

CLIMATE OF FEAR: NIWA's Missing Storm Data & Its Impact On Extreme Climate Claims

AUTHOR: Ian Wishart, @investigatemag

1 MARCH 2023

REPRODUCTION: This study may be reproduced provided it remains unchanged and the website investigatemagazine.co.nz is linked/credited

EXECUTIVE SUMMARY:

- Most of New Zealand's biggest historic storms and cyclones are missing from NIWA's Historic Weather Events Database (DATA GAPS>80%)
- The missing data is crucial for providing answers about whether extreme climate events are becoming more common (FREQUENCY)
- The missing data is crucial for journalists and researchers trying to compare the magnitude of modern climate events with those of the past (INTENSITY)
- Between 1868 and 1890 NZ was being hit yearly on average by storms similar to or more powerful than Cyclone Bola
- Five storms geographically bigger and with deeper barometric lows than Cyclone Gabrielle struck New Zealand between 1868 and 1890, revealing that what we call a 1-in-250yr event was actually closer to a 1-in-4yr event back then
- The late 1800s was a much colder, low carbon climate, raising fundamental questions about how extreme weather events play out in the real world vs computer modelling

It has become somewhat of a cliché for media reports and climate scientists to actively link modern extreme weather events in New Zealand with climate change, but an accurate answer requires more or less complete knowledge of our past recorded climate.

A new study by journalist and author Ian Wishart into historic extreme weather events has found however that the vast majority of extreme weather events from our past appear to be missing from NIWA's Historical Weather Events database for researchers and journalists.

Specifically, of 24 major climate events that took place in a 22 year period leading up to 1890, only four have been loaded into the NIWA research database, meaning 83% were missing.

The missing appear to include many storms bigger than Cyclone Gabrielle.

CLIMATE OF FEAR

A NIWA database claiming to document major historic climate events for journalists and researchers has no records of most of New Zealand's biggest historic storms, throwing claims that "extreme climate events" are becoming more common into serious doubt.

As New Zealand mops up in the wake of its most devastating cyclone in 60 years, questions are naturally being asked by insurers, the public and the politico-media establishment about whether "extreme climate" is now already here, as claimed by the Greens and climate scientists.

National's Maureen Pugh found herself in hot water after questioning the "evidence" linking Cyclone Gabrielle to climate change. In a Masterclass of Media-Gotcha! 101, Newshub's political editor Jenna Lynch quickly lined up Greens co-leader James Shaw, assorted climate scientists and lobbyists and even National's leader Chris Luxon to scornfully force Pugh into a "climate 'Come to Jesus' moment" where she publically repented of her sin in daring to question the daily media assurances that humanity's greenhouse gas emissions are a major contributor to New Zealand's summer soaking.

The media and politicians rely on briefings and resources from NIWA, including its searchable Historic Weather Events Catalogue that allows quick access to data on "major" storms in the past. Want to know about big storms in Esk Valley? Just punch it in.

Except, and this is the elephant in the climate change room, most of New Zealand's biggest storms between 1868 and 1890 (a random period selected to examine) are not actually in there. And if most of the major events from the 1800s are not there, what about the 1900s?

Why is this critically important?

It's fundamental to "trusting the science" because public and political faith requires science to maintain complete and trustworthy records. A failure to do a proper data search of historical storm records and upload them means the public, politicians, insurers, banks and even the news media are receiving flawed information that is skewed to accurately record every *modern* climate event while missing more than 80% of major *historical* events.

That creates an overwhelming impression that the weather is getting more extreme – an impression that you will shortly see may not only be wrong, but the reverse: in New Zealand, at least, there's evidence that we suffered more so-called 1-in-100 year storms/floods in the 1800s (when CO2 was only around 285ppm) than now (413ppm).

Let that sink in for a moment: there's evidence of a higher frequency of big storms more than a century ago when the planet was colder, with much lower CO2 levels. If that turns out to be correct, where does that leave the "climate change means more extreme weather" narrative pushed in the nightly news?

To figure this out, we first have to find an agreed measurement for storm intensity.

NIWA's Ben Noll this week published new analysis of our three biggest storms in recent times – Cyclone Giselle in 1968 (the 'Wahine' storm), Cyclone Bola in 1988 and now Cyclone Gabrielle. Noll and colleagues ran data from the three storms through a NOAA reanalysis and found that Gabrielle had a deeper "low", at 963 hectopascals (hPa) than Giselle on 968 or Bola at 982 hPa.

Traditionally, cyclones and hurricanes have been measured on wind strength from Categories 1 to 5, but a [2022 study makes the case](#) that the atmospheric depression – or Minimum Sea Level Pressure (MSLP) caused by a storm may be a more accurate measure of its destructive ability because it is a better predictor of rainfall, storm surge and windspeed than measuring windspeed alone.

The reason is that cyclones are more than just wind or rain – their low atmospheric pressure (weight) at sea level in the centre of the storm means the sea level can rise up to 14 metres above high tide. That means if you were standing on a beach at high tide mark, a hurricane could make the tide rise a further 12 or so metres above your head...enough to flood a four storey building.

Thankfully, that level of surge has been recorded only once, with Cyclone Mahina in Australia in 1899. Hurricane Katrina in 2005 caused an eight metre storm surge that drowned New Orleans.

Most storm surge in NZ is much lower, between one and three metres, because the cyclones have weakened from their peak.

Cyclones are like a giant robotic vacuum cleaner sucking heat out of the oceans through a column at the Eye. The more energy they can find and spew up the funnel in the middle, the faster and more violent are the winds on the fringes as cold air rushes in to replace the air being sucked up the heat column. It's this suck up the middle that also causes sea level rise via storm surge in that area.

This storm surge effect is the real reason urban planners are scared about climate change in the short to medium term. A baseline sea level rise of 30cm or even a metre of tidal rise on a beach over the next century won't break the bank in most cases, but if it's coupled with two or three metres of storm surge every couple of years it could make shopping along the boulevard a tad unpleasant.

Given that most shoreline streets are only a couple of metres above high tide mark, the difference between three metres and 3.3 or even four metres of surge may ultimately be academic.

When the barometer dives, it means the weight of the air on the sea reduces and sea level rises for the duration.

The Ben Noll analysis pegged Gabrielle, with an MSLP of 963 hPa (the Met Service says it was 966.6), as one of New Zealand's biggest ever storms, outranking hall-of-famers like 1988's Bola (982 hPa) and Giselle (968 hPa) twenty years earlier than Bola.

Let me say from the start that there's debate in scientific circles about just how much global warming has played a part in fuelling its intensity. NIWA has pitched that it could have increased moisture retention in the cyclone – and therefore how much rain would come back down, by 5-10%. However, other scientists have pointed out that the Tongan eruption last year punched [146 million tonnes of water vapour](#) into the atmosphere, which not only will fuel warming because water vapour is a powerful greenhouse gas – but what goes up generally will come down, and cyclones and weather bombs are one way for Earth to rebalance.

So it isn't really possible for anyone to say that Gabrielle was fuelled by car exhaust fumes.

But how did Gabrielle really compare to some of the big storms that ravaged NZ after British settlement?

METHODOLOGY

I decided to research the archives at PapersPast, searching for barometer readings with a "28" – reflecting the preferred measurement unit of the time – inches of mercury. The lower the inches of mercury, the less weight of atmosphere, translating to low pressure. A barometer reading of 28.99 inches, for example, converts to a Cyclone Bola-sized low of 981.7 hPa (Bola was 982, or 29.00 inches).

