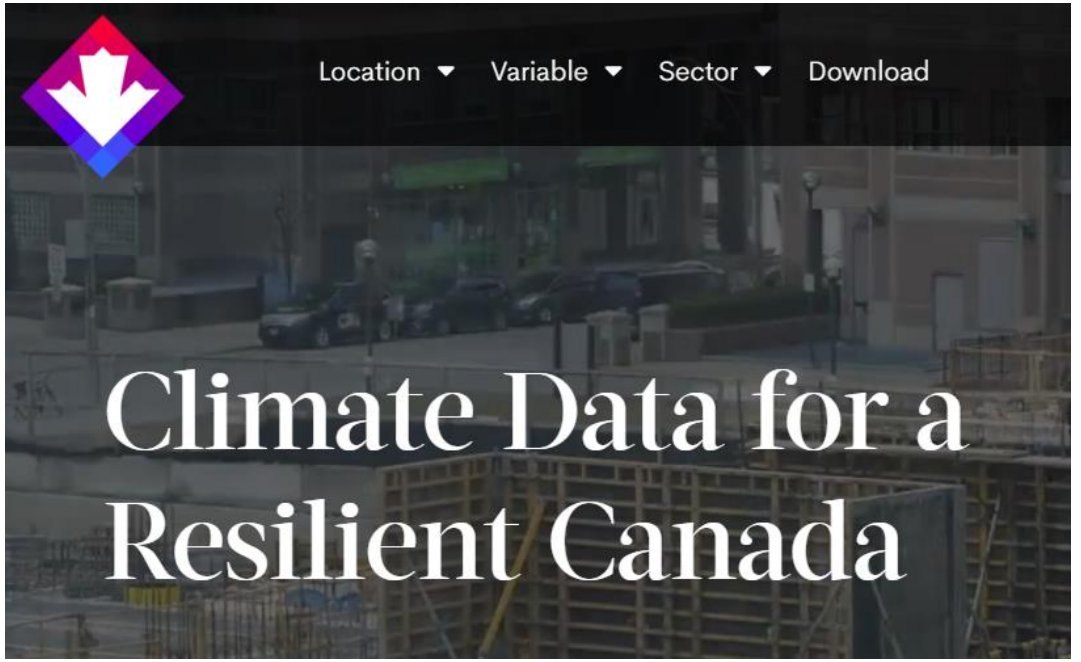
Model Projections

COLUMBIA BASIN CLIMATE SOURCE

COMMUNITIES IMPACTS ACTIONS CLIMATE SCIENCE

Climate Atlas of Canada

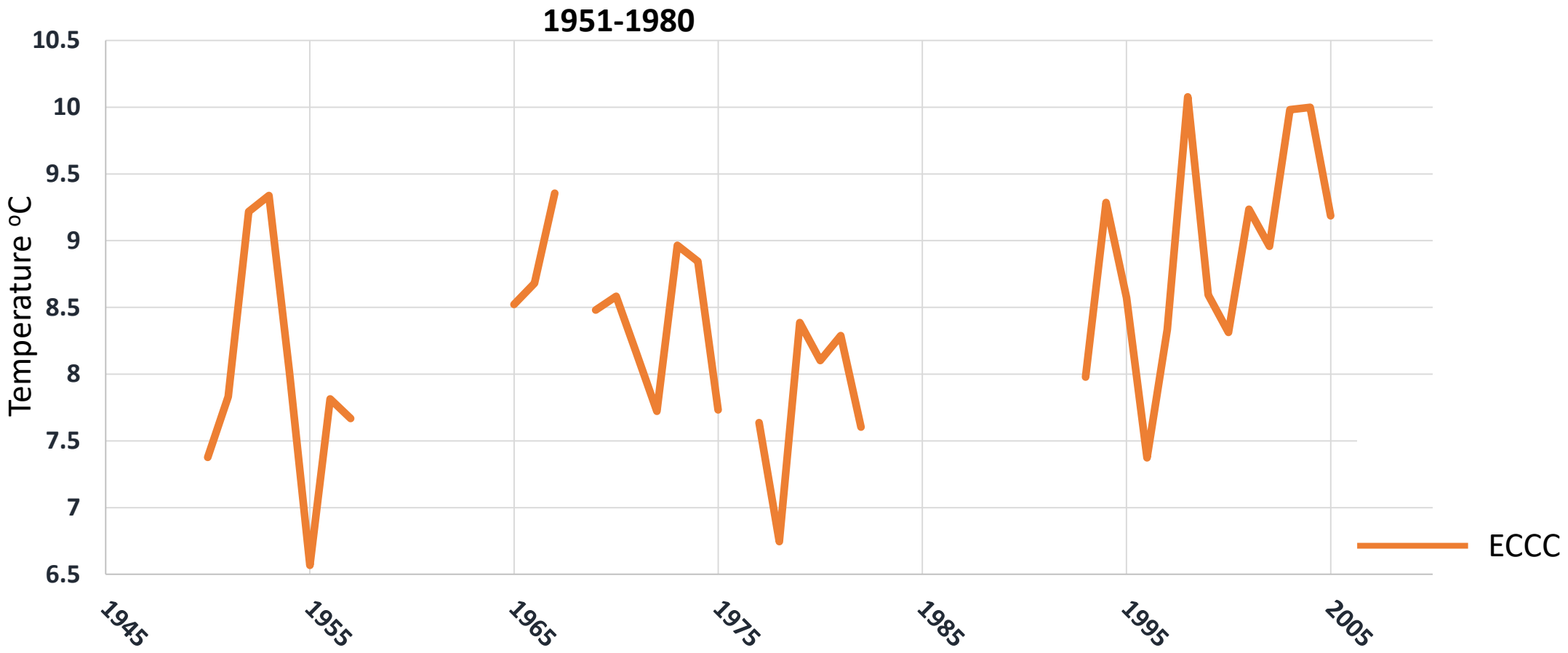


PACIFIC CLIMATE IMPACTS CONSORTIUM

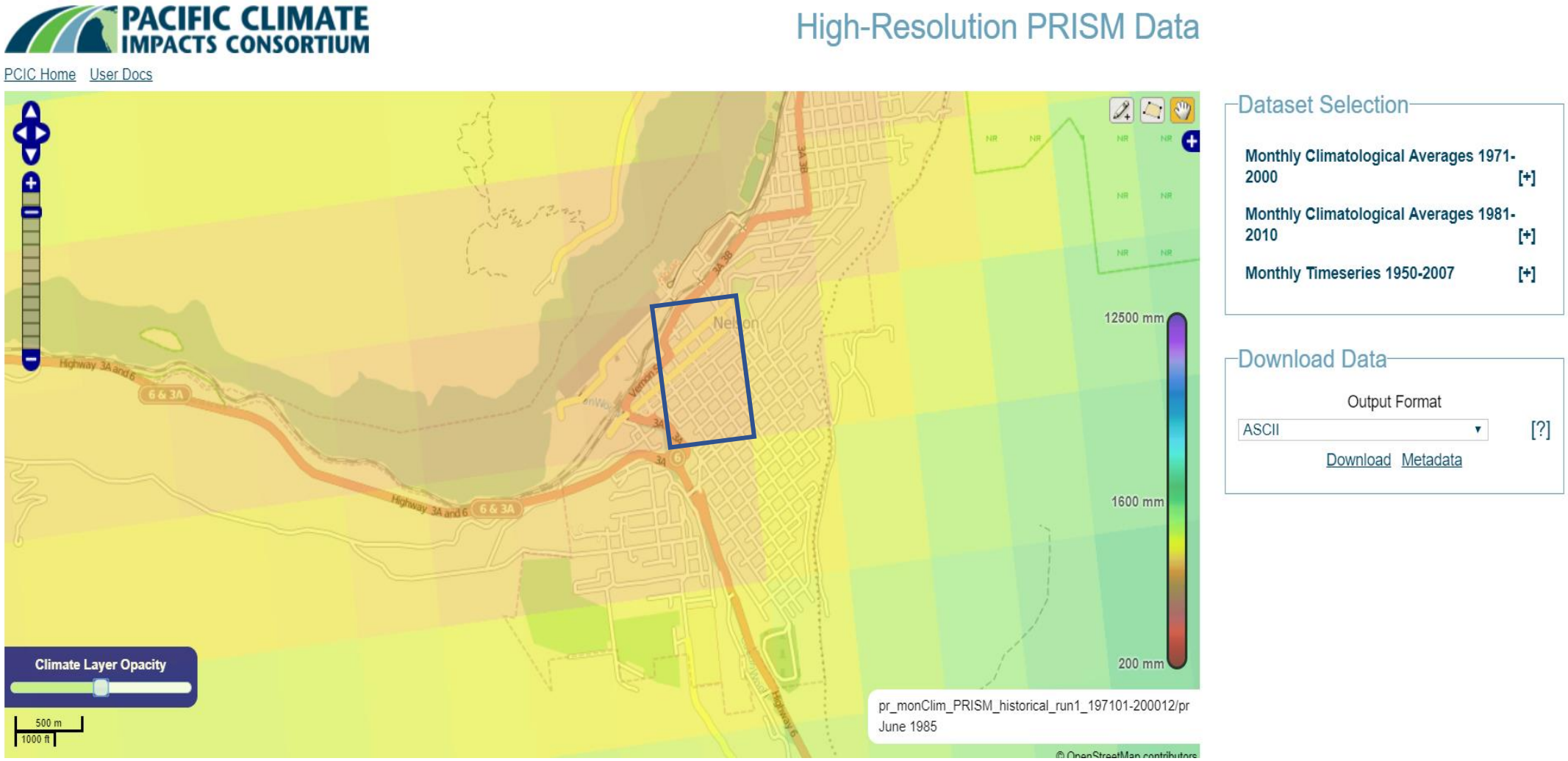
PCIC Climate Explorer

IDF_CC Tool 4.0

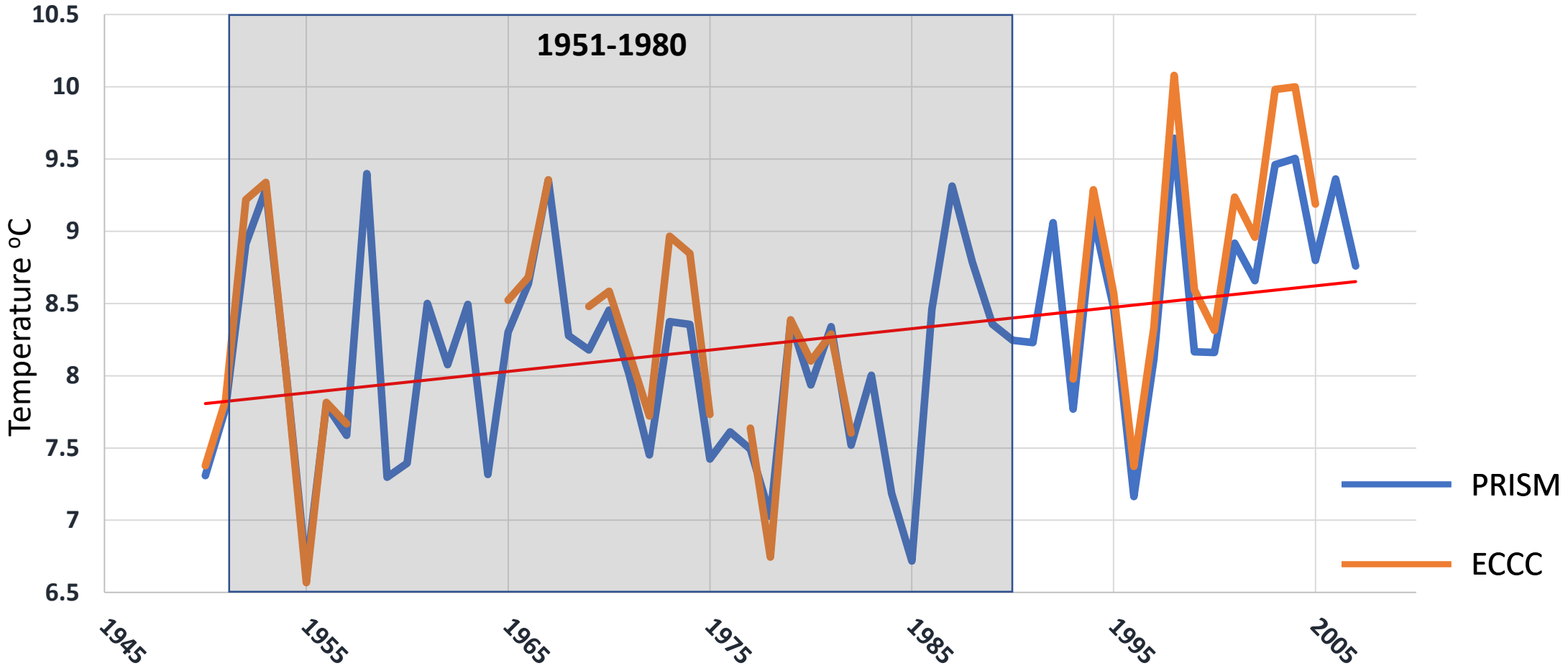
Nelson mean annual temperature



PRISM data for Nelson



Nelson mean annual temperature



Nelson Mean Annual Temperature 1951-1980 = 8.1 °C

Climate normals station data for Nelson

NELSON 2

BRITISH COLUMBIA

Latitude:	49°30' N	Longitude:	117°17' W	Elevation:	604 m

Related Data	Additional Search Options	Download Data
Calculation Information	Nearby Stations with Data	Normals Station Data (all elements) CSV XML Download Data

