# -ENVIRONMENTAL IMPACT STUDY-

## HUDSON BAY FORCED WATER VAPOR EMISSIONS Have Created a Moisture Laden Atmospheric Warming Blanket Over Greenland

A Primer by Stephen M. Kasprzak

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This Primer is designed to offer readers significant highlights from this important 55 page document available at:

**www.arcticbluedeserts.com**

https://arcticbluedeserts.com/images/PDFs/EIS-Kasprzak-Pages-1-55-Final-5-1-24-6_57-pm.pdf

## Introduction

This Environmental Impact Study (EIS) is focused on the climate changing impacts of 24/7 forced water vapor emissions from Arctic mega power stations (AMPSs) and hydropower plants (HPPs) on rivers in Russia and Hudson Bay's watershed.

The forced winter water vapor emissions are created by evaporation from the massive regulated discharges of relatively warm summertime solar heated reservoir waters into the frigid Arctic atmosphere. The forced summer water vapor emissions are the evaporation from surface areas of gigantic man made inland seas.

Forced water vapor emissions from AMPSs and HPPs have created multiple "*positive feedbacks*". A "*climate feedback*" is defined by **NASA**, **Global Climate Change, Vital Signs of the Planet** as: *"a process that can either amplify or reduce the effects of climate forcings. A feedback that increases an initial warming is called a 'positive feedback'. A feedback that reduces an intial warming is a 'negative feedback'".*

The Robert Bourassa AMPS on the La Grande River was commissioned in 1980. It created"positive feedbacks" warming Kuujjuarapik and Kuujjuaq in northern Quebec. In 1993, the Brisay AMPS was commissioned by Hydro Quebec and it created an environmental Frankenstein doubling the warming rates at the two weather stations.

After the 1993 Brisay AMPS was built, the southwest Greenland average annual temperature rapidly rose 1.5 degrees over the the next 20 years to 0 degrees Celsius. Extrapolating the historic trend line shows it should have taken more than a hundred years for the average annual temperature to reach 0 degrees Celsius (See page 9).

Post Brisay, Greenland's surface melt extent increased three fold and global mean sea level has risen 3.98 inches in 30 years (National Snow and Ice Data Center). This tipping point in sea level escalation was preceded by a rise of only 4 to 5 inches in mean sea level between 1900 and 1992 (**NASA Tracking 30 Years of Sea Level Rise**). Since the Brisay was commissioned, global mean sea level has risen almost 4 times faster than the historic rate.

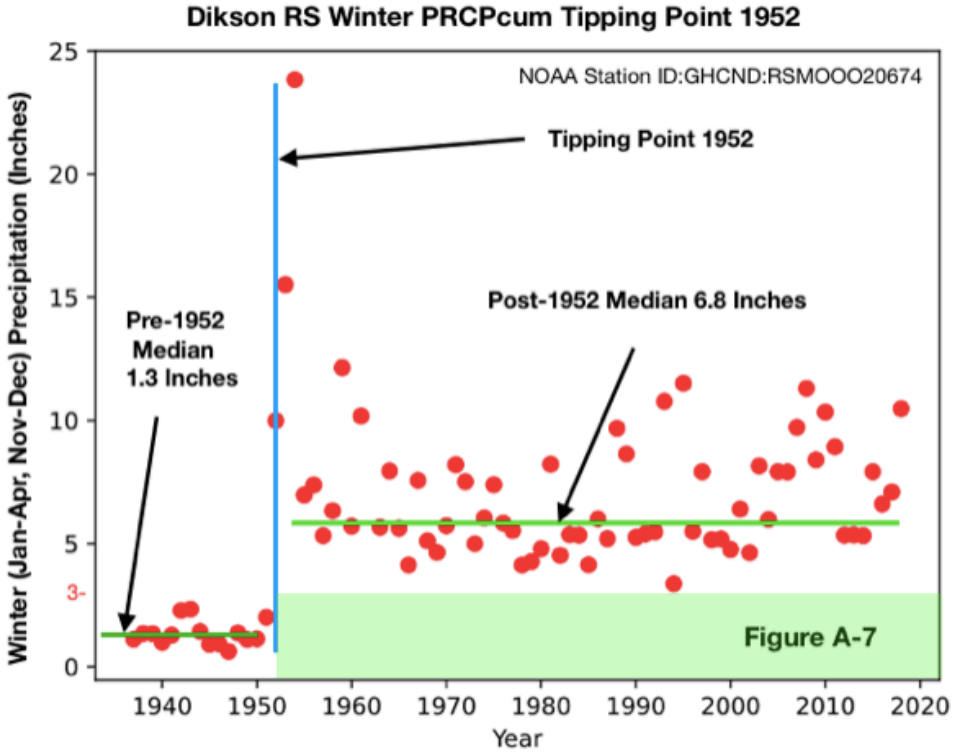
The problem lies not in hydroelectric dams as a whole, but from a small percentage of large dams and their "positive feedbacks" on the fragile Arctic climate. This Study is focused on the impact of forced water vapor emissions from just 51 of them and why the 15 on Hudson Bay rivers may be the major drivers melting Greenland's glaciers.