Barometers need to be standardised for accurate comparison, and the standard used then and now was correction to sea level pressure. Barometers measure the 'weight' of air, so devices at higher altitudes will read lower because air density decreases with height. To best avoid confusion I chose to use barometer readings which were professionally taken. This could be explicit, such as a report from an official observatory or a ship, or contextual – where the source was not defined but it might have been included in a report of Port arrivals and departures, strongly indicating an official maritime source.

Where possible, corroboration was obtained by researching the storm event in detail to locate a spread of readings from the same or other locations.

To make the sample size manageable, the years 1868 to 1890 were chosen.

Search terms included 'barometer', '28', 'storm', 'gale', 'cyclone' and 'hurricane'.

Note: online references to modern storms often quote the minimum low pressure ever reached – usually while still in the tropics. For comparison to historic NZ events, the lowest NZ figures must be obtained.

FEBRUARY 1868, THE GREAT STORM, 955-962 hPa (IN NIWA)

The first storm to leap out of the history books was the “Great Storm” of February 1868, which a report in the Daily Southern Cross says hit a barometric minimum on 3 February in Auckland of 28.22 inches, or 955.6 hPa. That grabbed my attention. It’s well below the minimum of 963 that Gabrielle reached in Auckland as an icon of “extreme climate change happening now”.

That immediately raised a new question: if Gabrielle is a “1-in-250” years example of human-caused climate change in a warmer world on steroids, why was it apparently much weaker than the 1868 cyclone that hit New Zealand at the end of the Little Ice Age and when CO2 levels were much, much lower?

I raised the issue on Twitter with NIWA’s Ben Noll:

“Fortunately,” he replied, “we have the data to objectively show that [Gabrielle] was one of the strongest storms since ~1850 to pass near the North Island. Re: readings from old barometers: was it adjusted to mean sea level? I’m guessing not,” he added, saying he couldn’t see it in NOAA’s pressure records.

When I pointed out that the barometer quoted was the official Port of Auckland device which, by “joyful happenstance” is indeed at sea level and run by mariners whose lives depended on accurate readings, NIWA went digging.

They came back with a graph of readings from the Albert Park Army Base barometer showing the cyclone reached a Bola-size low of 982 hPa (29 inches) on that device, so the 955 figure must be a media error, said NIWA’s Drew Lorrey.

I wasn’t convinced.

Firstly, the NIWA Albert Park reading was taken at 3pm in the afternoon, but the newspaper reported the super-low had specifically been discovered in the morning at the Port.

Secondly, there were no telephones in 1868 for reporters to lazily “phone it in” after mishearing on a crackling line. The journalist who wrote the report was responsible for the daily shipping and weather reports, highly important to the young city’s merchant class and seafarers; he (all news reporters back then were male) had to have visited the harbourmaster personally and gained the daily information as he always did – in a face to face discussion with much less room for misunderstanding. Back in those days reporters had “beats” and were skilled in that area.

Thirdly, if the harbourmaster had read the 28.22 figure in the paper and it was wrong, he would have asked for a correction, given the importance of barometric readings to mariners. No such correction appears. Instead, the [newspaper doubled down on 28 February](#) with this comment:

“The colony was visited by the severest gales which have swept over this latitude for years past, and the barometer exhibited a decline unparalleled in the experience of ‘old salts’.”

Not only that, but the Daily Southern Cross [repeated the record low event](#) in its end of month shipping summary.

A fourth factor to consider is military and scientific routine. In colonial NZ many officials were ex-navy or army. They were used to regimented routine. “Official” temperature and barometer readings were usually taken at set times of the day so that scientists and record-keepers could make easy comparisons. But the fact that a city’s “high” temperature is always taken at 3pm doesn’t mean the city wasn’t hotter either earlier or later. In the same way, there’s a possibility that official barometer readings of the 1868 storm taken at 7.30am and 3pm are just snapshots, and the storm may indeed have briefly bottomed out even lower during an unofficial ‘curiosity’ reading later in the morning, with details passed to a newspaper reporter doing the rounds on his beat.

Thus, two things can be true. Official ‘recorded’ data can show one figure, while unrecorded readings on exactly the same device may reveal the true intensity trajectory of the storm, and often the only record you will have is someone’s notation or media report.

With modern satellites, cyclones and storms are subject to continuous real-time measurement, allowing NIWA to pluck an “absolute minimum” pressure reading whenever it actually happens. This complicates comparison with historical storms where datapoints were only taken twice daily, or hourly ([whatever the routine happened to be](#)).

There is some corroborative evidence that the 3 Feb 1868 cyclone was indeed a much bigger and more powerful system than Gabrielle.

For a start, Gabrielle’s damage was mostly concentrated from Northland to Hawkes Bay. In sharp contrast, however, the February 1868 cyclone also hit Wellington and sank steamships as far south as Timaru.

One of those ships, the *William Miskin*, recorded [a barometer reading of 28.4 inches](#) (961.7 hPa) before it sank, as its Master testified at the official Marine Court of Inquiry. In Wellington, the port recorded a low of 28.65 inches (971 hPa).

[Two more barometers](#) – one on a ship in Cook Strait and another at the weather station in Picton, recorded a Giselle-sized low of 28.60, or 968 hPa.

Although NIWA does have the 1868 Great Storm in its weather events database, NIWA was unaware of the very low barometer readings, meaning the government climate agency does not have an accurate understanding of how powerful this historic storm really was compared to modern events like Gabrielle.

If Gabrielle is being called a 1-in-250-year event by the media and climate scientists because they don’t realise there was an even bigger one 155 years ago, what other big storms have slipped under NIWA’s radar and what does this mean for current official advice about the frequency of extreme weather?

I decided to dig deeper into the PapersPast list of big storms. Most of them don't appear in the NIWA major storms database. NIWA has three major storms in the last 55 years below 982 hPa, as per the Noll analysis. There may well be more, but they were not listed. By contrast, the weather bomb with winds of up to 200 km/h that slammed Auckland overnight on 10/11 April 2018 reached a low of 992 hPa according to historic data in TimeAndDate.com.

OCTOBER 1868 STORM, 959 hPa, SOUTHLAND (NOT IN NIWA)

If February 1868 at 955 hPa was bigger and stronger than Gabrielle, and a very rare event, imagine my surprise when I discovered a powerful Southern Ocean storm whacking Southland in October 1868 with a barometer reading of 28.32 inches of mercury, equivalent to 959 hPa. Not 200 years apart – not even a year apart!

It was, said the director of Southland's weather observatory, "[the lowest I have ever seen a barometer](#)", and it ushered in a night of "hurricane" gales so strong they destroyed the wind measurement equipment.

The same storm appears to have moved up the South Island, with ocean storm surge washing away roads and buildings [in Nelson that week](#):

"The weather during the whole of the past week has been, of a very tempestuous character, the wind chiefly blowing from S.W. to N.W. with a low barometer, and the vessels that have arrived within the last few days all brought intelligence of bad weather at sea. But the climax was reached here on Thursday evening, when, with the wind at N.W., it blew in terrific gusts, and, it happening to be a spring tide, the sea rose considerably above its ordinary height; the Haven road, at high water (which occurred about 9 o'clock), being completely covered, the sea in places washing into the houses facing the road. All the shipping in the harbour felt the effect of the gale; two barges and two or three small boats were completely destroyed.

