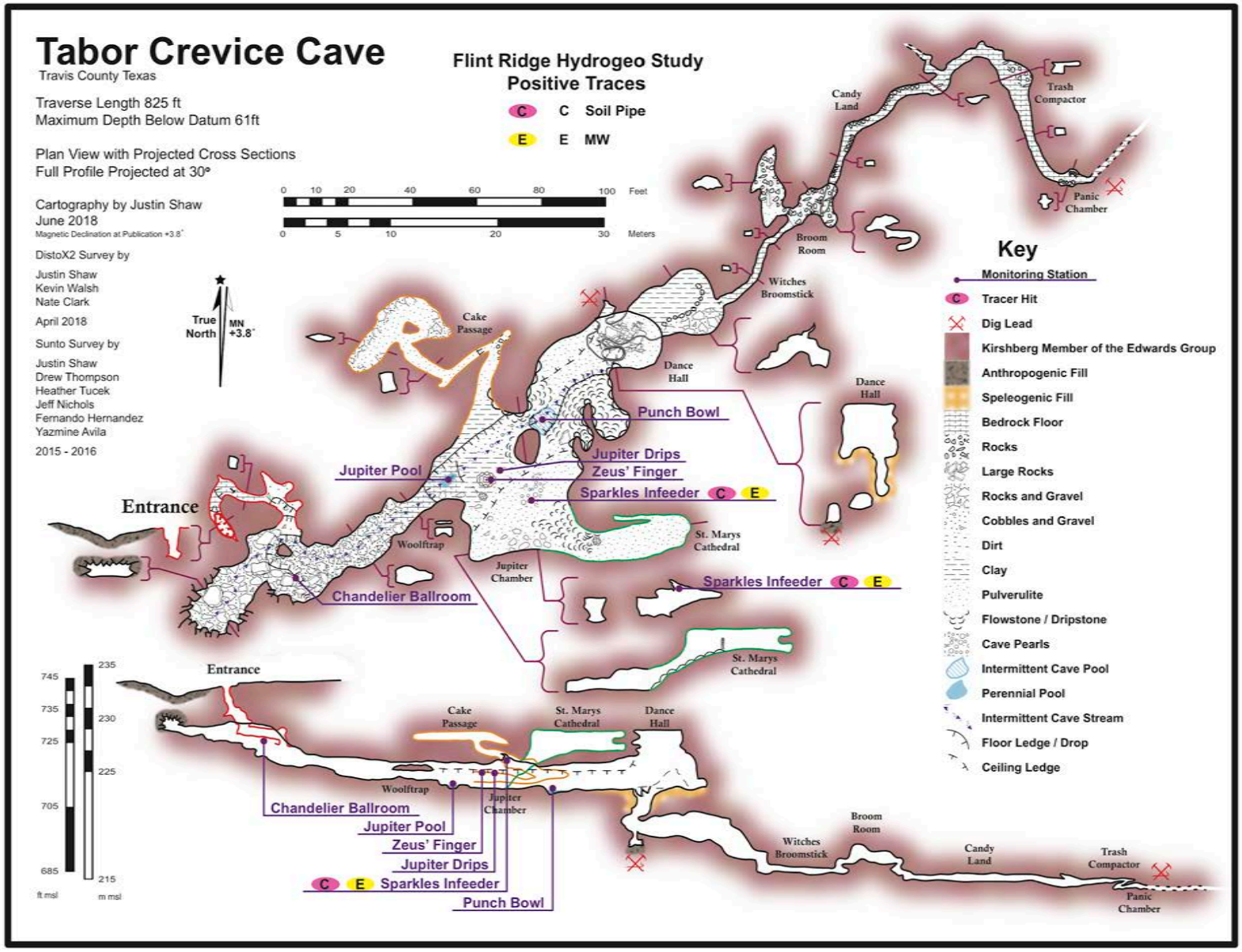
Tabor Crevice Cave

Tabor Crevice Cave is located on a remote part of the Tabor Water Quality Management Area.

Hydrogeologically it is part of the Flint Ridge System. Though a human sized connection has yet to be made, tracer studies have revealed interconnected flow paths within the vadose zone.

Tabor Crevice Cave has been significantly more difficult to access during the construction of HW-45-SW. This problem can be overcome by accessing the Tabor WQMA from the Bliss Spiller gate. Access includes a rough hike without a trail. This resulted in fewer monitoring trips. Further complicating our efforts was the presence of a western diamondback rattlesnake, which stymied two attempted missions to download data. On our most recent trip we employed someone trained in handling venomous snake, fortunately their expertise in that regard was unnecessary as no snakes were encountered. Unfortunately these access complication resulted in only one successful monitoring trip.




Tabor Crevice Cave
Travis County Texas
Traverse Length 825 ft
Maximum Depth Below Datum 61ft
Plan View with Projected Cross Sections
Full Profile Projected at 30°
Cartography by Justin Shaw
June 2018
Magnetic Declination at Publication +3.8°
DistoX2 Survey by
Justin Shaw
Kevin Walsh
Nate Clark
April 2018
Sunto Survey by
Justin Shaw
Drew Thompson
Heather Tucek
Jeff Nichols
Fernando Hernandez
Yazmine Avila
2015 - 2016
Flint Ridge Hydrogeo Study
Positive Traces
C C Soil Pipe
E E MW
0 10 20 40 60 80 100 Feet
0 5 10 20 30 Meters
True North MN +3.8°
Entrance
Cake Passage
Dance Hall
Punch Bowl
Jupiter Drips
Zeus' Finger
Jupiter Pool
Sparkles Infeeder C E
Woolftrap
Jupiter Chamber
St. Marys Cathedral
Chandelier Ballroom
Candy Land
Trash Compactor
Panic Chamber
Broom Room
Witches Broomstick
745 735 725 705 685 ft msl
235 230 225 215 m msl
Key
Monitoring Station
Tracer Hit
Dig Lead
Kirshberg Member of the Edwards Group
Anthropogenic Fill
Speleogenic Fill
Bedrock Floor
Rocks
Large Rocks
Rocks and Gravel
Cobbles and Gravel
Dirt
Clay
Pulverulite
Flowstone / Dripstone
Cave Pearls
Intermittent Cave Pool
Perennial Pool
Intermittent Cave Stream
Floor Ledge / Drop
Ceiling Ledge

Zeus' Finger

1,139 drip rate measurements.

