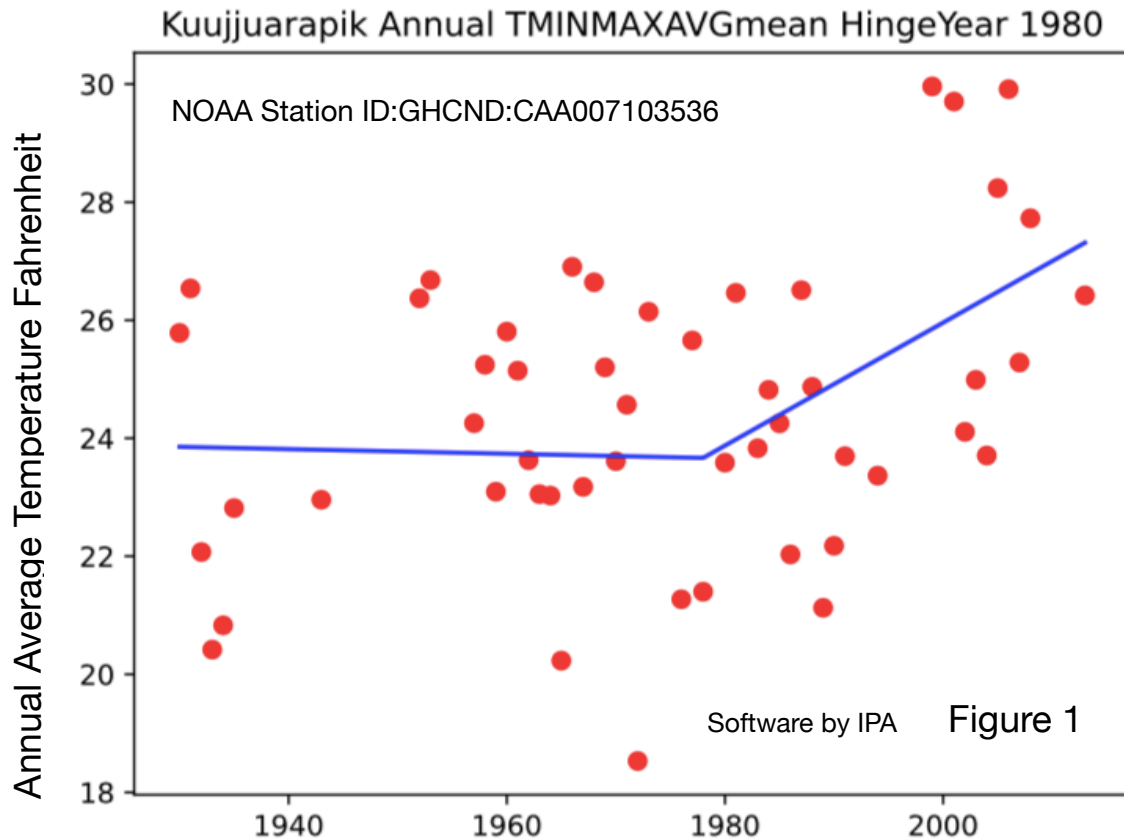


## Hydro-Quebec's Arctic Mega Power Plants Are Rapidly Warming the Climate

The Soviet Union announced in 1950 to the United Nations, its intentions to use water vapor emissions from its hydroelectric reservoirs to warm the Arctic. As early as the 1960's, the weather data confirmed the success of their experiments.

