

# NRCan Velocity Fields for SNARF

SNARF Workshop 6



**Mike Craymer**  
**Joe Henton**  
**Mike Piraszewski**

Ottawa  
16 November 2006

CANADA'S **NATURAL RESOURCES**

**NOW AND FOR THE FUTURE**

[nrcan.gc.ca](http://nrcan.gc.ca)



Natural Resources  
Canada

Ressources naturelles  
Canada

Canada



# Outline



Evaluation of plate motion estimates using NAREF & CBN

New NAREF & CBN solutions

Questions about SNARF v.1.0





# Evaluation of Plate Motion Estimates



## NAREF & CBN velocities in ITRF

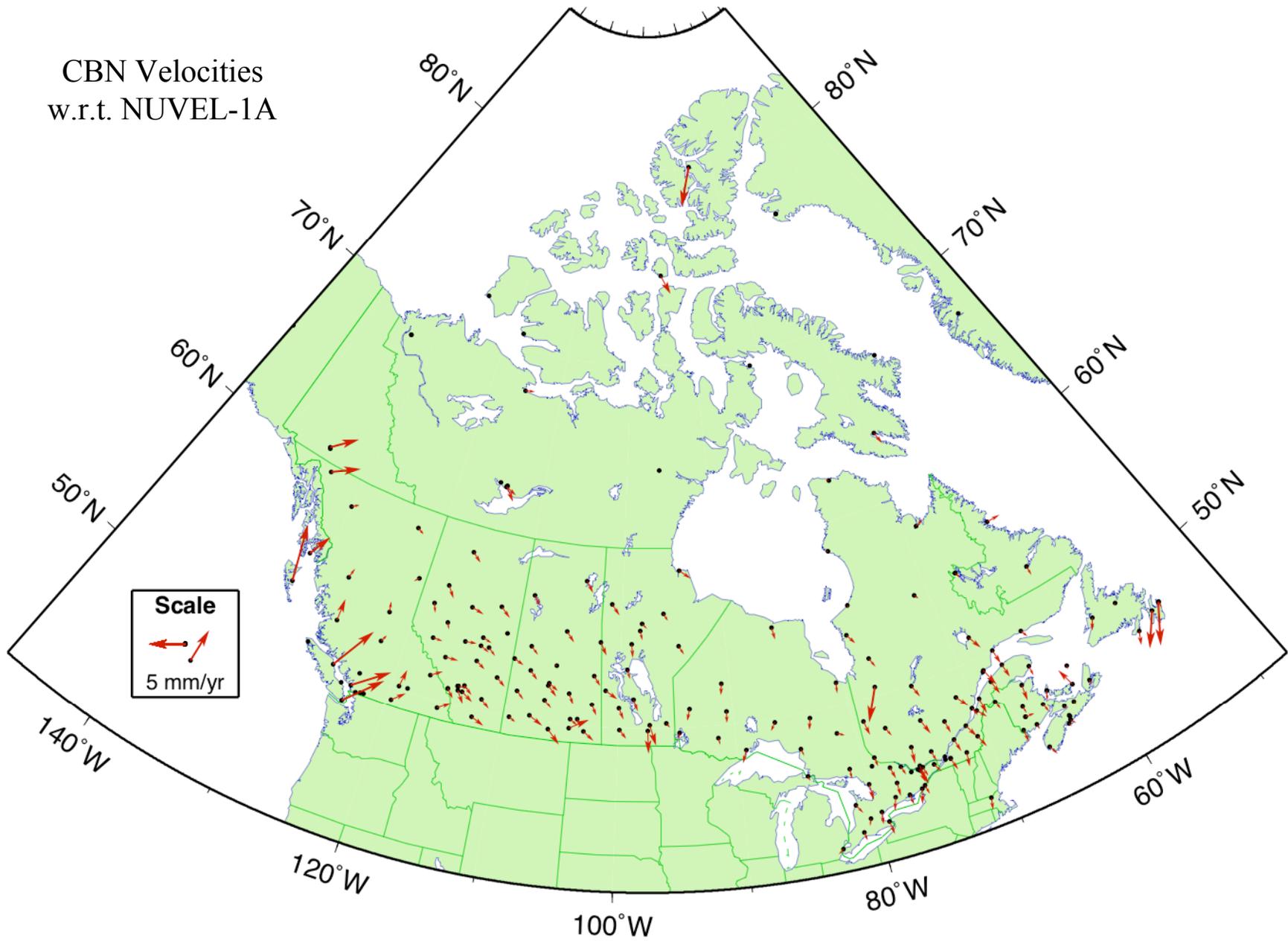
- CBN campaign surveys from 1994 to 2002
- NAREF weekly solutions 2001-2005
- ALGO constrained (weighted) to IGS05P05.snz

