

GISCV.ORG :: MAPPING GRID SYSTEMS

KEY CONCEPTS SHEET (EN)

In the context of the global, regional, or national distribution and sharing of georeferenced data, the use of grid cells has become a widely accepted cartographic standard. The most commonly used grid-cell geometries are squares and hexagons, although square cells are generally preferred because of their simplicity of implementation and analysis. Grid systems can be readily generated in any PCS (Projected Coordinate System), in which cell dimensions are expressed in linear units, such as metres or kilometres. When an appropriate PCS is used, cell areas can also be maintained consistently across the mapped area. In contrast, when grids are generated directly from a GCS (Geographic Coordinate System), cell dimensions are expressed in angular units, and the relationship between cell dimensions and area is not constant across the represented area. This variation results from the curvature of the Earth's surface and the angular nature of geographic coordinates, leading to spatial distortions in both area and shape.

Spatial resolution remains a critical consideration, with a cell size of 10×10 km (100 km^2 per cell) being widely adopted for species mapping and conservation planning. However, given the relatively small size of the islands and islets that constitute Cabo Verde, this resolution may be too coarse for many applications. A grid composed of 5×5 km square cells (25 km^2 per cell) provides a more appropriate spatial resolution for the archipelago, enabling a finer representation of species distributions and environmental patterns. Furthermore, data collected at a 5×5 km resolution can be readily aggregated to a 10×10 km grid when a coarser resolution is required, thereby ensuring analytical flexibility and facilitating comparability with broader-scale studies. The number of grid cells required to represent each island or islet varies according to the selected EPSG and, as expected, the spatial resolution (i.e. cell size). The table below summarises the number of cells resulting from the different grid configurations.

Number of square cells required to represent each island or islet in the Cabo Verde archipelago under different grid configurations, based on the selected EPSG and grid-cell size

	Santo Antão	São Vicente	Santa Luzia	Branco	Raso	São Nicolau	Sal	Boa Vista	Maio	Santiago	Fogo	Rombo	Brava
EPSG:4826 - 5×5 km	48	20	7	4	4	31	22	41	21	57	30	2	7
EPSG:32626 / 7 - 5×5 km	50	19	5	2	2	31	19	44	20	60	33	2	9
EPSG:32626 / 7 - 10×10 km	18	8	2	2	2	10	8	16	7	19	13	2	4

GISCV.ORG provides three Mapping Grid Systems specifically designed for the islands and islets of the Cabo Verde archipelago, available for free download and use under the Attribution 4.0 International (**CC BY 4.0**) licence.

5×5 km Square Cells Grid for EPSG:4826

Each cell is identified by a unique Grid Cell Identifier (GCI). The Cabo Verde archipelago comprises 294 cells when represented in EPSG:4826. Each GCI consists of two letters and two digits.

The letters identify the corresponding island or islet, while the digits follow a sequential numbering system, ordered from top to bottom and from left to right, starting at 1 for each island or islet.

Island and Islet Codes

SA - Santo Antão
SV - São Vicente
SZ - Santa Luzia
BC - Branco
RA - Raso
SN - São Nicolau
SL - Sal
BV - Boa Vista
MA - Maio
ST - Santiago
FO -Fogo
BR - Brava and Rombo

5 × 5 km Square Cell Grid for EPSG:32626 and EPSG:32627

Cabo Verde comprises 296 25 km² cells when represented in EPSG:32626 / EPSG:32627. Each GCI consists of two parts. The first, comprising two digits and one letter, identifies the UTM zone and latitude band. The second, comprising two letters and four digits, identifies the 100 × 100 km grid square within the corresponding UTM zone and latitude band: the two letters identify the 100 × 100 km grid square, while the four digits identify the corresponding 5 × 5 km subdivision within that square.

10 × 10 km Square Cell Grid for EPSG:32626 and EPSG:32627

Cabo Verde comprises 111 100 km² cells when represented in EPSG:32626 / EPSG:32627. Each GCI consists of two parts. The first, comprising two digits and one letter, identifies the UTM zone and latitude band. The second, comprising two letters and two digits, identifies the 100 × 100 km grid square within the corresponding UTM zone and latitude band: the two letters identify the 100 × 100 km grid square, while the two digits identify the corresponding 10 × 10 km subdivision within that square.