Input paper: ENG12-3.1.30

Input paper for the following Committee(s): Purpose of paper:

**X** ARM **X** ENG **□** PAP **□** Input

**□** ENAV **□** VTS **X** Information

Author(s) / Submitter(s) R. David Lewald, U.S. Coast Guard

Vice Chair, IALA-ARM Committee

Geodetic Datum as it Relates to Positioning Aids to Navigations

# Summary

In July 2020, the U.S. closed the last of their Differential GPS augmentation sites and permanently discontinued the service. Concurrently, the U.S. Hydrographic Office announced a 5-year plan to discontinue production of paper charts. In doing so, the U.S. Coast Guard was compelled to change the Geodetic Datum used while positioning AtoN and issue several policy and procedural changes related to Geodetic Datum. This paper will examine the subject of Datum as related to AtoN design, operations, and management.

# BACKGROUND

The GNSS Differential system in the U.S. was original designed and built in the early 1990’s to support the Aids to Navigation positioning requirements. At that time, the Datum in use by the U.S. Hydrographic Offices on all charts in U.S. waters was North American Datum 1983 (NAD-83). Therefore, the Datum used to position and administer AtoNs was also NAD-83. Interestingly, it was decided that part of the differential correction signal would include conversion of the WGS-84 GNSS position to NAD-83. The decision to perform the Datum conversion was made to support AtoN positioning requirements and to provide corrected positioning capabilities to the nascent Electronic Charting Navigational Systems being introduced. These early systems used Raster Navigational Chart (RNC) products which used NAD-83.

# Harmonization of datums

The IHO has identified WGS-84 as the Datum to be used on all Electronic Navigational Charts (ENC). While most regional hydrographic offices maintain paper charts in local Datums, AtoN Authorities should be cognizant of the IHO WGS-84 standard and consider the appropriate Datum for AtoN positioning and administration. In the U.S., the primary Hydrographic authority has announced the discontinuance of their paper chart production system and provide products derived solely from their ENC data. As a result, the U.S. Coast Guard will transition from NAD-83 to WGS-84 to provide proper AtoN data to the Hydrographer.

# Action requested

The Committee is requested to:

1. Consider the use of Datum as it pertains to positioning and administration of AtoN.