Back to Station List

Another location

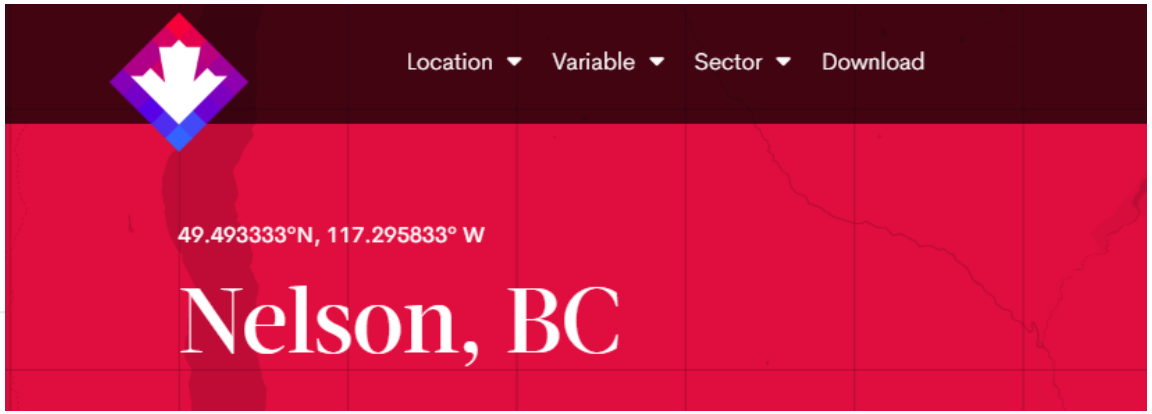
1961 to 1990 Canadian Climate Normals Station Data

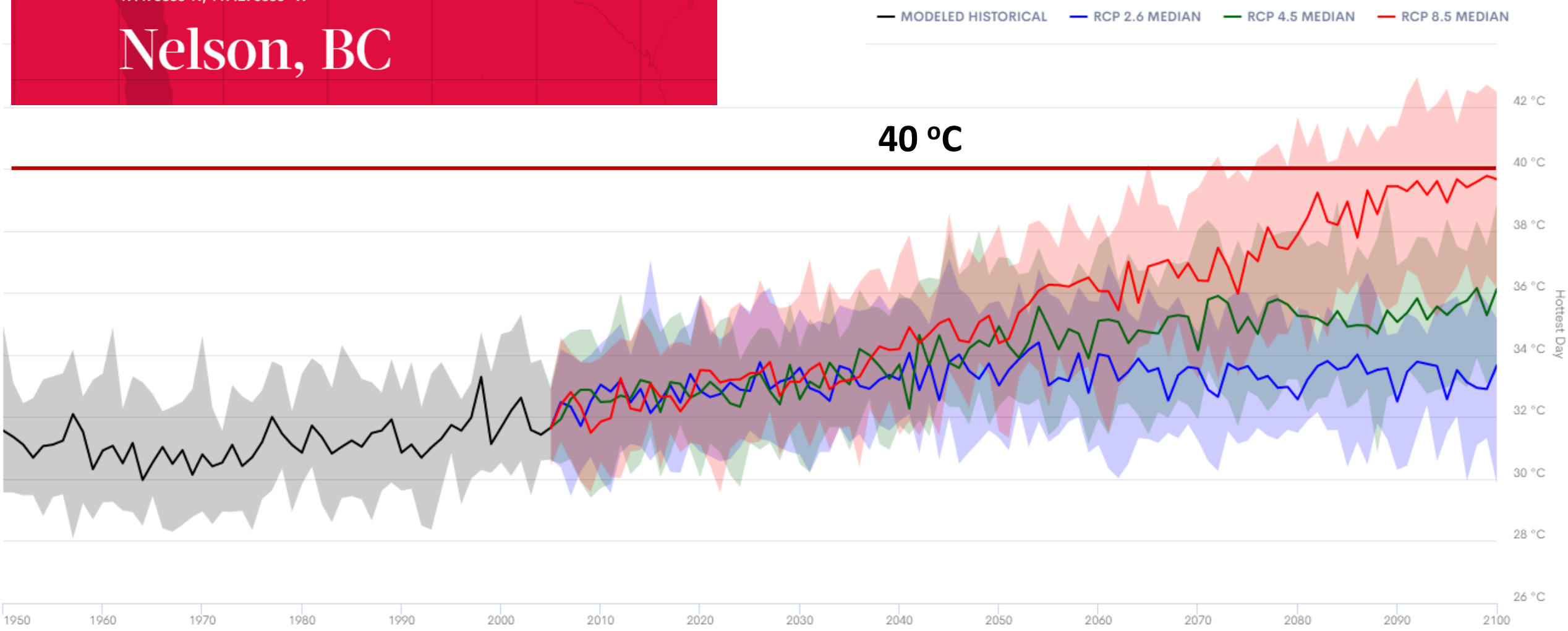
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Temperature													
Daily Average (°C)	-2.8	0.3	3.1	7.9	12.4	16.3	19.3	19.2	14.1	8.2	2.2	-1.5	8.2

49.493333°N, 117.295833° W

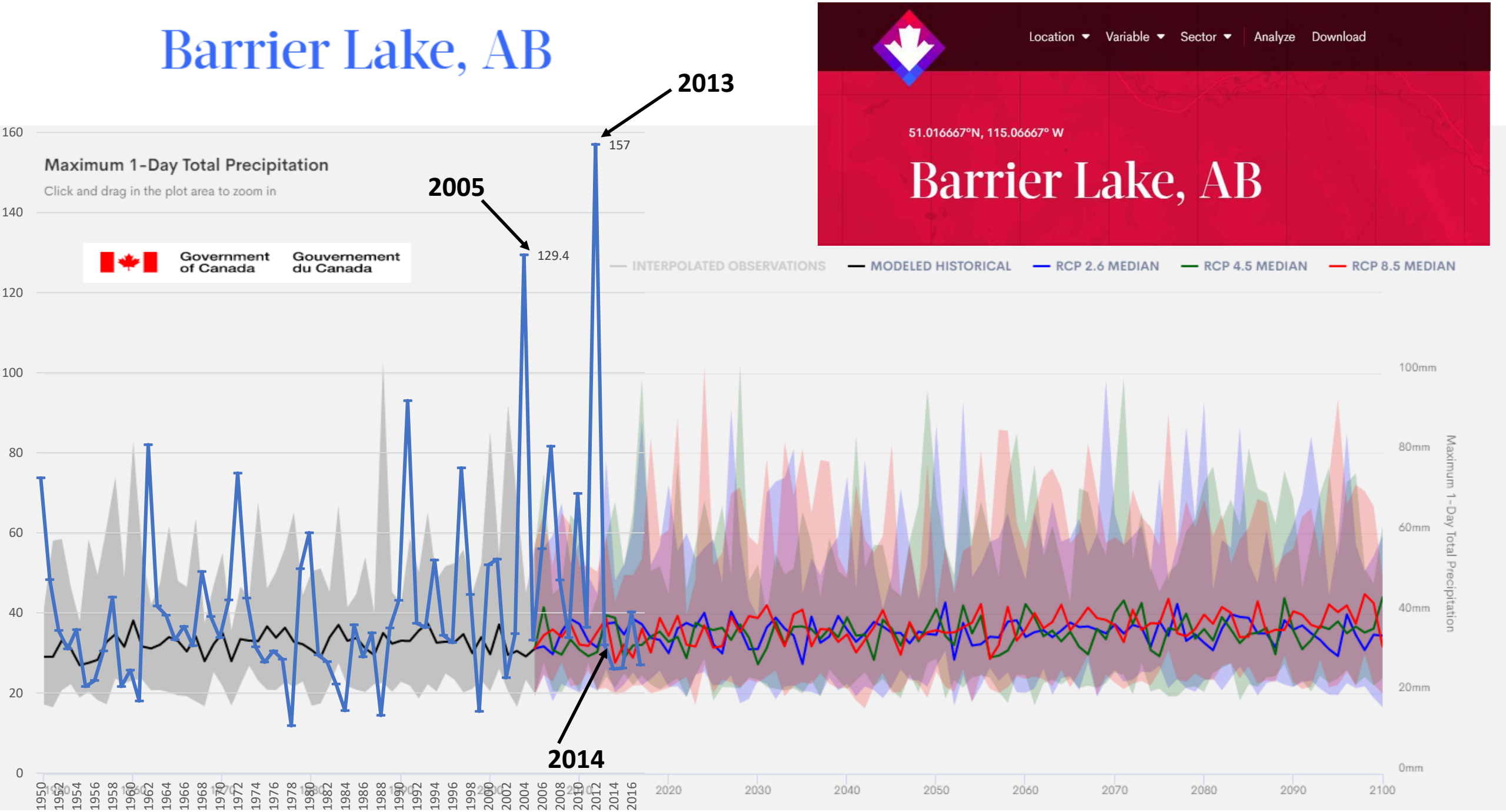
Nelson, BC

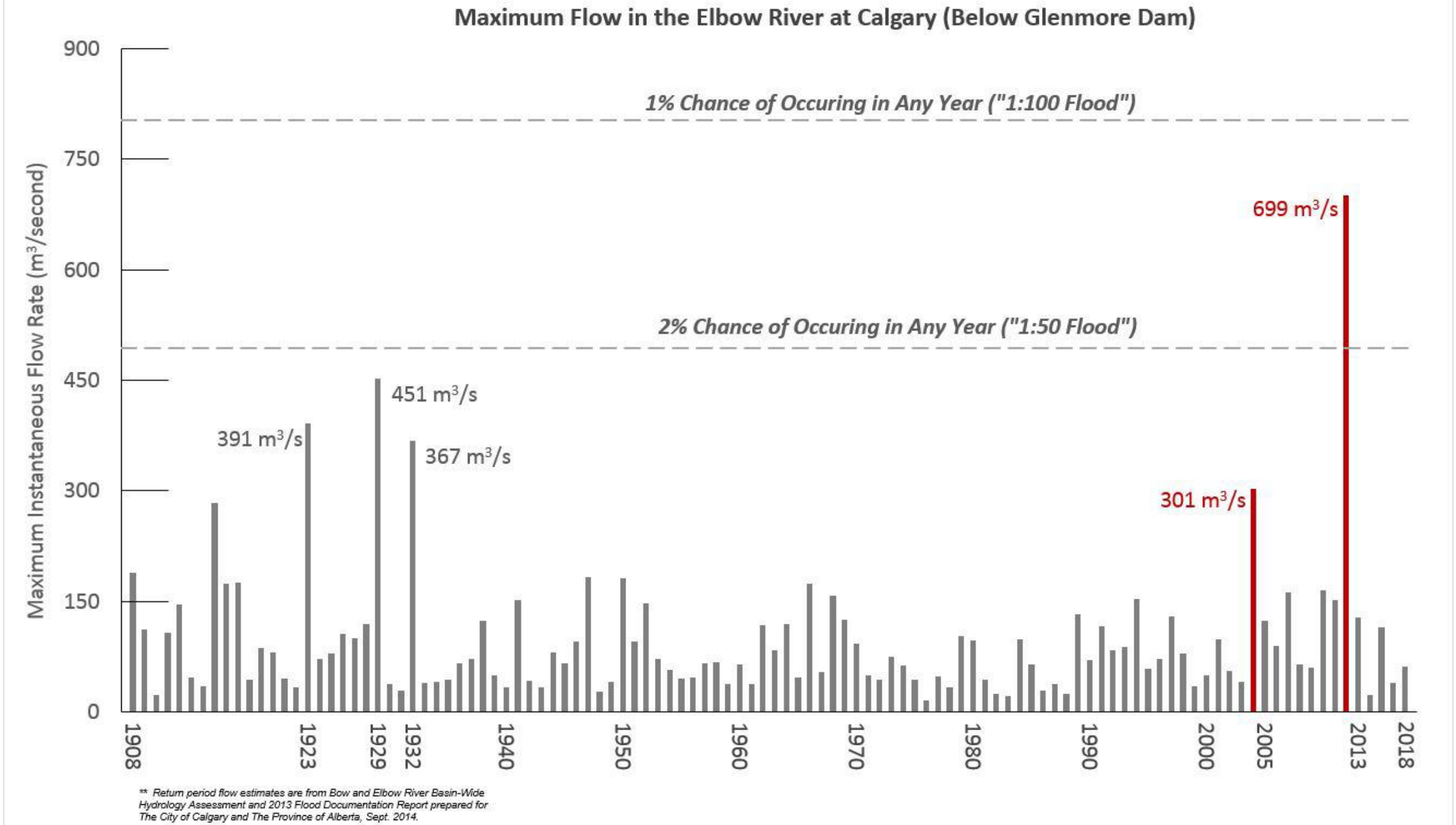
For the 1951–1980 period, the annual average temperature was **4.5** °C; for 1981–2010 it was **5.1** °C. Under a high emissions scenario, annual average temperatures are projected to be **6.8** °C for the 2021–2050 period, **8.7** °C for the 2051–2080 period and **10.2** °C for the last 30 years of this century.