Drip Rate in Milliliters Per Minute: Mean18.38 – Minimum 12.99 – Maximum 24.25

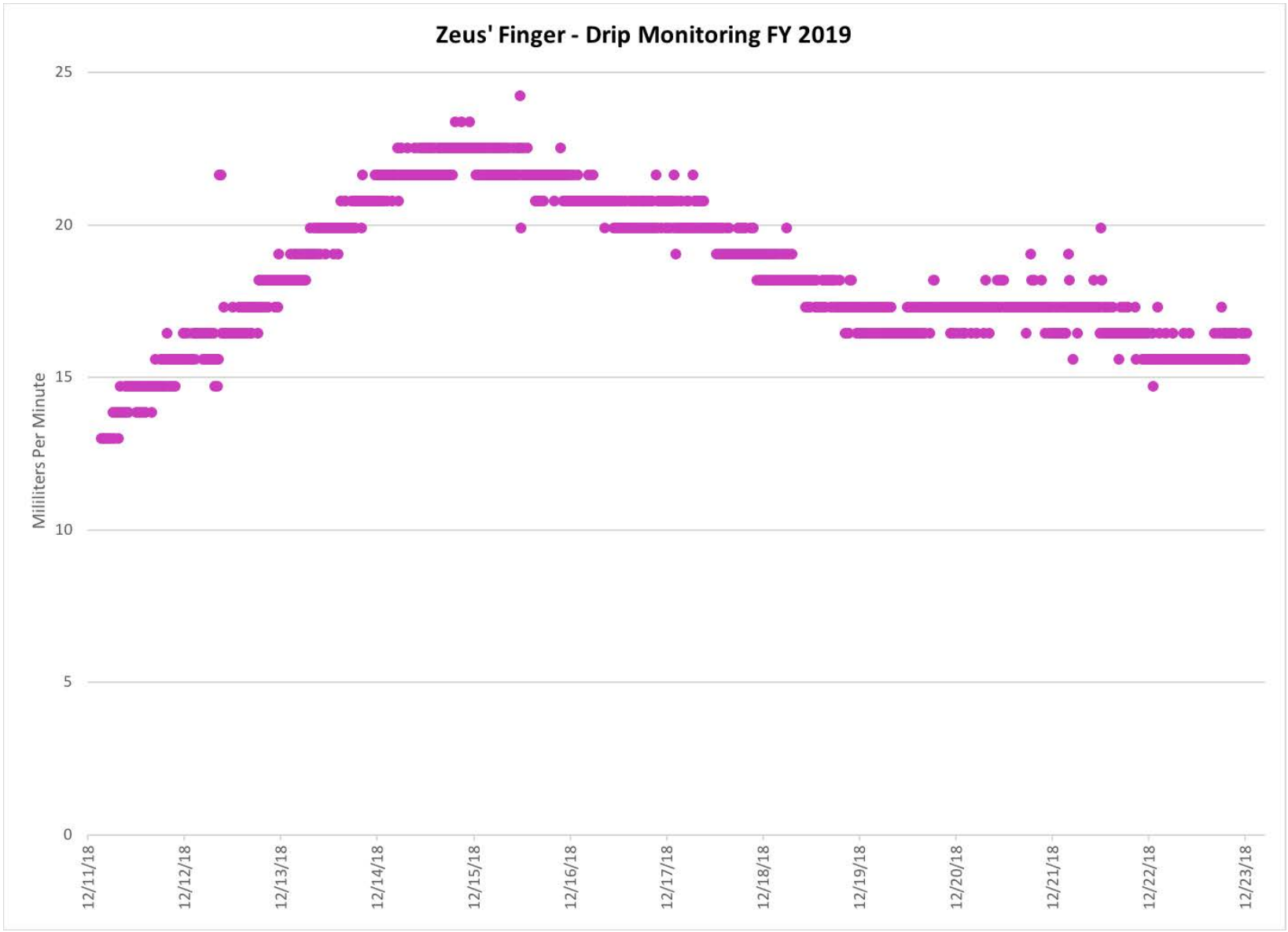
Good data collected 12/11/2018 through 12/23/2018.

Datalogger failure was due to an undetermined cause. All stations in Tabor Crevice Cave are connected to the same datalogger.

This site is the most active drip inside Tabor Crevice Cave. It is a stalactite located within the Kirschberg Member of the Edwards Group.

Station is currently deployed and operational. The current configuration is a Rain Wise tipper connected to an Onset HOBO USB Micro Station Data Logger H21-USB




Zeus' Finger - Drip Monitoring FY 2019
Milliliters Per Minute
25
20
15
10
5
0
12/11/18
12/12/18
12/13/18
12/14/18
12/15/18
12/16/18
12/17/18
12/18/18
12/19/18
12/20/18
12/21/18
12/22/18
12/23/18

Jupiter Drips
Discrete Cave Drip

1,139 drip rate measurements.

