



Witsuwit'en perspectives on climate change in the Bulkley R. area (British Columbia)

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Moricetown Band

Widzin Kwah (Bulkley R.), looking upstream (south) at Telkwa BC

Project description

- 3-year project on "Athabaskan Personal Histories of Climate Change in Alaska and Canada" (NSF DEL-0651853)
 - Deg Xinag (Alaska)
 - Tsek'ene (B.C.)
 - Witsuwit'en (B.C.)
- Currently starting year 2
- Progress report on Witsuwit'en part of project
 - Methods
 - Results to date
 - Next steps

Witsuwit'en

- One dialect of Babine-Witsuwit'en language
- 2002 census: about 180 speakers of Witsuwit'en dialect
- Youngest speakers aged late 50s

Babine- Witsuwit'en communities

Witsuwit'en
dialect

Bulkley R., a tributary
of the Skeena R.

http://en.wikipedia.org/wiki/Bulkley_Valley



Babine
dialect

Bulkley Valley



Widzin Bin (Morice L.), July 2007

effect of
mountain
pine beetles



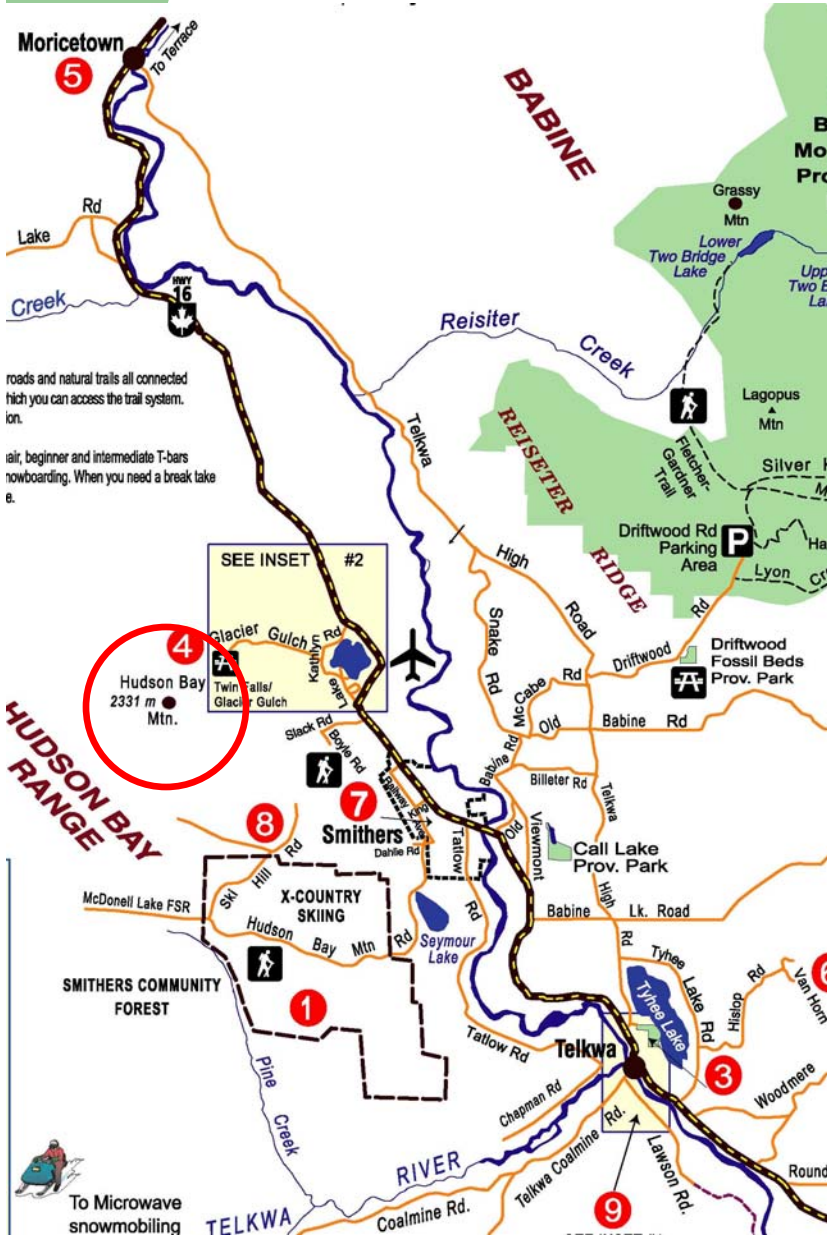
Why is British Columbia in the midst of a mountain pine beetle epidemic?

- A FAQ on B.C. Ministry of Forests and Range website
- Answer
 - Forests of mature lodgepole pine are prime habitat for the mountain pine beetle. The beetle also thrives under warm weather conditions. The interior of British Columbia has an abundance of mature lodgepole pine, and has experienced several consecutive mild winters and drought-like summers. Beetle populations in many parts of interior B.C. have increased to epidemic levels as a result.
[http://www.for.gov.bc.ca/hfp/mountain_pine_beetle/faq.htm#2]

Smithers

- Largest town in area
- Airport with 2x-3x daily flights from Vancouver
- Population about 6000
 - <http://www.tourismsmithers.com/html/about.htm#stats>
- (Movie *Eight Below* was filmed on Hudson Bay Mt.)

Hudson Bay Mt.



Hudson Bay Mt. from the NE
Note the (receding) glacier.

Project methods



Near Houston, looking south

Office of the Wet'suwet'en

The Office of the Wet'suwet'en was created as a central office for the Wet'suwet'en Nation. The Office offers many services throughout the Nation focusing on the main areas of Lands and Resources (including Fisheries), Human and Social Services and Treaty Negotiations. The Office of the Wet'suwet'en was created as a central office for the Wet'suwet'en Nation. The Office offers many services throughout the Nation focusing on the main areas of Lands and Resources (including Fisheries), Human and Social Services and Treaty Negotiations.



from <http://www.wetsuweten.com/>

office located in Smithers, BC

Meeting with Office of the Wet'suwet'en staff

- Prior to Witsuwit'en narrative recordings
- Staff recommended by Vi Gellenbeck, Kyah Wiget Education Society
 - David De Wit, **Natural Resources Manager**
 - Stefan Schug, **Biologist**
- Explained purpose of project
- Archiving plan
- Advice on questions to ask

Biologist Schug

- Suggested some very specific questions; e.g.
 - any observed changes to moose ticks?
 - any observed differences about when cottonwood leaves come out?
- Warnings
 - People who know the language may have stopped going out into the bush for subsistence, therefore possibly lack firsthand knowledge of current conditions.
 - How to separate effects of climate change from other effects, such as resource depletion due to overharvesting of timber?

