Regional Growth and Resilience Committee

20 August 2026

waikatoregion.govt.nz

Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

Frequency and intensity of extreme rainfall in the Waikato

Bevan Jenkins

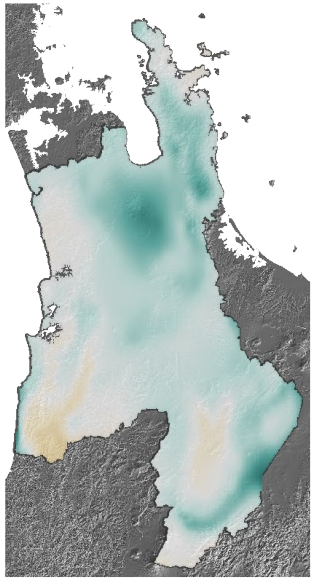
waikatoregion.govt.nz

Waikato REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

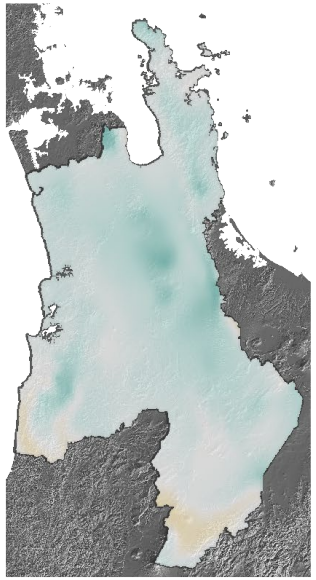
Queries received

- *The last few years we had multiple events and quite frequent, and it looks like the frequencies are increasing.*
- *Do we have any data on if the frequencies are likely to increase, how often and possibly where?*
- *Wondering if you have any reports on rainfall trends that could assist with Waikato DC on any trends? i.e. have they seen an increase in rainfall events recently? Maybe the occurrences of say 5, 10, 20, 50, 100 y ARI's (for any duration)?*
- *One question that has come up is that have we been receiving an increase in weather warnings and watches?*

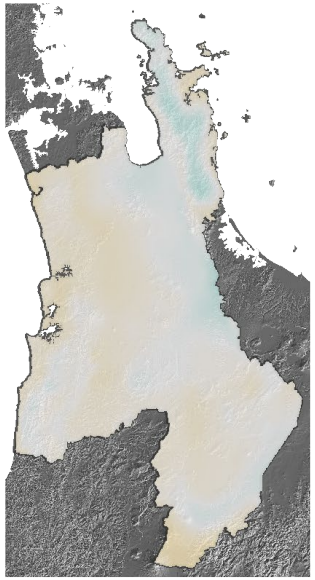
1961-1970



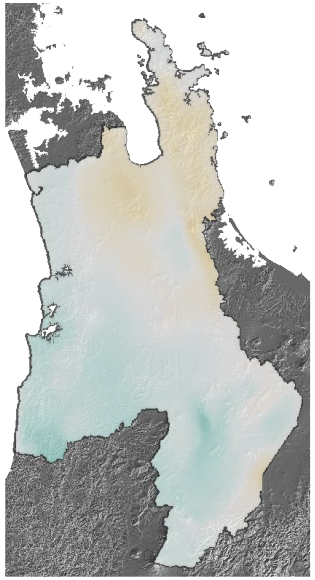
1971-1980



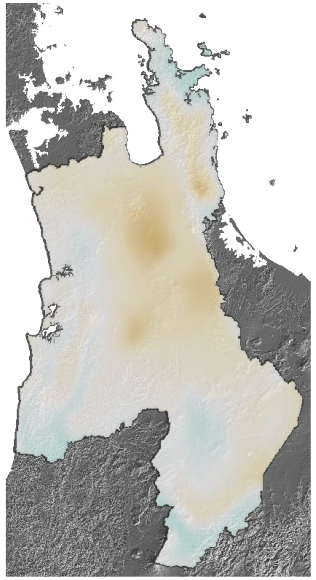
1981-1990



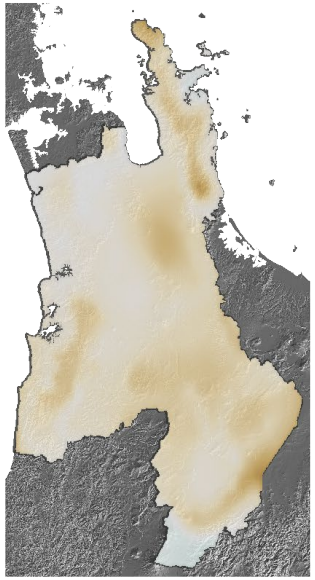
1991-2000



2001-2010



2011-2020



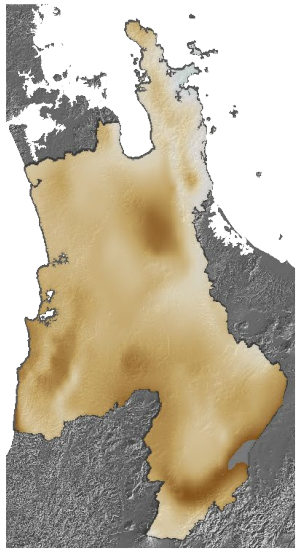
Percent of
1961 - 2020
average

120
110
100
90
80

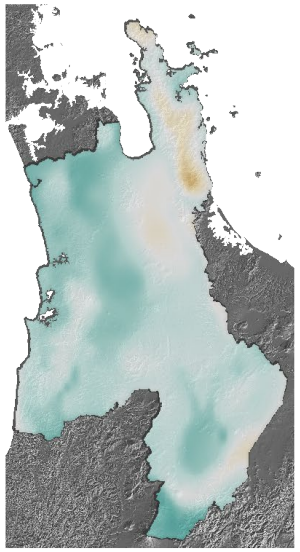
Data source:
ESNZ VCSN

Decadal (2011-2020) seasonal averages
as percent of full record seasons (1961-2020)

