

PROFESSIONAL PRACTICE BULLETIN

TOPIC:	Changes to Canadian Spatial Reference System (CSRS) Precise Point Positioning (PPP) Service Affecting Georeferencing in British Columbia
PRACTICE AREA:	Geomatics Technology
DISCIPLINE:	Geomatics
DOCUMENT #:	PPB-2024-GEO-01
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This practice bulletin is being issued to registrants of the Applied Science Technologists and Technicians of BC to emphasize the professional practice requirements for Geomatics Technologists as it pertains to changes to the CCRS PPP service that is provided by NRCan.

Background Information:

On November 21, 2024, updates to the Canadian Spatial Reference System (CSRS) Precise Point Positioning (PPP) service were implemented, impacting georeferencing for survey projects across British Columbia. These updates are part of the release of NAD83(CSRS) v8, which introduces a new velocity grid based on updated geodetic data and methods.

Please see the attached bulletin regarding upgrades to the CSRS PPP service that is provided by NRCan. BC's Ministry of Water, Land and Resource Stewardship has prepared this bulletin to provide information tailored to practitioners in BC - it contains details on how BC is specifically impacted by the upgrades. A link to NRCan's bulletin can also be found within; the NRCan bulletin provides greater detail on the upgrades and information at the national scale.

Practice Directive:

All Geomatics technology registrants of the ASTTBC shall ensure their practice is done in reference to changes associated with the CSRS PPP.

Registrants will note the **key changes** and **steps for survey projects affected** by the update.

For additional details, please refer to the [NAD83\(CSRS\) Updates](#) on the Government of Canada website.

Questions about this update shall be directed to the appropriate party listed in the Province of BC's practice bulletin (attached).

Reference Documents:

- [NAD83\(CSRS\) Updates](#)

Revision History

Revision Number	Date of Publication	Filename	Description of Changes
1.0	December 13, 2024	PPB-2024-GEO-01	Published to ASTTBC website



Notice of Changes to CSRS PPP Service Affecting Georeferencing in BC

On **November 21, 2024**, updates to the Canadian Spatial Reference System (CSRS) Precise Point Positioning (PPP) service were implemented, impacting georeferencing for survey projects across British Columbia. These updates are part of the release of NAD83(CSRS) v8, which introduces a new velocity grid based on updated geodetic data and methods.

Key Changes:

- RINEX data processed through CSRS PPP after November 21, 2024, will yield results differing from those generated prior to this date.
- Differences in results vary by geographic location, with magnitudes ranging from 0 cm to over 20 cm. Most regions of BC will experience minimal changes, but northern coastal regions in particular will see significant impacts.
- NRCan has provided heat maps on their explanatory bulletin that show the mm/year differences between the v7 and v8 velocity grids. To determine the approximate magnitude of change in a given region, multiply the mm/year amount by the number of years between date of GNSS observations and the date of reference epoch. For example, at current date, we are 22.9 years from the official reference epoch on mainland BC (Epoch 2002.0) and 27.9 years from the official reference epoch on Vancouver Island (Epoch 1997.0)
- Determining the approximate magnitude of effect on your region of practice can inform on the degree to which measures should be taken to revisit data GNSS data processed by the CSRS PPP service prior to November 21st, 2024

Steps for Survey Projects Affected by this Update:

- Reprocess data through CSRS PPP and compare the results with those that were generated prior to Nov 21st.
- Review heat maps provided by the Canadian Geodetic Survey to verify differences are within the expected magnitude.
- If magnitude differences exceed your project error thresholds, reprocess all RINEX data to align with the v8 velocity grid and shift affected projects to the new v8 CSRS PPP solution

These steps also apply to older survey datasets where alignment is required with new survey datasets on the same project site. Surveyors can rerun archive RINEX data through CSRS PPP to generate updated “v8” results and assess the coordinate differences and determine an appropriate course of action.

For additional details, please refer to the [NAD83\(CSRS\) Updates](#).

For any questions about this update please contact:

- [GeoBC, Foundational Information & Technology \(FIT\) Branch](#) at BC’s Ministry of Water, Land and Resource Stewardship
- [NRCan Geodetic Reference Systems Information](#)