Interviews

- “Semi-structured” interviews
- Native speaker interviewers
 - Lillian Morris



Violet Gellenbeck

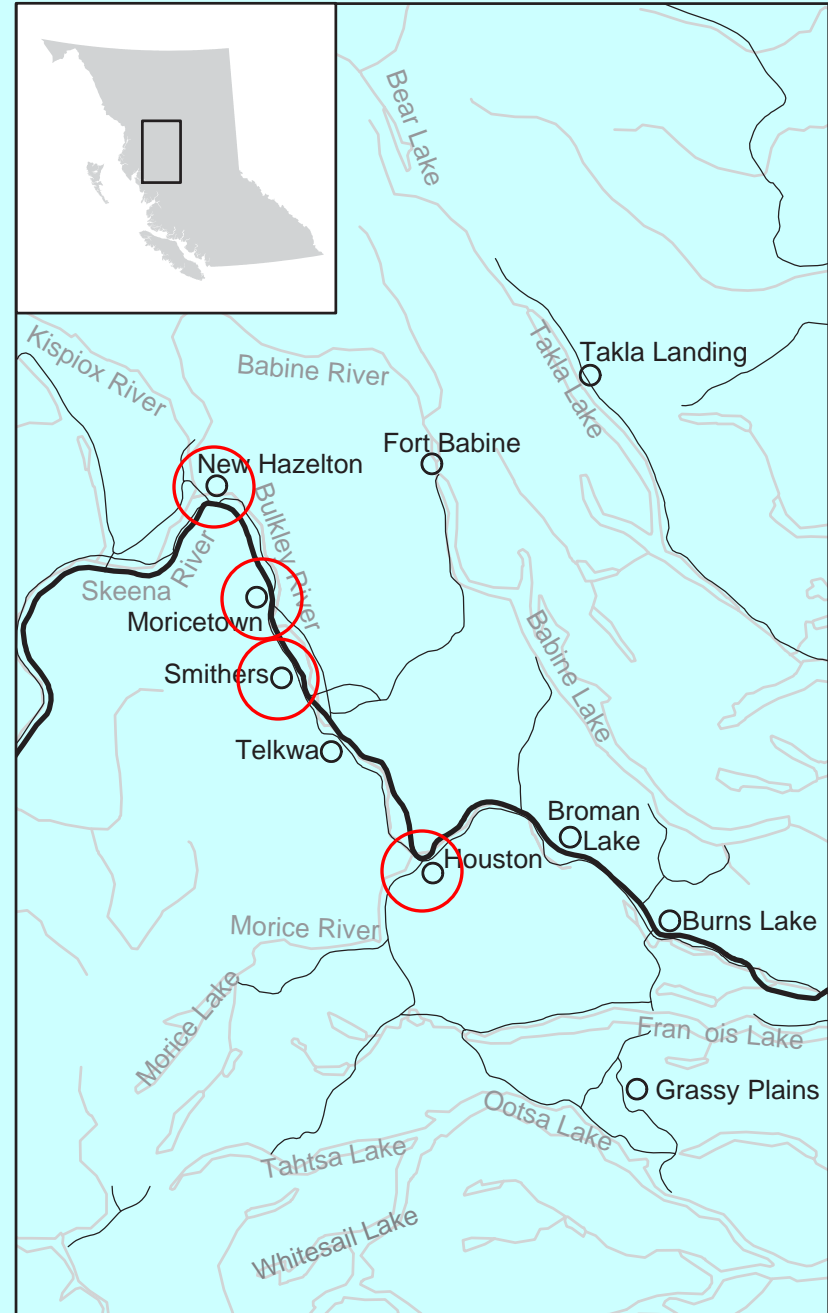


- Wit questions about climate change_rev.doc

Speakers interviewed so far

- Terrace
 - Lucy Verigin
- New Hazelton
 - Alfred Joseph
 - Margaret Austin
- Moricetown
 - Henry Alfred
 - Sue Alfred
 - Sam Wilson
 - Stanley Morris
 - Katherine Arsenault
 - Roy Morris
 - Steven Tommy
 - Lucy Namox
 - Clarence Dennis
 - Alex Dennis
 - Bill Mitchell
- Smithers
 - Mabel Forsythe
 - Christine Buchholz
- Houston
 - Russell Tiljoe

Terrace



Interviews

- So far
 - 16 hours, 36 mins. of interviews
 - 17 speakers interviewed (all but 2 by Lillian Morris)
 - 4.5 speakers transcribed and translated
 - (How to speed up the process? Currently
 - Bilingual speaker translates sentences
 - Sharon transcribes, translates word by word
 - Review of “problematic” passages)

Working on transcripts



Results to date



Telkwa range, viewed from hill from SE of Smithers

Witsuwit'en views on climate change

- Based on transcribed and translated interviews from
 - Dan Michell
 - Roy Morris
 - Mabel Forsythe
 - Lucy Namox

Some of the environmental changes mentioned

- Winters are not as cold now as previously
- Salmon runs are declining
- Eel runs are non-existent now
- Certain migratory birds (swans, cranes) are declining
- Moose are very scarce

Some comments about winter

- Dan Michell
(interviewed by
Lillian Morris
November 2007)





'Ey k'ay hozk'its disnī nde' Mosquito Flat **nyen sbep**
ī'in fall camp **hozdlī'**.

'My late father had a fall camp across from Mosquito Flat.'

Tin ditiyh car bī hiyk'it lhē' nikwiz.

'When the ice would freeze they would go across by car.'

Tin tabī ditay lhēkh.

'The ice got really thick.'

LM:

Lhë' nenditin?

'It froze across?'



DM: **Mi'**

yes

LM:

'Iwhde' nts'ëwh yis k'it?

'What year back then?'

DM: uh,

1947 'iwhiyegh de' 'awetsic so' tin wilhëkh.

'Around 1947 the ice was still very [solid].'



LM:

K'ay so' hots'in'a 'et 'iwewist'ën' hozli'.

'Now it doesn't get like that.'

DM:

**K'ay 'awet 3 years yi'ey ice fishing wini
tent hist'iy bi'iwesdzin.**

'The last three years I haven't used a tent
when ice fishing.'

(laughs)

Lucy Namox

(interviewed by Lillian Morris November 2007)



LM:

Dik ninyikh de', so' c'ik'enis hozk'its?

‘When you were growing up, how cold was it?’



LN: 60 below

'Et hok'as so' mbi 'ats niwesye', c'ide'.

‘When it got that cold no one went outside a long time ago.’

LM:

'Iwhde' nts'ëwh yis k'it?

‘What year was that?’

LN: I think around 1940. That's cold.

'Et ts'i k'enisit hozk'its.

‘It was very cold.’

60 below **dicin diltitl yin' tabi widil-,
lhts'ënwidikwiz.**



‘At 60 below the trees and ground would crackle loud.’

**Yi'ey yikh 'awh hidilhts'iy. 'Ats weztisyec
niwhëelh'iy.**

‘We had to stay in the house. We were not allowed to go out.’

About 2 days **'iwhiyegh lhilhk'is ti-, wilikhtah
one week 'iwidzih wik'iz.**

‘The cold spell would last two days to one week.’

Hiyghenidilh so'mbi 'ats wetisyec.

‘Everyone stayed home, no one went outside.’

LM:

K'ay diwh widizilh 'et mbe deondzin?

Wighulits 'oondzin?

‘How does this time of the year seem to you? Is it different?’



LN:

K'ay diwh widizilh so'ggec.

‘Now it’s not like that.’

Tabi ulits'in'a niwhewdizilh hozli'.

‘Everything is different from way back then.’

'Et wik'ininichdzit.

‘I am keeping track of that.’

...

LM:



**Nts'ëwh tsëh nekc, 'awediwh lic ulit
dik'is weuslit?**

‘When the snow first fell did it melt right
away or not?’

LN:

**C'ide', newilhtiyh 'et start wilhëkh,
netakilh witsëh,**

‘A long time ago, the rain came first, before
it snowed.’