The weather data and graphs in this EIS are compelling evidence for making the case that a key step for slowing and reversing the melting of Greenland glaciers can only occur if the Brisay AMPS is removed and the natural flow of the Caniapiscau River is restored. This would eliminate their multiple "positive feedbacks" and significantly slow the rate of glacier melting and rising seas.

**Using forced water vapor emissions to create positive feedback to increase Arctic temperatures is not an original hypothesis.** In 1949, the Soviets announced to the United Nations, their plan to build two very large reservoirs on the north flowing Ob and Yenisei Rivers to irrigate the Asian Desert. At the time, the Soviets hypothesized that the evaporation of immense volumes of water from the new reservoirs would also moisten the winds and warm the Arctic climate. This irrigation plan was abandoned and replaced with a scaled down version designed and engineered to warm central Siberia. It was reported in the March 3, 1958 Fort Worth Star-Telegram that *"Moscow radio boasted… 'Astonishing climatic changes would occur… evaporation (from the inland sea) would increase and with it the humidity of the air' "*.

Quantitative analysis of Russian weather data reveals winter evaporation was typically much greater than the summers and identifies three tipping points in 1952, 1957 and 1967 of severe increases in winter and annual precipitation and temperatures. All of these tipping points appear to be "positive feedbacks" from the Arctic mega power stations (AMPSs) forced winter water vapor emissions.

A sudden and exponential increase in winter precipitation occurred after the 1952 commissioning of the Niva-1 AMPS on the Barents Sea's Kola Peninsula. The Niva-1's forced water vapor emissions created a positive feedback loop amplifying pre-1952 winter precipitation median five fold, from 1.3 inches to 6.8 inches, over a distance of 1,100 miles at Dikson, Russia along the Kara Sea (See Map 1 page 4).



## Map 1


SMK added black dots and arrow to identify approximate locations of AMPS and/or weather stations discussed in this Study.

This EIS focuses on hydroelectric projects in four regions:

1. Barent Sea's Kola Peninsula, which has 8 AMPSs and 18 hydropower plants (HPPs).
2. Siberia with 10 AMPSs in the watersheds of the Ob, Yeisei, Vilyuy and Kolyma Rivers.
3. Manitoba's Nelson River Hydroelectric Project with 1 AMPS, 4 HPPs and the Churchill River diversion into the Nelson (See Map 2 on page 5).
4. The James Bay Hydroelectric Project on the La Grande River in Northern Quebec has 4 AMPS, 6 HPPs and 4 river diversions into the La Grande (See Map 2).