## Removed different plate motion estimates

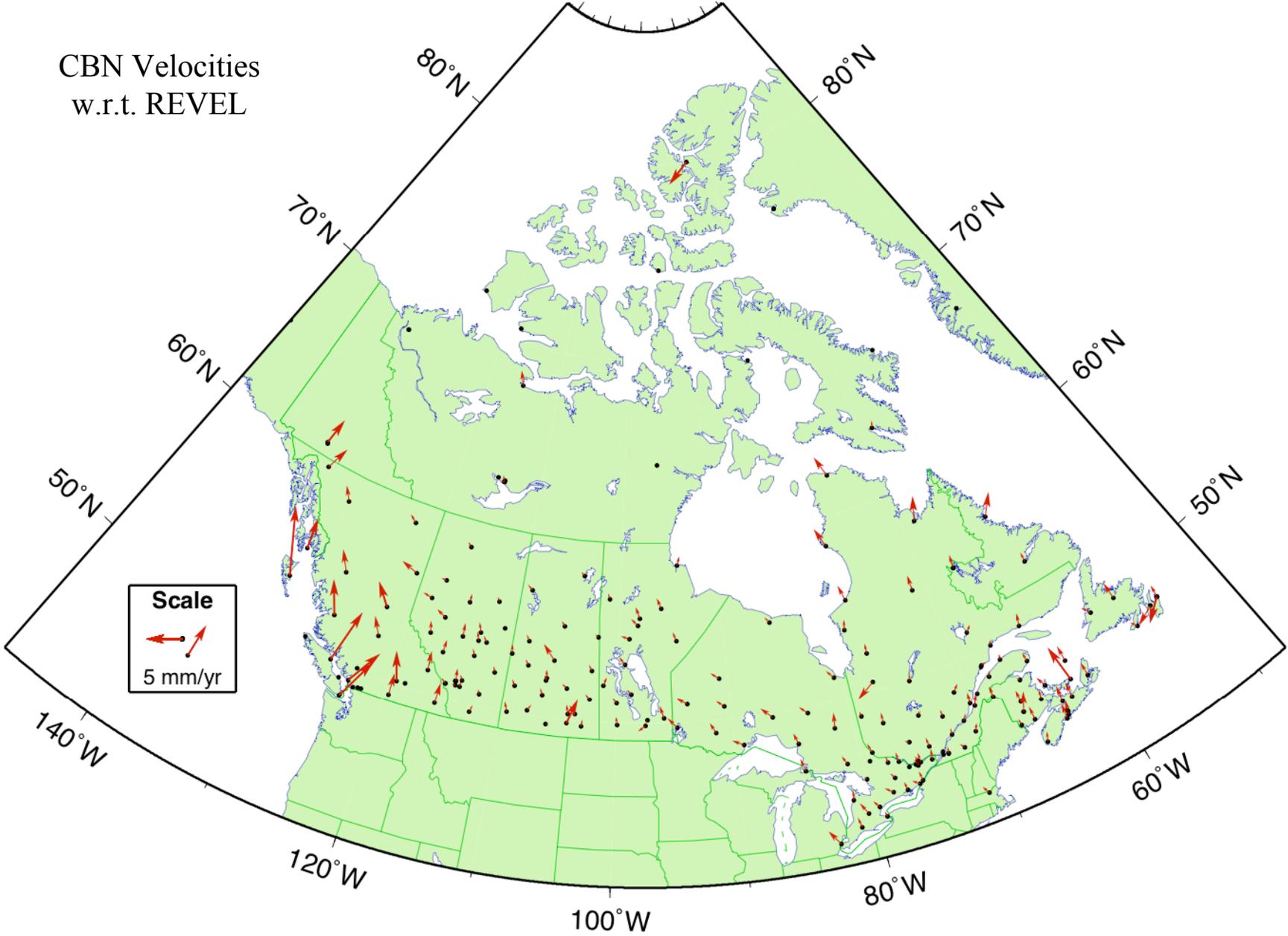
- NNR-NUVEL1A
- REVEL
- ITRF2000
- SNARF 1.0
- Calais (2006)
- Kreemer (2006)
- Sella (in press)