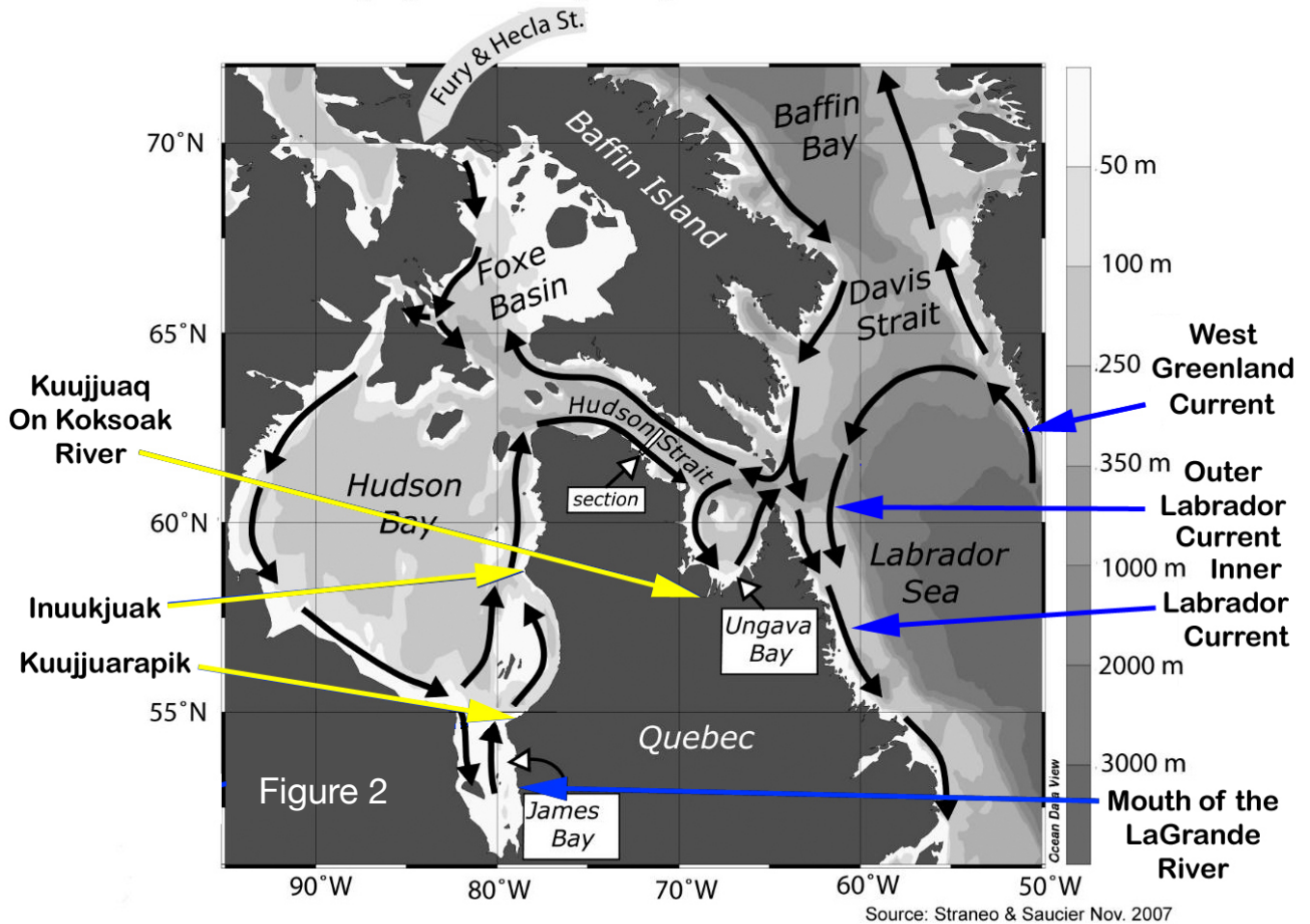
Hydro-Quebec and Manitoba Electric in the 1970's and 80's have built huge reservoirs on rivers flowing into James, Hudson and Ungava Bays and the Labrador Sea. The increased water vapor emissions from these Canadian reservoirs have been just as devastating as the Russian hydropower projects at warming the climate and downstream rivers and coastal currents, including the Inner Labrador Current.

After the commissioning by Hydro-Quebec of the Robert Bourassa Reservoir and Power Plant (1979-80) on the LaGrande River, the records of the Kuujjuarapik weather station situated about 150 miles north of the La Grande's mouth, reveal in 1981, a sudden and rapid increase in temperatures. (See Figure 1)



In 1981, the warm regulated winter discharges from the Robert Bourassa power plant had greatly increased the La Grande's natural river flows into James and Hudson Bay's coastal counter clockwise currents and then further north through Hudson Strait and eventually into the Inner Labrador Current. (See Figure 2)