November... 5th **'iwhiyegh lic 'iwit'iyh, yin
hitin.**

‘On November 5th the ground would
freeze.’



**15 'iwhiyegh 'et, 'et 'awet noonikic
c'ide', November 15.**

‘November 15 it started to snow back then.’

**Yin ts'iyewh hitin wik'ëtl'ats 'et k'idze
noonikic.**

‘After the ground froze then it started to snow.’

**Tl'a 'et 'awet ulits'i 'it'iyh so'
newewisdlit so’.**

‘The snow would stay for good. It did not melt.’



**K'ay 'iwit'iw nekcic tl'a kwa
newilhtiyh.**

‘Now it snows and it rains again.’

‘Indziwh yis welew nedlekh.

‘The snow just disappears.’

K'ay dzin 'et ulits'in'a widizilh.

‘Now it's different.’

Roy Morris

(interviewed by Lillian Morris November 2007)

LM: Roy---



RM:

**K'ay net 'awet net winize wi'ats
kwile' yis k'it 'et 'iwhiyegh
winiclh'ën 'et 'awet change
hooninli'.**

'I have looked at this for twenty-five years and it's starting to change.'

'Ey dicin tah nī'ts'it'ën' winich'ën.

'I looked at things when we worked
out in the bush.'

K'ay kwa 'iwit'ah newilhtiyh,

November month.

'Now it is raining in November.'



October **'akw'is to niwhënghen.**

'We just about got drowned in
October.'

Mabel Forsythe

(interviewed
by Sharon
Hargus
November
2007)





**Tabi de' hozk'its. Khit, 'awet November 1st
'iwhiyiw 'et 'awet hok'is.**

'It used to be very cold a long time ago. Around
November 1st it used to be very cold.'

**'Et 'awet cin tah 'it'ën so' hibibe
bighewewilne'.**

'The work in the bush was easy during the cold
spell.'

Yizlhiy bi'aat'ah ties, tie hiyditëlhgguh.

'My brothers used a team of horses to haul the
ties.'

...

SH:



Tl'a deoldzikh 50 below 'indzin?

'And how long did it stay 50 below?'

MF:

C'olilh wits'in wilikhtah zeh newnidzilh dzusliyez.

'Sometimes towards spring time the weather would get a little warmer.'

Tl'a tabi c'olilh March 'iwhiyiw 'et weh 'awetsic hozk'its.

'Around March back then it was still cold.'

K'ay, k'ay diwhiyiw tah ulits'in'a ggec 'oondzin.

'Now it is altogether different around here.'

K'ay 'oondzin middle of November 'awetsic newilhtiyh tl'ëde' 'ats.

'Now last night it was raining outside in the middle of November.'

(laughs)

Are the winters really getting warmer?

- Environment Canada
 - Downloadable monthly weather data for Smithers (or Telkwa)
 - Last 85 years, 2008-1923
 - http://www.climate.weatheroffice.ec.gc.ca/climateData/canada_e.html