"The boat-house, opposite the Harbour Office, was completely washed away, and the boat kept there belonging to the Government officers, was with difficulty saved. Some of the wharves were also damaged, but — with the exception of two or three old and frail erections, which have nearly disappeared— not to any serious extent. A large amount of injury has been done, however, to the Haven-road. Between Auckland Point and Levien's warehouse, the face of the road has in several places been washed completely away, leaving the sleepers of the railway without support.

"So high was the tide that the ketch 'Folly,' of about 30 tons, wrecked outside the Boulder Bank last week, was washed over the Bank into deep water. The night was exceedingly dark, except when the sky was lit up with vivid flashes of lightning, which, with the pealing of the thunder, and the howling of the tempest, imparted to it a solemn grandeur. So violent a storm has not been witnessed in Nelson for several years, and, in the opinion of many persons, we never experienced its equal."

The October 1868 event does not appear in NIWA's major events database, possibly because NIWA doesn't know about it (it'll be in their files but hasn't been studied), but also because NIWA prefers to list events with casualties. Using deaths to determine storm strength is a fool's game, however, because it also ends up as a comparison of building and safety standards, as well as population spread and density, and those have changed a lot in 200 years.

The bottom line is that a 959 hPa storm with hurricane winds is a statistically significant storm regardless of where it hits in NZ and how many people are affected. If you are measuring whether extreme climate events are happening more often, you have to count everything to get an honest dataset.

JUNE 1868 STORM, 980 hPa, SOUTHLAND (IN NIWA)

With a barometric pressure [of 28.94 inches \(980\)](#) this four day winter storm lashed Southland, Otago and Westland with rain, thunder, gales and snow.

JUNE 1868 FLOODS, 985 hPa, NZ (IN NIWA)

As if 1868 hadn't been extreme enough, most of the country experienced a second storm only a week later, marked by heavy rains and flooding. Timaru recorded a 29.1 inch barometer (985 hPa) and reported flooding came within inches of the record set in the February cyclone. Frustratingly, and something that will resonate with many today, all the money spent on rebuilding roads and bridges lost in February [literally went down the drain](#) in this June storm as the replacements were again [washed away](#).

"A little more than four months ago we had to record the devastations caused by a heavy gale and flood, throughout this district and the whole Southern Island, and we are now again called upon to give particulars of a second visitation of the elements, but we are pleased to say that on this occasion it is not accompanied by loss of life, and as far as is at present known, with less loss of public and private property, than the one which occurred in February last. Our account must to-day be somewhat imperfect, as little is known of the effect of the late storm upon the back country, where sheep have no doubt perished largely, but to what extent is yet unknown. It is certain that the season of the year saved the country from a flood, which must have been far heavier than any hitherto known. The cold weather in the back country, where snow fell several feet in depth, prevented the heavy fall from causing the big rain rivers to overrun the whole country with a deluge. The undulating country bordering on the sea coast, where the water could not get away fast enough, has suffered more severely than the other parts, by the destruction of roads, culverts, and bridges.

"The whole of the back country is at present one mass of snow, the fall being heavier than any previously known either by Maoris or Europeans."

Climate change appears to have been a real b!#(h, even back in low-carbon no-cars 1868.

OCTOBER 1868 FLOODING, WEST COAST (NOT IN NIWA)

Continuing 1868's theme of climate extremes, [Westport's Buller River](#) reached a record flood height mid-month, breaking the previous record set way back in (wait for it...) January 1868!

"The heaviest flood which has occurred in the Buller since the town was established, commenced yesterday, and this morning apparently attained its height. It is not only the heaviest flood which has occurred, but it is also the most destructive. Its height was more than a foot above the last great flood which happened in January last, and the amount of public property which has been destroyed much greater. Only one of the wharves has been absolutely carried away, but another has been placed in a very precarious position, and there has generally been an amount of damage done to the river protection works, which it is impossible, just at present, fully to realise.

"There can, however, be little doubt that the outlay and labor of a year have, to a great extent, been rendered valueless, and there is as little doubt that this loss of money and work is due, not alone to the flood, but to the dilatory and contemptible peddling manner in which the execution of the works now destroyed has been carried on."

The newspaper report noted the influence of hot winds melting snow on the glaciers, and the impact of forest slash carried downriver by the flood.

“One immediate cause of the flood was a heavy rainfall; another, and the primary cause, is, no doubt, the circumstance that the wind accompanying the rain was a nor'easter, and the fact that these winds are characterised by a high temperature—such a temperature as would have a very rapid influence upon the winter deposits of snow upon the highest ranges in the interior. The fresh thus caused commenced to attain the dimensions of a flood about noon yesterday. Apart from the weather signs, the quantity of dead timber which was being brought down by the stream indicated that the river had already considerably overspread its banks in the back country.”

The same hot, wet noreasterly system caused similar [flooding in the Motueka River](#), burying properties in a metre of silt and leaving residents climbing onto their roofs to avoid the floodwaters.

[In Greymouth](#), boats were used to rescue people from their flooded homes, and although no barometer readings are available for this event the town was flooded by the sea, indicating a deep low causing strong storm surge:

“A season of storms and floods seems to have set in on the West Coast, and from every portion of it we hear of inundations, destruction of property, and shipwrecks. Greymouth has, during this week, received its full share of the floods, but it has been singularly fortunate in having escaped without accident to any of its public works. In our last we recorded a very serious inundation when the water was several feet deep in Richmond-quay, Arney, Gresson, Johnson, Boundary, Mackay, and other streets, and the tramway-line was seriously injured at the Saltwater, where the creek washed away over 400 yards of it; and since then nearly every tide has caused the town to be flooded.

“Strong westerly gales have prevailed, accompanied with an almost continuous downpour of rain, and high spring tides. The river came down in flood again on Thursday afternoon, and in the evening overflowed its banks and flooded the lower portions of the town. The water fell little during the night, and at tide-time yesterday morning again inundated the town, the flood pouring through Boundary-street and all over the lower township, in some places to a depth of several feet. Boats were once more in use as the only means of conveyance through several of the streets, and many of the residents whose houses were flooded were brought by these means to places of safety.”

None of this appears in the NIWA database.

DECEMBER 1868 SUMMER SNOWSTORM, 970.8 hPa, INVERCARGILL (NOT IN NIWA)

You would think a [Christmas snowstorm in New Zealand](#) would count as a major historic climate event worthy of a NIWA listing, but apparently not.

Southland Met Service director Charles Marten reported that on 7 December 1868, the barometer sank to 28.67 inches (970.8 hPa), ushering in four days of “heavy westerly gales” culminating in a snowstorm on 11 December, Marten noting wryly it was “the only instance known of such a phenomenon in December”.

JANUARY 1869 STORM, 975 hPa, SOUTHLAND (NOT IN NIWA)

Only four weeks later, the central Otago goldmining town of Lawrence was [near flattened by a summer storm](#) on 2 and 3 January 1869, where the barometer dropped to a respectable 28.80 inches (975) – lower than Cyclone Bola (1982):

“The storm, which had been gathering during the whole of Saturday, ‘howled across the sky’ with redoubled fury during the night, and the dawn of Sunday revealed the destruction that had resulted. Every part of the town gave evidence of the overpowering force of the elements, and sheets of iron were blown with resistless violence through the air, as if they were scraps of paper. The houses on

the hill suffered much. The commodious stables attached to the Camp were entirely stripped. The front of Mr Jeffrey's shop was blown in, the stables of Mr Harris destroyed, and his kitchen carried bodily into his neighbour's premises. The Gold Receiver's residence early became a total wreck; the Bailiff's chimney fell, his stables also being destroyed. The Wesleyan chapel, a substantial looking brick building, cracked down the front, which now overhangs the street. The number of chimneys and outhouses which succumbed to the gale I could not enumerate, and it was a strange sight to see the inhabitants searching for the iron and wood of their wrecked houses, which they found in many instances at a great distance from their original positions."