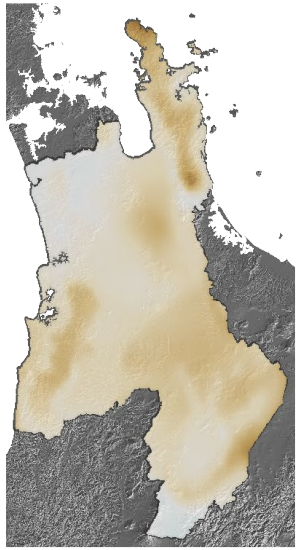
Summer



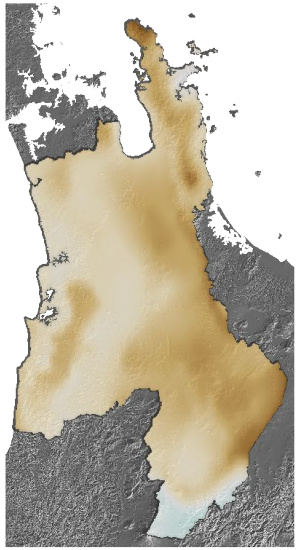
Autumn



Winter

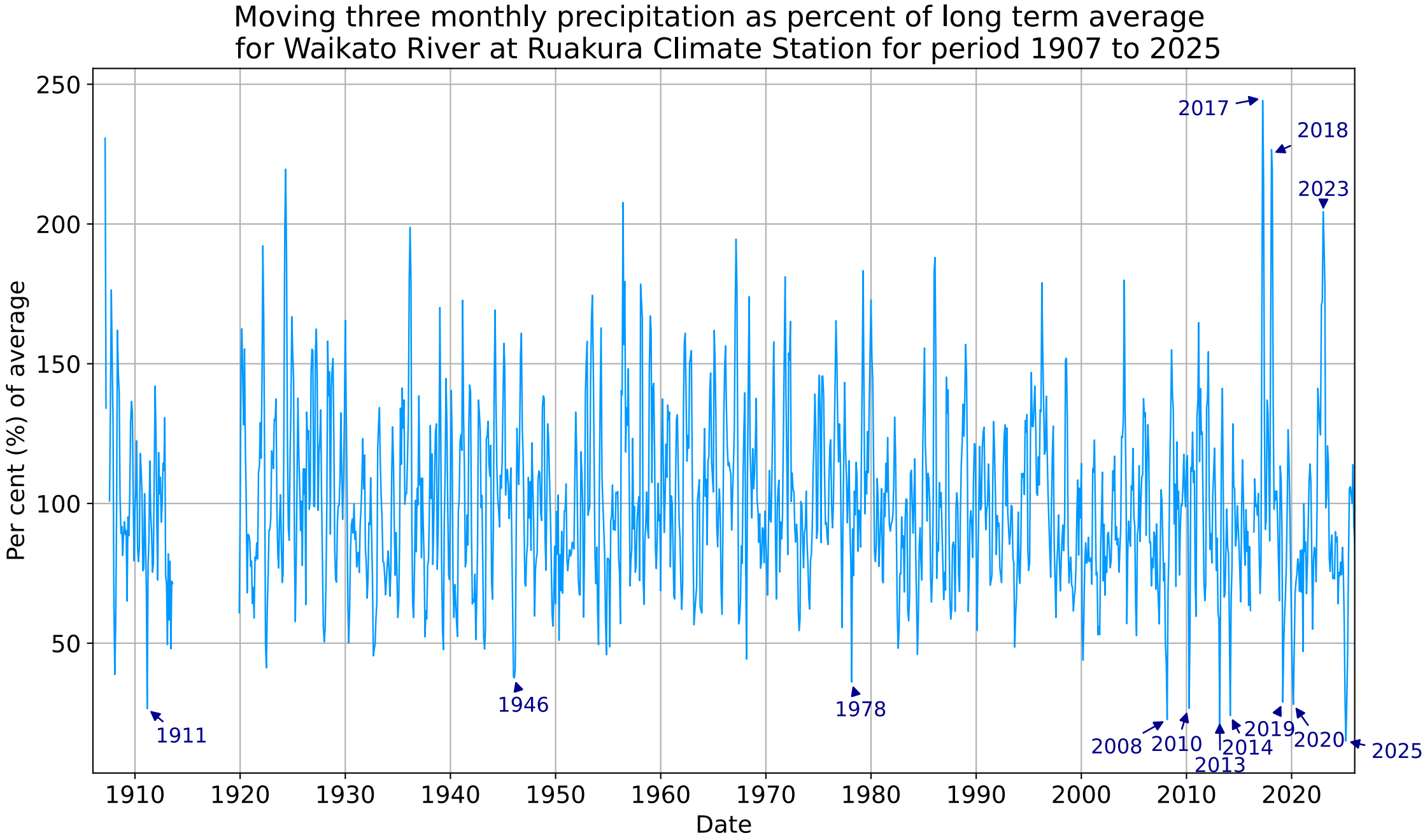


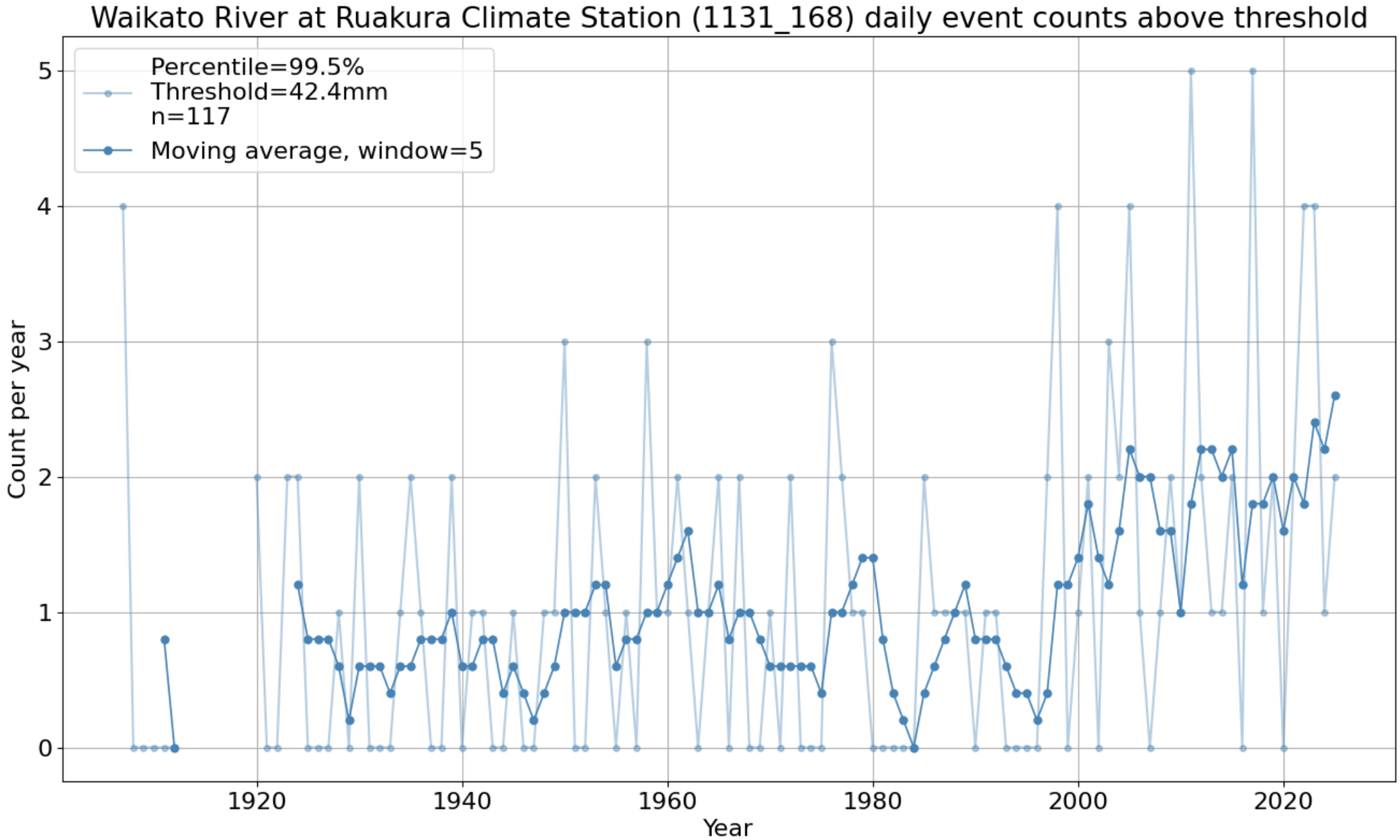