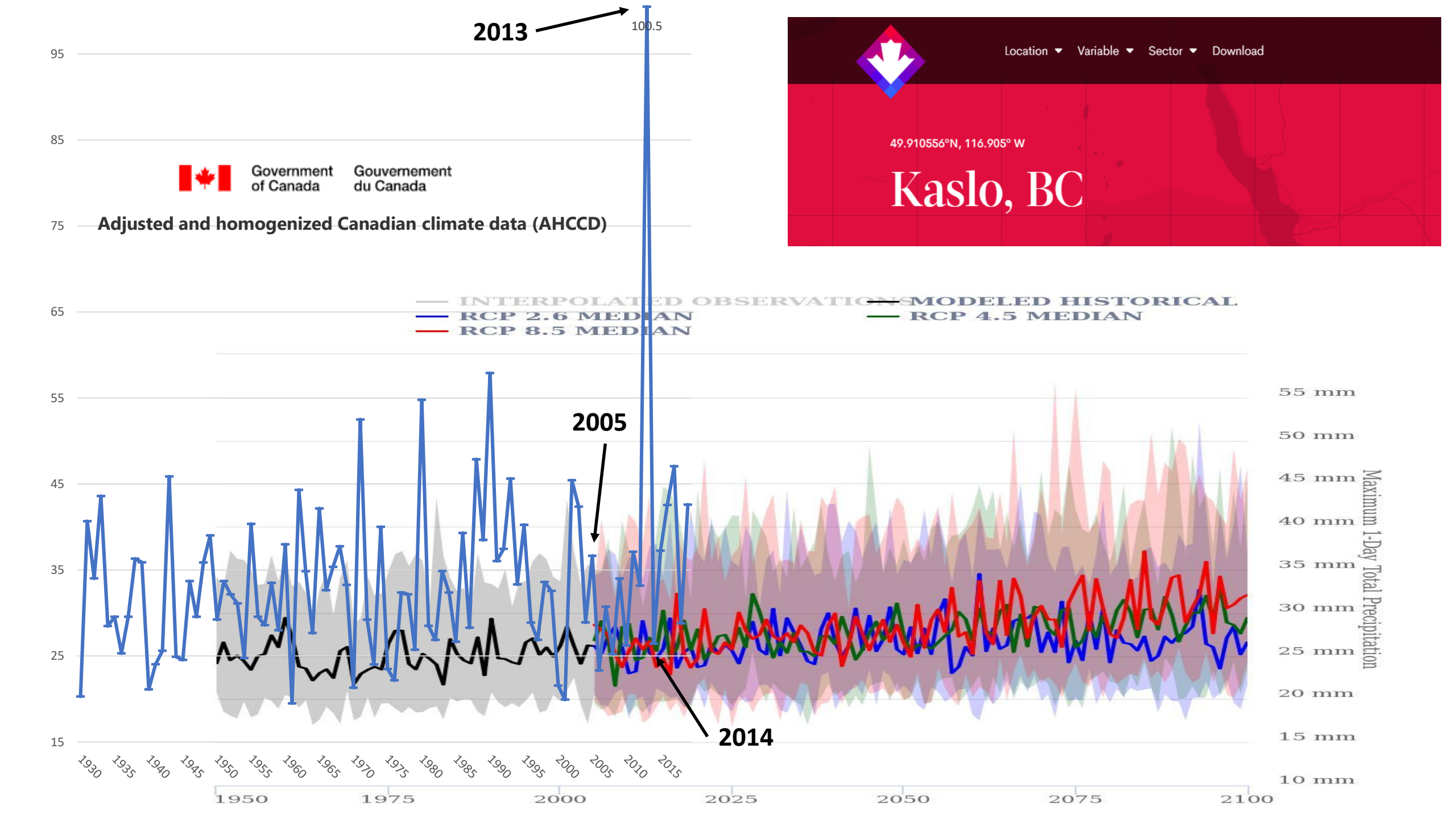

Location
Variable
Sector
Download
49.493333°N, 117.295833° W
Nelson, BC

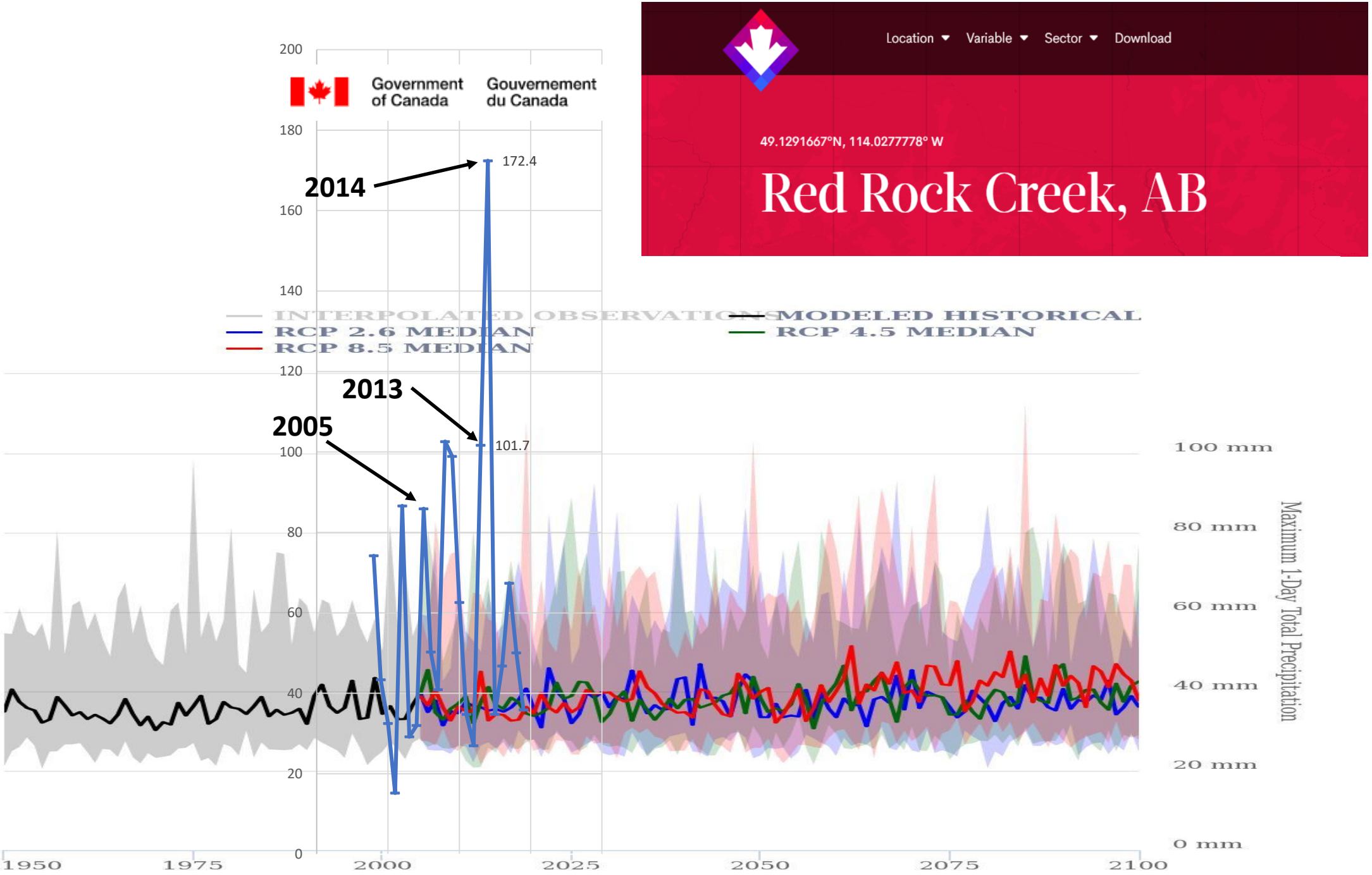

MODELED HISTORICAL
RCP 2.6 MEDIAN
RCP 4.5 MEDIAN
RCP 8.5 MEDIAN
40 °C
42 °C
40 °C
38 °C
36 °C
34 °C
32 °C
30 °C
28 °C
26 °C
Hottest Day
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
2060
2070
2080
2090
2100

Barrier Lake, AB




Maximum Flow in the Elbow River at Calgary (Below Glenmore Dam)
Maximum Instantaneous Flow Rate (m³/second)
900
750
600
450
300
150
0
1% Chance of Occuring in Any Year ("1:100 Flood")
2% Chance of Occuring in Any Year ("1:50 Flood")
699 m³/s
451 m³/s
391 m³/s
367 m³/s
301 m³/s
1908
1923
1929
1932
1940
1950
1960
1970
1980
1990
2000
2005
2013
2018
** Return period flow estimates are from Bow and Elbow River Basin-Wide Hydrology Assessment and 2013 Flood Documentation Report prepared for The City of Calgary and The Province of Alberta, Sept. 2014.


2013
100.5
Location
Variable
Sector
Download
49.910556°N, 116.905° W
Kaslo, BC
Government of Canada
Gouvernement du Canada
Adjusted and homogenized Canadian climate data (AHCCD)
INTERPOLATED OBSERVATIONS
MODELED HISTORICAL
RCP 2.6 MEDIAN
RCP 4.5 MEDIAN
RCP 8.5 MEDIAN
2005
2014
Maximum 1-Day Total Precipitation
95
85
75
65
55
45
35
25
15
55 mm
50 mm
45 mm
40 mm
35 mm
30 mm
25 mm
20 mm
15 mm
10 mm
1930
1935
1940
1945
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
1950
1975
2000
2025
2050
2075
2100


Location
Variable
Sector
Download
49.1291667°N, 114.0277778° W
Red Rock Creek, AB
Government of Canada
Gouvernement du Canada
2014
172.4
2013
101.7
2005
INTERPOLATED OBSERVATIONS
MODELED HISTORICAL
RCP 2.6 MEDIAN
RCP 4.5 MEDIAN
RCP 8.5 MEDIAN
200
180
160
140
120
100
80
60
40
20
0
100 mm
80 mm
60 mm
40 mm
20 mm
0 mm
Maximum 1-Day Total Precipitation
1950
1975
2000
2025
2050
2075
2100

Conclusions

1. **Lots of online data now available**
   Annual, seasonal, monthly and daily data available for historical and projections

2. **Some functionality is not working, and it is likely new functionality will become available**

3. **In regions of high topography, the temperature information should be interpreted with caution**
   -The historical and projected data represent the 100sqkm (or 1000 sqkm) around your community and not the conditions at valley bottom
   -Consequently, the absolute numbers may be inappropriate for community planning
   -The change in climate indices relative to the base period is the key information

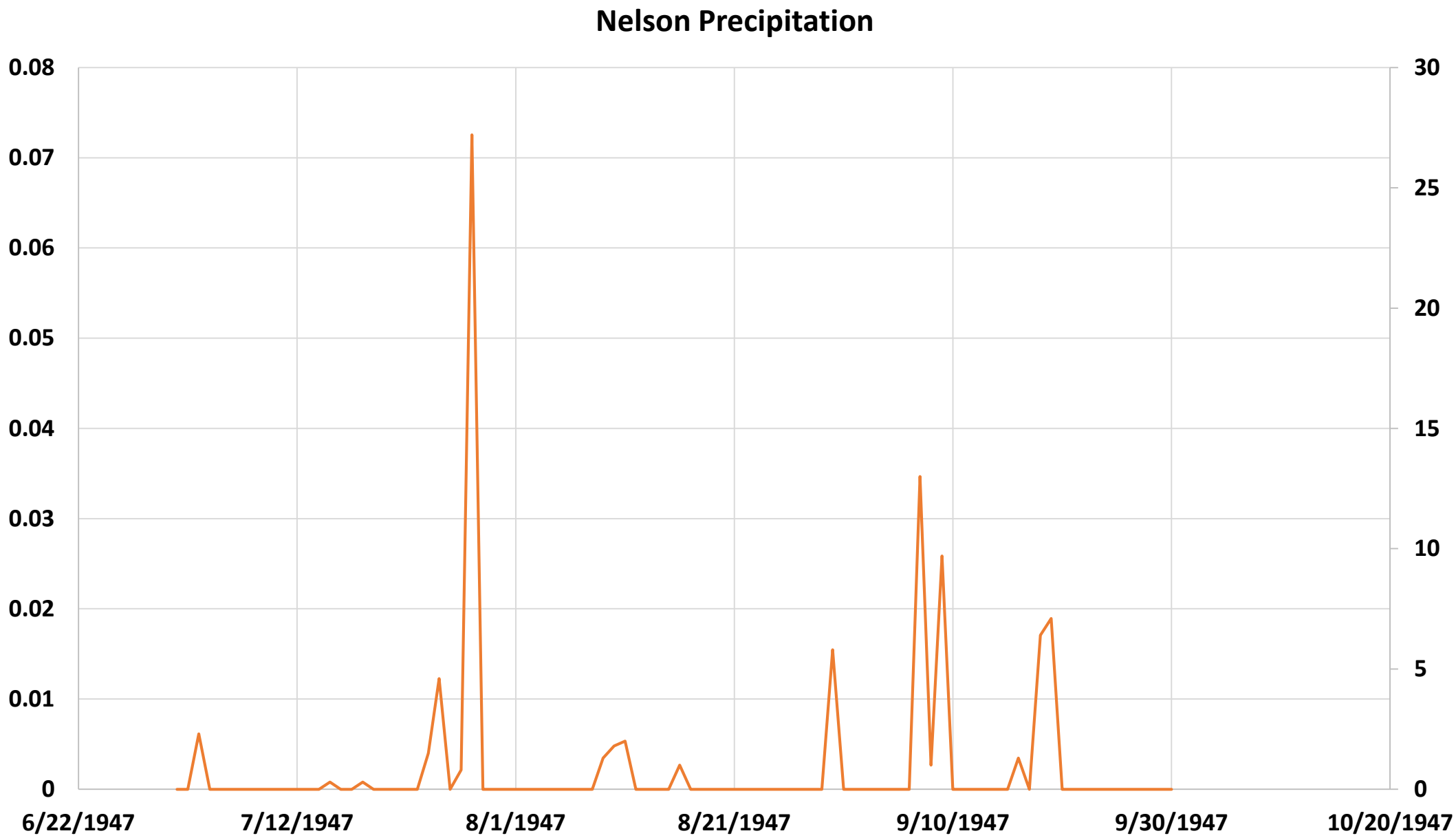
4. **Extreme precipitation information should be interpreted with caution**
   -In many cases, the observed Rx1 exceeds model projections
   -Consequently, the Rx1 numbers may be inappropriate for community planning
   -Extreme precipitation is very likely to increase but it is difficult to estimate the magnitude