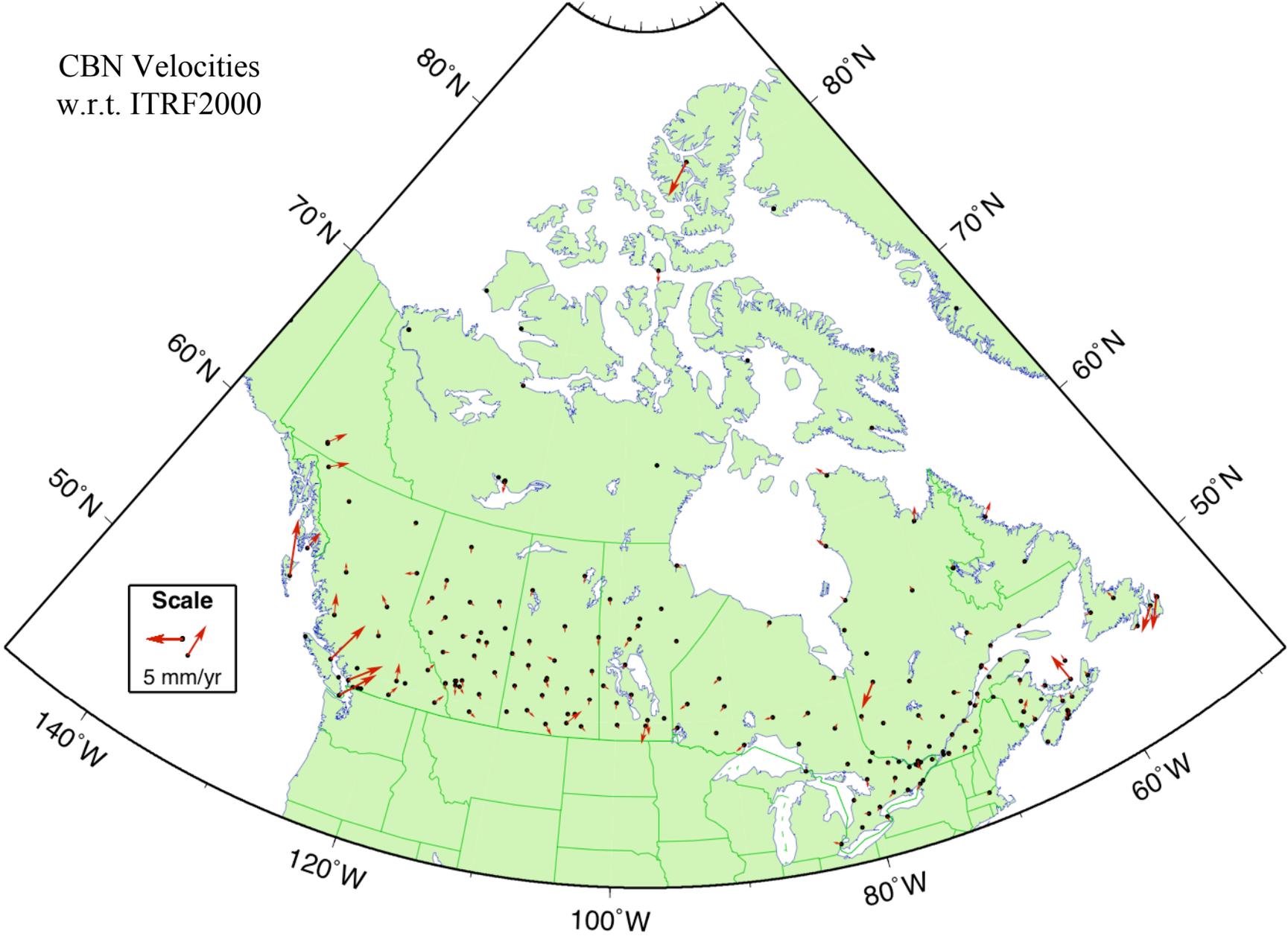
CBN Velocities  
w.r.t. NUVEL-1A



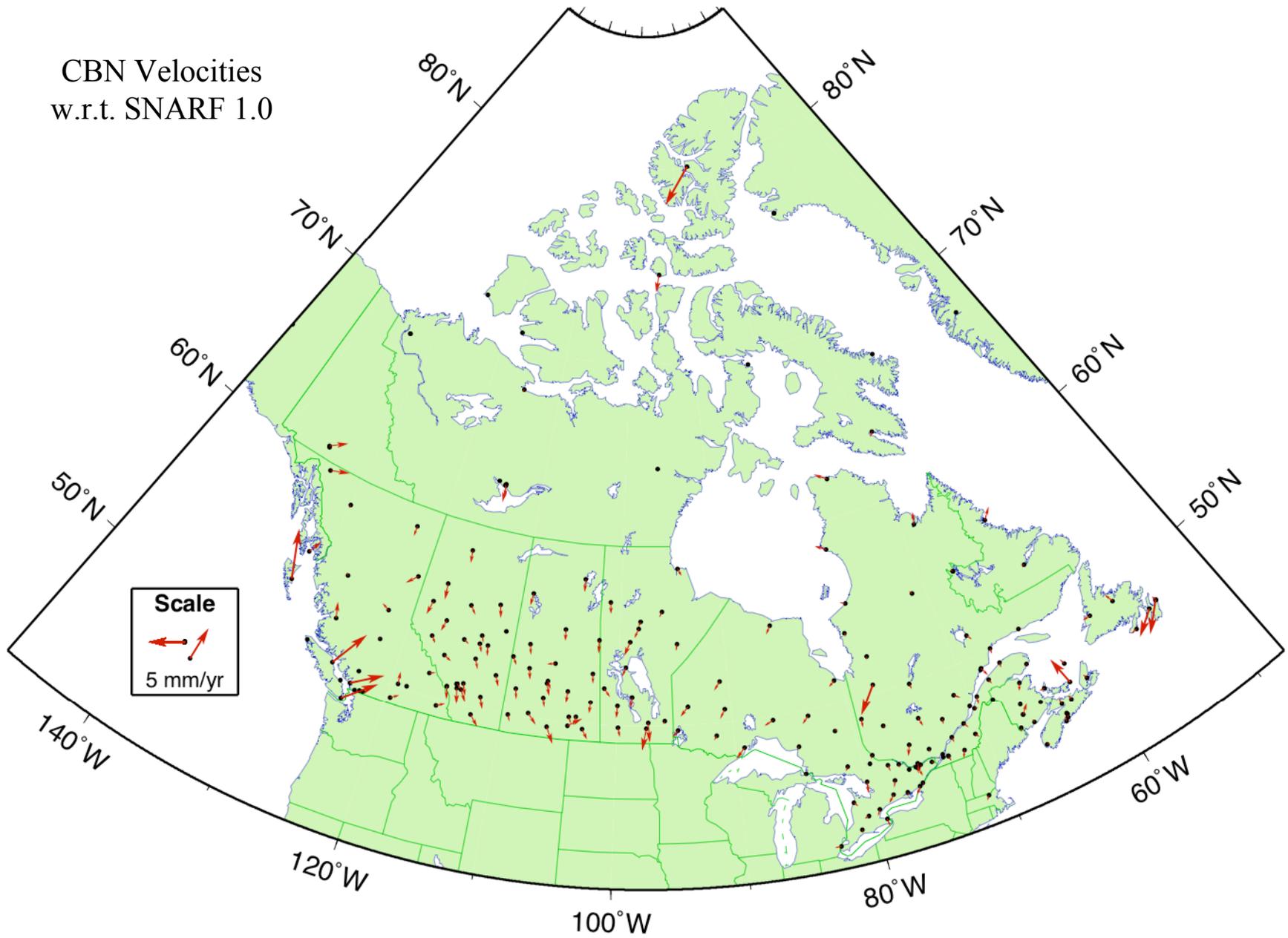
CBN Velocities  
w.r.t. REVEL



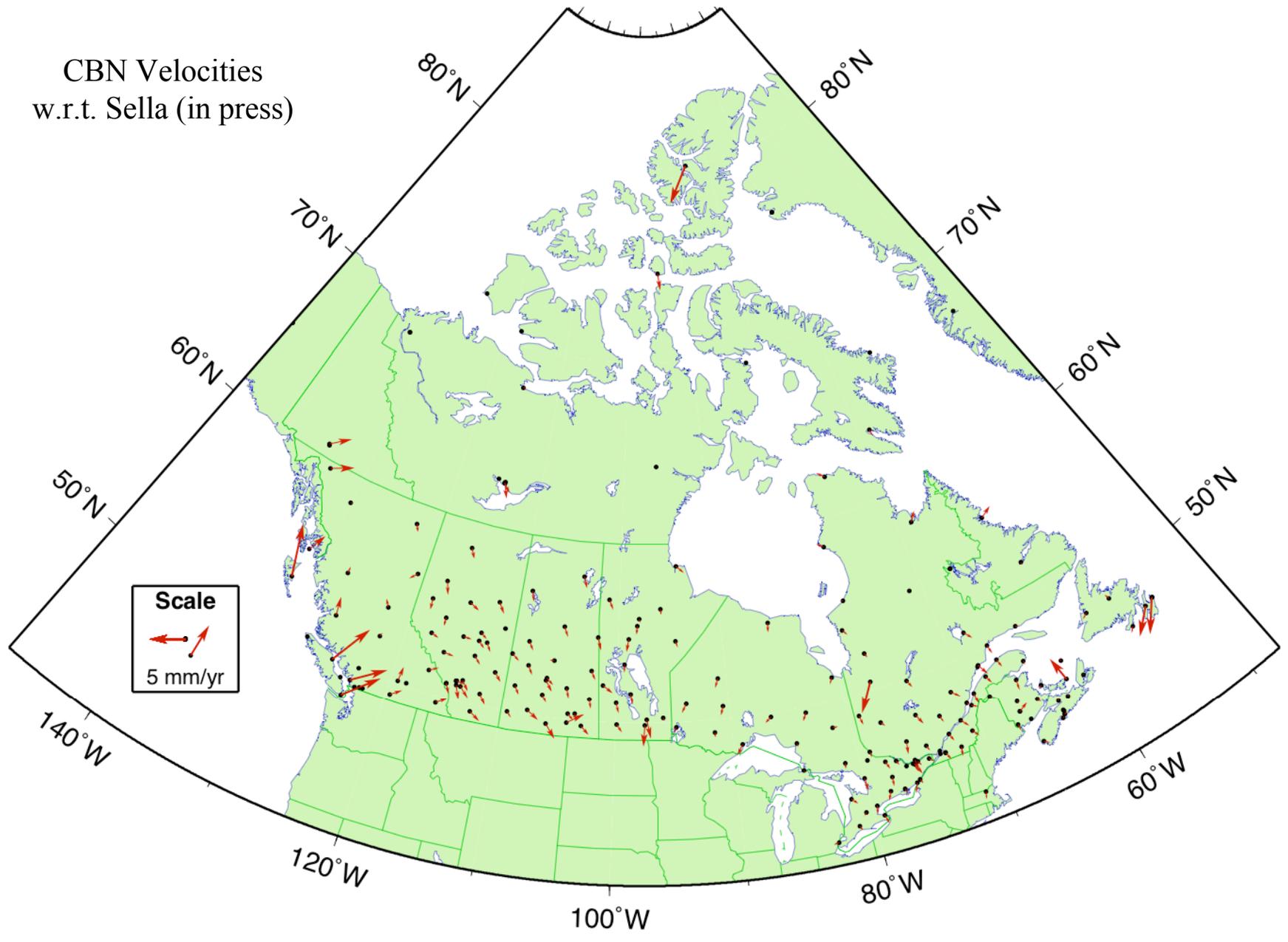