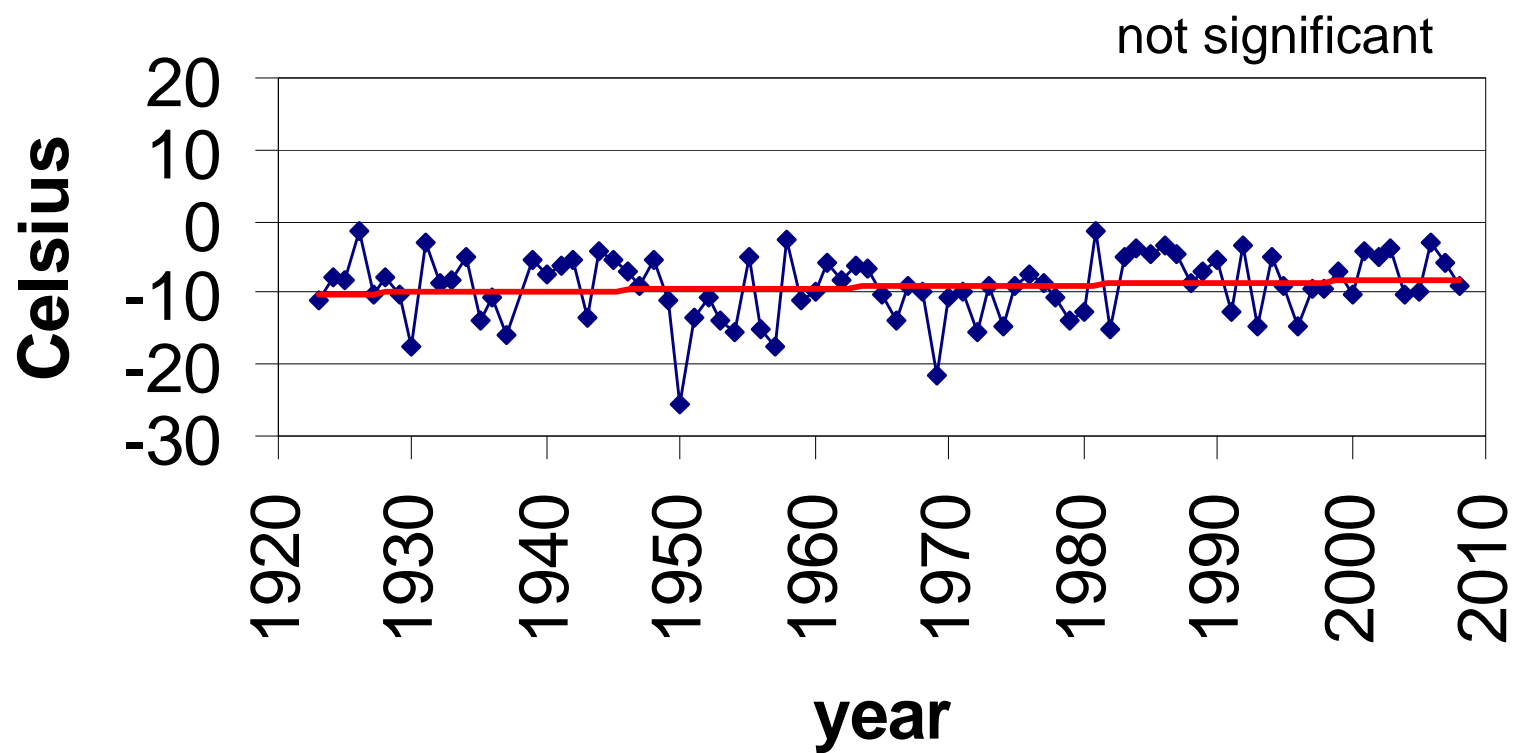
Environment
Canada

Environnement
Canada

The short answer

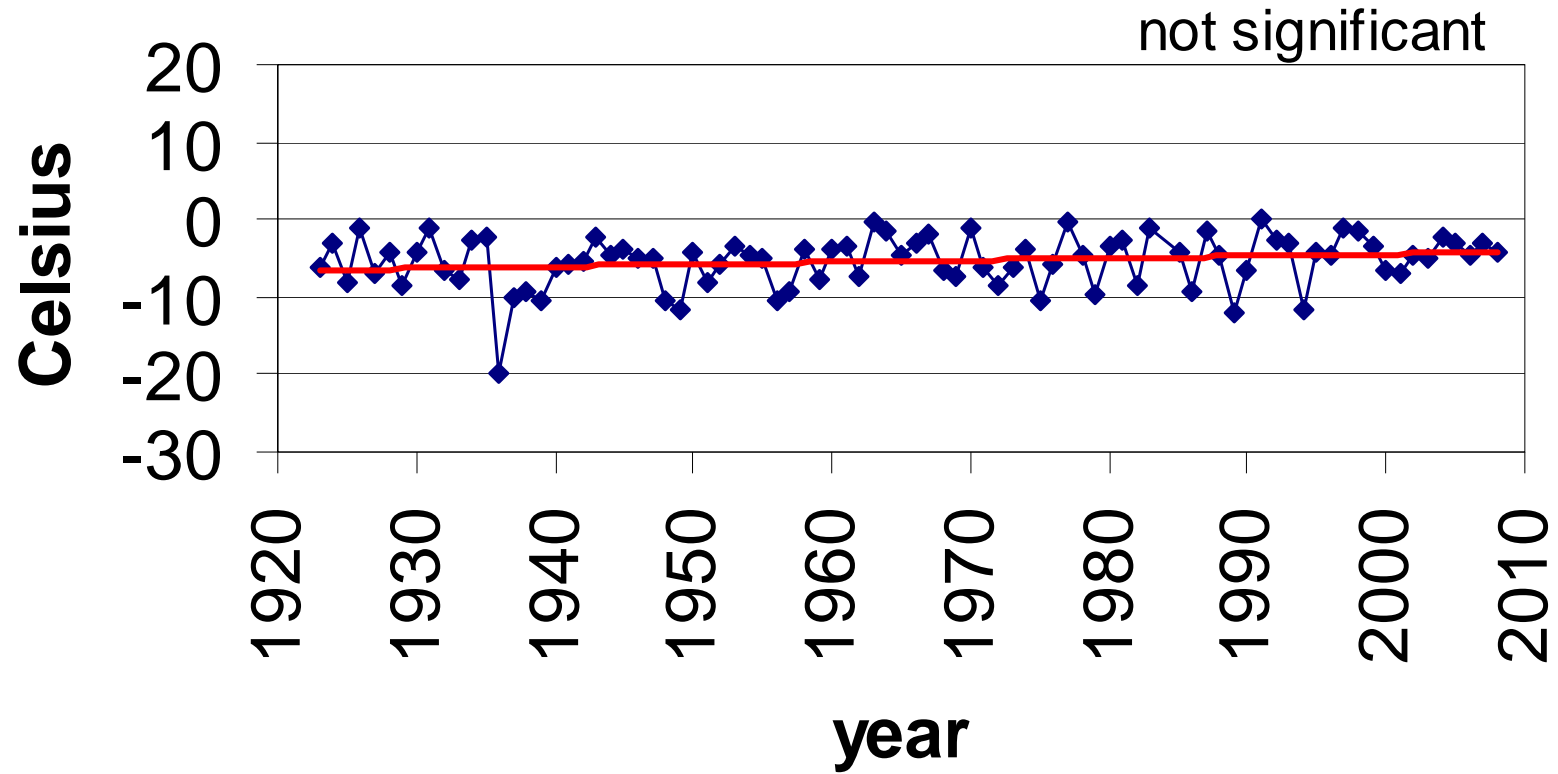
- For data available 1922-2008
- Smithers airport weather station
- September-February
 - no significant changes in average monthly temperature
- March-August
 - average monthly temperature is significantly warmer
- November-February have most variable average monthly temperature