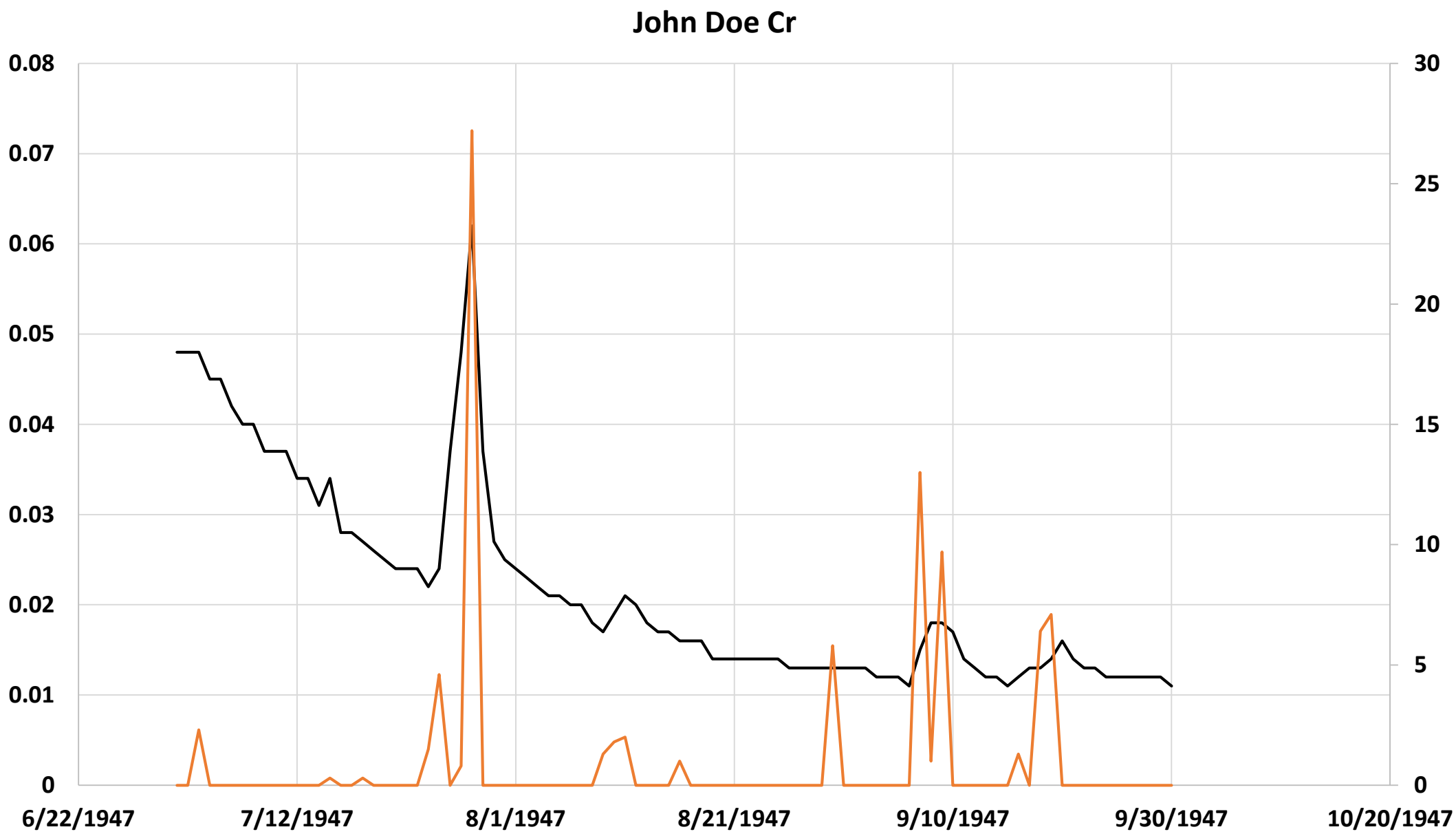
LCAP

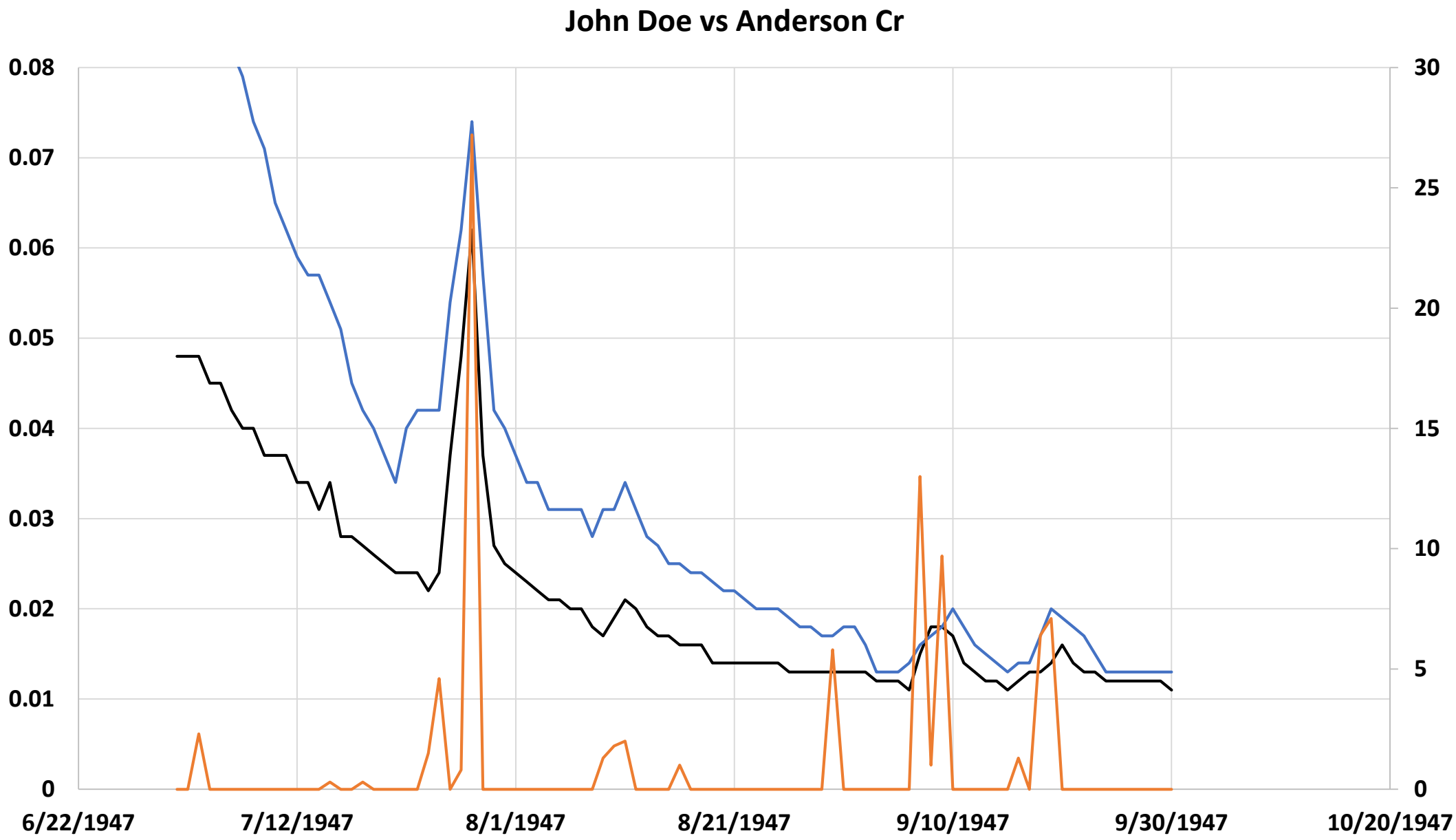
Localized Climate Analysis and Projection