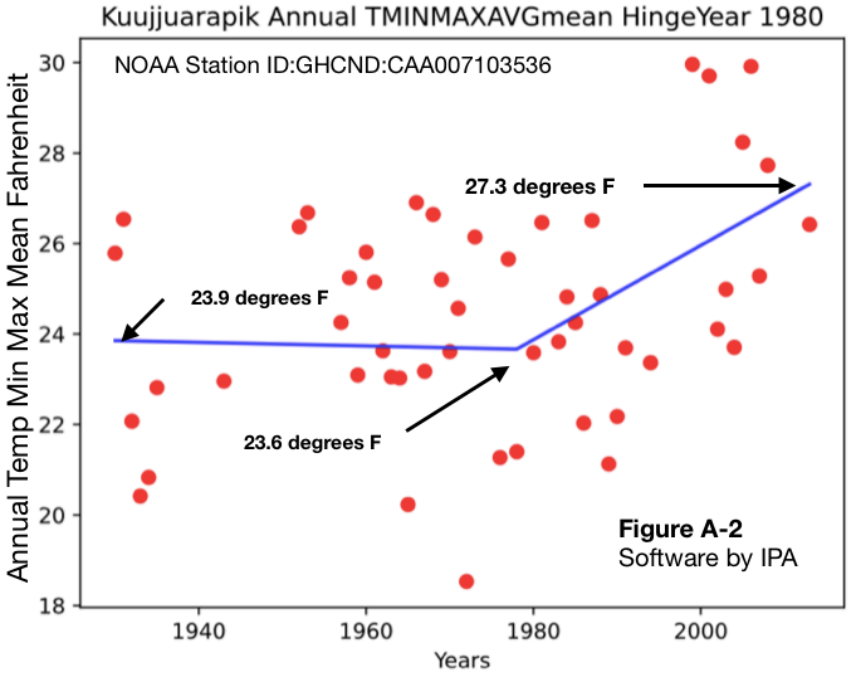
In northern Quebec, rivers have been diverted to augment hydropower production on the Nelson and La Grande Rivers. The additional massive increase of unfrozen water flow in winter due to these diversions has greatly enhanced the greenhouse impact with more forced evaporation and acute enhancement of precipitation and temperatures in downwind and downriver regions.

**Canada's Labrador Peninsula and the southwestern Coast of Greenland - The Tailpipes for Forced Water Vapor Emissions from Hudson Bay Dams**

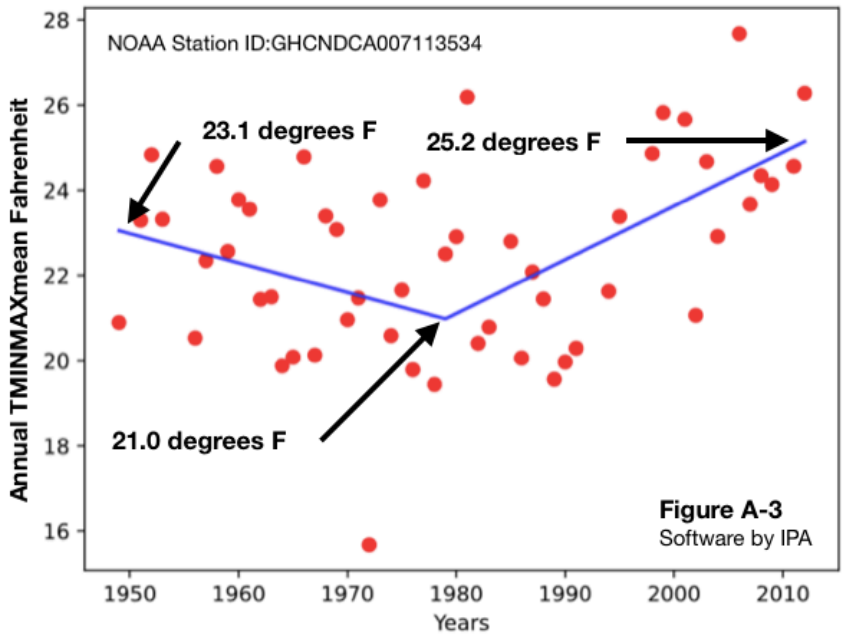

**Map 2**

Source: www.freeworldmaps.net

**The 1980 hinge year is the year that the Robert Bourassa AMPS began operation under the ownership of Hydro-Quebec and radically reversed a half century cooling trend.** The 1980 to 2013 data from the northern Quebec weather stations at Kuujjuarapik and Kuujjuak (See Map 1 on page 5), reveal an acute tipping point and warming trend 5 to 6 times faster than the global rate of 2 degrees F over the past 100 years. The public availability of data ceased after 2013.