Although not a national event by any stretch, it's a fair bet that brick churches cracking in a cyclone-intensity weather bomb anywhere in New Zealand today would lead the TV news as examples of climate change before our eyes.

MARCH 1871, CYCLONIC WINDS AND FLOODING, 968 hPa, WELLINGTON (NOT IN NIWA)

In a storm lasting three days, Wellington endured flooding damage and high winds. Barometer reading [28.586 \(968 hPa\)](#), giving it a strength equivalent to the Wahine Storm – Cyclone Giselle.

MAY-DECEMBER 1871 SOUTHERN STORMS, 967 hPa (also 982, 963), (NOT IN NIWA)

The ever observant meteorologist Charles Marten in Invercargill reported a multitude of deep southern lows in the [latter half of 1871](#).

An Indian summer where temperatures reached 86F (30C) in shade "and 162F (72C) in the sun" collapsed in early May when the barometer dropped to a Bola-like 982 hPa ahead of gale force winds, flooding and snow. These storms continued for weeks, Marten reporting that July was just one continuous thunderstorm with a peak low of 28.55 inches (967 hPa) – equal to Giselle.

Fast forward to December 1871 and two big storms, dropping as low as 28.90 (978.6):

"December was remarkable for the two severe storms which occurred within ten days of one another. The first (on the evening and night of the 12th) was preceded by a barometric fall to 28.90; it blew from due N., and was the heaviest gale for 3 years; max. measure, 37 lbs to the square foot. It, however, sank utterly into insignificance compared with the terrific hurricane of the 23rd, which far exceeded in violence any gale hitherto known in Southland. The barometer on the 22nd fell rapidly, reaching 28.99 inches at midnight, when the gale set in from N., and blew violently until 2.30 a.m., when it abated, but at 9 a.m. suddenly increased to a furious hurricane from N.W. to W., which blew from about 9.30 a.m. to 12.30 p.m. with unprecedented force. The anemometer showed 246 miles to have passed in these 3 hours (average continuous windspeed 132 km/h), and in the strongest gusts (not of more than a few seconds' duration at a time) the velocity was from 50 to 53 yards per second, or 100 to 107 miles an hour (up to 172 km/h gusts), representing a pressure of 50 to 52 lbs to the square foot. The gale abated gradually from 1 p.m. until sunset, when it ceased. Great damage was done throughout Southland and Otago, both in the towns and in the country districts. No rain accompanied the gale."

At nearby Tuapeka, this summer cyclone recorded a barometric low of 28.45 inches (963 hPa) similar to Gabrielle, and [the destruction is recorded here](#).

NIWA's Ben Noll responded to my inclusion of southern storms in general (not these ones specifically):

“While the South Island stats are interesting, our investigations have focused on comparing Gabrielle with historic North Island pressures. The South Island is exposed to deep Southern Ocean lows and therefore experiences lower pressures.”

Which all sounds perfectly reasonable until you realise the same logic applies to the upper North Island, which is exposed to tropical cyclones on a regular basis. A sub-980 storm blowing the proverbial out of a locality is a sub-980 storm wherever it strikes. And frankly, the news media doesn't care where it sources its extreme climate change porn – Invercargill or Auckland, it's all the same on a video stream with interposed “analysis” from James Shaw or NIWA on how this is “the new normal”.

FEBRUARY 1872, MASSIVE FLOODING WEST COAST (NOT IN NIWA)

Just weeks after the December extreme climate events that laid waste to the lower South Island, the 11-year old town of Buller (now Westport) was forced into [managed retreat](#) by more massive flooding and storm surge.

“The gigantic operations which Nature has performed during the last few days in our midst and surrounding us, should arrest the attention of the most unthinking being in this community. Let any person walk from the upper groin on the river bank to the lower jetty, and thence proceed to Orawaiti, marking the line of drift wood which indicates high water mark; and stepping over the narrow space existing between the sea and the deep lagoons at the rear, measure with the eye the miserably limited space remaining for a township. He must be impressed with feelings of astonishment mingled with fear; wonder at the marvellous encroachment by the rivers and sea in so short a time; and dread that the lives of the inhabitants' will be the penalty of remaining blind to the dangers that encompass the town, when it is considered that the lines of Kennedy and Molesworth streets are upon the highest levels.

“The sudden convergence of the mouths of the Buller and Orawaiti—the Buller towards the north and the Orawaiti to the south —during the recent flood has swept away a vast portion of ground at each end, affording scope for the sea, which during and since the recent gale has advanced with such rapid strides, absorbing the whole of the beach between the two rivers. The ocean surf may shortly be seen sporting on its old playground, the shingle ridges upon the summits of which the township is built, which may be distinctly traced by following the single line of dwellings from the chapel to Orawaiti. The heavy weather season is now at hand, and the recurrence of a flood such as last, accompanied by strong gales at springtides, leaves little doubt but that what remains of the town will be submerged, and more telling disasters to record than loss of property, as there does not exist the slightest eminence or place of refuge nearer than the terraces on the opposite sides of either river. The river mouths are now so close, and the shingle banks on the outer beach having been swept away one by one, exhibit the extreme probability of such a calamity befalling us.”

Multiple buildings, including a two storey hotel, [were washed away](#).

But it wasn't just Westport. Greymouth residents also watched helplessly as [huge swathes of their town](#) dissolved into the raging Grey River and turbulent sea:

“There is a fearful flood at Greymouth. It is the greatest calamity that ever befell the place. The protective works gave way. The water burst in at the top of the town, spreading destruction everywhere. Houses, hedges, one-third of the Quay road, stores, and hotels carried away to sea. Over 50 buildings are completely gone. Some buildings rolled over each other, and others are a mass of ruins. Hundreds of men, women, and children are rendered homeless. They were taken off the

tops of the houses by boats. The water is now subsiding. Only one person, a boy named William Hall, is known to be drowned.”

In the analysis that followed, [climate experts explained](#) that the West Coast is particularly vulnerable to hot dry westerly winds originating in the Australian desert and picking up huge swathes of moisture as they cross the Tasman Sea. When the winds hit the snow-covered Southern Alps and glaciers, the sudden temperature change condenses the stored water vapour into huge sheets of rain, the heat exchange also forcing summer snow melt into the rivers as well.

Stripped of their moisture by the mountain ranges, the now dry westerlies sweep down across the Canterbury Plains causing the long droughts we have been attributing to climate change.

Arguably, if the snow melts in a warmer world and the ‘condenser effect’ shrinks, West Coast rainfall would reduce and more of the water would survive to fall on the Canterbury Plains, easing the burden on aquifers.

No barometer records were available for the February 1872 West Coast floods, and despite the utter devastation they caused to buildings there is no mention in the NIWA major climate events public database.

FEBRUARY 1874 STORM, 980 hPa, NZ (IN NIWA)

This was a big storm, believed to have been possibly the remnant of an Australian cyclone. It was also unusual because it coincided with a visible – in Auckland – magnetic storm of Aurora Australis. The Newton Observatory in Auckland reported [a low of 29.00 \(980, Bola-size\)](#) but the barometer was all over the place. Hurricane winds devastated the city and this time the Port did not escape unscathed – thirty ships, [including one of nearly 1000 tons](#), were [damaged or wrecked](#).