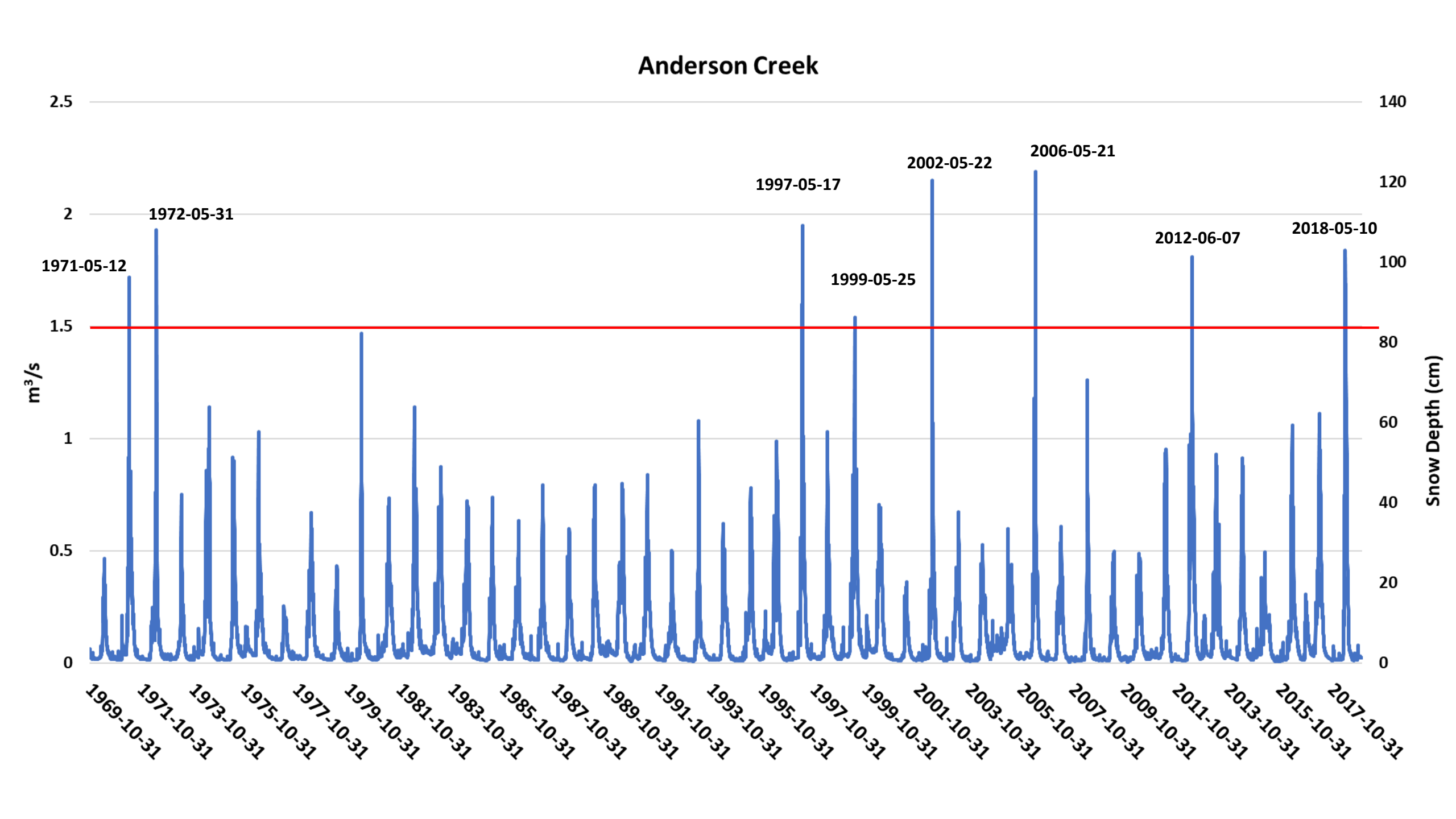
Climatic
Resources
Consulting

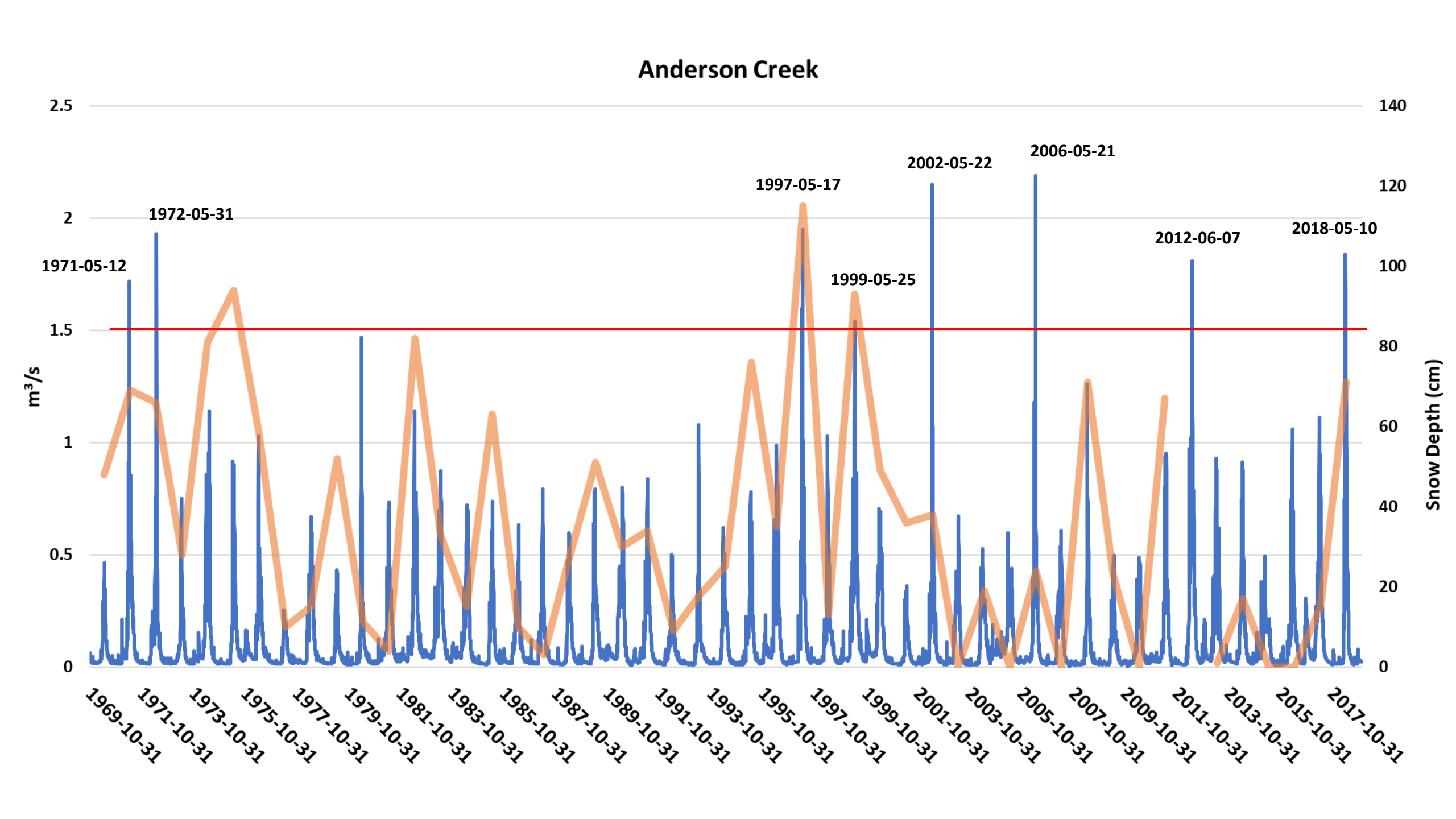
Case Study -
John Doe Creek, Nelson Region

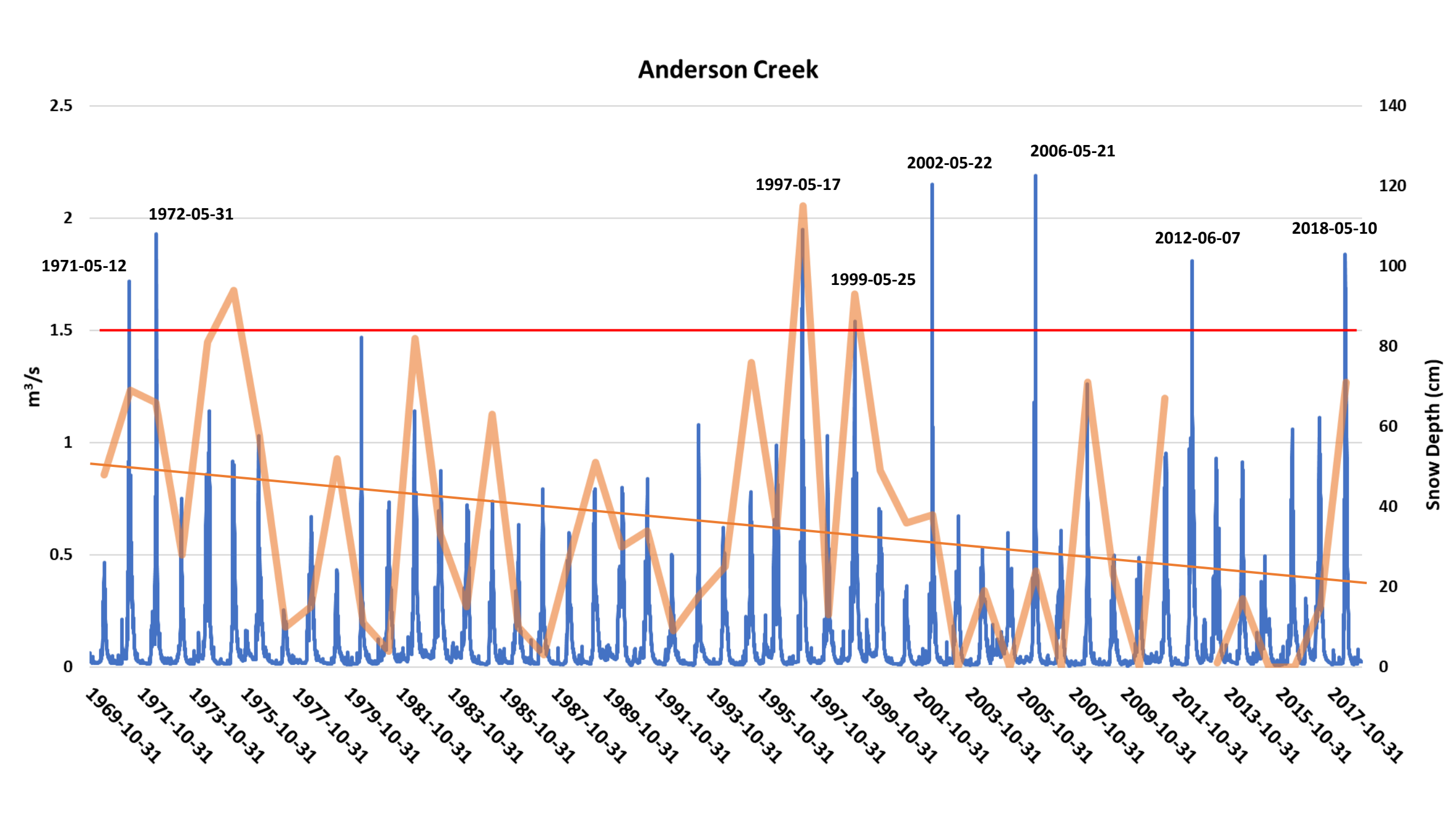

Nelson Precipitation
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
30
25
20
15
10
5
0
6/22/1947
7/12/1947
8/1/1947
8/21/1947
9/10/1947
9/30/1947
10/20/1947


John Doe Cr
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
30
25
20
15
10
5
0
6/22/1947
7/12/1947
8/1/1947
8/21/1947
9/10/1947
9/30/1947
10/20/1947


John Doe vs Anderson Cr
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
30
25
20
15
10
5
0
6/22/1947
7/12/1947
8/1/1947
8/21/1947
9/10/1947
9/30/1947
10/20/1947

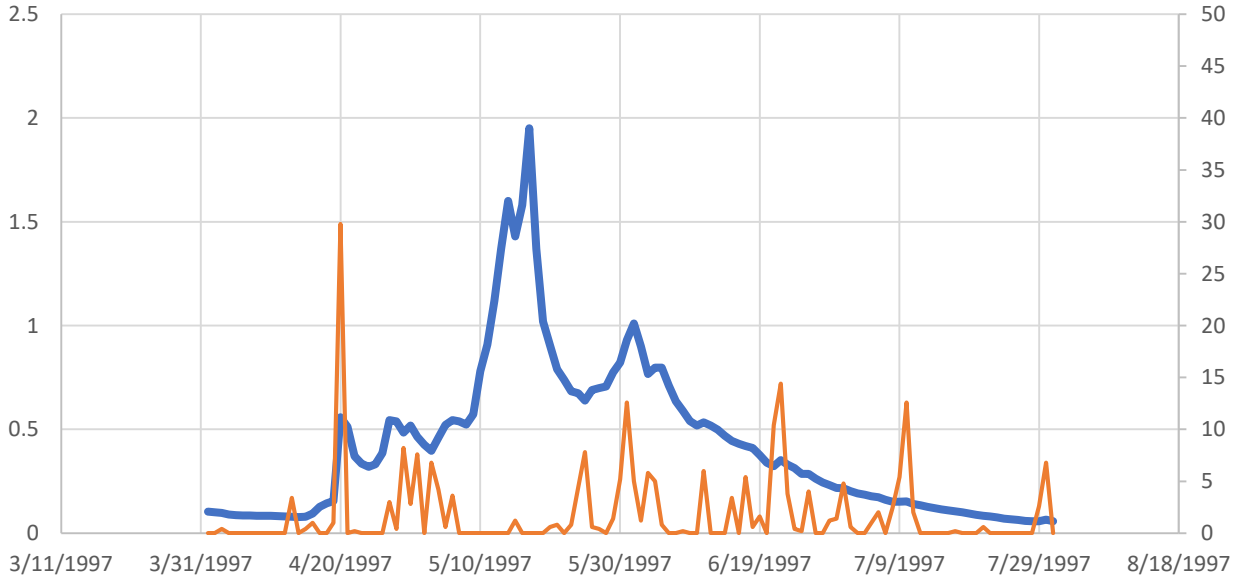

Anderson Creek
2.5
2
1.5
1
0.5
0
m³/s
140
120
100
80
60
40
20
0
Snow Depth (cm)
1971-05-12
1972-05-31
1997-05-17
1999-05-25
2002-05-22
2006-05-21
2012-06-07
2018-05-10
1969-10-31
1971-10-31
1973-10-31
1975-10-31
1977-10-31
1979-10-31
1981-10-31
1983-10-31
1985-10-31
1987-10-31
1989-10-31
1991-10-31
1993-10-31
1995-10-31
1997-10-31
1999-10-31
2001-10-31
2003-10-31
2005-10-31
2007-10-31
2009-10-31
2011-10-31
2013-10-31
2015-10-31
2017-10-31