Spring

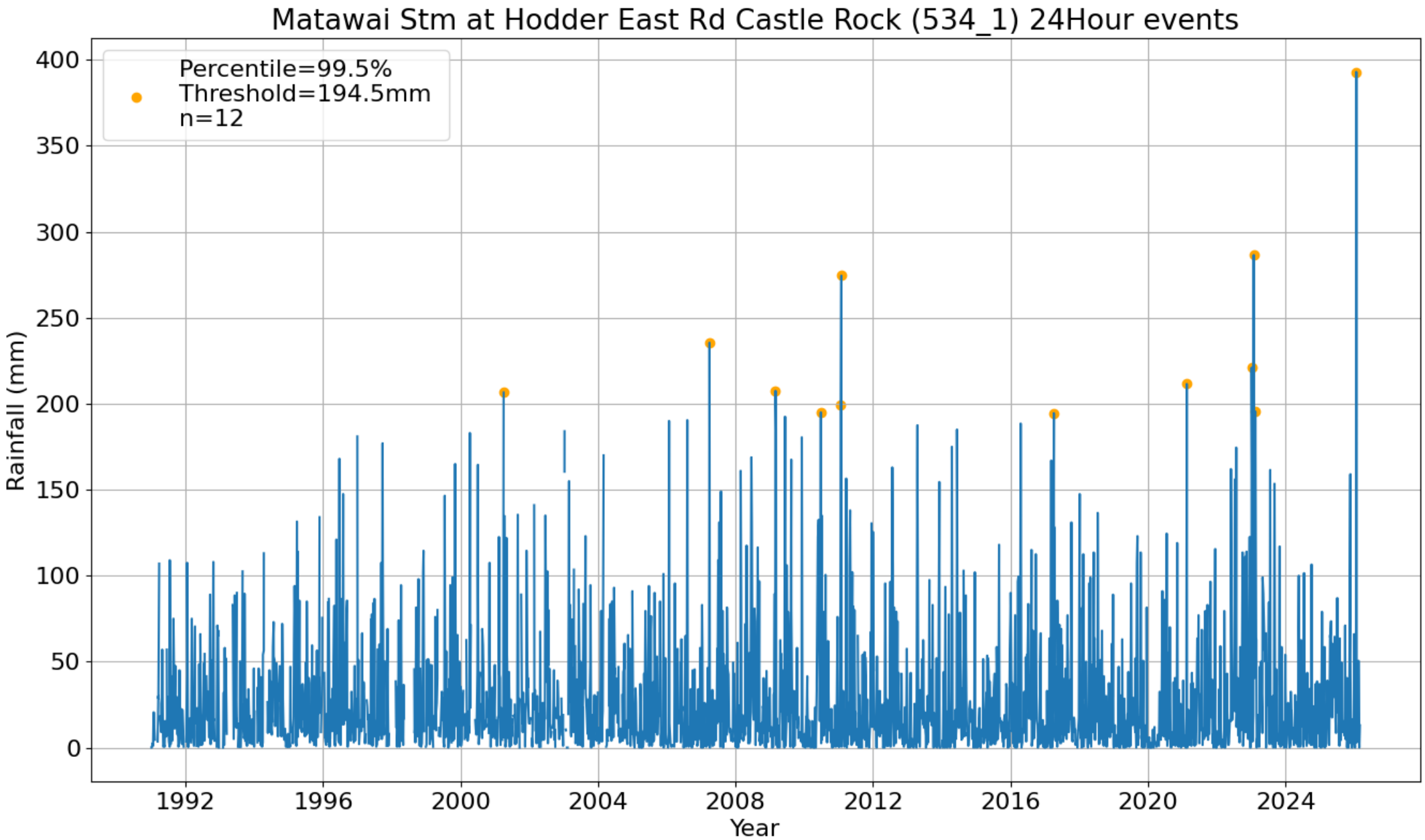


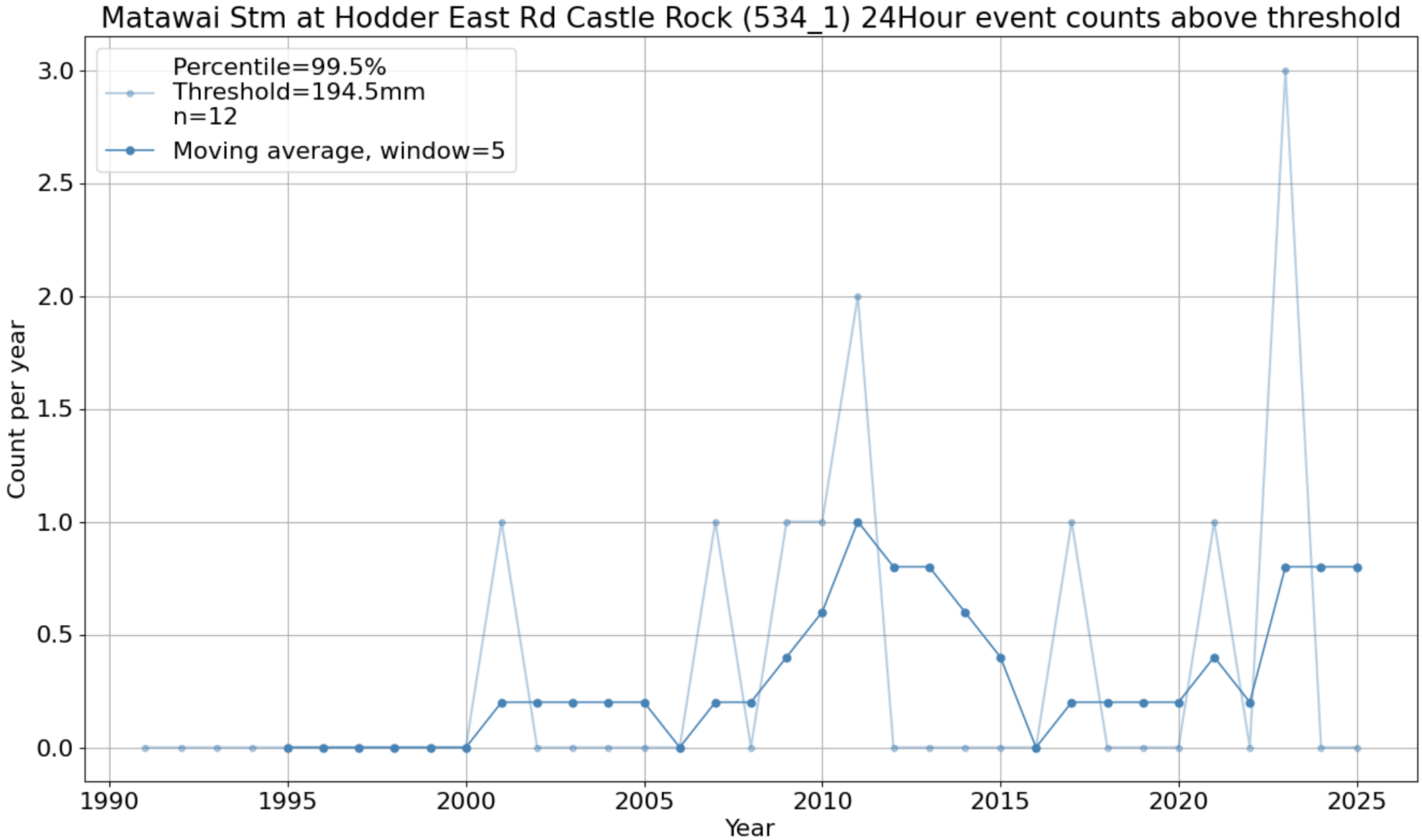
Percent of
1961 - 2020
season averages

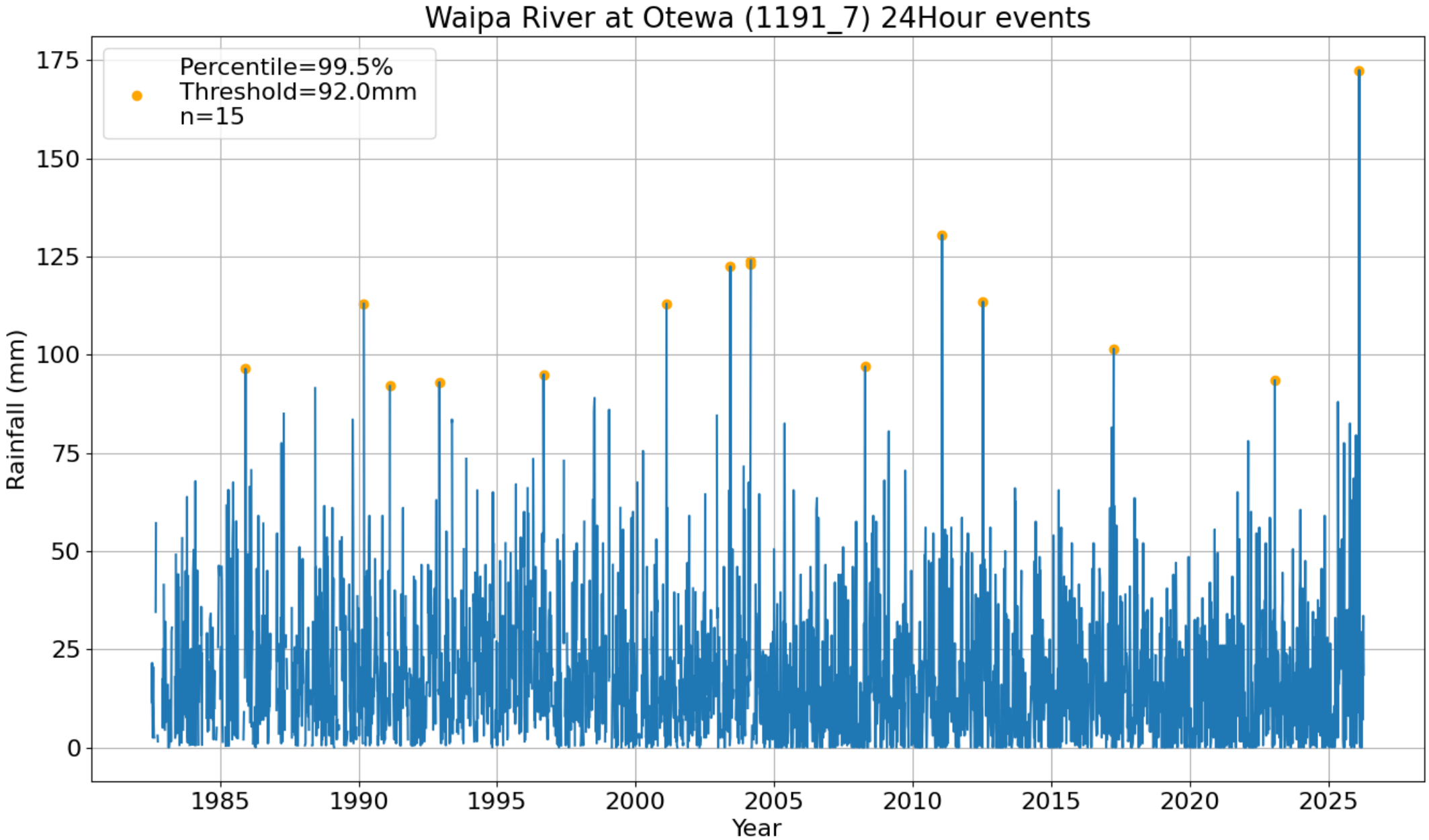
120
110
100
90
