AERONAUTICAL INFORMATION CIRCULAR 005/2025

ADOPTION OF WORLD GEODETIC SYSTEM – 1984 (WGS-84) AS THE HORIZONTAL GEODETIC REFERENCE SYSTEM FOR THE PUBLICATION OF AERONAUTICAL GEOGRAPHICAL COORDINATES

Purpose

The purpose of this circular is to inform users of NAV CANADA aeronautical information and data products that all horizontal geographical coordinates, indicating latitude and longitude, shall be expressed in terms of the World Geodetic System – 1984 (WGS-84) geodetic reference datum.

Background

The International Civil Aviation Organization's (ICAO) Annex 15 - Aeronautical Information Services standards and recommended practices specify that the World Geodetic System - 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation.

Currently the AIP CANADA, GEN 1.7 Differences from ICAO Standards, Recommended Practices and Procedures, specifies that "Canada uses the North American Datum 1983 (NAD83) as the geodetic reference datum" while also acknowledging "North American Datum 1983 (NAD83) is equivalent to the World Geodetic System - 1984 (WGS-84) for aeronautical purposes."

Aeronautical data originators provide NAV CANADA AIM with geographical data defining surveyed, calculated or declared positions relevant to air navigation. Data originators should specify the geodetic reference datum and epoch of the geographical coordinate data but in the event they do not, AIM assumes it is in NAD83 and the latitude/longitude information is assigned a datum of NAD83 recognizing the equivalency WGS-84 and NAD83.

The latest version of Transport Canada Aerodrome Standards and Recommended Practices (TP 312 Ed. 5) requires that coordinates are measured in accordance with the WGS-84 reference datum versus the NAD83 requirement of previous versions.

The result has been a combination of both WGS-84 and NAD83 geographical data to support air navigation purposes. The accepted datum equivalency has been assured through the extensive use of this data for charting, instrument procedure design and operational use.

To ensure conformance with the international standard for a horizontal reference datum and in recognition of the horizontal datum requirement established by Transport Canada (TP 312 Ed. 5) and the replacement of NAD83 with a new reference frame; NAV CANADA AIM shall express all horizontal geographical coordinates in terms of the World Geodetic System – 1984 (WGS-84) geodetic reference datum.

Implementation

Effective 17 April 2025 NAV CANADA AIM will:

- All published horizontal geographic coordinate (latitude, longitude) data will be recognized as being referenced to the WGS-84 geodetic datum. Coordinate values will not be changed.
- Horizontal geographic coordinate (latitude, longitude) data submitted by an originator with no clearly defined horizontal reference datum or datum epoch will be assigned a WGS-84 reference datum. Coordinate values will not be changed.
- Horizontal geographic coordinate (latitude, longitude) data submitted by an originator with a clearly defined geodetic reference datum other than WGS-84 and a defined datum epoch will be transformed to the latest version of WGS-84/ITRF(ICAO Annex 15 Amendment 43, 1.2.1). If the positional differences between the original and transformed coordinates are greater than the accuracy requirements for that data element, as defined in ICAO PANS-AIM 10066 Appendix 1 e.g. 1 metre, then the transformed WGS-84 coordinate values will be confirmed with the originator, stored in AIM's data management system with the metadata indicating a WGS-84 reference datum e.g. "WGE" and published by NAV CANADA AIM.

All published coordinate resolution requirements (e.g. tenths of a second) must be commensurate with the accuracy requirements, as directed in ICAO PANS-AIM (Doc 10066) Appendix 1.

For further information, please contact:

NAV CANADA
Customer Service Centre
151 Slater Street
Ottawa, ON K1P 5H3

Tel.: 800-876-4693
E-mail: service@navcanada.ca

Chris Bowden
Director, Aeronautical Information Management and Flight Operations