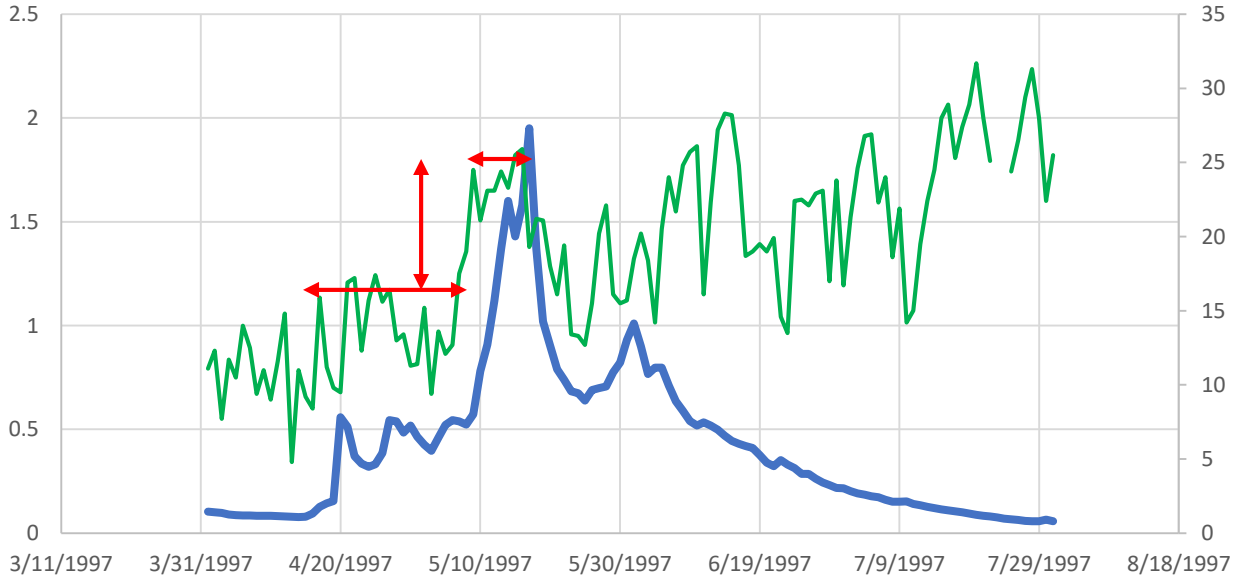

Anderson Creek
2.5
2
1.5
1
0.5
0
m³/s
140
120
100
80
60
40
20
0
Snow Depth (cm)
1971-05-12
1972-05-31
1997-05-17
1999-05-25
2002-05-22
2006-05-21
2012-06-07
2018-05-10
1969-10-31
1971-10-31
1973-10-31
1975-10-31
1977-10-31
1979-10-31
1981-10-31
1983-10-31
1985-10-31
1987-10-31
1989-10-31
1991-10-31
1993-10-31
1995-10-31
1997-10-31
1999-10-31
2001-10-31
2003-10-31
2005-10-31
2007-10-31
2009-10-31
2011-10-31
2013-10-31
2015-10-31
2017-10-31


Anderson Creek
2.5
2
1.5
1
0.5
0
m³/s
140
120
100
80
60
40
20
0
Snow Depth (cm)
1971-05-12
1972-05-31
1997-05-17
1999-05-25
2002-05-22
2006-05-21
2012-06-07
2018-05-10
1969-10-31
1971-10-31
1973-10-31
1975-10-31
1977-10-31
1979-10-31
1981-10-31
1983-10-31
1985-10-31
1987-10-31
1989-10-31
1991-10-31
1993-10-31
1995-10-31
1997-10-31
1999-10-31
2001-10-31
2003-10-31
2005-10-31
2007-10-31
2009-10-31
2011-10-31
2013-10-31
2015-10-31
2017-10-31

Anderson Creek: Discharge, Tx & Rx2

1997



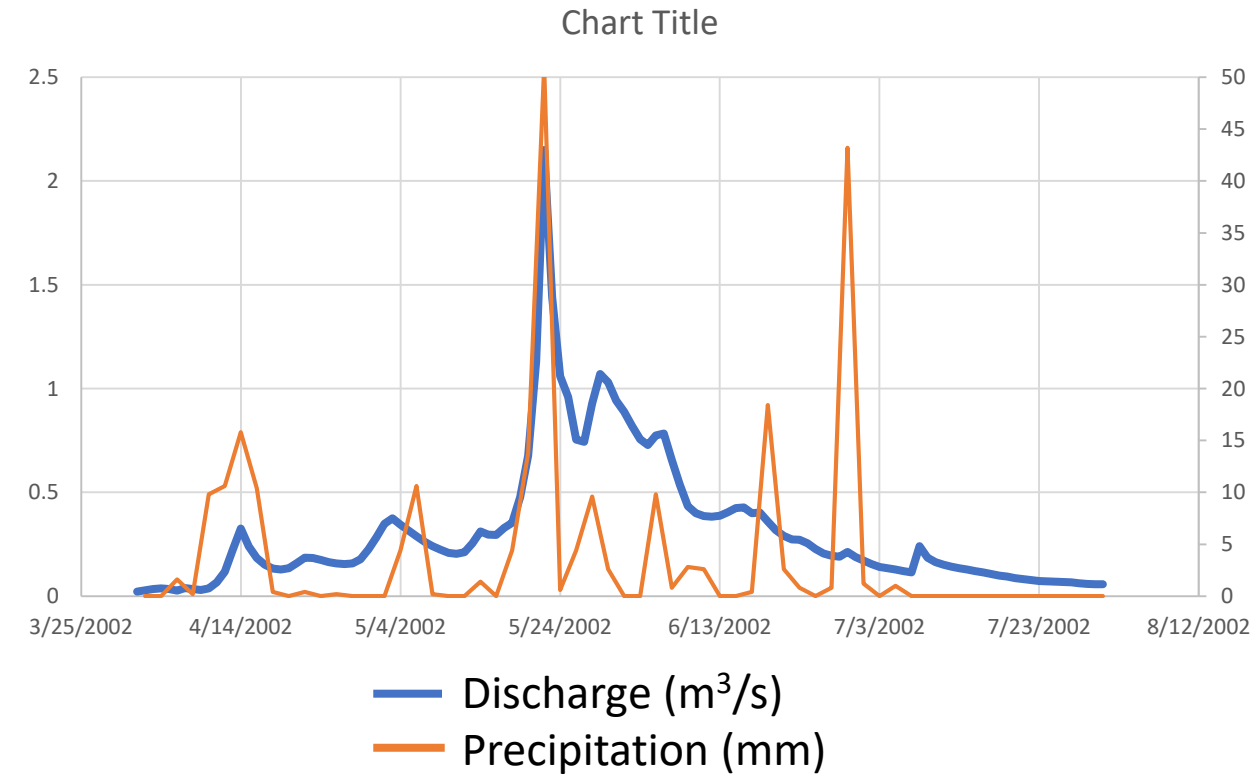


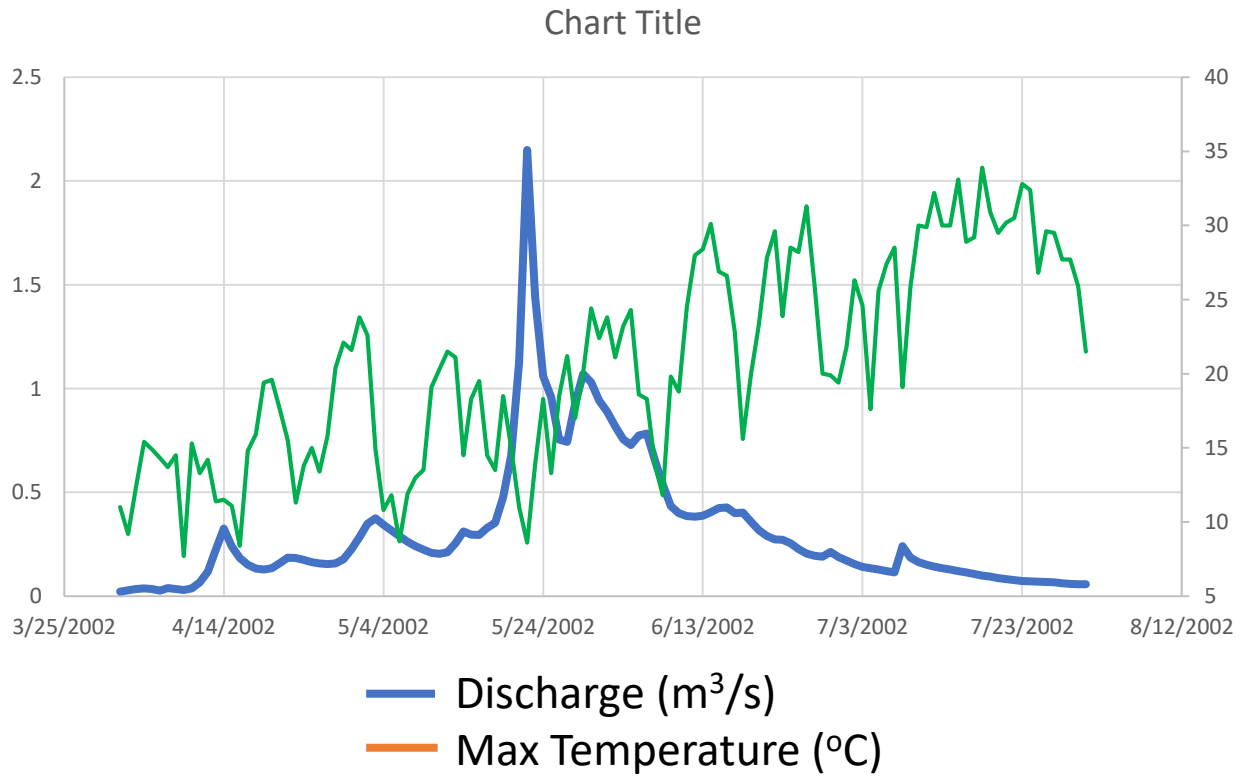
Average of Tx 7 days before discharge peak = 23.5

Average of Tx 21 days before Heat Wave = 15.0 Difference = 8.5

Anderson Creek: Discharge, Tx & Rx2

2002



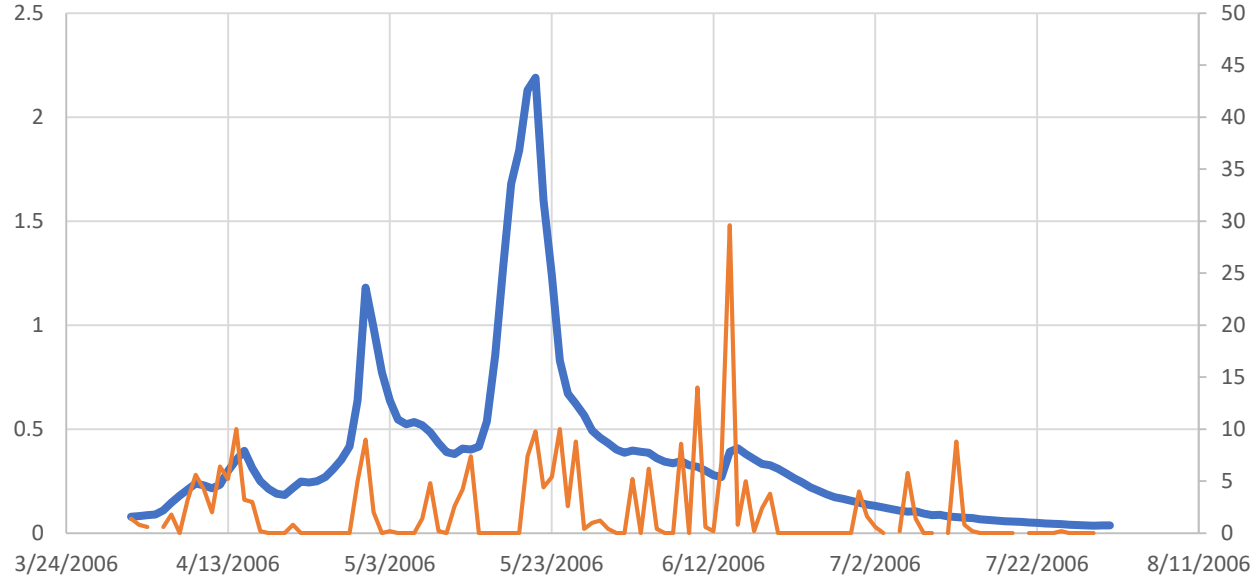


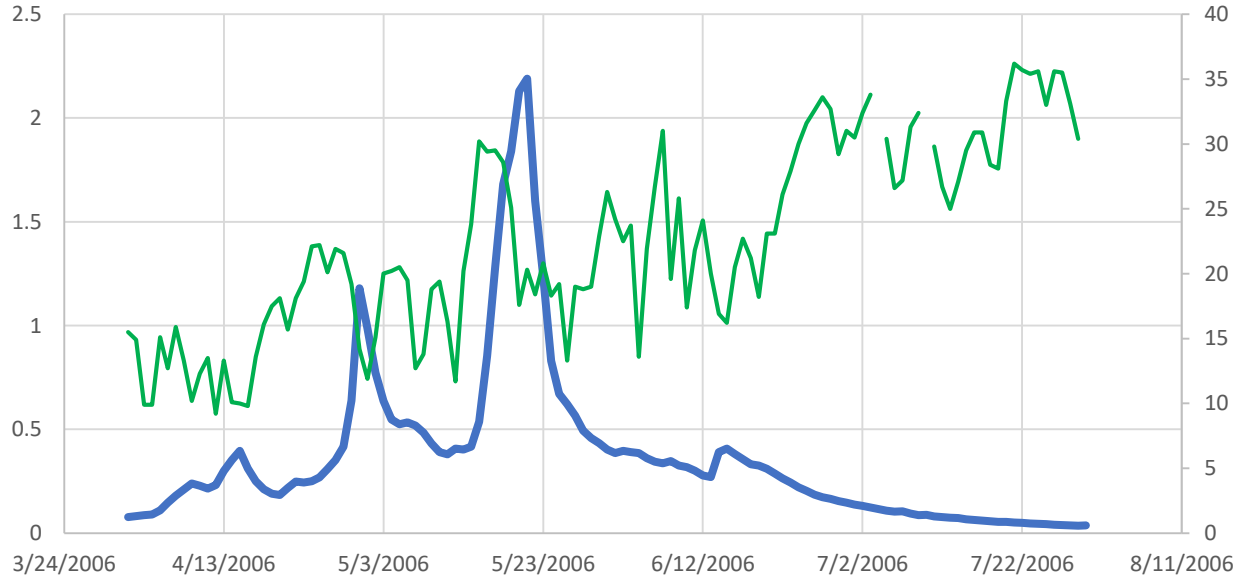
Average of Tx 7 days before discharge peak = 14.4