Mean Jan temp, 1923-2008

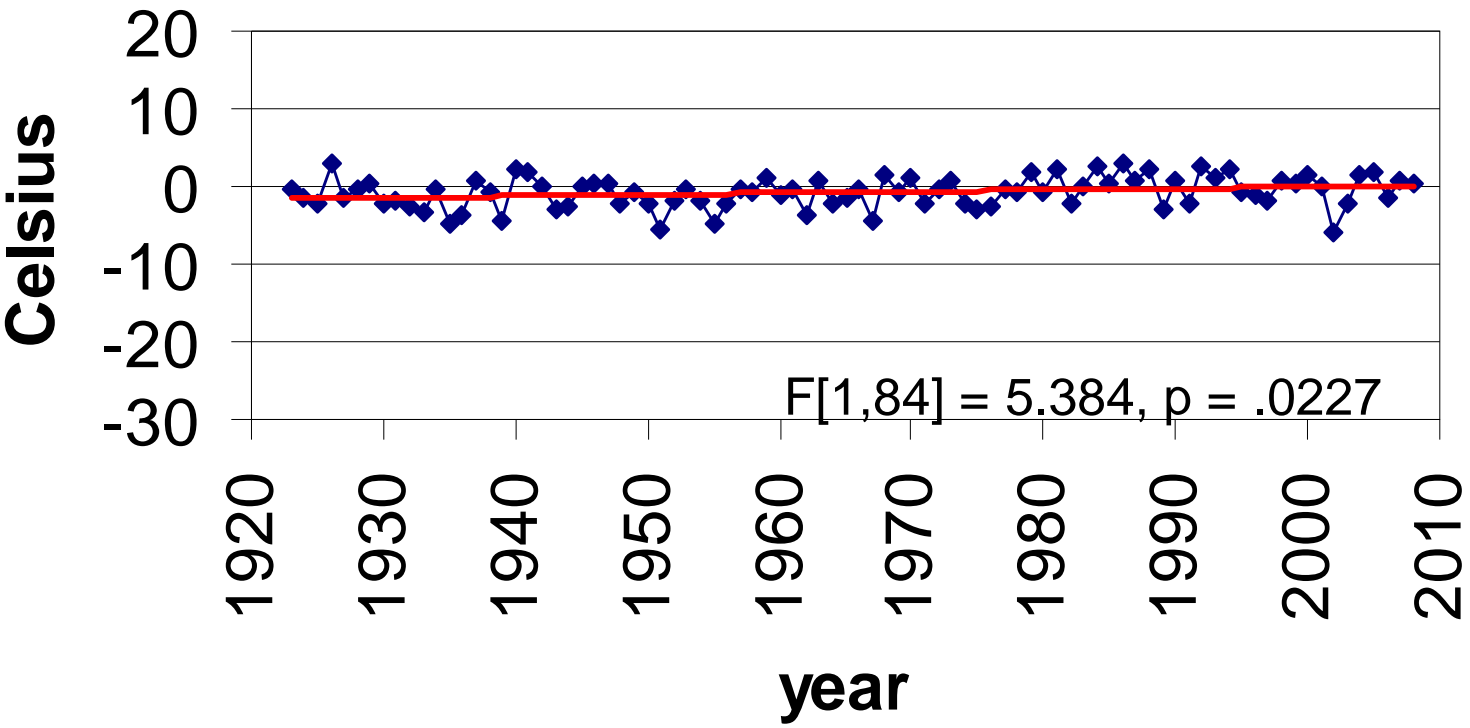


not statistically significant

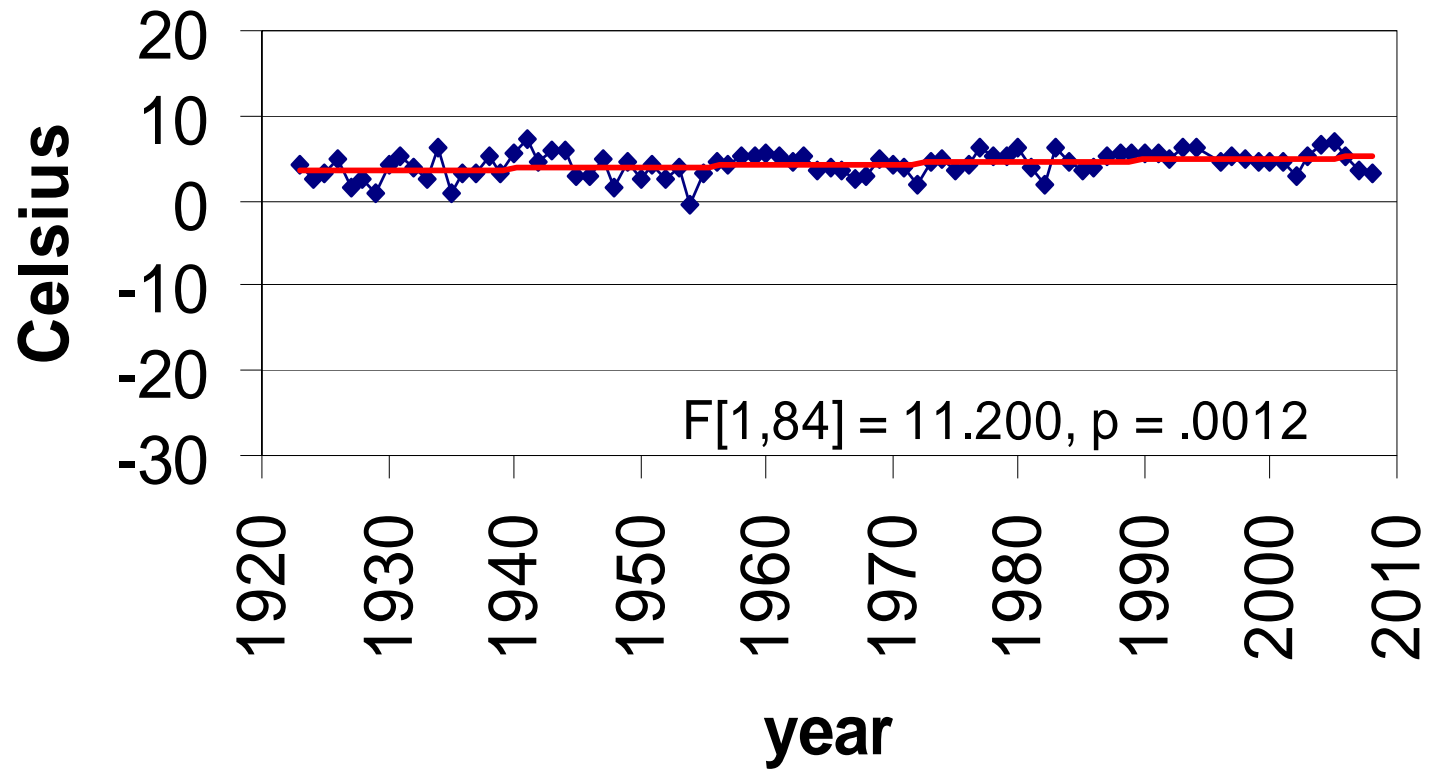
Mean Feb temp, 1923-2008



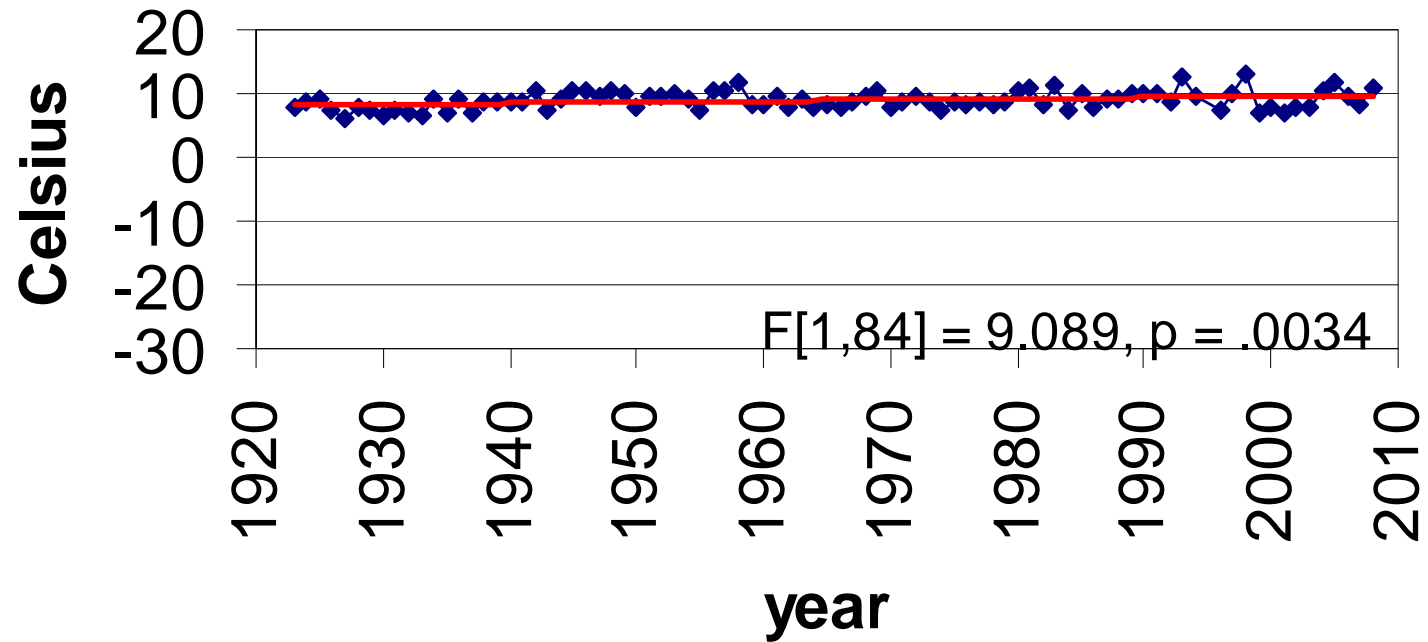
Mean Mar temp, 1923-2008



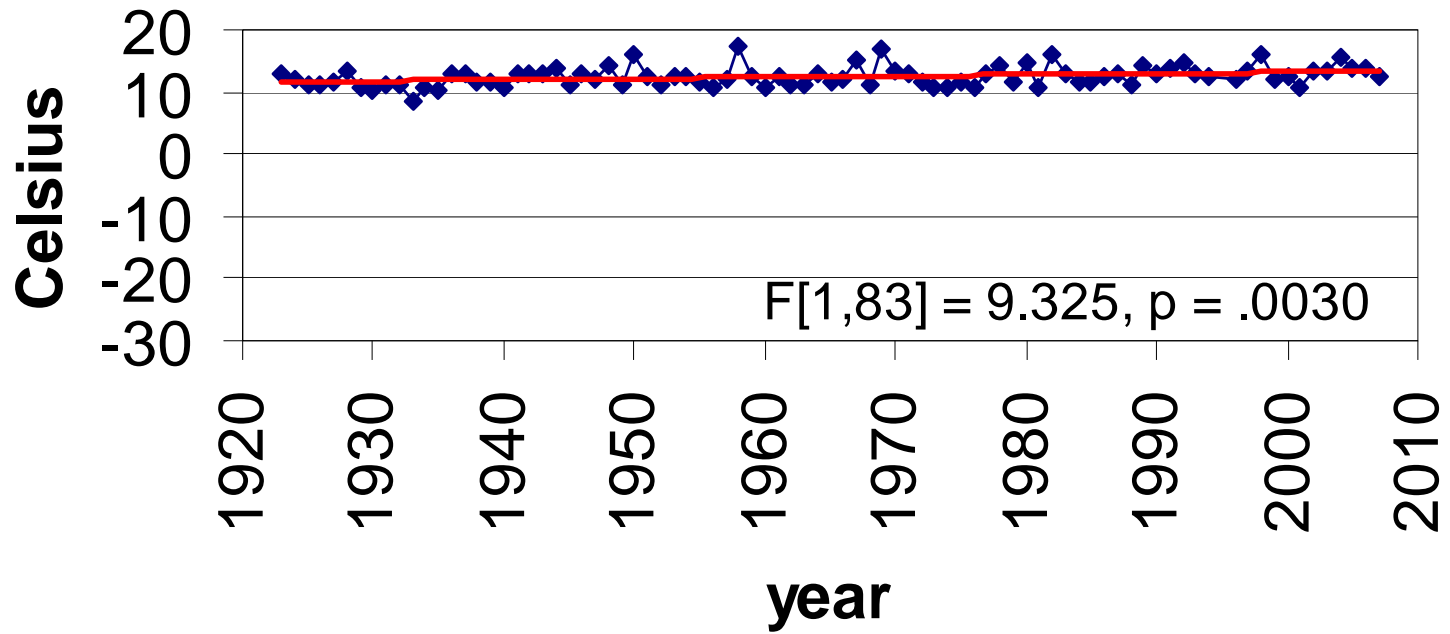
Mean Apr temp, 1923-2008



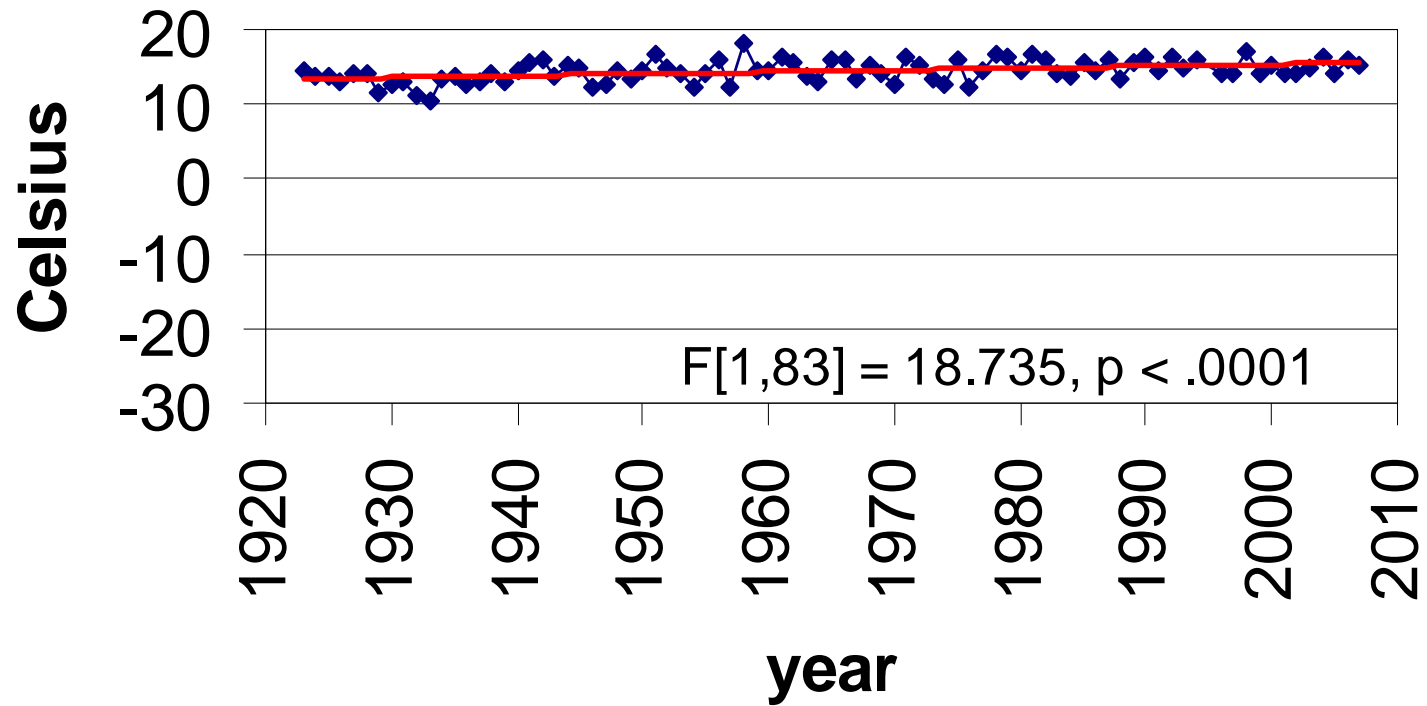
Mean May temp, 1923-2008