80

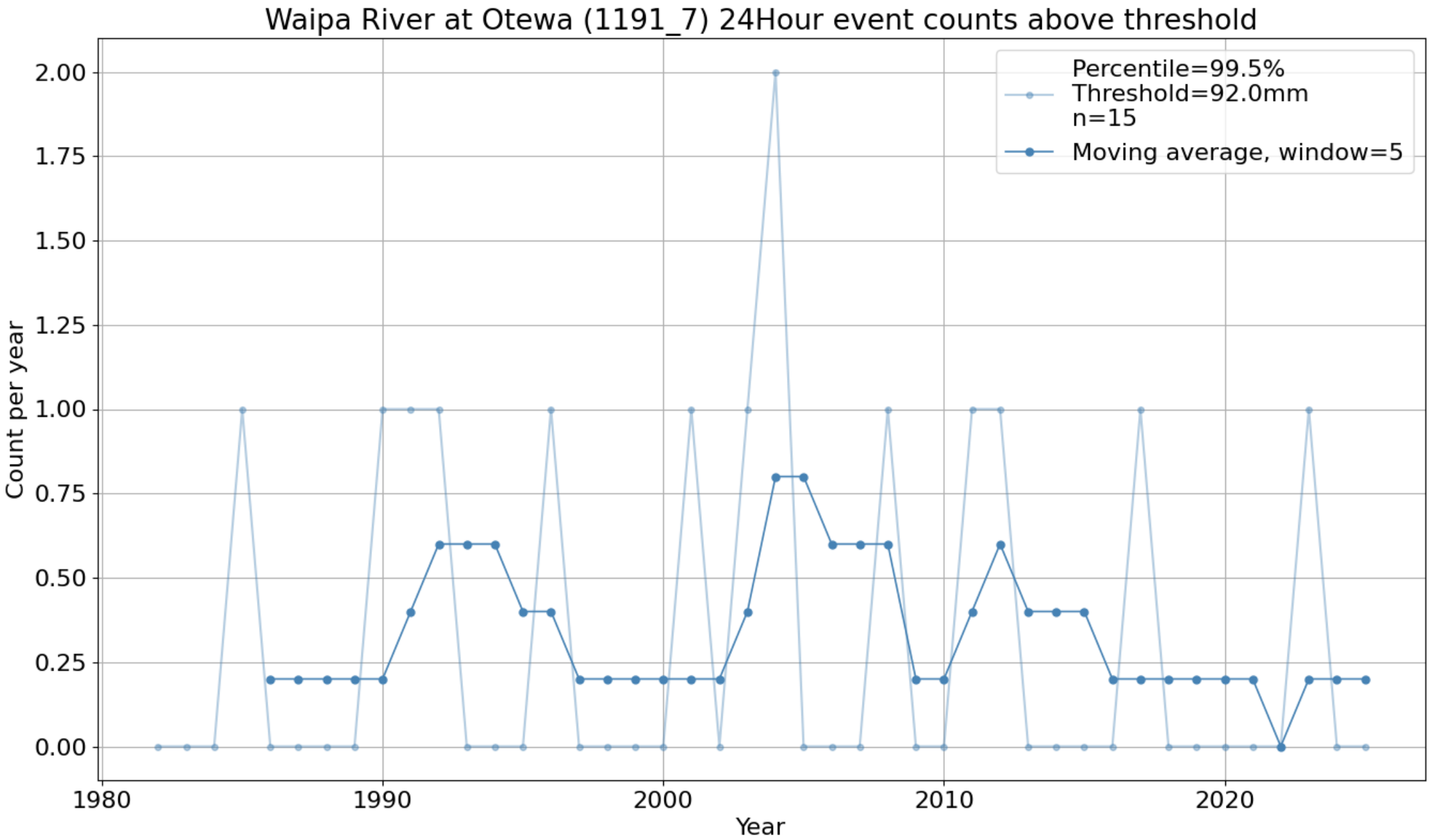

Moving three monthly precipitation as percent of long term average
for Waikato River at Ruakura Climate Station for period 1907 to 2025
Per cent (%) of average
250
200
150
100
50
1910
1920
1930
1940
1950
1960
1970
1980
1990
2000
2010
2020
Date
2017
2018
2023
1911
1946
1978
2008
2010
2013
2014
2019
2020
2025


Waikato River at Ruakura Climate Station (1131_168) daily event counts above threshold
Percentile=99.5%
Threshold=42.4mm
n=117
Moving average, window=5
Count per year
Year
0
1
2
3
4
5
1920
1940
1960
1980
2000
2020