Average of Tx 21 days before Heat Wave = 16.9 Difference = -2.5

Anderson Creek: Discharge, Tx & Rx2

2006



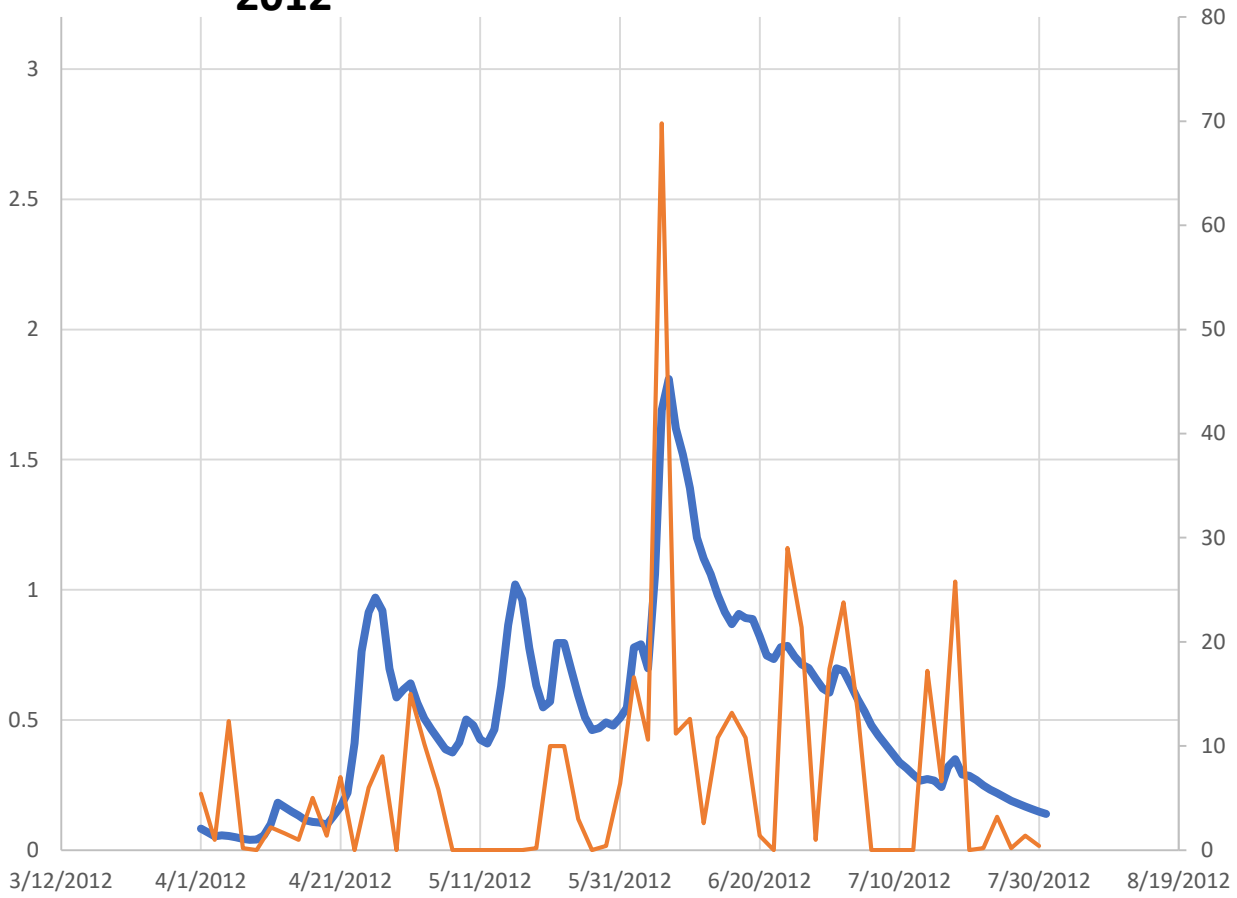


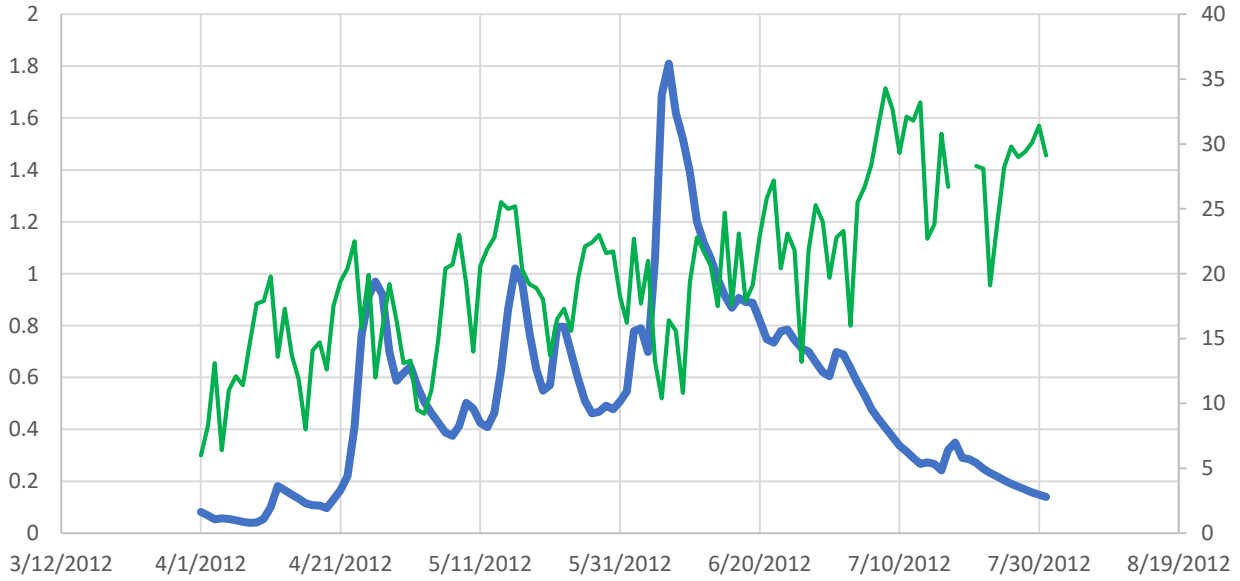
Average of Tx 7 days before discharge peak = 25.8