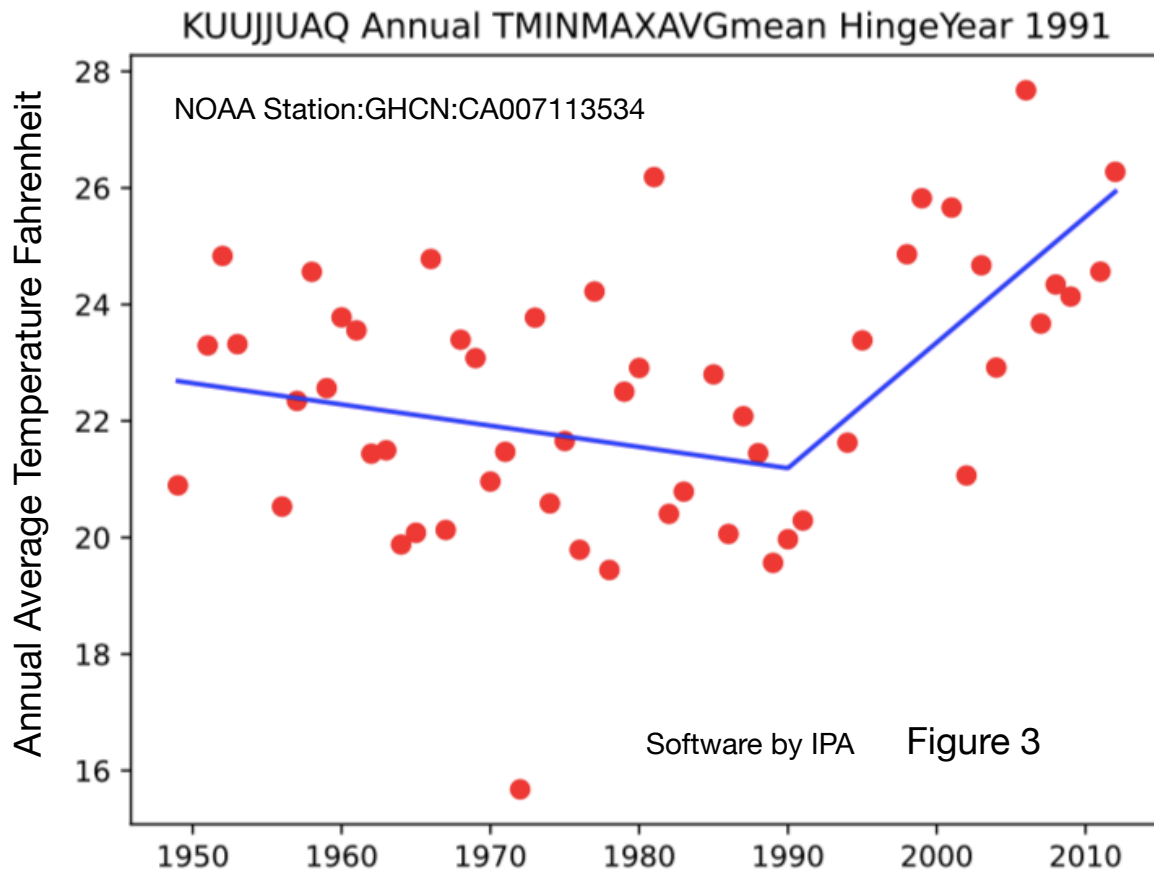
**Hudson Bay System: bathymetry and schematic circulation**



The Bourassa Dam era has warmed and increased the magnitude of James and Hudson Bays winter coastal currents. These changes were further compounded by Hydro-Quebec when it commissioned, in 1993, the Brisay Hydroelectric Power Plant which diverted 45% of the north flowing waters of the Caniapicau River thru the La Grande hydroelectric complex into James Bay's coastal currents.

The icy cold water of the Caniapiscau River's annual spring run-off is now diverted, hoarded, and warmed throughout the summer by the Bourassa and the La Grande 3 and 4 sea size impoundments. Since 1993 the Robert Bourassa's winter outflows are now 8 times greater than the natural pre-dam winter flows.

The impact of the Caniapiscau's diversion and the increased Bourassa winter discharges has radically warmed temperatures (see Figure 3) at Kuujjuac's weather station on the Koksoak River that flows into the counter clockwise coastal current of Ungava Bay and then directly into the Inner Labrador Current.



Note: We calculated the annual temperature mean at Russian weather stations using daily averages. There is not enough data at Quebec's stations, so we calculated an annual temperature using an average of the daily minimum and maximum temperatures.