“In the afternoon a heavy downpour of rain and fitful gusts of wind, and later the still falling glass [barometer] which showed what was unmistakably preparing, yet little or no preparation appeared to be made for the coming storm. Nearer and more near it approached, when at ten o'clock it burst upon us in all its fury. The very floodgates of heaven seemed to be open and the waters of a second deluge hurled upon us. In company with this came a mighty wind, in power and duration unequalled by anything that we have had since the year 1861. It came first from the south-east, then changed to the north-east... in fact it may be said that we were enveloped in the tail end of a cyclone. The destruction amongst the shipping has been enormous, and all within the space of half-an-hour when the tornado was at its height.”

The [Auckland Star reminded the Herald](#) that similar weather had hit only two years earlier.

If you're thinking it sounds a lot like 2018's supposedly climate-change driven April weather bomb, you could be forgiven.

JUNE 1874, STORM AT THAMES AND AUCKLAND (NOT IN NIWA)

We know there were [hurricane force winds and a storm surge](#) that destroyed wharves, tramways and roads in the Thames/Coromandel area, but the newspapers never published the barometric pressures. They must have been very low:

“The lowering of the barometer on Saturday night, accompanied as it was by a dark and threatening sky, portended a fierce storm, and Sunday ushered it in with no signs of it passing away, but if anything the southing of the distant water as the tide commenced to flow about noon gave stronger evidence that high water without a change of wind would prove most destructive, both to shipping

and property adjacent to the sea-shore. As the tide began to cover the immense mud flats the wind started to blow in earnest from the north, but as the evening approached it veered round to the north-west and west, so that the sea long before full tide was covering its usual mark and overflowing the beach road, causing immense destruction to property.”

Thames was cut off, and the [Daily Southern Cross](#) noted repairs were far beyond the means of locals to fund. It called on the Government to pay for the rebuild, which was done.

The key lesson 150 years later as the region faces yet another infrastructure rebuild: *deja vu*.

SEPTEMBER 1874 WINTER STORM, 985 hPa, NZ (IN NIWA)

Most of the country was walloped by [massive gales and flooding](#) at the end of September:

“Yesterday, the daily report gave information of the probability of a severe gale from the westward at Auckland, Tauranga, and intermediate ports; and also that bad weather would be experienced from the north towards the south-east on the east and west of the Middle Island. The anticipations of the observers of the signs of the weather were speedily fulfilled. The rain on Sunday had before night flooded Greytown in the Wairarapa, doing a great deal of damage to shops, houses, gardens, &c., and at Westport, Greymouth, and Hokitika occasioning heavy floods, one contingent consequence of which at Greymouth was the stranding of the *Wairarapa*, and the somewhat serious peril to His Honor Judge Richmond and other passengers, to which we alluded yesterday.

“During Sunday night, the rain increased in severity in Wellington. About 6 o’clock a.m., the barometer began to fall very rapidly, and soon afterwards a very strong gale, still accompanied by drenching rain, set in, both rain and wind continuing all day long; and while we write the storm continues. Great as has been the rainfall this winter, Sunday and Monday may fairly be set down as having been the wettest of a wet and stormy season.

“After sunset the rain increased in density, and the streets, which had been well washed throughout the day, became little better than deep streams of running water.”

At Greymouth, a Bola-sized barometer reading of [29.10 \(985\)](#), while Wellington’s [Evening Post](#) reported most of central Wellington was flooded (even without asphalt in those days) and comms had been washed away in many districts:

“This morning’s telegraphic report is a very remarkable one. The barometer is very low all over the colony, and everywhere the sea is reported as rough and the rivers as flooded. Throughout this island at all stations north of Castle Point inclusive a N.W. gale is blowing. In the northern part of the Middle Island the wind is indeterminate, but to the southward it is blowing hard from nearly every point of the compass. At Timaru the gale is from due S.; at Oamaru, from S.W.; at Port Chalmers and Queenstown, N.E.; Invercargill, S.E; Bluff, due E.

“Rain still is falling at nearly all the stations and the weather is described as gloomy and threatening. In Wellington today the storm has continued from the N.W., with tremendous squalls. Telegrams from Greytown state that it again has been inundated; and that the water still is rising. From the Hutt we hear that the flood is the heaviest known for years. One of the protective groins has been carried away, and another much injured. Telegraphic communication with Wanganui and the West Coast of the Middle Island is interrupted, so that it is impossible to say to what extent those localities are suffering from the tempest and flood.”

You can bet your last dollar that if Wellington newsrooms saw Willis St, Courtenay Place or Lambton Quay knee deep in floodwater today it would lead the bulletins for a month with earnest James Shaw and Chloe Swarbrick interviews playing on a continuous loop.

This event took place in a time of low CO2 and no SUVs. Just sayin'.

JULY 1875 WEATHER BOMB, 984 hPa, AUCKLAND (NOT IN NIWA)

Just a year after thirty ships came to grief in 1874, another extreme weather event sunk its fangs into our biggest city again. Dozens of vessels in Auckland Harbour were shipwrecked or sunk, and port facilities in the region destroyed. The barometer was a Bola-like [29.05 inches, or 984 hPa](#).

Over at Onehunga, the winds were so strong that [sailing ships were blown out of the water](#) and up to 150 metres inland into the town.

“The cutter *Dante*, at anchor, was driven up on to the road, and was nearly converting Fuller's Royal Hotel into a "dry dock." The beach soon became covered with firewood, timber, capsized boats, and pieces of wreck.”

Over on the Coromandel, the recently repaired, taxpayer-funded wharves at Thames were destroyed – again - as the deep low caused a storm surge to flood the town:

“The weather on Sunday was ominous; wind blowing strong from the north-east, veering round to the north-west, which caused an unusual swell of water as the tide made; and it became evident that a loss would be sustained. This was verified; for the full force of the gale, becoming more westerly, accompanied by fitful falls of rain, drove the accumulated water of the spring-tide upon the wharves, crafts, buildings, fences and roadways with an unmitigated relentlessness. In the lower part of Grahamstown, from 8 to 10 o'clock, the streets were covered with water, bringing to grief many a Sunday-going suit of clothes as their owners attempted to reach their various habitations, after appearing in public worship.

“The night, being dark, screened the "troubled" ones from general observation. The morning revealed the injury. Curtis's wharf, at Grahamstown, had a piece taken out of it about 50 feet near the shore end. Several small boats were sunk, and the harbour boat, which had been on the gridiron for repainting, was thought to be secure, being firmly lashed, but the strength of the wind and weight of water as the waves broke across the wharf tore the stern clean out and sent the other portion adrift.

“The Tramway Company's shed suffered from the retaining sea-wall giving way, causing the building to heel over, one half parting from the other, and the locomotives were placed in great jeopardy. Thompson's wharf - receiving the debris of Curtis's, was not proof against such odds, and gave way for upwards of 100 feet, scattering timber and firewood along the beach, while the fences in the neighbourhood were mostly prostrated, Tararu wharf has also fallen a victim, displaying two chasms in its length of not less than 350 feet. The destruction to this erection is mainly attributed to the lifting force of the waves, the platform serving as a fulcrum to aid the strength of the briny leveller.

“Several places on the Tararu road have been rendered dangerous. Some of the storekeepers in Albert-street have suffered severely, the water covering their floor for several inches. Cheap sales of damaged goods are now being notified. Fortunately no fatality has been recorded in connection with this burst. The shipping was just able to hold on and weather the storm. The loss, however, is considerable, and will greatly inconvenience our commercial men.”