CBN Velocities  
w.r.t. ITRF2000



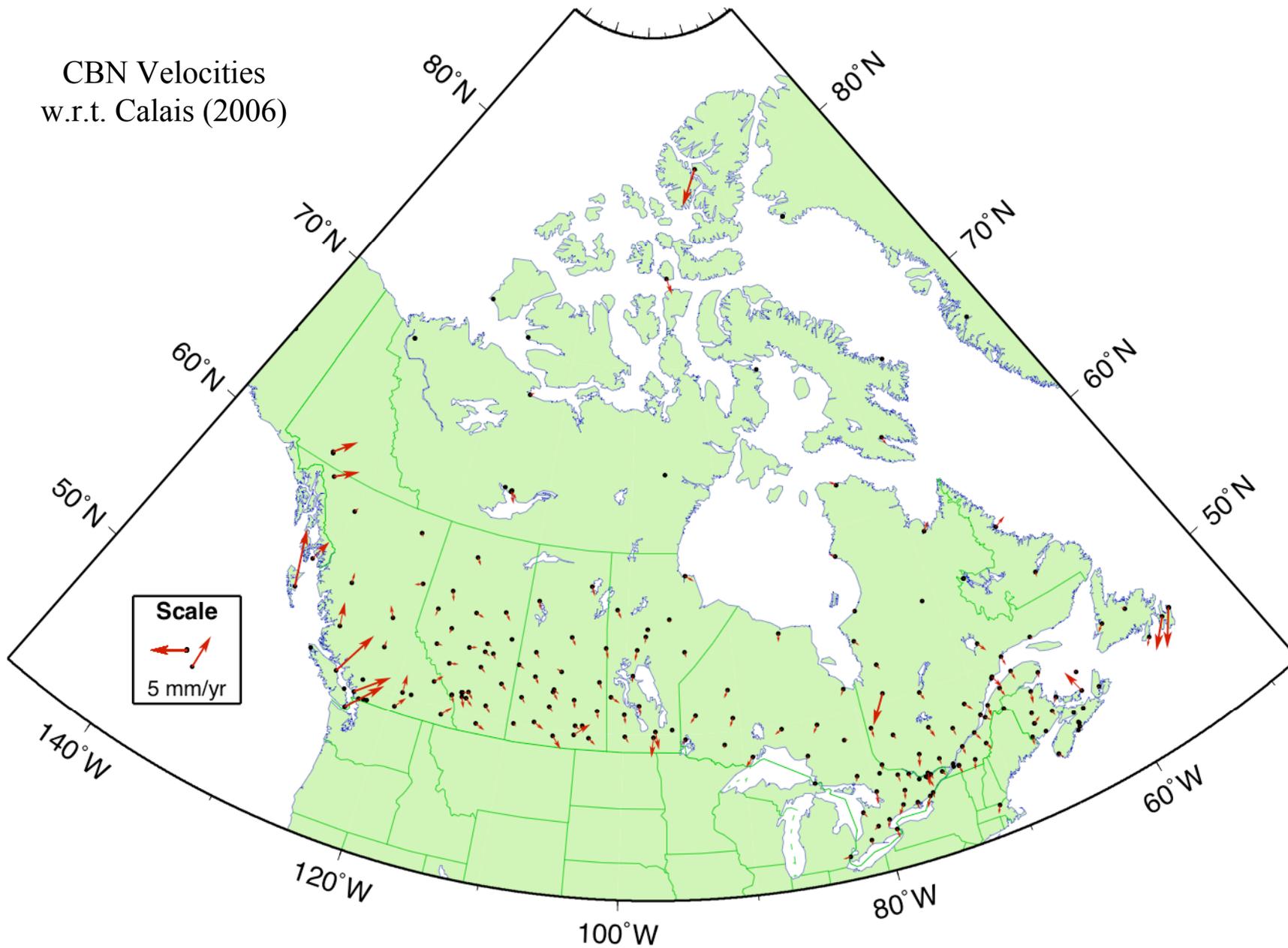
CBN Velocities  
w.r.t. SNARF 1.0



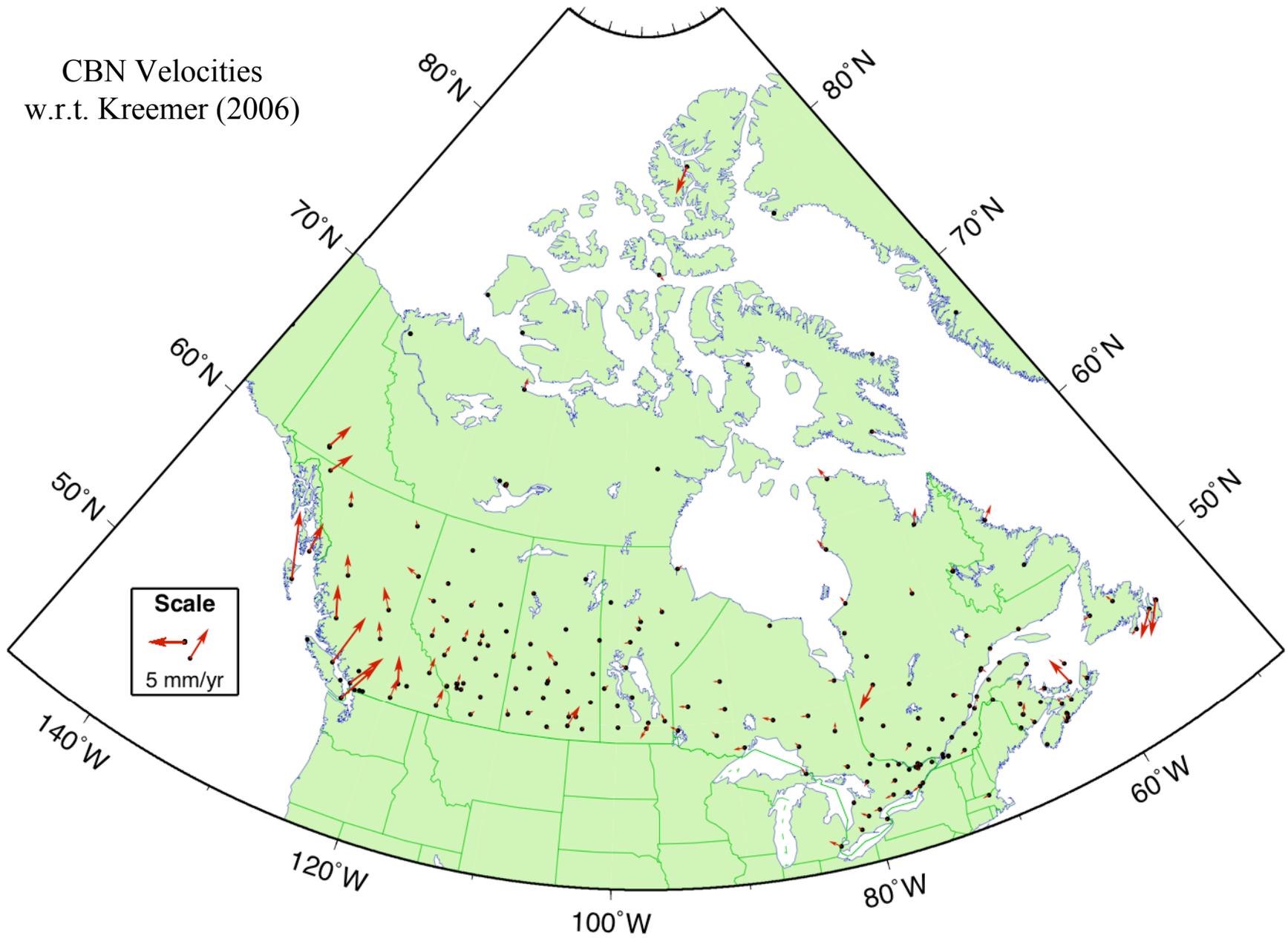
CBN Velocities  
w.r.t. Sella (in press)