Drip Rate in Milliliters Per Minute: Mean 0.02 – Minimum 0.0 – Maximum 0.86

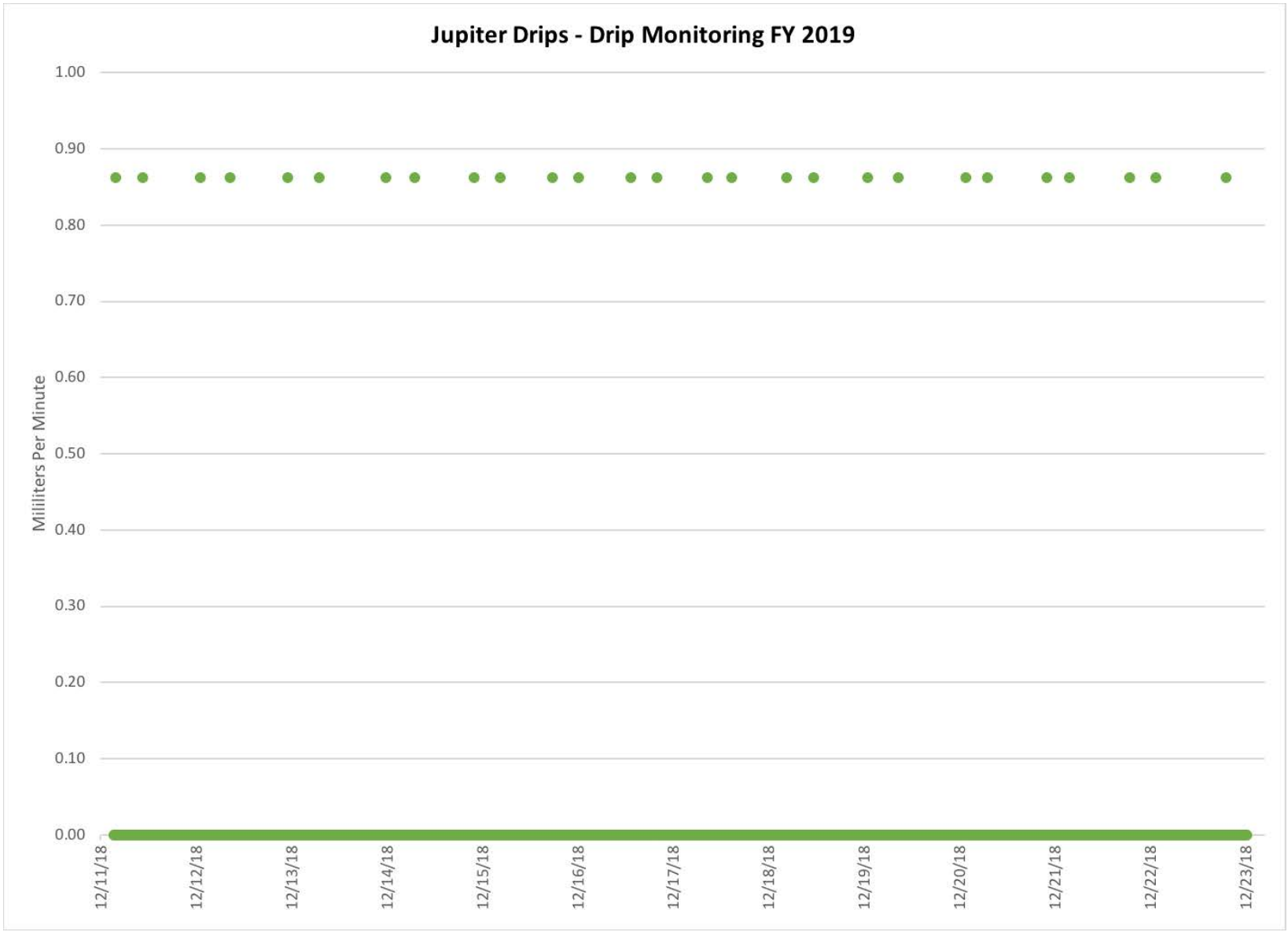
Good data collected 12/11/2018 through 12/23/2018.

Datalogger failure was due to an undetermined cause. All stations in Tabor Crevice Cave are connected to the same datalogger.

This site is a collection of drips from tubular stalactites located within the Kirschberg Member of the Edwards Group.

Station is currently deployed and operational. The current configuration consists of a small plastic sheet tarp funneling multiple drips through a Rain Wise tipper connected to an Onset HOBO USB Micro Station Data Logger H21-USB




Jupiter Drips - Drip Monitoring FY 2019
Milliliters Per Minute
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
12/11/18
12/12/18
12/13/18
12/14/18
12/15/18
12/16/18
12/17/18
12/18/18
12/19/18
12/20/18
12/21/18
12/22/18
12/23/18

Sparkles Infeeder

Infeeder

1,139 drip rate measurements.

Drip Rate in Milliliters Per Minute: Mean 5.35 – Minimum 0.0 – Maximum 36.75

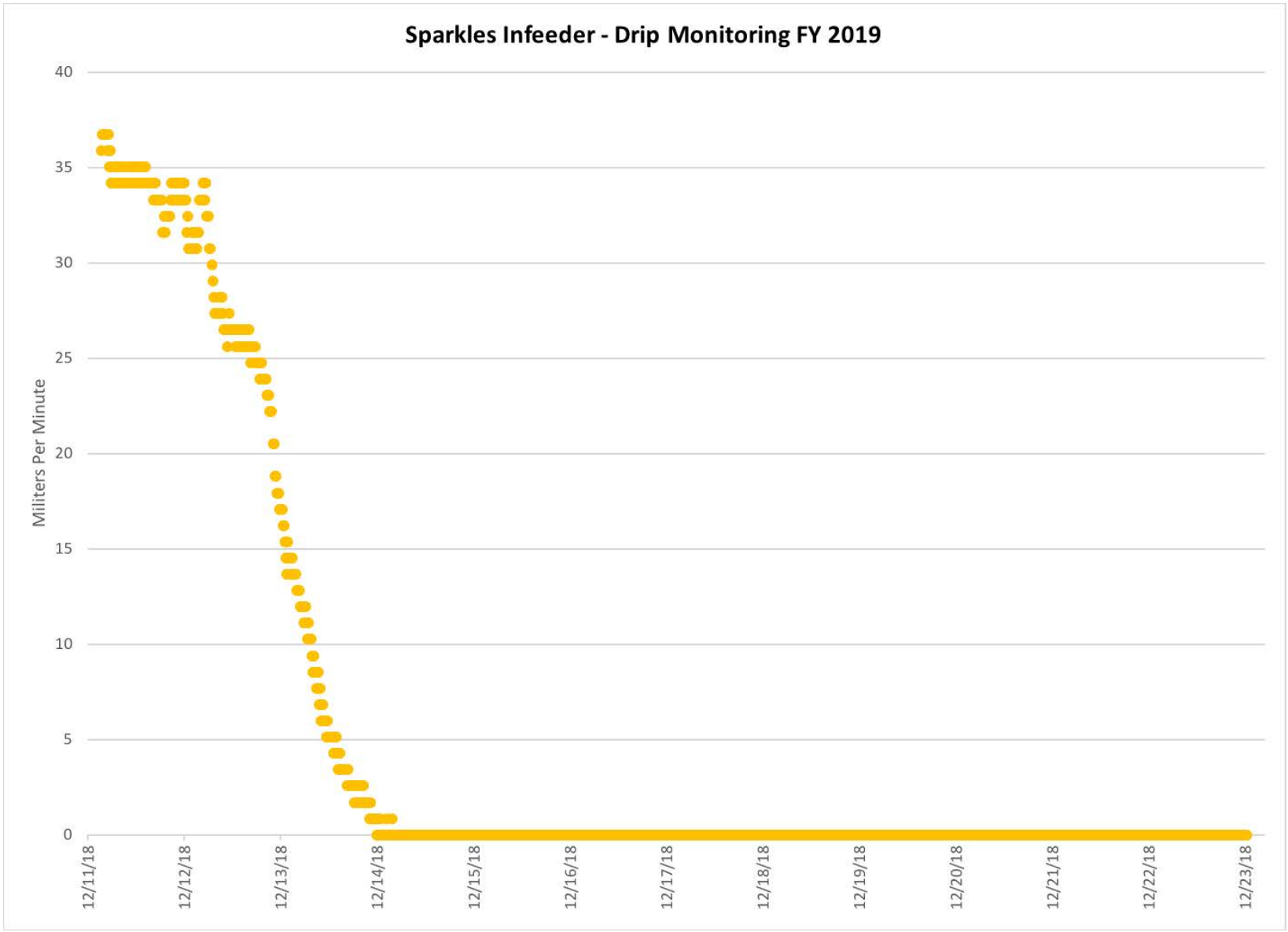
Good data collected 12/11/2018 through 12/23/2018.