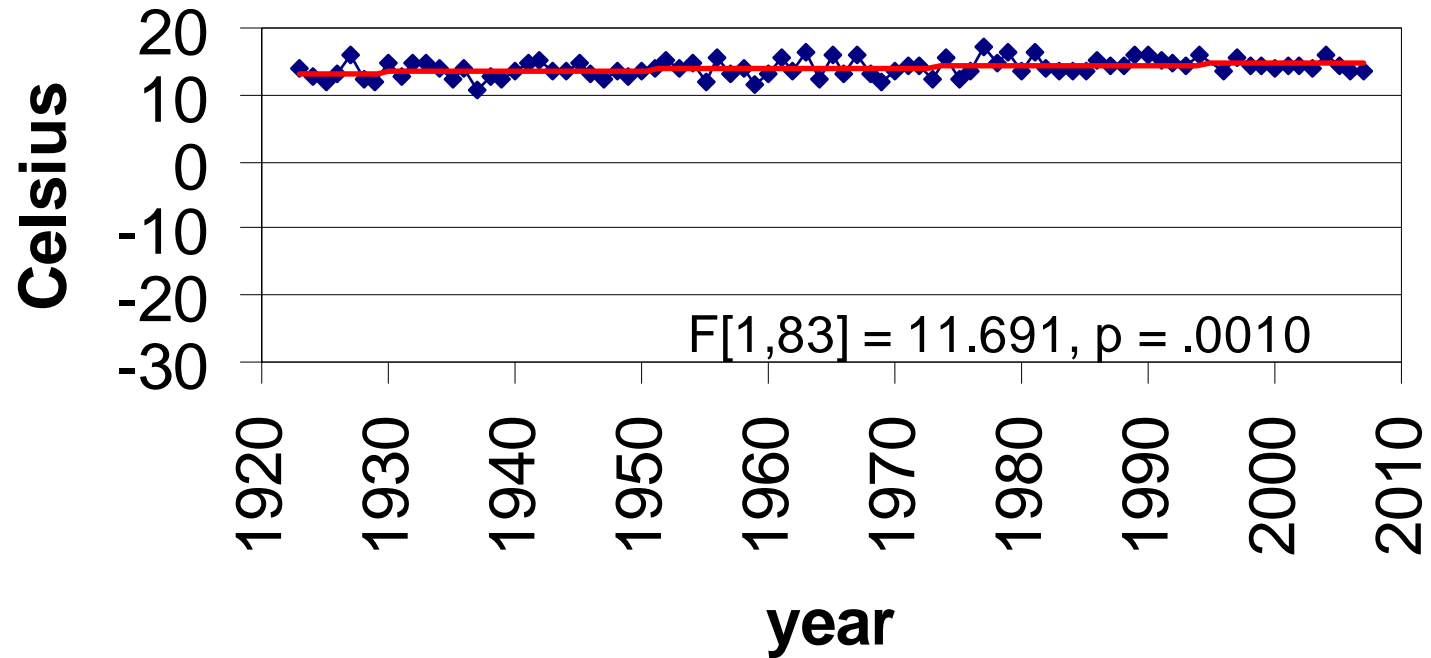
Mean Jun temp, 1923-2007



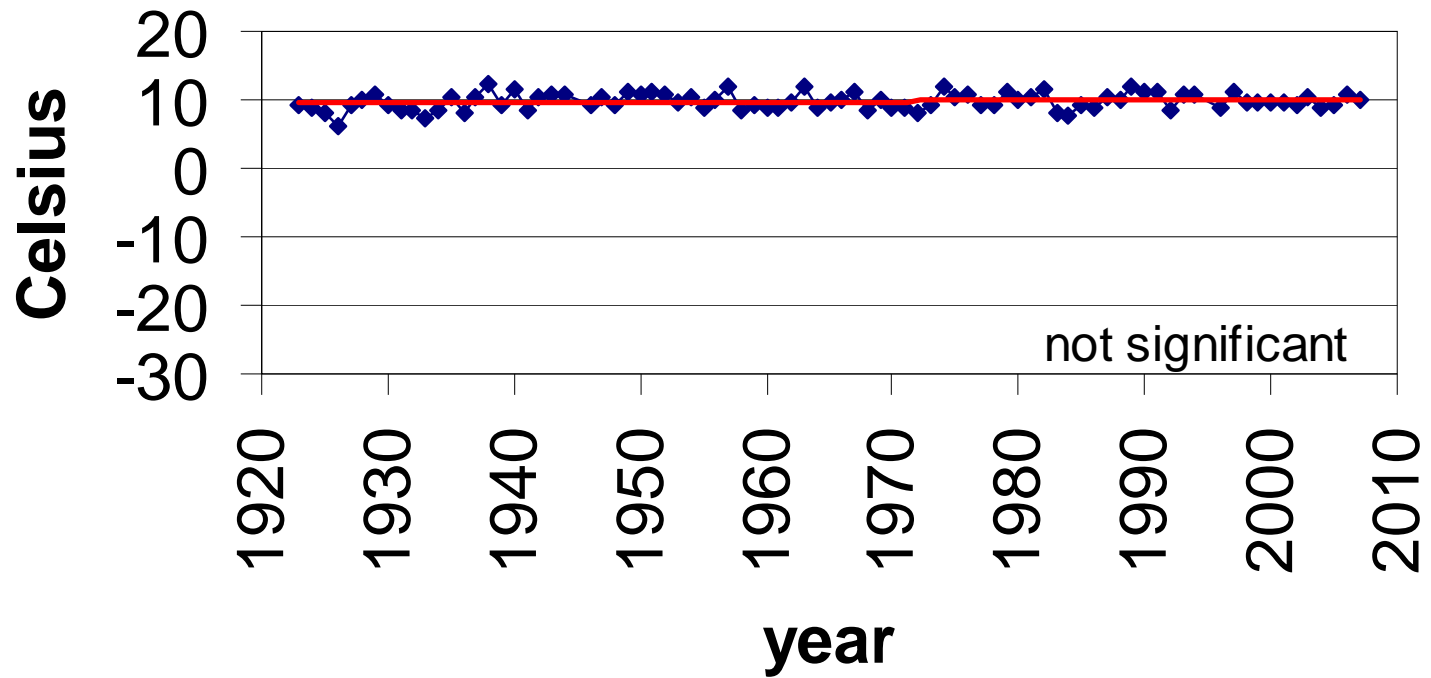
Mean Jul temp, 1923-2007



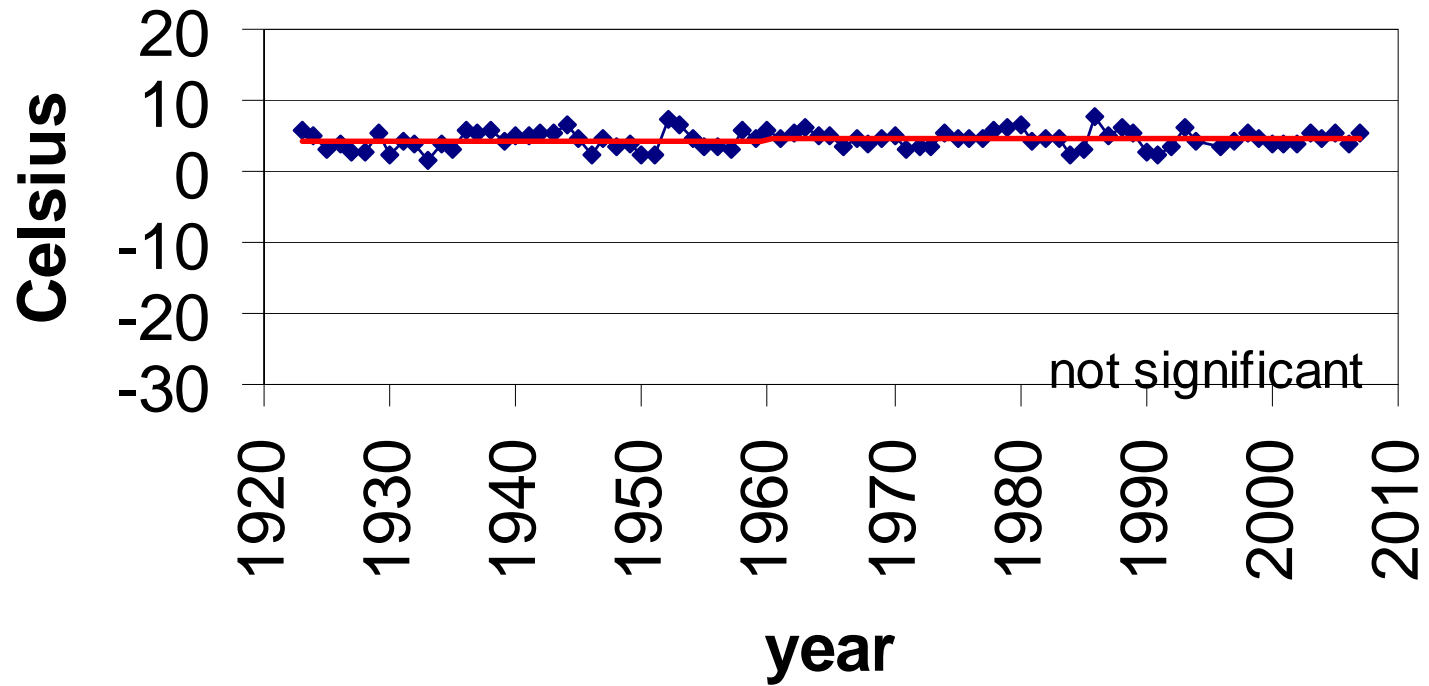
Mean Aug temp, 1923-2007



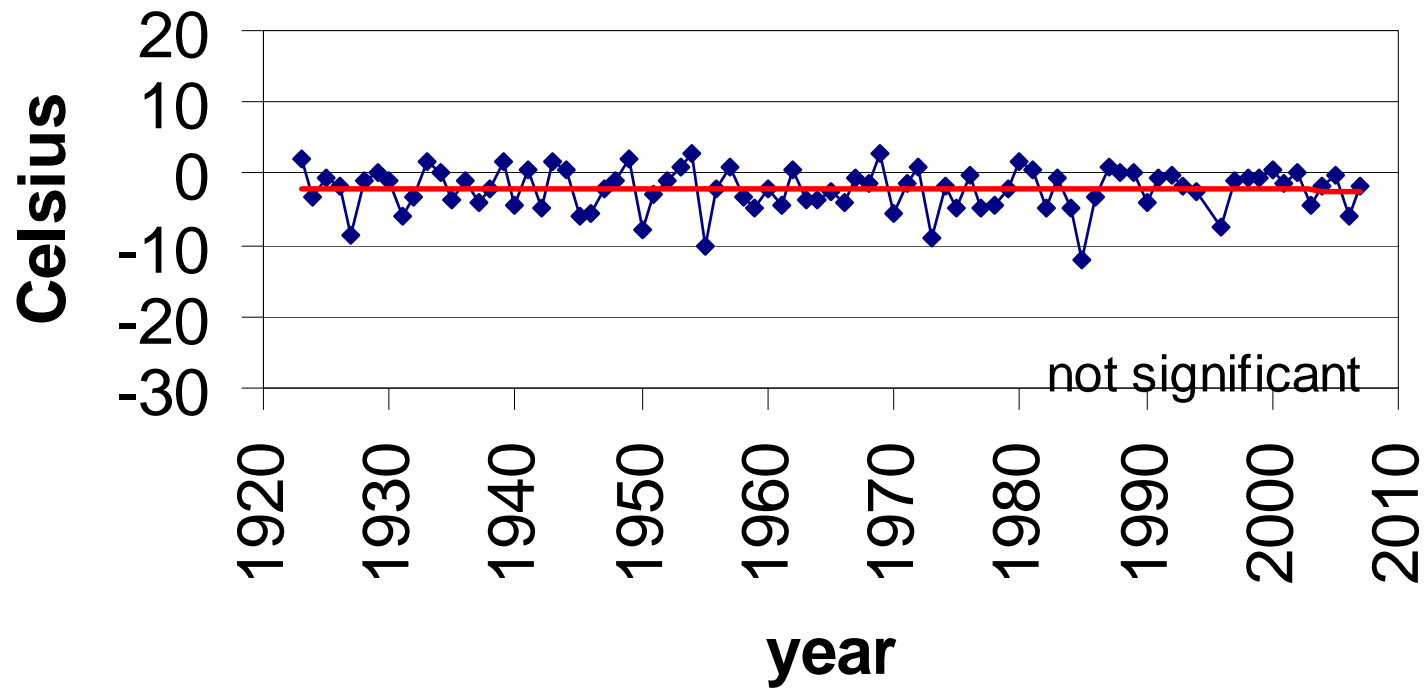
Mean Sep temp, 1923-2007



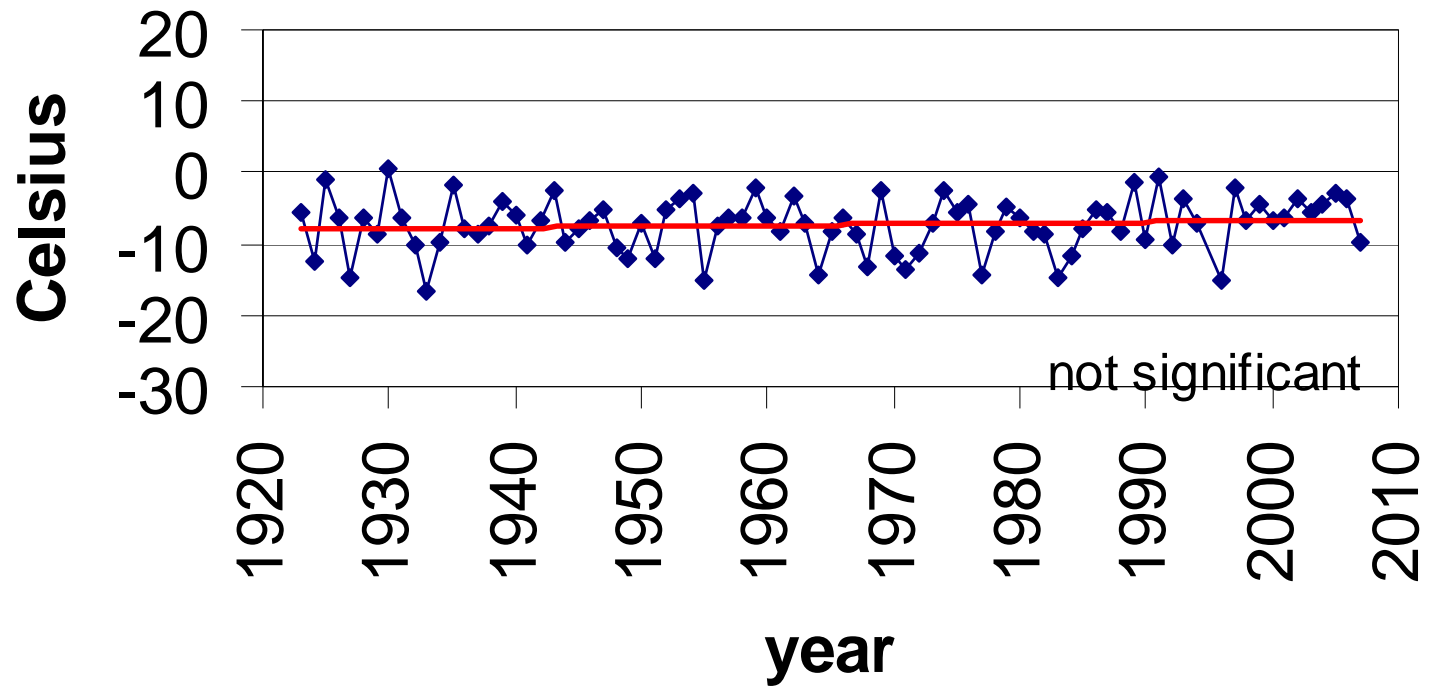
Mean Oct temp, 1923-2007



Mean Nov temp, 1923-2007



Mean Dec temp, 1923-2007



Next steps for this project

- Continue transcribing and translating
- Record more speakers
- Follow up interviews with recorded speakers
- Possibly distribute collection of transcripts locally to speakers
- More detailed examination of Smithers-Telkwa weather data (daily rather than monthly) to continue to try to corroborate speakers' impressions of winter warming



Misiyh

Moricetown canyon

Thanks to

- All Witsuwit'en speakers who participated in interviews
- Rick Thoman (National Weather Service) provided helpful comments on this presentation, including inspection of Environment Canada weather data and suggestions for future analysis
- Funding provided by the National Science Foundation (DEL-0651853)