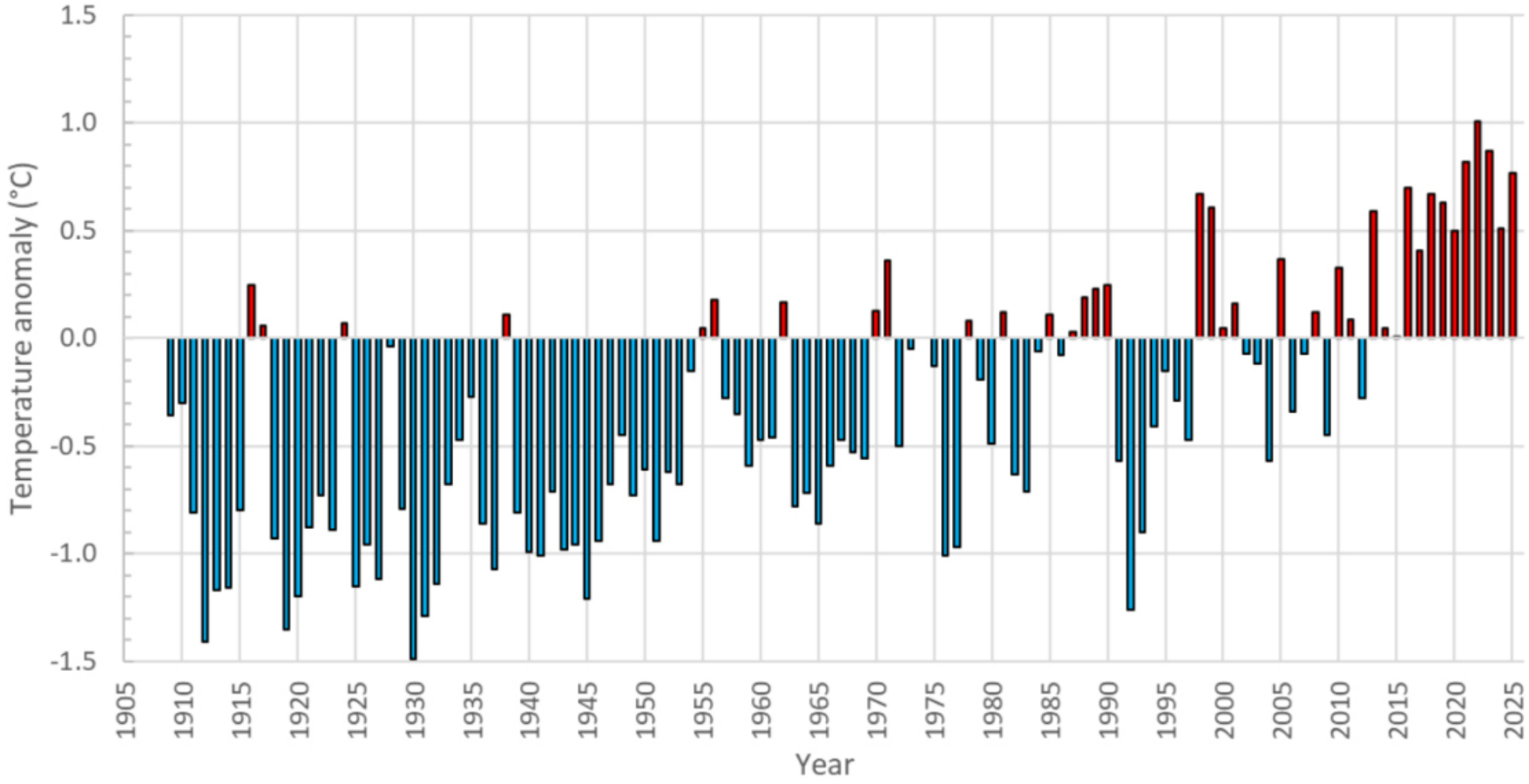

Matawai Stm at Hodder East Rd Castle Rock (534_1) 24Hour events
Percentile=99.5%
Threshold=194.5mm
n=12
Rainfall (mm)
0
50
100
150
200
250
300
350
400
1992
1996
2000
2004
2008
2012
2016
2020
2024
Year


Matawai Stm at Hodder East Rd Castle Rock (534_1) 24Hour event counts above threshold
Percentile=99.5%
Threshold=194.5mm
n=12
Moving average, window=5
Count per year
Year
0.0
0.5
1.0
1.5
2.0
2.5
3.0
1990
1995
2000
2005
2010
2015
2020
2025


Waipa River at Otewa (1191_7) 24Hour events
Percentile=99.5%
Threshold=92.0mm
n=15
Rainfall (mm)
Year
0
25
50
75
100
125
150
175
1985
1990
1995
2000
2005
2010
2015
2020
2025


Waipa River at Otewa (1191_7) 24Hour event counts above threshold
Percentile=99.5%
Threshold=92.0mm
n=15
Moving average, window=5
Count per year
Year
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
1980
1990
2000
2010
2020

- Clausius–Clapeyron rate -> increase of the water holding capacity of the atmosphere of about 7% for every 1 °C rise in temperature.
- Reported that extreme rainfall intensity can increase with temperature at rates exceeding the CC rate.
- Attributed to shift in rain type from large frontal precipitation bands at low temperatures—to more intense thunderstorm precipitation at higher temperatures.



Source: ESNZ

Annual organisational climate change risk assessment

Joy Moir

Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

What the review found

Risk ratings stable

Risk scoring was revisited, with no significant changes.

Risk profile sharper

The number of risks was consolidated from 77 to 58, creating a clearer and more focused view of the organisational risk profile.

Maturity increasing

Ownership, cross-team engagement and confidence in using the CCRA for planning and investment have strengthened.

Flood protection assets

Most physical risks are connected to flood protection assets, where future events may affect performance, reliability, design standards and investment timing.

Natural systems

Water quality and quantity, wetlands, coastal, marine, biodiversity and biosecurity systems are sensitive to cumulative and potentially irreversible impacts.

People and capability

Employee health, safety, capacity and ability to respond to sustained or concurrent events are core organisational concerns.