Datalogger failure was due to an undetermined cause. All stations in Tabor Crevice Cave are connected to the same datalogger.

This site is an infeeder and is within the Kirschberg Member of the Edwards Group. The site is decorated with brilliant white sparkling stalactites and below it is an area of microtravertine dams and the only known occourance of cave pearls in Travis Co. This normally dry formation area and only flows for a short time after rain events.

Station is currently deployed and operational. The current configuration is a Rain Wise tipper connected to an Onset HOBO USB Micro Station Data Logger H21-USB




Sparkles Infeeder - Drip Monitoring FY 2019
Militers Per Minute
40
35
30
25
20
15
10
5
0
12/11/18
12/12/18
12/13/18
12/14/18
12/15/18
12/16/18
12/17/18
12/18/18
12/19/18
12/20/18
12/21/18
12/22/18
12/23/18

Dunvegan Dungeon Cave

Dunvegan Dungeon Cave is located on a remote part of the Tabor Water Quality Management Area.

Of special note, this year it was observed that this cave is occasionally visited by a Bobcat.

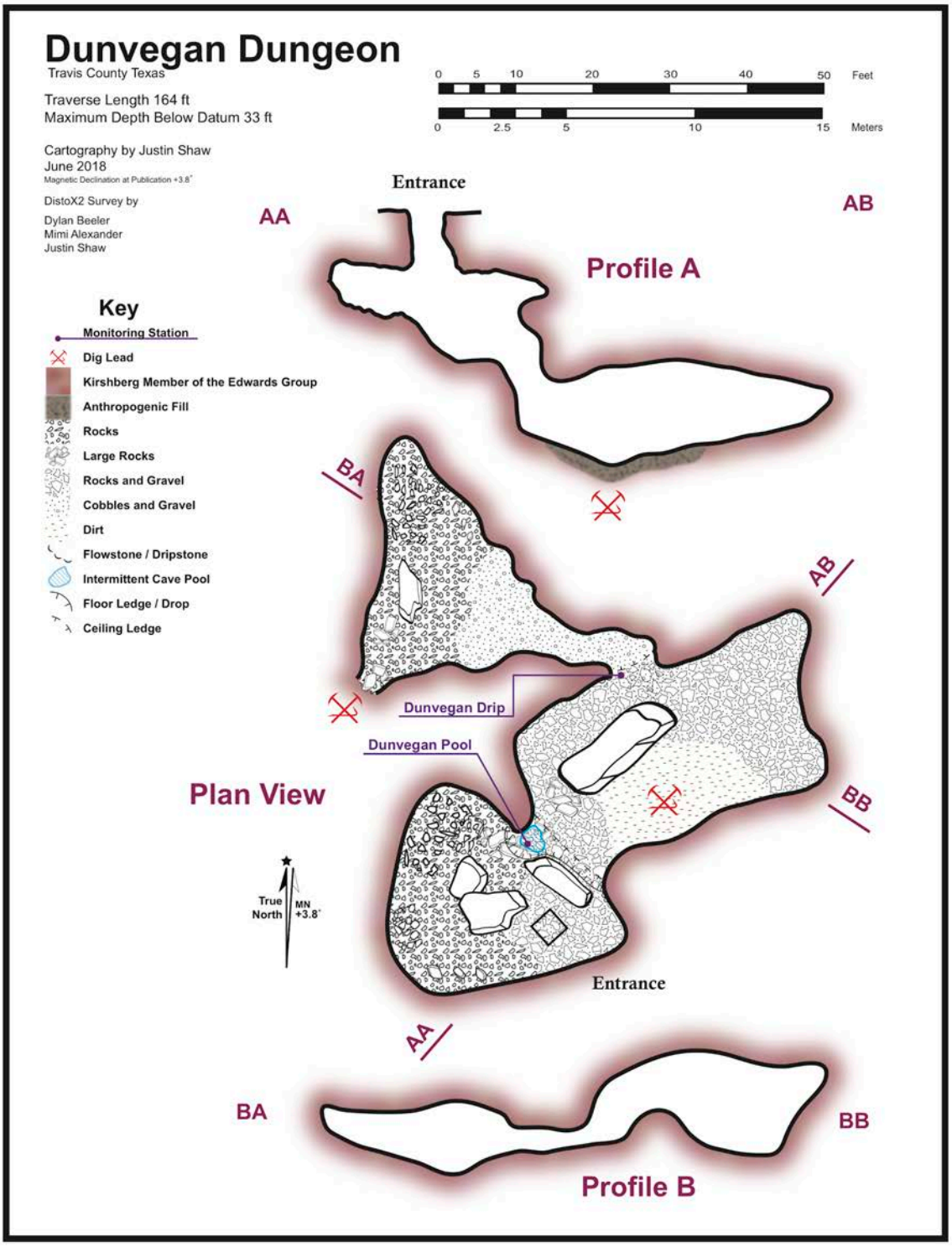
On December 14, 2018 scat was observed inside the cave which appeared to be big cat scat. A game camera was placed at the entrance of the cave to investigate if a big cat was present.