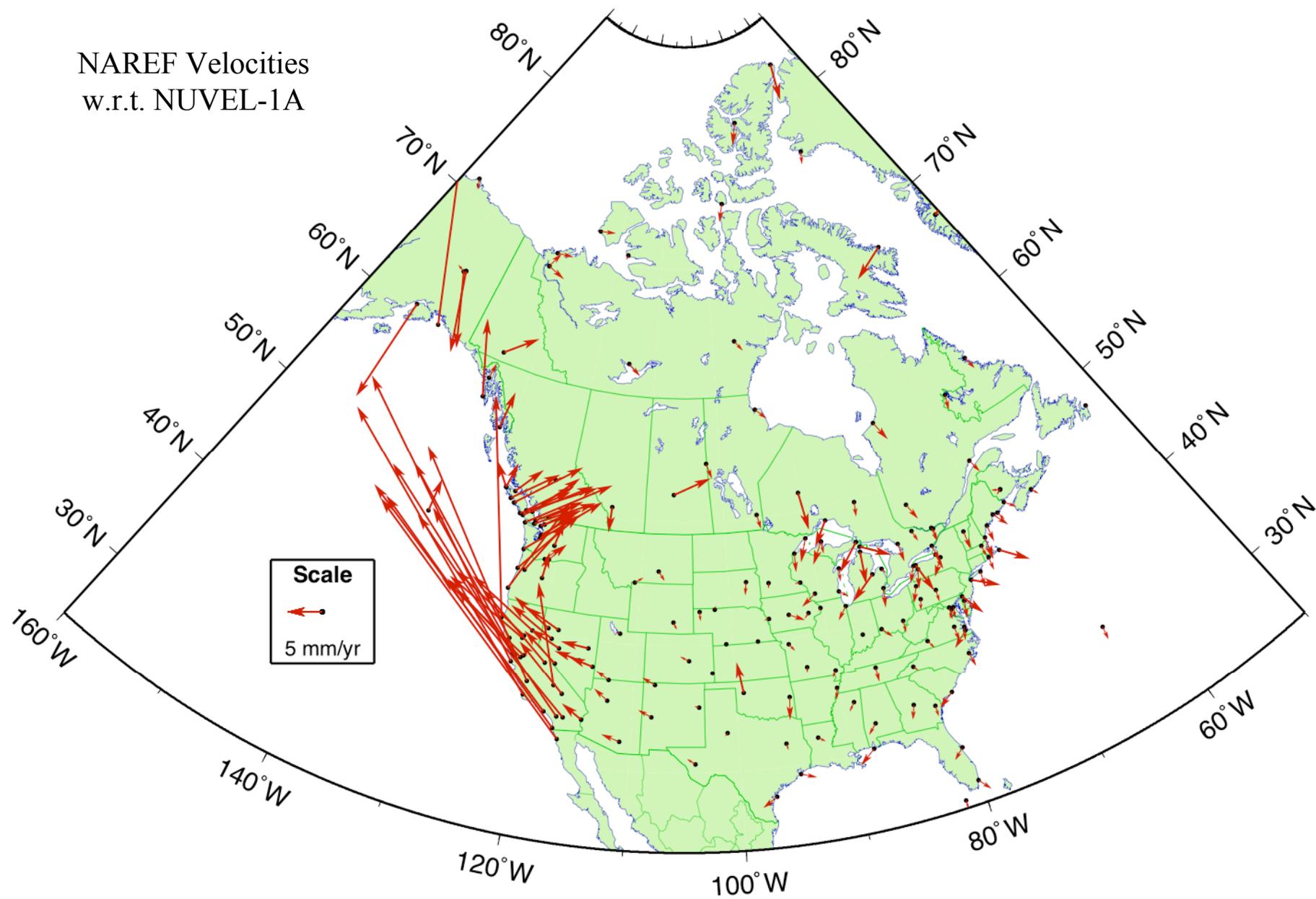
CBN Velocities  
w.r.t. Calais (2006)