**Kuujjuak Annual TMINMAXmean Hinge Year 1980**



**Thirteen years later the warming rate in northern Quebec doubled.** There was a second and more powerful tipping point in 1993 with the commissioning of the Brisay AMPS, creating the 1,700 square mile Caniapiscau Reservoir and the earlier diversion of 45 percent of the Caniapiscau's annual water flow into the La Grande.

The 1991 to 2013 average annual temperature trend line (blue line in Figure A-4) exposes an ominous increase in temperature of 4.4 degrees Fahrenheit in 22 years, which is 10 times faster than the global rate and the same warming rate was documented at Kuujjuaq (See Figure A-5). There was no data for 1992 and IPA's algorithm moved the hinge year back to 1991.

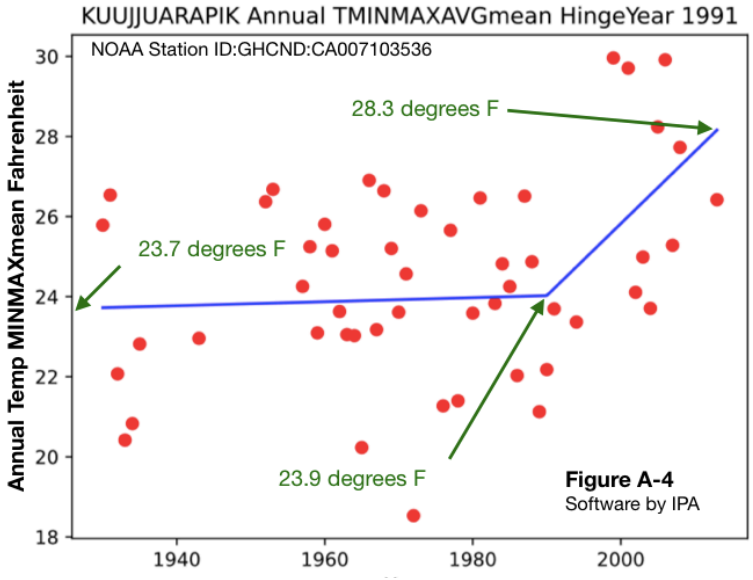



**Figure A-4**
Software by IPA

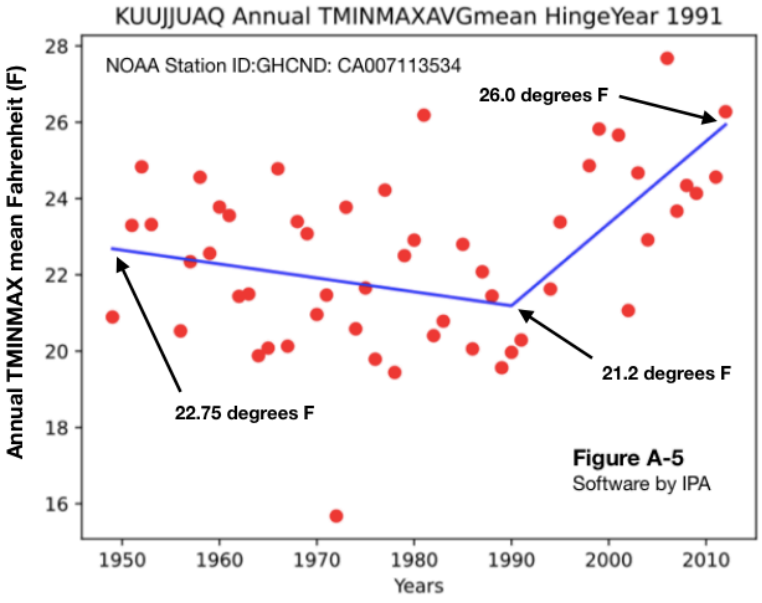
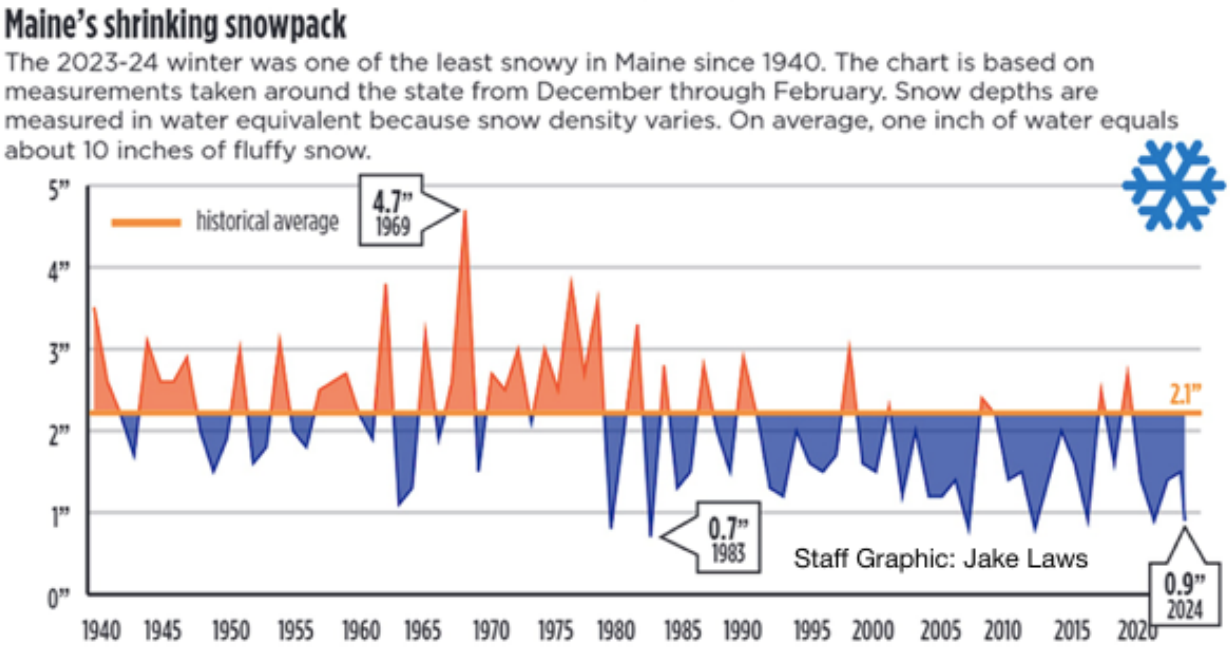
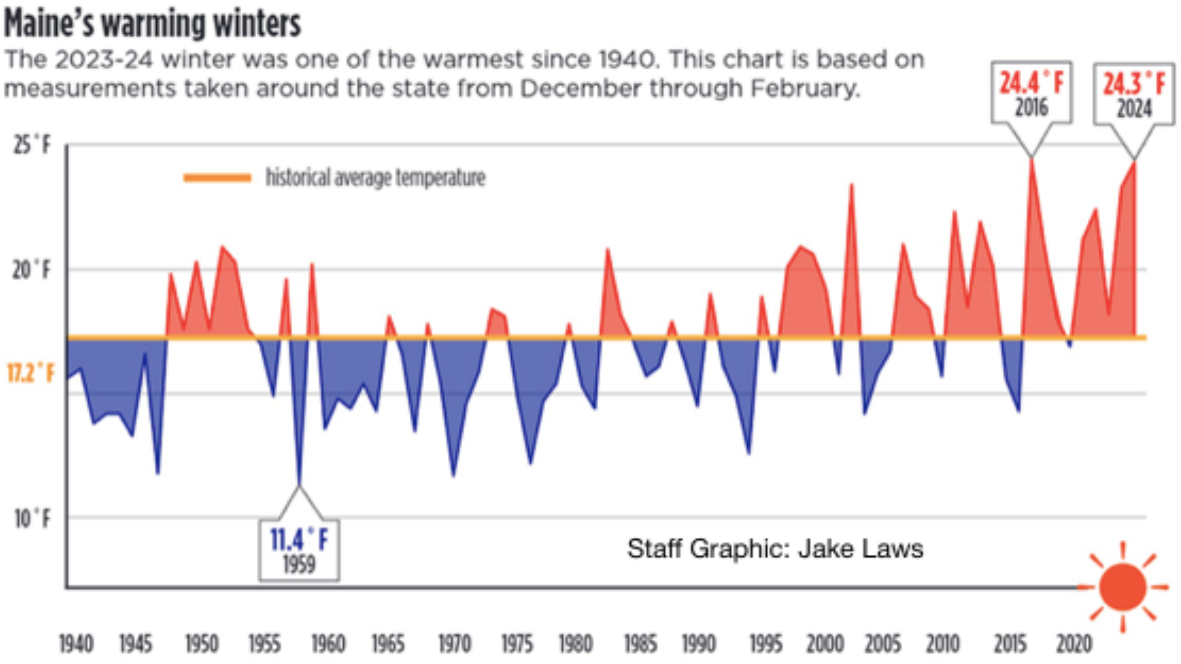