The storm surge must have been incredible, with reports that the sea level was more than [half a metre over the top of the Grahamstown wharf](#), and the tram company's two locomotives were eventually lost.

This extreme climate event from 1875, so soon after the extreme event of 1874, is – like its predecessor – also missing from the database that journalists rely on for historical climate events before they pontificate to the rest of us about how extreme climate events are happening much more often than in our low carbon past.

JUNE 1876, NATIONWIDE STORM, 951 hPa, (NOT IN NIWA)

Virtually every centre was hit by high winds and heavy rain, with barometers plunging to [28.73 inches \(972.9 hPa\)](#). A sailing ship heading from Bay of Islands to Auckland registered an incredible barometric low of [28.10 inches \(951 hPa\)](#) – far lower than Cyclone Gabrielle's 963 hPa.

The significance of all this, at the risk of labouring the point, is that modern climate change activists are insistent that greenhouse gases are driving the intensity of modern cyclones. Yet as the evidence is showing you, NZ was being hammered by far more – and bigger – storm systems in the cold 1800s. You could even argue that in our warmer world we've actually had it much easier than our long-suffering forebears.

In Hokitika, the local paper reported a low of [28.54 inches \(966\)](#), lower than the town had ever seen "and probably in New Zealand". But again, and this is why I concentrate on the barometer, the deep low allowed the ocean to flood into Hokitika:

"On Thursday night, at high tide, a heavy north-west sea was rolling on to the beach, and this had the effect, it being spring tide, of doing a considerable amount of damage to outhouses, fences, and the back premises generally of the houses on the west sides of Bevell and Beach streets. The sea poured through the Empire hotel right-of-way in considerable quantity, and crossing the street ran down Camp street into the low lying quarters of the town, Tancred and Hamilton streets. Yesterday morning, at high tide, although the surf was not quite so fierce, it had but little abated, and matters looked even worse. The continued removal of the beach by the sea allowed the latter freer access, and some more damage was done. Down the Empire right-of-way the surf rolled into Bevell street and along Beach street into the river, near the flagstaff. Ever since Thursday heavy rain has been almost continuous."

Those scenes on the TV news of surf club buildings drifting out to sea? We've seen it many times in our apparently forgotten past.

This event does not appear in NIWA's climate database.

MAY 1880, WELLINGTON FLOODS, 984 hPa, (IN NIWA)

Only six years after the last Bola-size storm flooded Wellington, the capital endured another. Once again, all the main city streets were knee deep in water, the barometer reading [29.07 inches \(984 hPa\)](#):

"Cellars are reported half full of water all over the town. It is an ill wind that blows nobody any good, and the present state of things in our streets will no doubt afford work for large numbers of the unemployed for some weeks to come. The lesson taught is that our present drainage facilities may be quite sufficient for the ordinary requirements, but they are not capable of carrying off any sudden collection of storm water."

It's an extreme event lesson our city planners are still learning 143 years later.

JULY 1881, THAMES FLOODING (NOT IN NIWA)

In a town well used to extreme events, [the local paper](#) pulled no punches:

"THAMES, July 17. The severest and most destructive flood ever experienced here occurred last night. The rain was incessant for forty-eight hours, and all the creeks were so flooded as to carry away bridges, and bring down a thousand tons of debris. Two men were washed away, and one body only has been recovered. About fifty million feet of bulk timber were washed to the booms at the Shortland mills, and millions were washed to sea. The damage to the town was very great."

JANUARY 1884, CYCLONE NZ, 958 hPa, (NOT IN NIWA)

Multiple reports of high winds, heavy rain and a low as deep as [28.44 inches \(963 hPa\)](#), equivalent to Cyclone Gabrielle, in Port Chalmers, and an incredible [28.30 in Invercargill](#) (958 hPa). [This from Wellington](#):

"Another storm of extraordinary violence was experienced on Monday. The moderate southerly breeze which was experienced on Sunday gradually freshened towards midnight, the sky at the same time becoming overcast, but up to 2 a.m. yesterday there was no indication of very bad weather. At that hour, however, the barometer began to fall rapidly, and a steady - rain set in. The wind continued to increase, until by 10 o'clock it was blowing a furious gale from the S.E. This was accompanied by heavy and uninterrupted rain, which made outdoor life exceedingly unpleasant ; indeed, no one ventured out of doors except on urgent business. Movements among shipping were entirely suspended, and not a single vessel was working her hatches, as the torrents of rain would have instantly soaked everything that was not impervious to water."

At Paremata/Paramatta, [just north of Wellington](#), the cyclonic low brought the sea into settlers' homes:

"A severe storm passed over the district yesterday and caused considerable damage to the railway earthworks round the Porirua Bay. The sea washed right over the formation which has been made, and carried a lot of it away. It would appear that the line ought to be at least 18 inches higher to be safe against future storms. Very little damage was done near the bridge, except that some of the foundation of the store and enginehouse was carried away. The high wind has caused great havoc among the tents round the bay, and several cottages built near the sea were surrounded with water to a depth of two feet, the tide being unusually high."

The Evening Post said most families huddled together in one room all night as the [storm assaulted their homes](#):

"The severest storm of even this unprecedentedly stormy season has raged in Wellington during last night and to-day. We mentioned yesterday, that the barometer, after a slight rise during Sunday's southerly change, had recommenced falling, while the wind had suddenly backed into the N.W. The glass continued to fall all yesterday, and the rate of depression greatly increased in rapidity during the evening. At night a terrific gale set in from the N.W...the squalls attaining almost hurricane force. The tempest increased in violence at daylight, and during the morning and forenoon the fury of the wind was tremendous, and it was accompanied by heavy, continuous rain. Much alarm was caused throughout the night by the extraordinary severity of the gale, people being anxious as to the safety of their roofs, windows, and chimney pots, while the elemental uproar rendered sleep impossible.

“Travellers arriving in town from the country district report the storm as having been extraordinarily severe in all parts of the province. The telegrams from other portions of the colony record furious storms almost everywhere. The latest indications are considered to indicate that a change of wind to the southward is approaching, and that a hard gale from that quarter may be expected. The barometer is down to 28.55 at Invercargill, and is reported to be as low as 28.40 at Timaru. The storm is the severest experienced for many years past.”

Sure enough, the forecast of a southerly change was eerily correct.

Only a week later, the country was hammered by another cyclonic summer monster, which [Wellington's harbourmaster](#) described as the most extreme southerly gale in nearly quarter of a century:

“The terrific southerly gale which was raging when we went to press yesterday continued with even increased force during the evening and night, accompanied by a veritable deluge of rain. There was hardly the slightest intermission in the heavy rain for 36 consecutive hours, and it only abated to a drizzle by about 9 o'clock this morning. So far as we have been able to ascertain, no serious damage was done in this city by the flood. A culvert was choked here and there, and some of the streets have been a good deal cut up by the rushing torrents, while few houses escaped having their weak point found out by the penetrating nature of the driving rain. From all parts of the country news comes of swollen rivers and overflowing streams, but no extensive mischief has yet been reported.

“As to the gale itself, the amount of damage done by it has been surprisingly small considering its extraordinary violence. The Harbourmaster, Capt. Holliday, states that no southerly gale of equal severity has been experienced in this port for 23 years. The elaborate precautions taken by himself and his subordinates prevented any injury being sustained by the shipping, and we have not yet heard of a single casualty.

“On shore the damage was slight, owing, no doubt, in a large measure to the fact that everything which could be blown down had succumbed to last Tuesday's gale. However a few fences and roofs suffered, but not in any very great degree. No landslips are recorded on either of the railway lines. The barometer rose slightly last night, but remains very low. The gale abated at an early hour this morning, and quickly sunk to a dead calm.