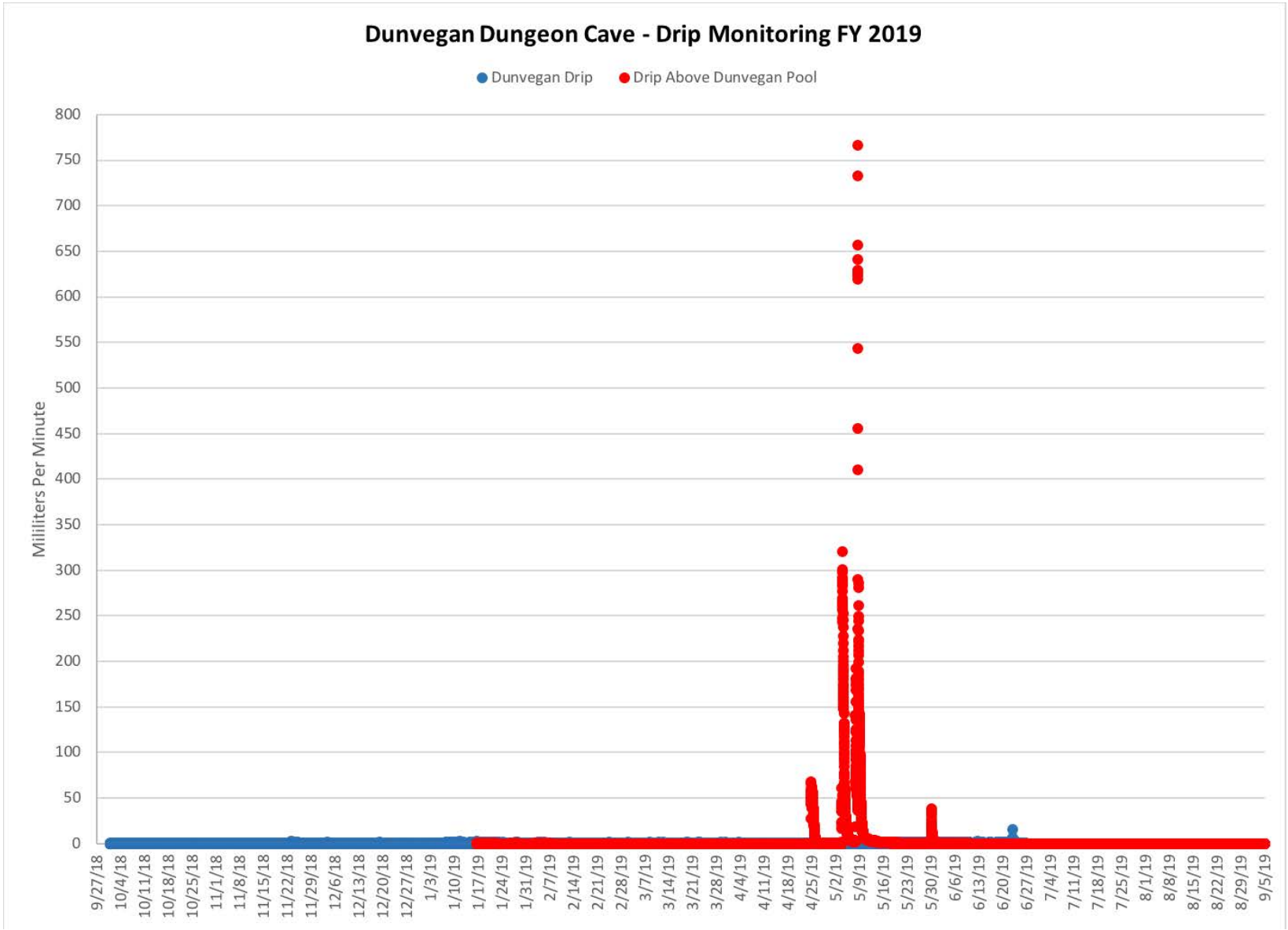
Over 120 days, in three deployments spanning mid-December through mid-July, the game camera took 6,184 pictures. Many of the pictures were likely triggered by wind, however it is possible the cat was moving fast enough to trigger the camera without getting photographed. This is because the camera was close to the entrance and has a one second delay between motion activation and when it takes the picture.

The game camera recorded the presence of a bobcat on three separate occasions, 2/6/2019, 2/12/2019, and 6/18/2019.

Also noteworthy was the number of different vertebrates which are depending on this cave and its open entrance. While some are the expected troglophiles such as raccoon and porcupine, there are several species which are not usually associated with caves, though here they regularly visit the entrance to feed on emerging trogloxenes and troglophiles; such as owls feeding on mice, and skunks feeding on harvestmen and/or cave crickets.