**Figure A-5**
Software by IPA

The 1980 Roberta Bourassa and 1993 Brisay AMPS's tipping points are readily apparent on these two graphs.

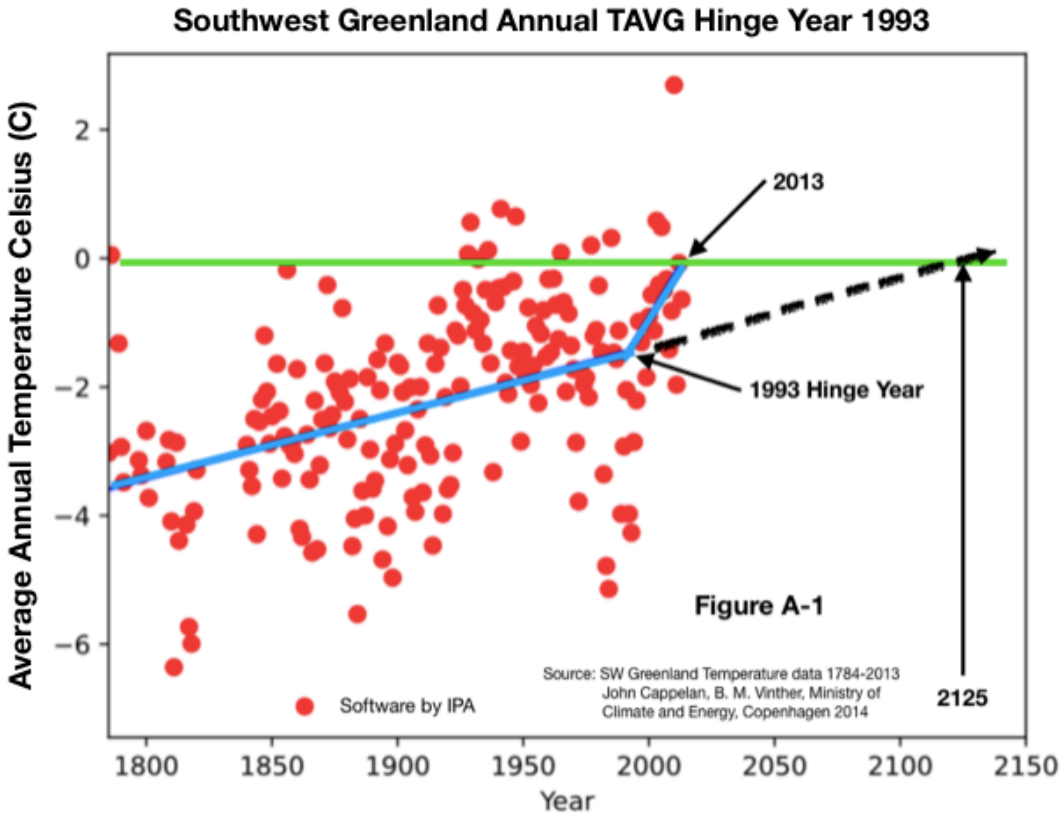



Source: Climate Change Institute; University of Maine - Maine Sunday Telegram March 31, 2024




Source: Climate Change Institute; University of Maine  Maine Suday Telegram March 31, 2024

**Forced water vapor emissions are a powerful greenhouse gas and major driver of Arctic warming.** After the 1993 Brisay AMPS was built, the southwest Greenland average annual temperature rose 1.5 degrees Celsius (C) over the next 20 years to 0 degrees C, compared to a rise of only 2.1 degrees C over the previous 204 years. Extrapolating the historic trend line shows it would have taken more than 100 years after 1993 for the temperature to reach 0 degrees C.




