**CAP-CP Geography Package**

**1.0 Introduction**

The Meteorological Services of Canada (MSC), is responsible for maintaining a standardized package of GIS (Geographical Information System) based MSC forecast location shapefiles and polygons. The current package is version 6.8.0 and corresponds to the environment that is expected to be operational in **April 2023**.

The CAP-CP Geography sub-Package contains GIS material contributed by various agencies in Canada, all in support of NPAS (National Public Alerting System). Public alerting in Canada uses a CAP-CP geo-coded dataset, and Environment and Climate Change Canada (ECCC) references this CAP-CP dataset in the MSC CAP products. The CAP Reference Standard supports the use of geo-referenced location codes to describe the area(s) affected by an alert. In CAP-CP alerting, the geo-referenced location codes correspond to commonly known geopolitical areas in Canada, which can be identified on maps when issuing alerts. Presently ECCC maps to CAP-CP version 0.4 beta with the anticipation of mapping to version 1.0 in the near future.

The Canadian Geographical Standard Classification (SGC), maintained by Statistics Canada, is the original source for the CAP-CP reference list used in CAP-CP. The SGC system provides unique numeric codes for three types of geographic areas: provinces and territories; census divisions (CD), such as counties and regional municipalities; and census subdivisions (CSD), such as cities, towns, and townships.

As some of the MSC locations are directly associated with the CAP-CP effort, MSC has prepared a CAP-CP Geography sub-Package as an add-on sub-component of the MSC GIS Geography Package. The shapefiles for this external information do not have the same full treatment as given to ECCC’s own datasets.

**2.0 Data Format**

The data in the CAP-CP Geography sub-Package are available in two formats, EXCEL spreadsheet and shapefile. The CAP-CP shapefiles were built with the information available. Unlike ECCC’s own datasets, these shapefiles do not have the full treatment with regards to depiction, projections and metadata.

**2.1 CAP-CP EXCEL Spreadsheet**

The EXCEL spreadsheet is provided as a summary of the codes as part of the CAP-CP Location references 1.0. The actual list provided with that publish should be consulted for any official use. Any differences found in the spreadsheet, while unintended, are not to be considered official.

The contents in the Excel spreadsheet is organized into sheets, categorized by the waterbody (for water zones) and provinces/territories (for land zones). The waterbody zones and codes were contributed by MSC while the land zones were taken from CAP-CP 0.4 beta, except for the zones in Quebec which were updated by the Ministère de la Sécurité Publique du Québec subsequent to the publishing of CAP-CP 0.4 beta.

Similar to other layers in the MSC Geography Package, the shapefiles in the CAP-CP Geography Package are also generated based on the four categorized business needs used within MSC. These include the business usage (set to CAP-CP), kind (set to land or set to water), coverage depiction (equivalent to the MSC detailed set), and projection (set to unprojected).

**2.2 CAP-CP Shapefiles**

**2.2.1 Land CAP-CP Shapefile**

The geo-referenced locations in the CAP-CP land set in the package is derived based on census subdivisions with the exception of the province of Quebec. The geo-referenced codes and shapes for the province of Quebec received from the Ministère de la Sécurité Publique du Québec have replaced the original source - SGC previously used for Quebec in 0.4 beta.

In the last months, a partner reported some issues with the CAP-CP geocodes associated to certain alert locations – most notably in the Northwest Territories. After investigation, we found out that the last posted 2011 Census subdivisions (CSD) boundaries shapefile from Stats Canada was not quite matching with our copy of that shapefile. Adjustments were made to bring our copy up to date.

**2.2.2 Water CAP-CP Shapefile**

The geo-referenced locations in the CAP-CP water set in the package is derived from the MSC water detailed set, which is described in the Readme document of the MSC Geography Package. The geo-reference codes for water zones are also derived from the CLC value of the MSC Geography Package.

**2.3 Projection**

The coverage depiction chosen for the shapefiles of the CAP-CP Geography sub-Package is equivalent to the detailed depiction used in the MSC Geography Package. The shapefiles were set with a Geographical Coordinate System, and contain the following components:

* Three-dimensional reference system
* The unit of measure is decimal degrees
* Points have two coordinate value: latitude and longitude measured in angles
* Prime Meridian is Greenwich
* Datum is D\_North\_American\_1983