## **ISO Geodetic Registry**

Item class Transformation

Name ITRF93 to NAD83(CSRS96) v1 [v1]

Item statusVALIDIdentifier564

Information source Title The Canadian Spatial Reference System (CSRS)

Author Canadian Geodetic Survey

Publisher Canadian Geodetic Survey, Surveyor General

Branch, Earth Sciences Sector, Natural Resources Canada, Government of Canada

Publication date 2016-08-30

Information source Title Modern Geodetic Reference Frames for Precise

Satellite Positioning and Navigation

Author J. Kouba, J. Popelar

Publication date 1994-09-02

Series/Journal name Proceedings on the International Symposium

on Kinematic Systems in Geodesy, Geomatics and Navigation, Banff, Canada, August 30 -

September 2, 1994

Page 79-86

Information source Title The Evolution of NAD83 in Canada

Author M. Craymer

Publisher Canadian Institute of Geomatics

Publication date 2006
Series/Journal name Geomatica
Issue identification Volume 60, No. 2

Page 151-164

Data source ISO Geodetic Registry

Remarks Transformation defines NAD83(CSRS96)v1 and is treated as errorless.

Operation version v1

Scope Spatial referencing

Operation accuracy 0.0 m

Source CRS ITRF93 - XYZ

Target CRS NAD83(CSRS96) v1 - XYZ

Operation method Time-Dependent Position Vector Transformation (geocentric Cartesian

domain)

#### Extent

Description Canada - onshore and offshore - Alberta, British Columbia, Manitoba, New Brunswick, **Newfoundland and Labrador, Northwest** Territories, Nova Scotia, Nunavut, Ontario, Prince Edward Island, Quebec, Saskatchewan, Yukon. Geographic Bounding Box West-bound longitude -141.01 North-bound latitude 90.0 East-bound longitude -47.74 South-bound latitude 40.04

### Operation parameter values

Time reference 1988.0 year Rate of change of scale difference 0.11 parts per billion per year Rate of change of Z-axis rotation -0.008 milliarc-second per year Rate of change of Y-axis rotation 0.962 milliarc-second per year Rate of change of X-axis rotation 0.078 milliarc-second per year Rate of change of Z-axis translation -8.0E-4 metre per year Rate of change of Y-axis translation 4.0E-4 metre per year Rate of change of X-axis translation 0.0023 metre per year Scale difference 4.1 parts per billion Z-axis rotation -9.87 milliarc-second Y-axis rotation -16.22 milliarc-second X-axis rotation -27.09 milliarc-second Z-axis translation -0.534 metre Y-axis translation -1.979 metre X-axis translation 0.94 metre

# **ISO Geodetic Registry**

Item class OperationMethod

Name Time-Dependent Position Vector

**Transformation (geocentric Cartesian domain)** 

Item status VALID
Identifier 82

Alias Time-Dependent 7-Parameter Transformation

Alias 14-Parameter Transformation

Alias Time-Dependent Position Vector Transformation

Data source ISO Geodetic Registry

Remarks Note the analogy with the rotation for the Time-dependent Coordinate

Frame Transformation but beware of the differences! The Position

Vector Transformation convention is used by IAG.

Formula Geomatics Guidance Note No 7, part 2: Coordinate Conversions and

Transformations including Formulas

### Operation parameters

X-axis translation

Y-axis translation

Z-axis translation

X-axis rotation

Y-axis rotation

Z-axis rotation

Scale difference

Rate of change of X-axis translation

Rate of change of Y-axis translation

Rate of change of Z-axis translation

Rate of change of X-axis rotation

Rate of change of Y-axis rotation

Rate of change of Z-axis rotation

Rate of change of scale difference

Time reference