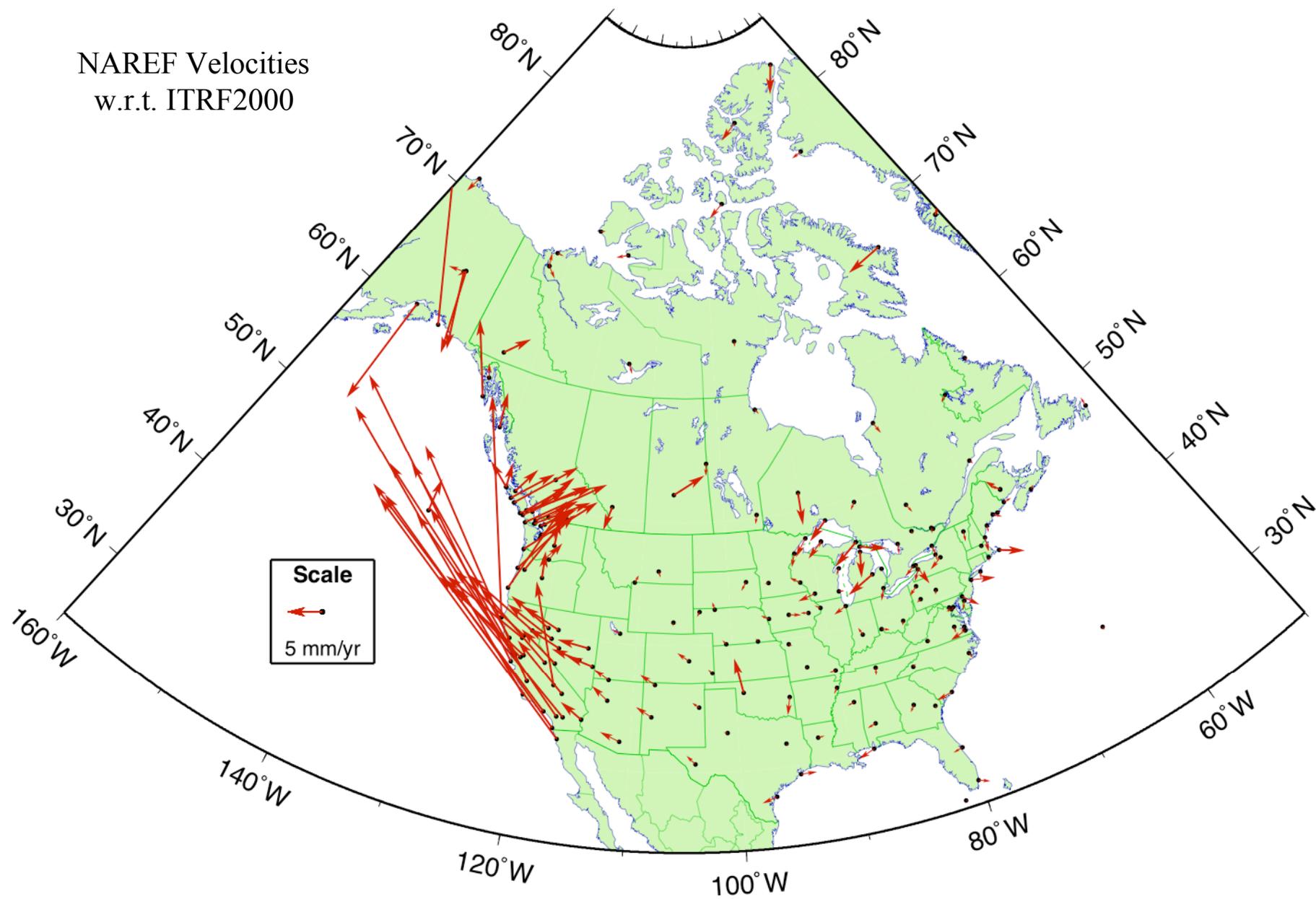
CBN Velocities  
w.r.t. Kreemer (2006)