Average of Tx 21 days before Heat Wave = 18.3 Difference = 7.5

Anderson Creek: Discharge, Tx & Rx2

2012



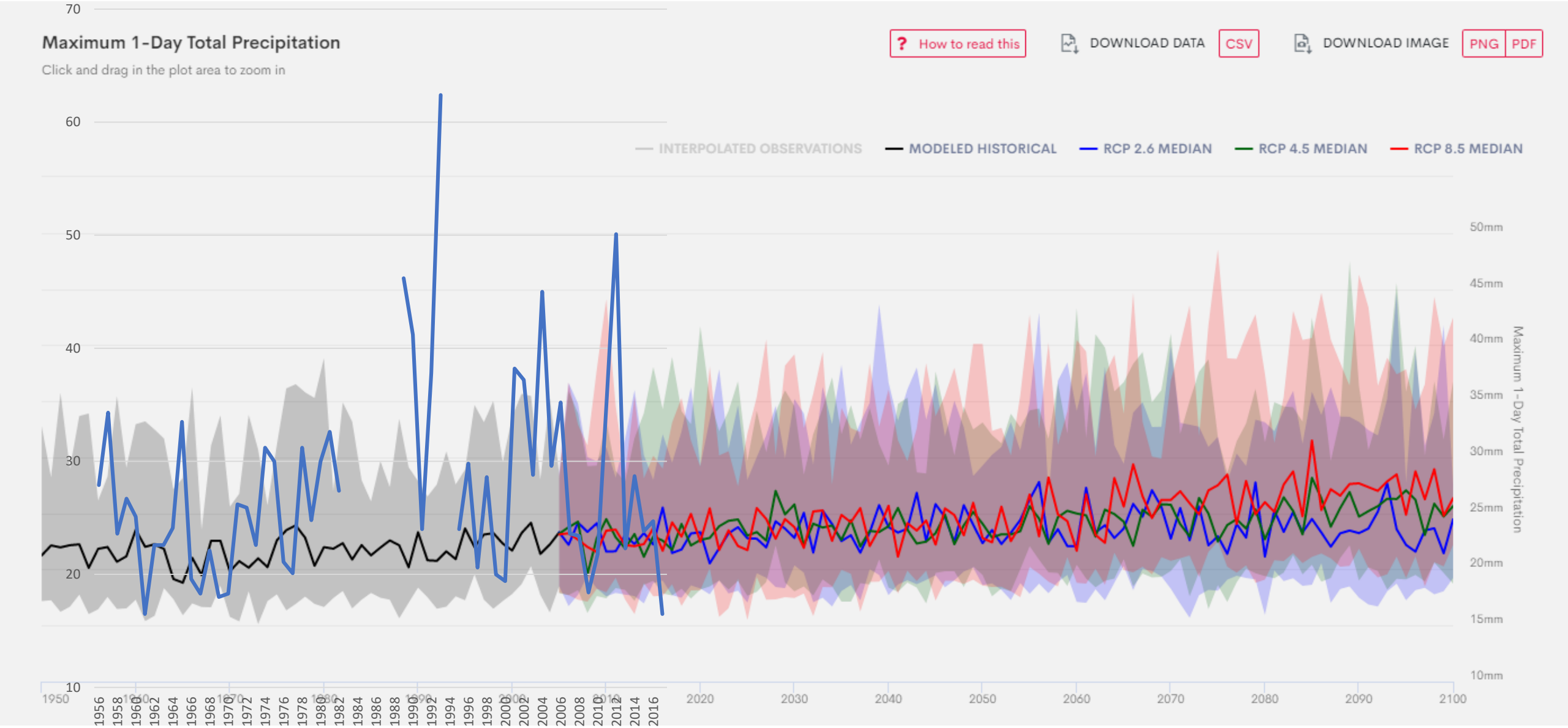


Average of Tx 7 days before discharge peak = 20.4

Average of Tx 21 days before Heat Wave = 16.8 Difference = -3.6

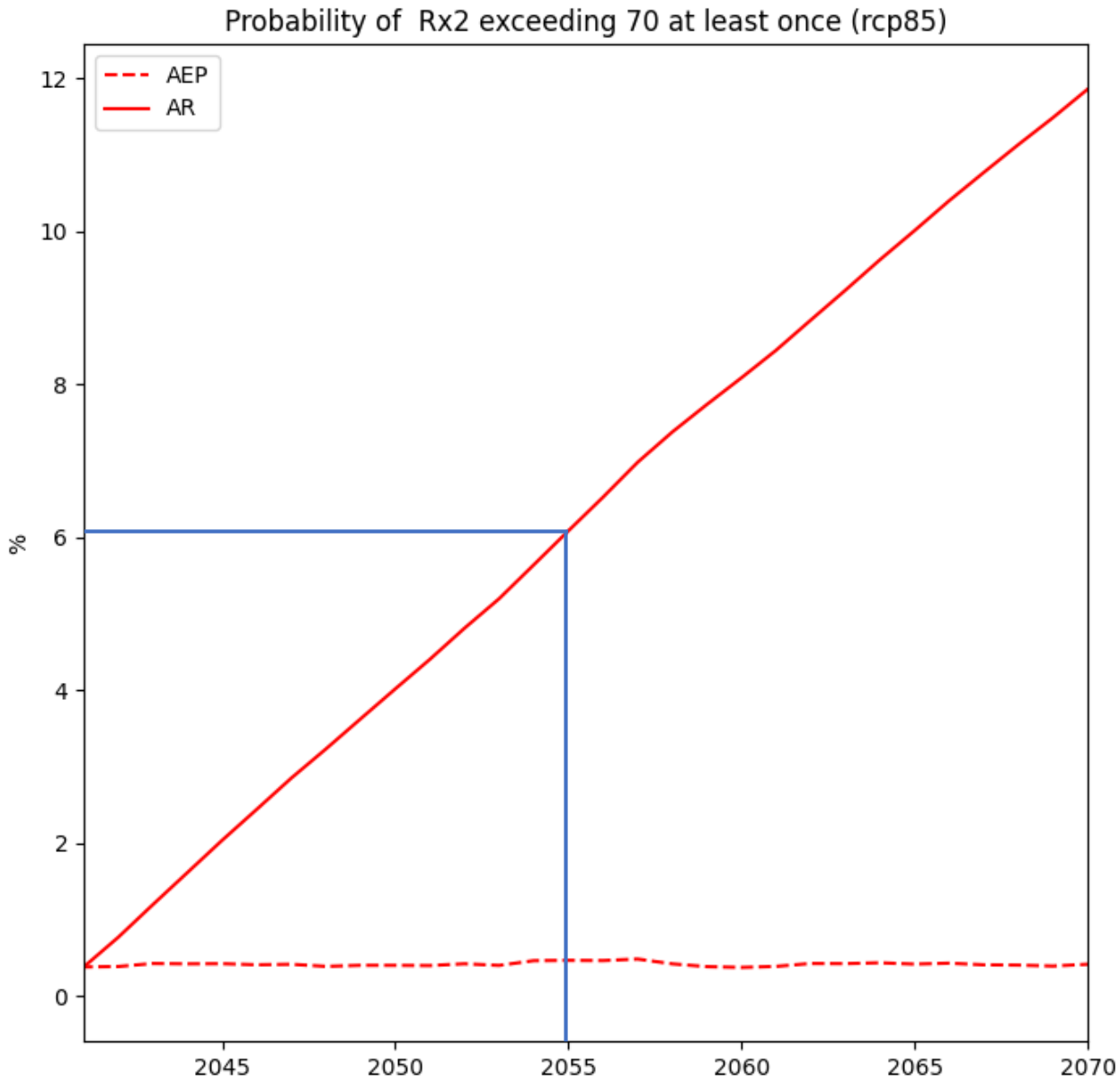
Anderson Creek, BC

Rx1

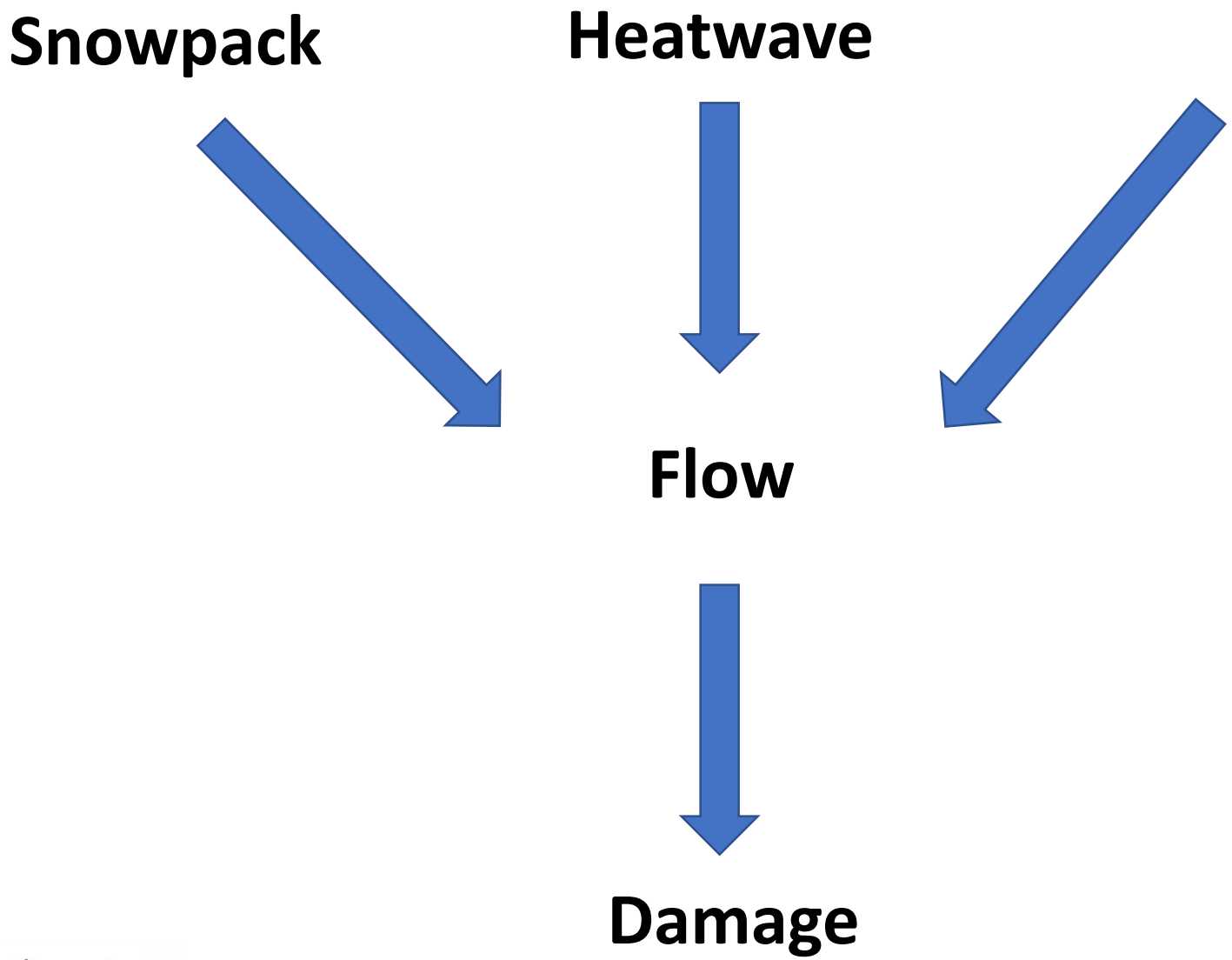


Lcap

Localized Climate Analysis and Projection



CRC Climatic **Resources** Consulting

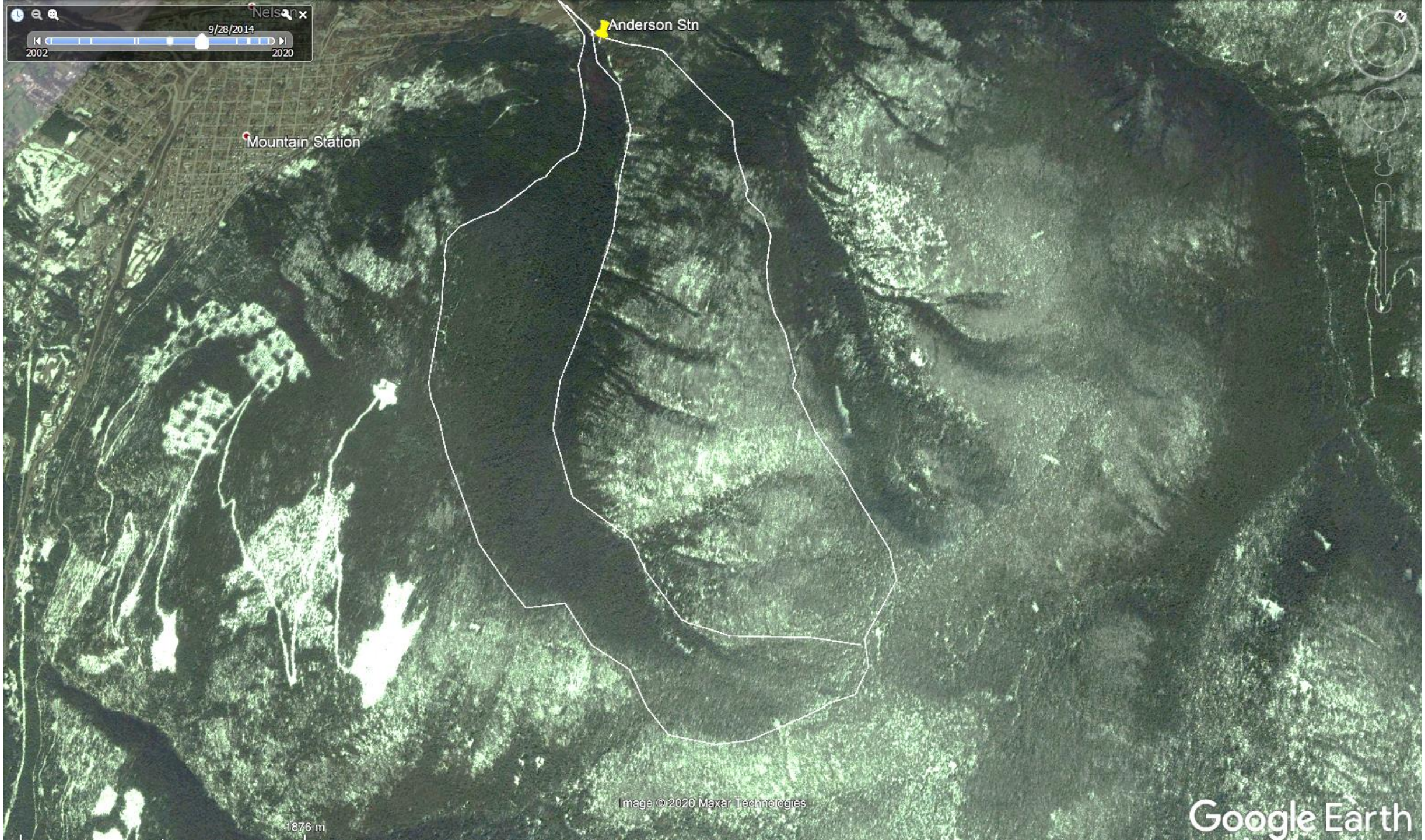


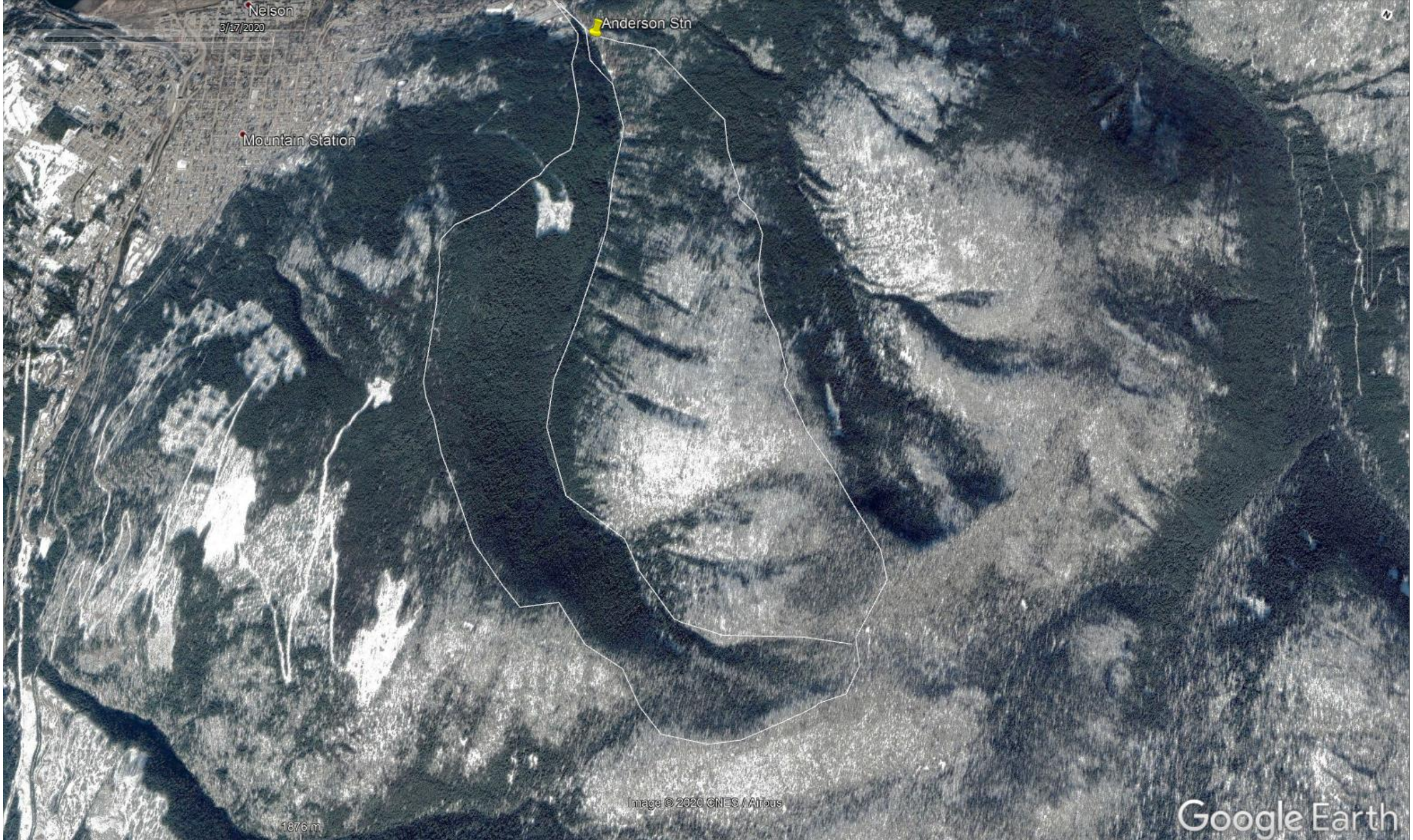
All probabilities are given as the probability of exceeding a threshold at least once within a given timeframe

The goal is to compute the probability of damage within the timeframe

Using Bayesian statistics, the probability of damage will be a distribution with a +/- attached to the probability value

Climatic Resources Consulting
Mel.reasoner@crcteam.ca


Nelson
9/28/2014
2002
2020
Anderson Stn
Mountain Station
Image © 2020 Maxar Technologies
1876 m
Google Earth


Nelson
3/17/2020
Anderson Stn
Mountain Station
Image © 2020 CNES / Airbus
1876 m
Google Earth