Dunvegan Dungeon
Travis County Texas
Traverse Length 164 ft
Maximum Depth Below Datum 33 ft
Cartography by Justin Shaw
June 2018
Magnetic Declination at Publication +3.8°
DistoX2 Survey by
Dylan Beeler
Mimi Alexander
Justin Shaw
0 5 10 20 30 40 50 Feet
0 2.5 5 10 15 Meters
Key
Monitoring Station
Dig Lead
Kirshberg Member of the Edwards Group
Anthropogenic Fill
Rocks
Large Rocks
Rocks and Gravel
Cobbles and Gravel
Dirt
Flowstone / Dripstone
Intermittent Cave Pool
Floor Ledge / Drop
Ceiling Ledge
Entrance
AA
AB
Profile A
BA
AB
Dunvegan Drip
Dunvegan Pool
Plan View
BB
True North
MN +3.8°
Entrance
AA
BA
BB
Profile B


Dunvegan Dungeon Cave - Drip Monitoring FY 2019
Dunvegan Drip
Drip Above Dunvegan Pool
Milliliters Per Minute
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
9/27/18
10/4/18
10/11/18
10/18/18
10/25/18
11/1/18
11/8/18
11/15/18
11/22/18
11/29/18
12/6/18
12/13/18
12/20/18
12/27/18
1/3/19
1/10/19
1/17/19
1/24/19
1/31/19
2/7/19
2/14/19
2/21/19
2/28/19
3/7/19
3/14/19
3/21/19
3/28/19
4/4/19
4/11/19
4/18/19
4/25/19
5/2/19
5/9/19
5/16/19
5/23/19
5/30/19
6/6/19
6/13/19
6/20/19
6/27/19
7/4/19
7/11/19
7/18/19
7/25/19
8/1/19
8/8/19
8/15/19
8/22/19
8/29/19
9/5/19

Drip Above Dunvegan Pool
Discrete Cave Drip

22,543 drip rate measurements.

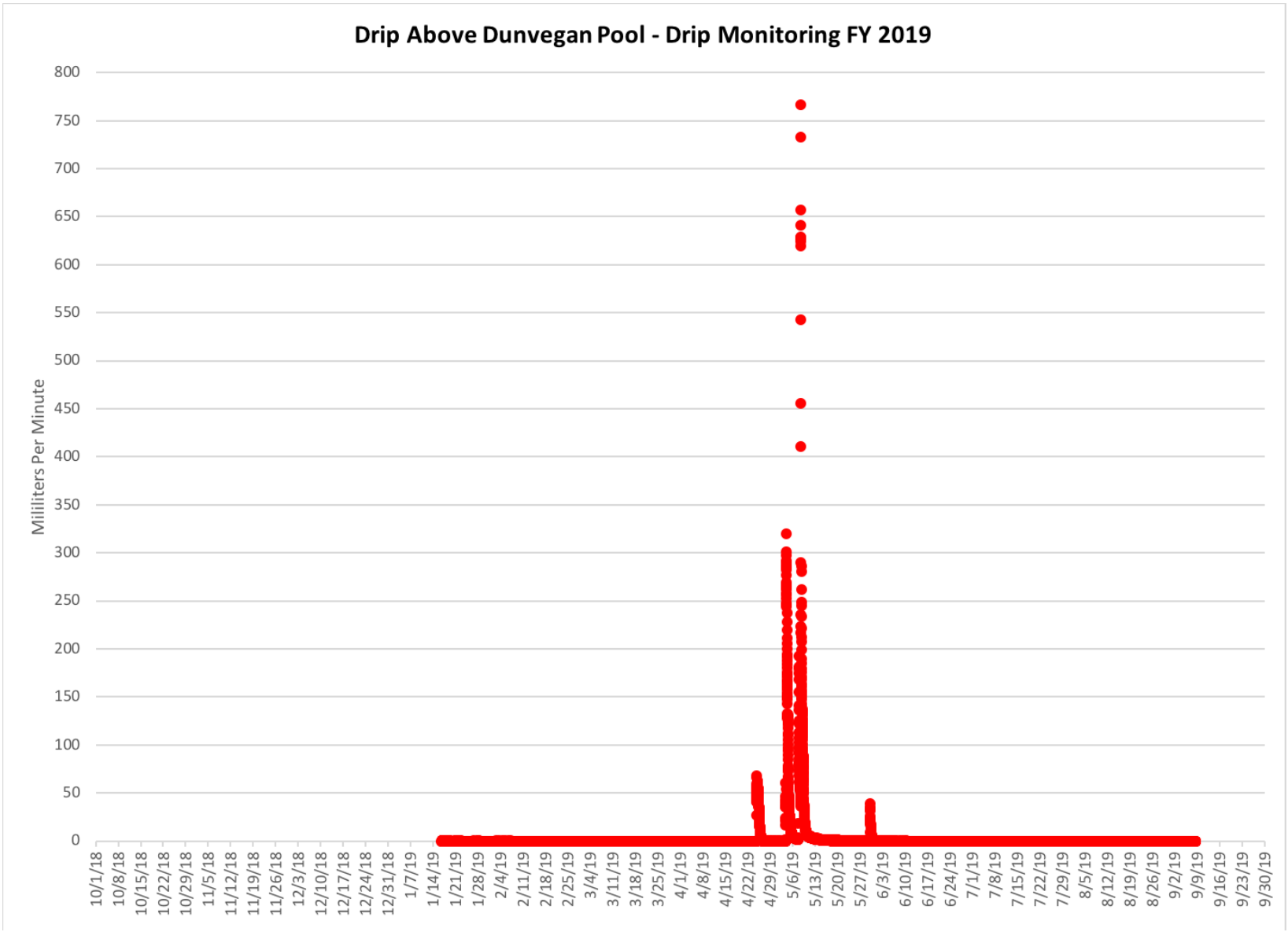
Drip Rate in Milliliters Per Minute: Mean 2.19 – Minimum 0.00 – Maximum 766.79

Good data collected 1/16/2019 through 9/8/2019.

This site is a discrete cave drip and is within the Kirschberg Member of the Edwards Group.