Extreme weather is a risk multiplier

Mitigation depends on connected programmes

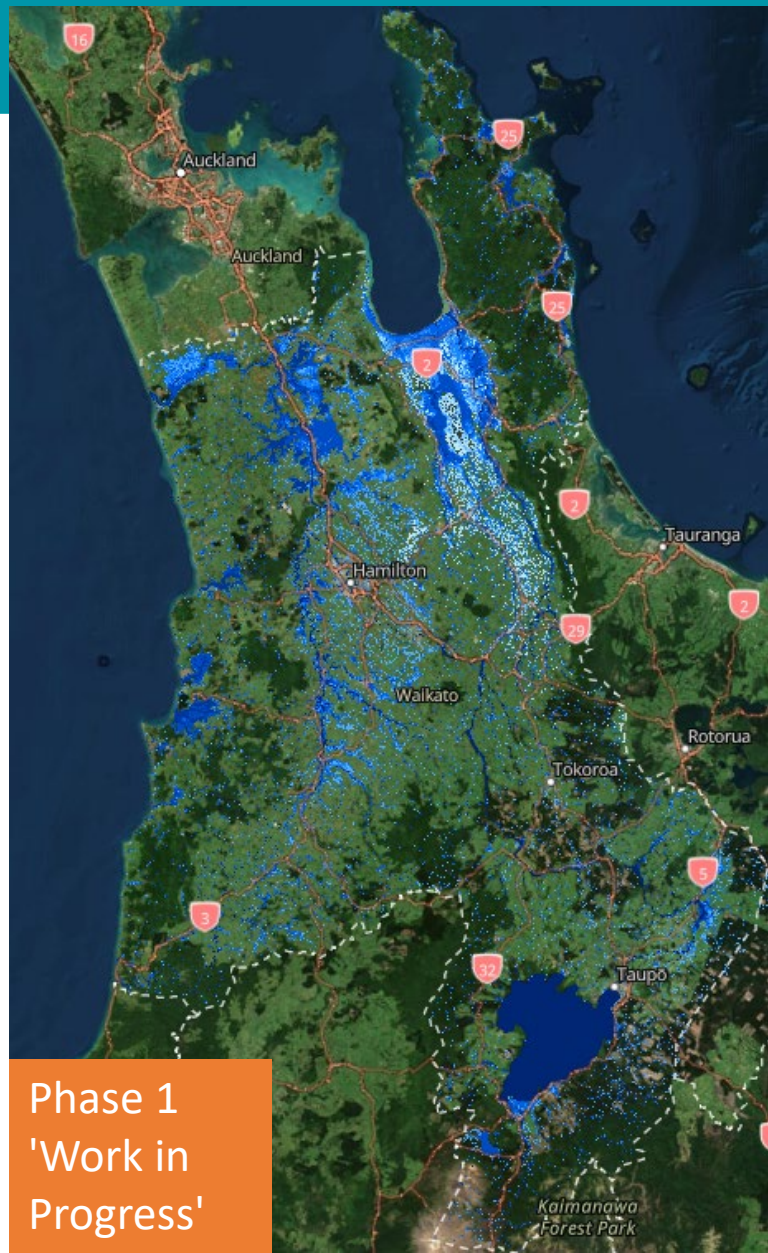
- Water Security Plan, Infrastructure Strategy and Spatial Plan are important mitigation pathways.
- Understanding and Adapting to Natural Hazards and Emergency Management Response support resilience planning.
- Funding review, catchment management, biosecurity, biodiversity, coastal and marine planning are also part of the response system.
- The CCRA can help align these programmes around risk ownership, priorities and investment decisions.

The CCRA is not a stand-alone register. It is a decision-support tool for coordinating action across the organisation.

Understanding and using Natural Hazard Data

- Natural Hazard Information Hierarchy (NHIH)
  - Level 1 – Property to Local Scale
  - Level 2 – Local to Regional Scale
  - Level 3 – Regional Scale
  - Level 4 – General Information

- Waikato Regional Water Resource Modelling
  - Phase 1 - Basic Model (NHIH Level 4)
  - Phase 2 - More complex model (NHIH Level 3/4)
  - Phase 3 - Complex model (NHIH Level 2/3)
  - Phase 4 - Fully calibrated (NHIH Level 1/2)



Phase 1 'Work in Progress'

Next Steps

- Incorporate the risk register into LTP business cases.
- Develop deeper understanding of cascading risks and system leverage points.
- Use prescribed climate scenarios with subject matter experts in future workshops.
- Continue annual review and strengthen linkages with strategic risk reporting.

Waikato Regional Economic Development Strategy

Tariq Ashraf

waikatoregion.govt.nz

Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

Waikato Regional Economic Development Strategy - Steering Group

- Council agreed to create a Steering Group to recommend initiatives to include in the annual implementation plans of the strategy.
- First step: agree the terms of reference and composition.
- Advisory only. No delegated authority to commit funding, enter into contracts, or make decisions on behalf of the council.

Waikato Regional Council Economic Development - Advisory Panel

- A pool of senior businesspeople reflecting diversity of regional economy.
- Available to join the Steering Group and provide business perspective to inform council's consideration of regional economic development matters. Advisory only.
- Appoint a working group of councillors to select members after expressions of interest process.

AI Data Centres Position Statement

Tariq Ashraf

waikatoregion.govt.nz

Waikato
REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

AI data centres position statement

- Global artificial intelligence (AI) data centre industry is experiencing exponential growth
- Invest New Zealand campaign to attract offshore investment in AI data centres
- Two of six “advantaged zones for data centre deployment” are in the Waikato region

AI data centres position statement

- Invest New Zealand has approached the council to seek information and insights
- As interest increases, the council could be called upon to issue resource consents
- The position statement could be useful to inform the future regional spatial plan

AI data centres position statement

- Principles-based because there are different:
  - delivery models
  - benefits
  - potential impacts
  - critical success factors
  - high-performance characteristics

AI data centres position statement

Benefits

- Investment into the region
- Increased construction activity and employment
- AI capability and digital infrastructure growth
- Data Sovereignty and enhanced digital resilience

Impacts

- Electricity demand and pressure on national grid
- Significant water consumption requirements
- Land-use, visual and noise impacts on communities
- Community concerns

The scale and type of facility determines whether outcomes are positive or problematic

AI data centres position statement

What good looks like

1. Powered by renewable energy — supporting additional generation, not just consuming existing supply
2. Energy-efficient design with transparent performance reporting
3. Closed-loop, water-efficient cooling systems
4. Genuine community engagement and social license from the outset
5. Meaningful partnership with iwi and hapū, recognising data sovereignty

Not all data centres are equal.

waikatoregion.govt.nz

Waikato REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

AI data centres position statement

- Ensure council's response to proposals is strategic, evidence based, and aligned with regional outcomes
- Appropriately manage social, environmental, infrastructure, and land-use effects
- Provide input to, and complement, government’s principles under development
- Could be useful to include relevant content in future regional spatial plan.

CONNECT WITH US

ourwaikato

/Waikatoregion

waikatoregion.govt.nz