“The storms of last Tuesday and yesterday have been of almost unprecedented severity, so far as Wellington is concerned; and today's telegrams report very bad weather as prevailing in other parts of the colony.”

Despite these two massive storms hitting the entire country within a week of each other and each being much bigger than supposedly supercharged Gabrielle in terms of sheer size and strength, neither of these extreme climate events is listed within the NIWA database accessible to journalists or the public.

MAY 1886 FLOODING CHRISTCHURCH (NOT IN NIWA)

The Great Storm of 1868 caused big floods in the garden city, but the [1886 floods](#) were even bigger:

“Yesterday's flood was the most severe ever experienced in Christchurch, not excepting the great flood of 1868, for that was confined to localities affected by the river, whereas this was general. The rainfall for the 24 hours ending 9 a.m. was 6.98in [which] is unprecedented. Since that was taken 1.12in have fallen, making, with Thursday's fall, a total of 8.87in during the gale. The Avon rose about 4ft in town and 18in from the floor of some of the bridges, it was at its highest half an hour past noon.

Then the rain ceased, and the water began to abate. By dusk it had fallen 18in, and this morning the river was but a little above the usual level.

“The principal mischief done by the river was in the north eastern part of the city, where a large number of families had to be removed from their houses, some of which were flooded three feet deep. Carts sent by the City Council and boats were busy all morning in rescuing these people. The adjacent suburb in a portion of Avonside suffered similarly, and Oxford and Cambridge terraces were also flooded wherever the river bank is low, many people being driven from their houses.

“The low-lying country between Christchurch and New Brighton was covered with water from the river, which, near New Brighton School, was over half a mile wide. In the south-eastern part of the city, round the Catholic Church, the rain water formed a lake several acres in extent. Traffic on the Ferry-road was entirely stopped, the fires of the tramway engines being put out by the water. Many residents of Woolston had to leave their houses, one man named Cord being rescued after he had passed the night on the roof of his house. At 8 in the morning the water extinguished the fires of the engines at the drainage pumping works.”

The same storm dumped torrential rain and more howling gales on Wellington. Again, mainstream media climate journalists telling readers and viewers to “trust the scientists” wouldn’t have found any mention of these historic extreme events in the NIWA database they use, because no record of any of this has been entered.

SEPTEMBER 1887 STORM, WELLINGTON AND SOUTH ISLAND, 978 hPa, (NOT IN NIWA)

A winter storm delivering a bigger depression than Cyclone Bola, with Wellington registering [28.90 inches](#) (978.6 hPa). Heavy rain and high winds, and included here merely as more evidence of how common these storms were in a colder climate with no cars.

MARCH 1888 FIRESTORM, NORSEWOOD (NOT IN NIWA)

You couldn’t get a more iconic/clichéd symbol of runaway global warming than bushfires burning towns to a crisp. [But this one, in our cold low-carbon past](#), is missing from the NIWA database:

“Ormondville, March 16. Tremendous fires are raging in the bush. The wires are down as I write this (4.15 o'clock), but I think this brief note will get through. I have just arrived here from Norsewood, having had great difficulty in getting through, as the whole place appeared to be in flames. Fires are burning in other parts of the bush, but the gravest conflagration is at and near Norsewood. The country for miles around is in flames, and as a terrific gale is blowing the fire is spreading with dreadful rapidity.

“When I left Norsewood four places had been burnt, namely, Mr Petersen's blacksmithing shop. Mr Rees' dwelling (the parsonage), a house owned by Mr Small and occupied by Mr Dunn, and Mr Ingvoldsen's house. In all probability others have since been destroyed, the gale causing the fire to rage with great fury. Everybody is hoping for rain, heavy and long-continued, as that appears to be the only thing that will stop the flames. The settlers were working hard when I got through trying to save Small's and Gribble's stores. The outlook appears to me a very grave one unless rain comes and the wind drops.”

Unfortunately, the reporter’s worst fears were realised; the entire town was razed to the ground, the gale driving it part of [another big storm system](#) blasting New Zealand on the back of extreme drought in Hawkes Bay:

“While we are getting more wet than we desire our fellow colonists in the North have suffered great loss through want of rain. Through continued dry weather the district containing the Scandinavian settlements between Wellington and Hawkes Bay had become as inflammable as tinder, so that a gust of wind and a few embers were all that were needed to start a great conflagration in that wooded country. Such a combination occurred on Friday and as a consequence the thriving township of Norsewood has practically been swept away and its inhabitants left homeless and desolate. Money is being collected to relieve their necessities and it is seldom that a call is made in New Zealand for a more humane object.”

Forty buildings were destroyed and [twenty families with 250 children](#) between them (yes, you read that right) were left homeless. The [firestorm struck without warning](#):

“About 10 o'clock a furious gale rose and brought sparks from clearings some distance away. The winds prevailing the previous days had dried everything, and the grass and logs caught fire, and spreading, the fire was soon racing over the country towards Norsewood village.

“Unfortunately, there were very few men at home, the majority being away at work. The women and the few men in the settlement were powerless to check the spread of the fire, as the sparks were flying as thick as hail. By superhuman efforts a few places were saved with wet blankets. Aggravated by the terrific force of the wind, it was seen that to stay in the village was impossible, and the women and children hurried away.

“Of course the people could take nothing with them. The families sought shelter with the settlers round about or returned to Norsewood and obtained shelter in the hotel building, which was crowded with women and children now without home or raiment.

“The fire seemed to break out simultaneously in all parts of the township, and many places were burned after the people left.”

Again, this climate extreme from 1888 – a firestorm generated by hot drought - is not catalogued by NIWA.

MARCH 1888 STORM NZ (NOT IN NIWA)

The low from this early southern storm was so great that sea levels surged by more than a metre at Christchurch and nearly [two metres in Wellington](#):

“WELLINGTON, March 30. One of the severest storms that has been experienced here for years swept over the city on Wednesday evening. It was accompanied by a tidal wave which rose in the harbour to within eighteen inches of the breastwork. The storm caused very heavy damage in town, and the Government railway line between Kaiwarra and Petone is so far damaged that it is anticipated a large part will have to be re constructed. The channel from the Heads directed the waves against the railway line along the Petone beach, and beside the damage to the railway line, the water carried away several boat sheds in Oriental Bay, just opposite the wharves, tore down the side of the Te Aro baths, and drove ashore several yachts. The freezing hulk Jubilee, lying off the Petone wharf, parted her moorings and was driven against the wharf with six thousand carcasses of meat aboard. It is not thought that any serious damage has been sustained. Iron roofs, windows, and chimneys also came in for attention. Several small buildings were wrecked.

“The railway line between Wellington and Petone is a perfect wreck, and some three or four months will elapse before through communication can be restored. Meanwhile Cobb and Co.’s buses ease the

traffic, and have been engaged by the Government to undertake the work of forwarding passengers from Wellington to Petone.

“It is almost incredible that the sea in one night, or rather in one tide, could have made such havoc as it did. The solid concrete wall beyond Ngahauranga is carried away, and the heavy stonepitching has disappeared altogether in one or two places. Chain after chain has been washed completely away, and in other places the direction of the line has been altered. The cable across Cook Strait is broken, and the only communication with the South Island is via the Wanganui cable. The Hutt Park railway line has suffered by the gale, and those attending the races will have to go through Lower Hutt. The attendance is expected to be seriously effected. The heavy gale has caused serious interruptions to the telegraph wires, and Wellington has been practically isolated from communication with all other parts of the Colony. The weather to-day is fine, with a strong wind blowing. During Wednesday’s storm the water rose four feet higher than was ever known before at the pilot station. It was also very high all around the neighbouring coast.”