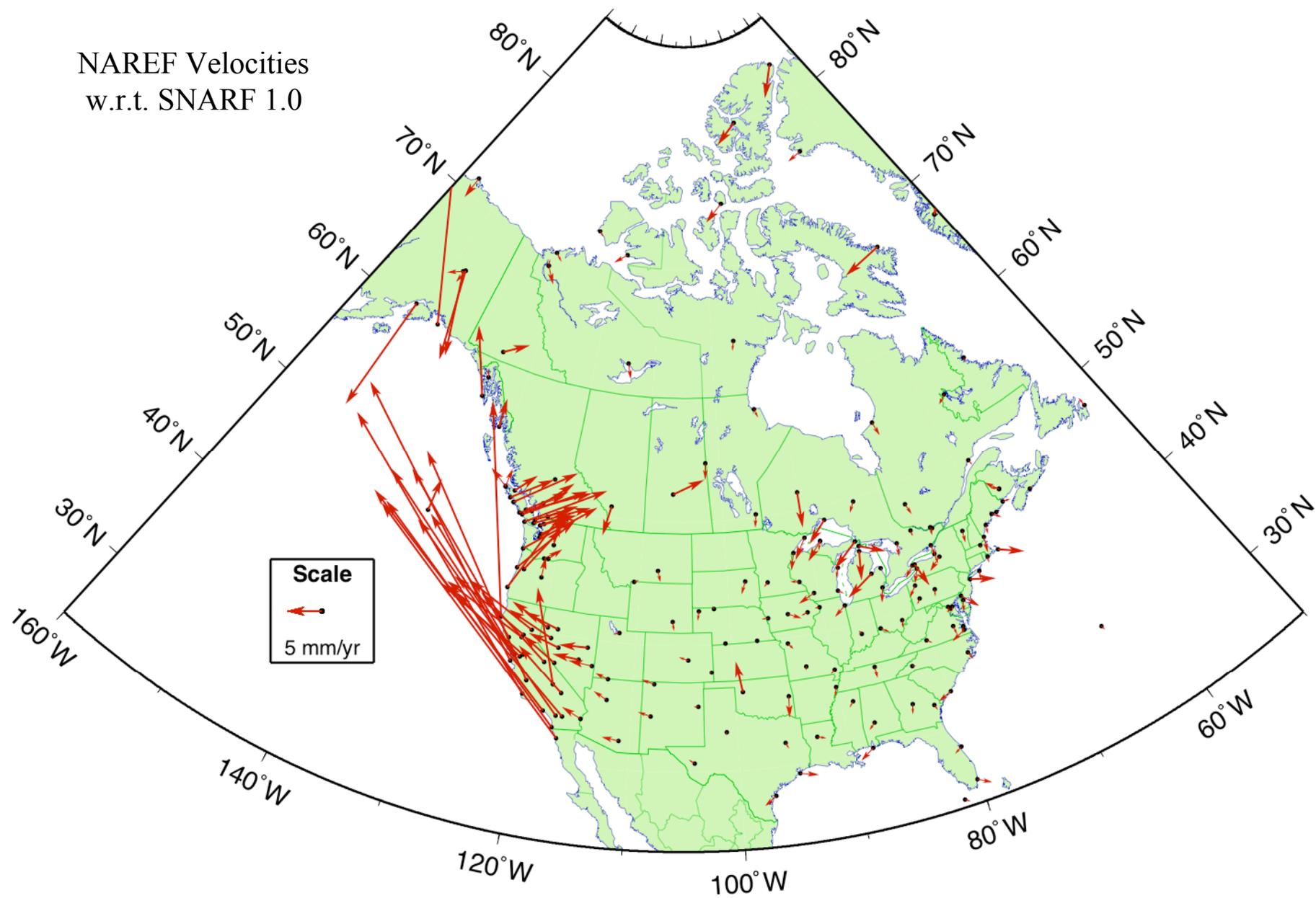
NAREF Velocities  
w.r.t. NUVEL-1A



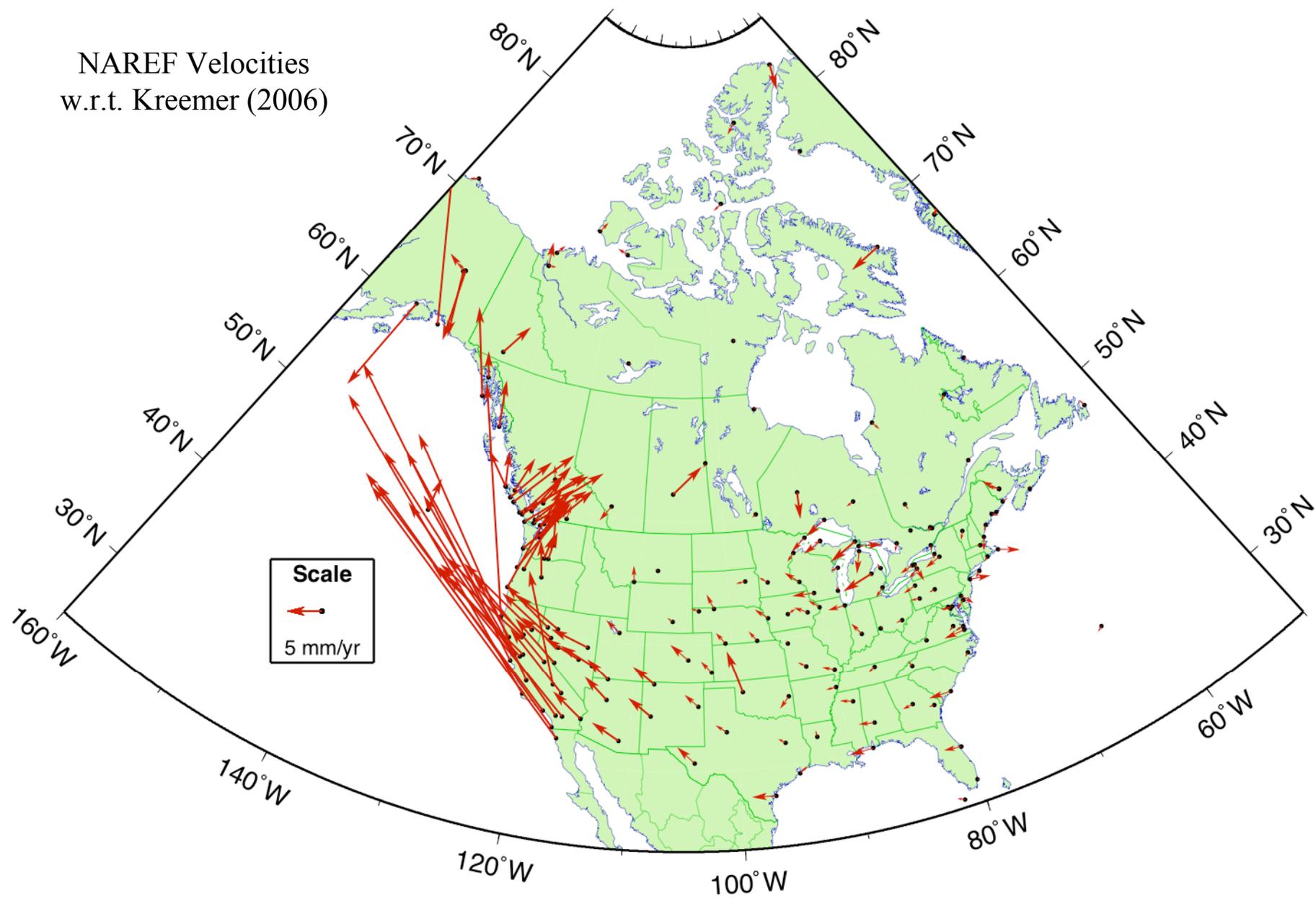
NAREF Velocities  
w.r.t. ITRF2000



NAREF Velocities  
w.r.t. SNARF 1.0



NAREF Velocities  
w.r.t. Kremer (2006)





# New NAREF & CBN Solutions



## NAREF Reprocessing

- Reprocessed GSD weekly Berense solutions with v5
- In process of recombining weekly NAREF solutions
- Including official weekly PBO solutions
- Will re-compute velocity solution
- Need redundant solutions for CORS sites (SIO?)

## CBN Reprocessing

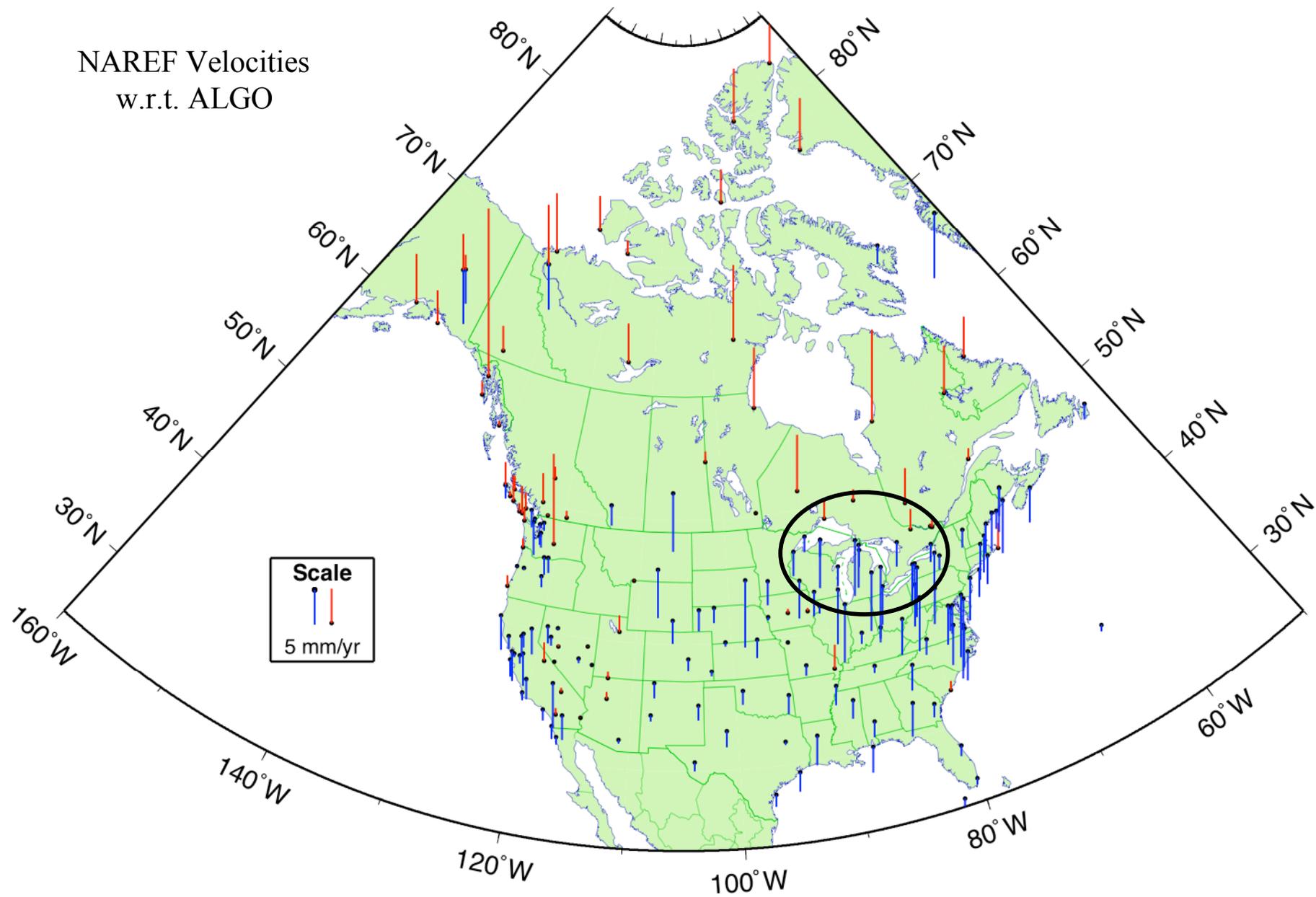
- Will reprocess all epochs with Bernese v5
- Will include 2005/2006 epochs
- May incorporate with NAREF velocity solution