1784 to 2013 Average Annual Temperature Trend Line
1993 to 2125 Extrapolation of 1784-1993 Trend Line

The Brisay hydroelectric AMPS is located about nine hundred miles to the southwest of the Greenland weather stations. It is my hypothesis that evaporation from the regulated and relatively warm discharged AMPS' waters and its 1,700 square mile reservoir has created forced water vapor emissions, which form 24/7 moisture laden atmospheric warming blankets extending over northern Quebec and across the Labrador Sea to southwest Greenland.

Data from NASA's National Snow and Ice Data Center documents the 1985 and 1993 tipping points of huge increases in Greenlands's surface melt extent. These two years coincide with the August 1985 diversion of the Caniapiscau River and 1993 commissioning of the Brisay AMPS.

The Brisay's forced summer and winter water vapor emissions and their thermally warming humidity are readily transported by the prevailing west and southwesterly winds across Hudson Bay and the Labrador Peninsula and Sea to Greenland's western shore and farther north to Ellsmere Island.

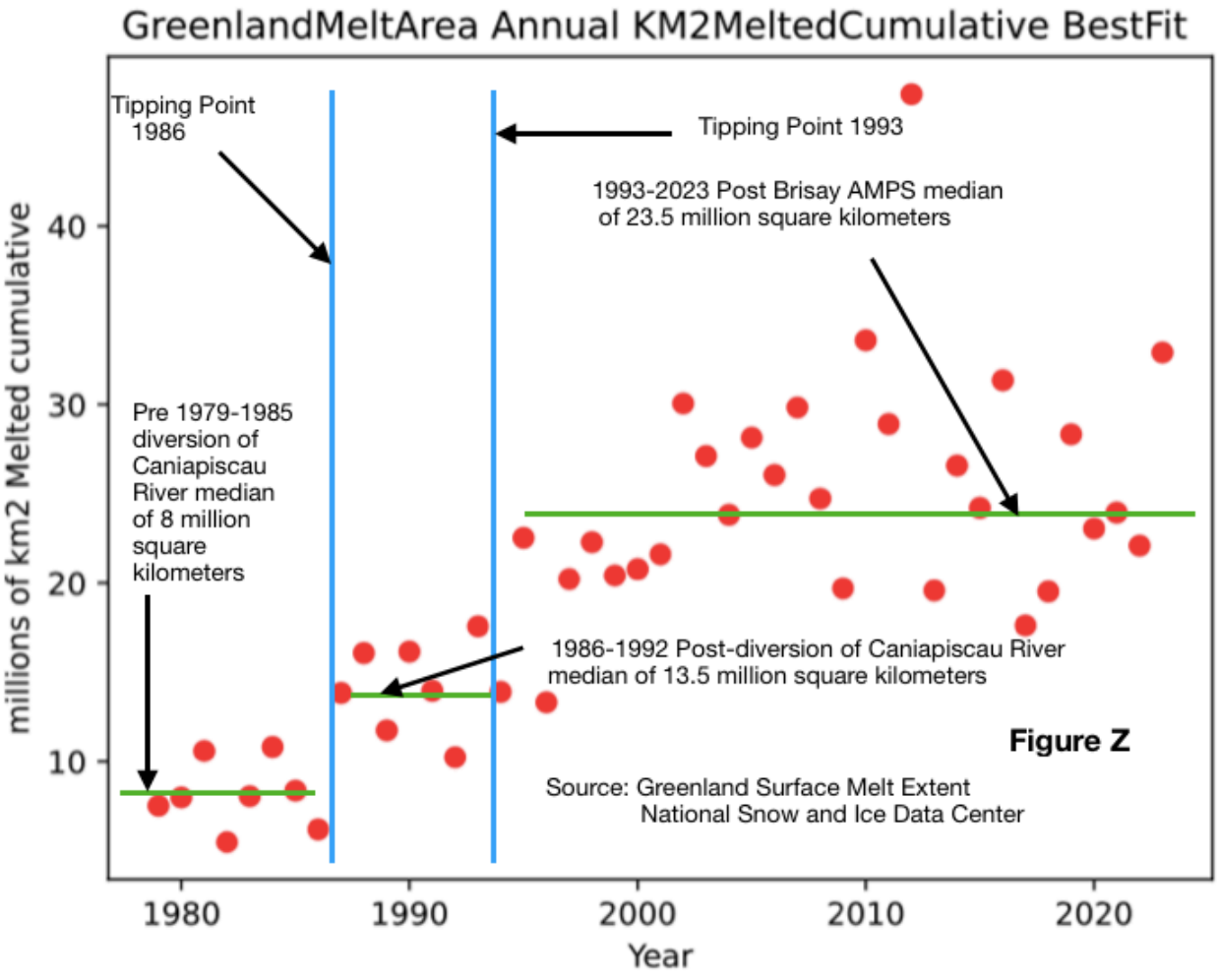



**Figure Z**

Notes: From 1979-86 and part of 1987, the recorded data in the National Snow and Ice Center is missing data for every other day due to alternate day satellite tracking over Greenland. In order to use this data set, we assumed the melt extent on the days not recorded was the same amount recorded on the previous day.

## Conclusion and Remediation Plan

To the best of my knowledge, there has never been an environmental study on the cumulative impacts of Quebec, Manitoba and Ontario AMPSs and HPPs on rivers flowing into James and Hudson Bays according to the following two articles.

1. **James Bay seen as test on environment** Star Phoenix, January 8, 1976, *"The man in charge of assessing the environmental impact of Quebec's massive James Bay hydroelectric project admitted Wednesday no one is sure just what its impact on the environment will be. 'We are using this project as an experience to see what will happen', Alain Soucy said in an interview. We have about $100 million to spend over the next 3 years on remedial action, though.' The head of James Bay Energy Corporation's environmental department said that even if there were severe environmental problems caused by the project it would not be curtailed. 'We can't change the scale of the project or it will not work.' He explained."*

