

## **Can geographic coordinates be replaced?**

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### **Geocoding:**

- A geographic point location described by numbers (coordinates: geographic latitude and longitude, height/depth)
- Now more accessible: a smartphone is becoming default equipment

*ISO 6709:2008 is the geocoding system that offers a standardised representation of geographic point location by coordinates.*

## **Disadvantages of Geographic coordinates:**

- Difficult to remember.
- Coordinates (latitude, longitude) refer to a specific point in space
  - Geographic coordinates fail to explicitly define an area in space with a size that varies depending on the resolution.
  - Truncating the decimal digits of geographic coordinates, results in a new location.

## **Alternative location encoding systems**

To better support specific geomatics applications, including navigation in space (directions).

• Popular systems, introduced recently, are:

- Google's Open Location Code
- What3words

• Other geocoding systems, to name a few:

- Geohash, Geotude, C-Squares, MapCode, Open Post Code, WMO squares, and UTM grid,.

## Location encoding systems

A location encoding system (also known as a geocoding system) is a scheme that assigns systematic alphanumeric labels to geographic locations or entities.

Grouped into two **categories**, namely those that:

- convert geographic coordinates of point locations (latitude and longitude) into codes using an encoding scheme (e.g. Geohash).
- partition the earth surface and assign codes to the tiles generated by this partition.

## **Where geocoding systems partition and assign codes, the tiles:**

- are encoded using an algorithm that calculates the alphanumeric strings and avoids recognisable words (e.g. Open Location Code), or
- are assigned one or more recognisable words from the English or other dictionary (e.g. What3words).

## **Geocoding systems could support:**

- a multi-resolution scheme and encode smaller or larger tiles (areas) with more or less digits in a code (e.g. Geohash, Open Location Code)
- a constant tile size and equal-sized codes (e.g. What3words, WMO squares, UTM grid).