## Possibility of SIO updating “PBO” weekly solutions?

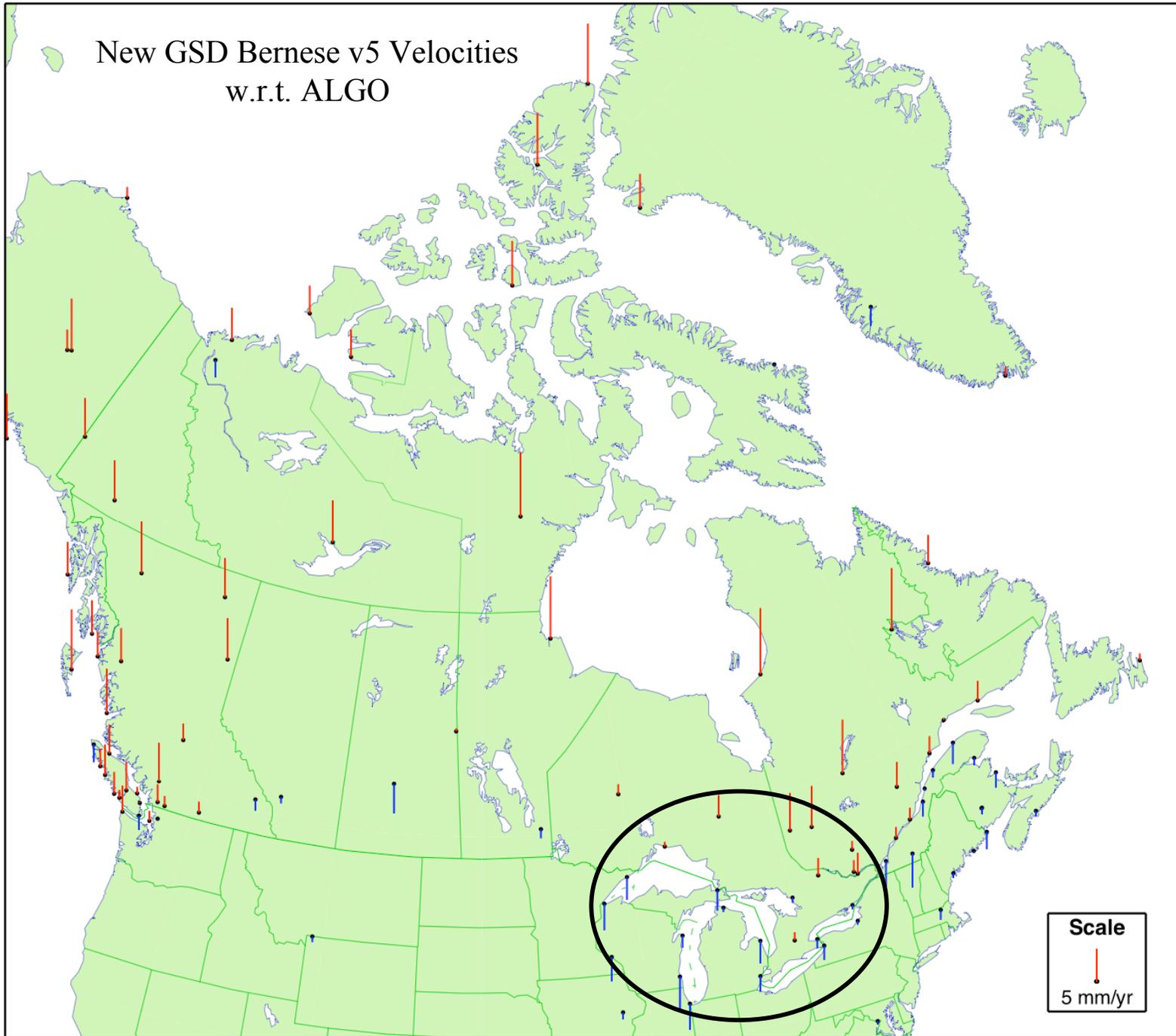
- Add as many other N.A. stations as possible since 2001



NAREF Velocities  
w.r.t. ALGO



New GSD Bernese v5 Velocities  
w.r.t. ALGO



Scale  
5 mm/yr



# IGS05 Products



## Need to reprocess all data again!

- Current IGS orbits using absolute PCV & accounting for antenna domes
- Have to wait for reprocessed precise orbits (end 2007?)
- Include global stations?
- Will NAREF contributors reprocess their data?
  - GSD yes
  - NGS ??
  - MIT ??
  - SIO ?? (a N.A.-wide solution?)
  - PGC Probably





# SNARF 1.0 Questions



What transformation from ITRF defines SNARF?

- Transformation determined by Jim Davis for the frame?
- Transformation determined by Tom Herring?

What stations were used to define these transformations?

What transformation should be used with PPP?

- Euler vector computed by Tom Herring?
- Transformation used to define SNARF?