2. **Slow Death in the North? Impact of Hudson Bay dams being ignored, critics charge** The Toronto Star (Toronto, Ontario), Canada) April 9, 1991, *" Are Hudson Bay and James Bay facing the slow death of a thousand cuts? Many environmentalist, native people and even a few government officials fear the answer is yes….. Pollution and changes in the rivers flow could even alter North America's climate….. The projects change the flow of freshwater into the bays. Normally, the rivers flow is highest in the spring. But the dams store the water until its released to spin the turbines later in the year. Cutting the spring flood can change the times and location of ice melting and also affects the bays' salinity. This alteration in a fragile, carefully balanced environment could have devastating effects on the whales, birds and other wildlife. But there's opposition from the hydrocorporation. " We're not against a global review," says Gaetan Guertin, director of impact assessment for Hydro-Quebec. "But if a decision on a 'go' or 'no go' will have to wait (for the results), there will be a reaction from Hydro-Quebec. Some of our projects are very tight in terms of scheduling."*

The graphs contained in this EIS provide compelling evidence that the forced water vapor emissions of the James Bay experiment are the footprints of an environmental Frankenstein melting Greenland's glaciers. They also confirm that studies were warranted before and after AMPSs were built on Hudson Bay regional rivers.

It is my hypothesis that the immediate ending of the diversion of the Canaipiscau River, by restoring its natural flow northward to Ungava Bay, and the decommissioning and dismantling of the 1,700 square mile Caniapiscau Reservoir would eliminate all of their forced water vapor emissions and "positive feedbacks". This would end their climate warming power, significantly slow the fast paced warming of the Arctic and melting of the Greenland's ice sheets. This would mitigate the global dangers of rapidly rising sea levels that are, as a result, taking and destroying public and private property by increased flooding and erosion events.