Station is currently deployed and operational. The current configuration is a RainWise tipper connected to an Onset HOBO USB Micro Station Data Logger H21-USB




Drip Above Dunvegan Pool - Drip Monitoring FY 2019
Milliliters Per Minute
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
10/1/18
10/8/18
10/15/18
10/22/18
10/29/18
11/5/18
11/12/18
11/19/18
11/26/18
12/3/18
12/10/18
12/17/18
12/24/18
12/31/18
1/7/19
1/14/19
1/21/19
1/28/19
2/4/19
2/11/19
2/18/19
2/25/19
3/4/19
3/11/19
3/18/19
3/25/19
4/1/19
4/8/19
4/15/19
4/22/19
4/29/19
5/6/19
5/13/19
5/20/19
5/27/19
6/3/19
6/10/19
6/17/19
6/24/19
7/1/19
7/8/19
7/15/19
7/22/19
7/29/19
8/5/19
8/12/19
8/19/19
8/26/19
9/2/19
9/9/19
9/16/19
9/23/19
9/30/19

Dunvegan Drip
Discrete Cave Drip

25,789 drip rate measurements.

Drip Rate in Milliliters Per Minute: Mean 0.14 – Minimum 0.00 – Maximum 15.07

Good data collected 10/1/2018 through 6/26/2019.

This site is a discrete cave drip and is within the Kirschberg Member of the Edwards Group.

Station is currently deployed and operational. The current configuration is an Onset RG3 tipper connected to an Onset HOBO Pendant Event Data Logger UA-003-64

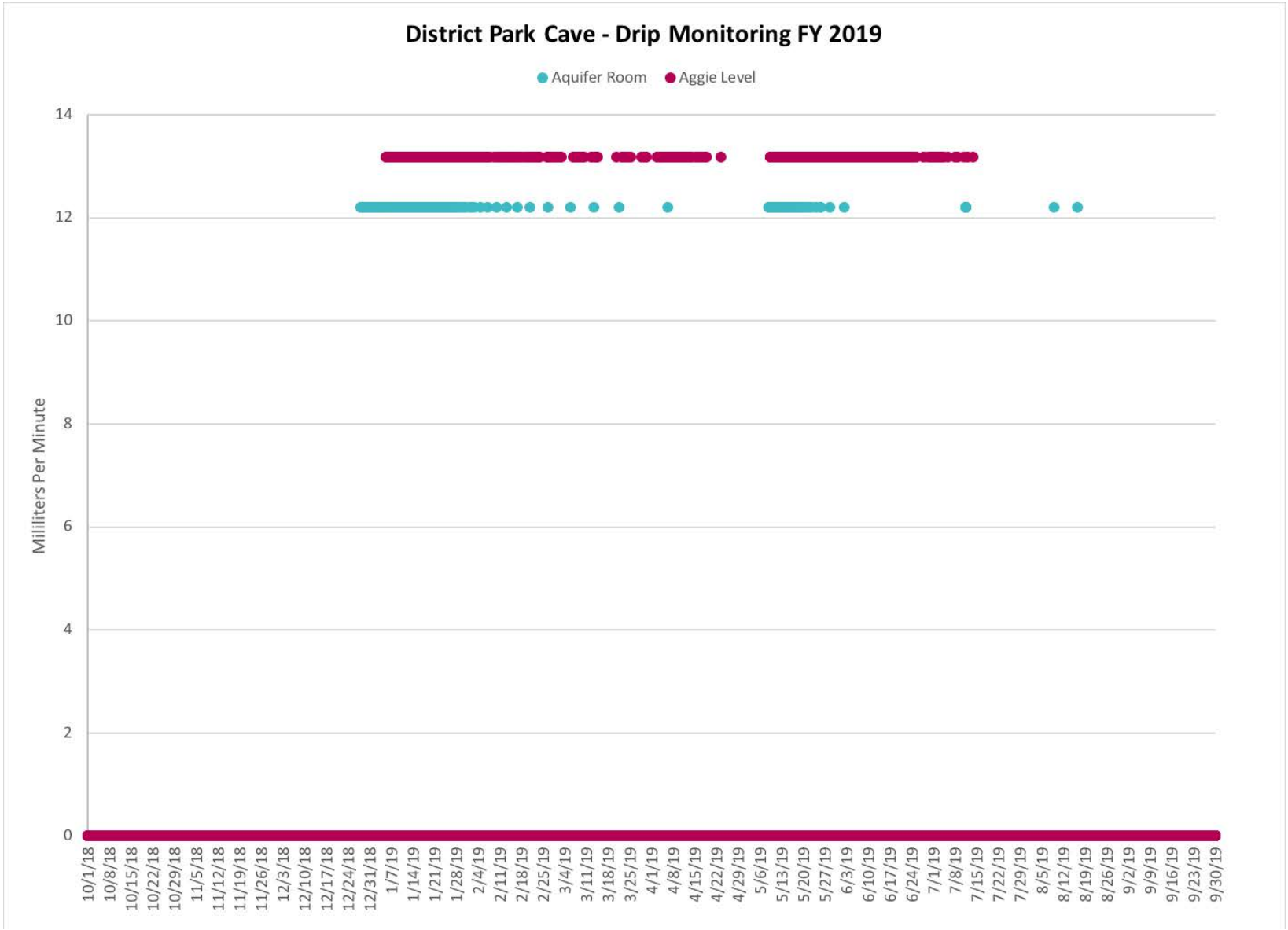


District Park Cave

District Park Cave is a well decorated cave located within Dick Nicholas District Park.

Despite the known extent of the cave being relatively small, the speleogenic evidence suggests District Park Cave connects to a substantially large volume of cave. The Aquifer Room contains very nice examples of Cave Rims, which are formed via aerosol speleothem development. Their presence indicates a large volume of undiscovered cave. Given that these features were formed by airflow, yet they don't blow air today, one can conclude that the large volume of undiscovered cave is currently obscured by a recently formed plug.




District Park Cave - Drip Monitoring FY 2019
Aquifer Room
Aggie Level
Milliliters Per Minute
14
12
10
8
6
4
2
0
10/1/18
10/8/18
10/15/18
10/22/18
10/29/18
11/5/18
11/12/18
11/19/18
11/26/18
12/3/18
12/10/18
12/17/18
12/24/18
12/31/18
1/7/19
1/14/19
1/21/19
1/28/19
2/4/19
2/11/19
2/18/19
2/25/19
3/4/19
3/11/19
3/18/19
3/25/19
4/1/19
4/8/19
4/15/19
4/22/19
4/29/19
5/6/19
5/13/19
5/20/19
5/27/19
6/3/19
6/10/19
6/17/19
6/24/19
7/1/19
7/8/19
7/15/19
7/22/19
7/29/19
8/5/19
8/12/19
8/19/19
8/26/19
9/2/19
9/9/19
9/16/19
9/23/19
9/30/19

Aquifer Room

Discrete Cave Drip

27,097 drip rate measurements.

