

ELEVATION BREAKDOWN (EBK1KM)

Definition & purpose:

The Elevation breakdown is used to allocate Land cover changes into homogeneous areas as function of height, slope and distance to the sea. It defines five relief typologies: Low coasts, high coasts, inlands, uplands and mountains.

Elevation breakdown was created using the LEAC 1 km grid as reference system. Areas next to the sea (< 10 km from the coastline) are considered *Coasts* and split in two categories: **Low coasts** (< 50 m) and **High coasts** (> 50 m). **Inlands** are the areas between 0 and 200 m outside the coastal strip. **Uplands** are the zones between 200 and 500 m plus the flat areas between 500 and 1000. The slopy areas between 500 and 1000 m and all the areas over 1000 m are classified as **Mountains**.

Input layers:

- GISCO digital elevation model 1 km
- Reference coastline <http://dataservice.eea.europa.eu/dataservice/metadetails.asp?id=921>

Software used:

- ArcGis 9.1 Desktop & Workstation
- ArcView 3.1 + Spatial Analyst

Procedure steps:

- Resampling GISCO digital elevation model to match the European reference 1 km grid parameters (ArcMap)
- Deriving slopes (in %) from the Digital elevation model (ArcView Spatial Analyst: Derive slope)
- Filtering the Slope layer by obtaining the **mean** value in a 9x9 window (ArcView Spatial Analyst: Neighbourhood)
- Reclassifying the smoothed values into two classes to obtain **SLOPE_REC** (ArcView: Map Calculator).

<u>Value</u>	<u>Description</u>
1	Flat (< 2%)
2	Sloping (> 2%)

- Creating the "Distance to the coast" layer (ArcView Spatial Analyst: Find distance)
- Reclassifying the Distance to the coast layer to obtain **DIST_REC** (ArcView: Map Calculator).

<u>Value</u>	<u>Description</u>
10	Coast (< 10 km)
20	No coast (> 10 km)

- Reclassifying the elevation model into five classes to obtain **DTM_REC** (ArcView: Map Calculator).

<u>Value</u>	<u>Description</u>
100	0 – 50 m
200	50 – 200 m
300	200 – 500 m
400	500 – 1000 m
500	> 1000 m

- Combining DIST_REC, DTM_REC and SLOPE_REC and reclassifying the final values into five classes (ArcView: Map Calculator).

<u>Value</u>	<u>Reclass</u>	<u>Description</u>
111	1	low coast
112	1	low coast
121	3	inlands
122	3	inlands
211	2	high coast
212	2	high coast
221	3	inlands
222	3	inlands
311	2	high coast
312	2	high coast
321	4	uplands
322	4	uplands
411	2	high coast
412	2	high coast
421	4	uplands
422	5	mountains
511	2	high coast
512	2	high coast
521	5	mountains
522	5	mountains

- Converting Raster to Vector (ArcInfo: Gridpoly).
- Eliminating polygons smaller than 100 km² (ArcInfo: Eliminate).
- Rasterizing the resulting coverage (ArcInfo: Polygrid).
- Clipping with the LEAC 1 km grid (ArcView: Map Calculator). The LEAC 1 km grid contains **all** the 1 km reference grid cells that intersect with CLC data including intertidal flats and estuaries. The reference coastline used to define the 10 km coastal buffer was created omitting the intertidal flats and estuaries. This is the reason why in some areas the coastal strip is wider than 10 km.
- Creating metadata and colormap files, defining projection and loading to SDE Reference database at ETC-TE data server (ArcCatalog).
- Exporting to TIFF, zipping and uploading to EEA data service (ArcCatalog).

Output layer:

- EBK1KM (Elevation breakdown 1km)

Further improvements:

- Using a more detailed Digital terrain model and working with a higher resolution (e.g. 100 m pixels) compatible with CLC raw data.