Down in Christchurch they were also coming to terms with the effects of rapid sea level rise:

“At Sumner during the recent gale, there was experienced the highest tide that the oldest inhabitant remembers to have seen. The waves are said to have come 3ft over a portion of the estuary road, and right up to Mr Monk’s house. In the town of Sumner, the tide came up as far as the front of Godso’s Hotel. Mr Day was out in his boat, but deemed it prudent to come on shore. He left his boat, as he thought, secure, but the tide carried it away, and totally wrecked it.

“At New Brighton, too, an unprecedentedly high tide washed up and cleared away the sand as if it had been arranged to free all the buildings fronting on the beach. Naturally, the owners of houses to which the waves came so close were very anxious, and, in some instances, they took measures to prevent mischief. Mrs Hamilton had recourse to the expedient of laying down a number of sand bags at the corner of her property where the tide was threatening to eat away the foundations of her coach house. Mr Effey’s baths withstood the fury of the sea very well, and the main building appears to have been unshaken; but the fencing has all been carried away, with the exception of the posts.

“A new house, recently furnished by Mr Hancock, was less fortunate. The water washed away the piles upon which it rested, and the principal room sank some feet. It was filled with sand to the extent of about ten tons. Mr Hancock deemed it prudent to have the brick chimneys taken down, but as the house has evidently been well put together, he is of opinion that it can be reinstated at a cost of some £20 or so.

“Some of the other houses along the sea frontage present an unwonted [today we all learned a new word] appearance, as the sand which has been for years drifting against the fences has been entirely removed. It is thought by some of the old residents at New Brighton that this accumulation of sand is by no means an unmixed evil, but that in all probability it saved from destruction the houses it protected. There appears to be little room to doubt that there was a tidal wave along the coast.”

Except of course, it was storm surge, not a tidal wave.

You couldn’t get a more graphic description of what one or two metres of sea level rise really looks like, but this nationwide storm is not available in the NIWA database. A much smaller flooding event in Otago a week later is in the database however. Go figure.

JUNE 1889, MASSIVE STORM NZ, 958 hPa, (NOT IN NIWA)

Deep barometric lows in the mid 28s in many centres, and [down as far as 28.29 \(958 hPa\)](#) at the Port of Tauranga, this is another storm only included to show that systems geographically bigger and deeper than supposed 1-in-250yr Cyclone Gabrielle rumbled in with monotonous regularity in low carbon times.

The [NZ Herald reports](#) the monster storm began Thursday 31 May and lasted until Friday the following week – eight days! Whangarei’s main river rose ten metres.

ADDENDUM – THE OUTLIERS

The methodology of my survey sample was determined by no other reason than to provide a manageable sample size to study. Even by restricting it to storms mentioning the words ‘barometer’ and ‘28’ between 1868 and 1890 I still had to wade through thousands of news articles, often syndicated republications of an original.

Storms of 29.1 (essentially Bola intensity or smaller) were a dime a dozen and in most cases (unless particularly interesting) placed to one side. I wasn’t searching for 29-storms so there will be hundreds or thousands more of those buried in PapersPast.

I have no idea what search terms NIWA used to scan the old archives, but I suspect they were not well-targeted which is why NIWA is apparently flying blind on New Zealand’s real climate history.

Naturally during my searches, opportunities arose to follow leads down different pathways. Chasing those leads turned up a few more extreme climate events worth mentioning even though they are outside the sample dates.

They are presented here:

MARCH 1860, MASSIVE SOUTHERN STORM, 948 hPa, (NOT IN NIWA)

A passenger steamship en route from Melbourne to Bluff encountered an equinoctial storm at the entrance to Dusky Sound, Fiordland. The ship’s [barometer plunged to just 28 inches](#) (948 hPa) and the storm nearly sank the ship.

Again, in the context of Gabrielle supposedly being one of the most intense storms to hit NZ in recorded history, it struggles to even make top 10 when merely compared with storms just between 1868 and 1890. And if the sample size was widened from the 22 year window I chose, there’s a possibility Gabrielle might not even be top 30 in terms of what Nature used to throw at us when we were colder and using less carbon.

JANUARY 1939, CYCLONE NZ, 958 hPa, (IN NIWA)

A huge summer cyclone sank barometers to record lows in many parts of New Zealand, again, much lower than Cyclone Gabrielle. Awarua receiving station in Southland registered just [28.319 inches \(958 hPa\)](#). Reference is made in the linked article to another massive low only three years earlier indicating, yet again, that while Giselle, Bola and Gabrielle have captured modern attention, an inconvenient truth is buried in our past.

Although NIWA logs an event on this date, it thinks it was only a flooding incident in Southland and has no barometric readings loaded.

CONCLUSIONS (corrected to include two storms linked but not counted in original media release)

Storms in 1868-1890 + Outliers in order of known barometric lows, most powerful to least:

1. 948, March 1860
2. 951, June 1876
3. 955, Feb 1868
4. 958, June 1889
5. 958, Jan 1884
6. 958, Jan 1939
7. 959, Oct 1868
8. 963, Dec 1871 (Gabrielle in 2023 was also 963)
9. 967, Dec 1871
10. 968, Mar 1871 (Giselle in 1968 was also 968)
11. 970, Dec 1868
12. 975, Jan 1869
13. 978, Sept 1887
14. 980, Feb 1874
15. 982, July 1871 (Bola in 1988 was also 982)
16. 984, July 1875
17. 984, May 1880
18. 985, June 1868
19. 985, Sept 1874

Additionally, there are seven further extreme weather events for which no barometric readings are available. Some were geographically bigger and appear to be more intense than Gabrielle but without readings we don't know.

Of the 26 events included here, only five appear to be in NIWA's public database – essentially just 20%. If only the 24 events from 1868-1890 are considered, then only four of those events are in the database.

If the table was adjusted to compare the 19 known historic storms during that 22 year sample with the three biggest in modern times, Gabrielle would place at position eight, Giselle at 11 and Bola at 18.

In total, 24 extreme weather events associated with storms of similar or greater barometric pressure than Cyclone Bola (the unregistered events are unlikely to have been smaller) have been located in the 22 year period from 1868 to mid 1890. That's a crude average of one Bola a year – and 1868 had four of them in one year.

Five of the known barometric events from 1868-1890 had far deeper barometric intensity than satellites measured on Gabrielle, suggesting that in the colder, low carbon 1800s, storms of that magnitude may have been 1-in-4 year events, not 1-in-250 year events.

The extreme events detailed in this study, and NOT currently entered in the NIWA research database, tell the story of what NZ might look like with sea level rise between one or two metres, of entire towns being washed away or burnt down, and our biggest cities regularly knee deep in floodwater, with a frequency that would make a climate change journalist blush.

Further study of NZ's weather history is clearly required if the public, politicians, climate scientists and insurers wish to truly understand the risks of warmer vs cooler climates and more realistic probability assessments than are currently being provided.

On the evidence presented here, it would appear there has been no increase in extreme weather in modern times. If anything, it may be the reverse. We have not been seeing lows as deep as Bola every year, unless officials aren't telling us something.

It is clear that early European settlers faced the same issues of sea levels, managed retreat and extreme weather that dominate our news today. The only difference is CO2 was much, much lower and it was also much colder back then.