Drip Rate in Milliliters Per Minute: Mean 0.14 – Minimum 0.00 – Maximum 12.20

Good Data collected 12/22/2018 through 9/30/2019.

This site is a discrete cave drip and is within the Kirschberg Member of the Edwards Group.

The station is currently deployed and operational. The current configuration is a RainWise tipper connected to an Onset HOBO Pendant Event Data Logger UA-003-64



Cave Specialist Justin Shaw next to the Aquifer Room drip monitoring station.

Aggie Level

Discrete Cave Drip

35,036 drip rate measurements.

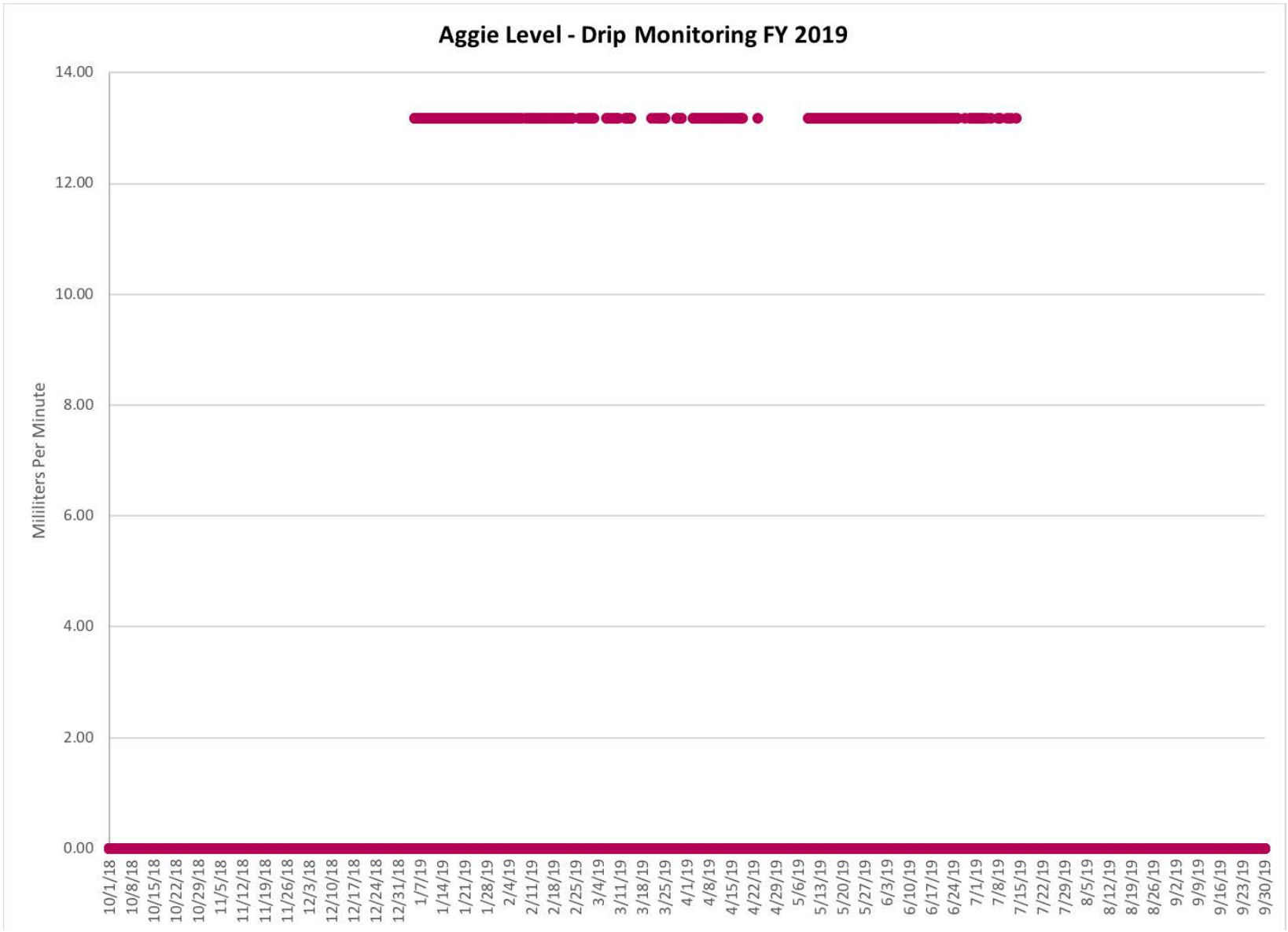
Drip Rate in Milliliters Per Minute: Mean 0.37 – Minimum 0.00 – Maximum 13.18

Good Data collected all year.

This site is a discrete cave drip and is within the Kirschberg Member of the Edwards Group.

The station is currently deployed and operational. The current configuration is a RainWise tipper connected to an Onset HOBO Pendant Event Data Logger UA-003-64




Aggie Level - Drip Monitoring FY 2019
Milliliters Per Minute
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
10/1/18
10/8/18
10/15/18
10/22/18
10/29/18
11/5/18
11/12/18
11/19/18
11/26/18
12/3/18
12/10/18
12/17/18
12/24/18
12/31/18
1/7/19
1/14/19
1/21/19
1/28/19
2/4/19
2/11/19
2/18/19
2/25/19
3/4/19
3/11/19
3/18/19
3/25/19
4/1/19
4/8/19
4/15/19
4/22/19
4/29/19
5/6/19
5/13/19
5/20/19
5/27/19
6/3/19
6/10/19
6/17/19
6/24/19
7/1/19
7/8/19
7/15/19
7/22/19
7/29/19
8/5/19
8/12/19
8/19/19
8/26/19
9/2/19
9/9/19
9/16/19
9/23/19
9/30/19