



CAROLINA CZCQUIEL



```
# -*- coding: utf-8 -*-
```

```
"""hokkaido.ipynb
```

```
Automatically generated by Colab.
```

```
Original file is located at
```

```
https://colab.research.google.com/drive/  
1eYk2FhcacD42kZA007JJ180mCUOI6d3
```

```
"""
```

```
pip install ridge_map
```

```
from ridge_map import RidgeMap  
import matplotlib.pyplot as plt
```

```
mt_hokkaido_bbox = (140.66, 41.9, 145.72, 45.61)
```

```
rm = RidgeMap(mt_hokkaido_bbox)
```

```
values = rm.get_elevation_data(num_lines=150)
```

```
# process data
```

```
values = rm.preprocess(values=values,  
                       lake_flatness=.5,  
                       water_ntile=0,  
                       vertical_ratio=200) #
```

```
Ajuste este valor conforme necessário
```

```
rm.plot_map(values=values,  
            label='Hokkaido',  
            label_x=0.55,  
            label_size=40,  
            linewidth=1,  
            line_color=plt.get_cmap('copper'),  
            kind='elevation')
```

```
plt.savefig('hokkaido_ridge_map_200.png',  
dpi=300, bbox_inches='tight')  
print('Imagen hokkaido_ridge_map_200.png salva  
com sucesso!')
```

DATA VISUALIZATION: HOKKAIDO'S RIDGE

with Python In this project, I used the Python language to create a generative art piece based on real geographic data from the island of Hokkaido, Japan. The goal was to transform topographic coordinates into a minimalist and elegant visual representation, known as a Ridge Map.

To arrive at the final result, the workflow involved:

- **Data Collection:** I used the `ridge_map` library to retrieve elevation data from NASA (SRTM) using a specific bounding box for the Hokkaido region.
- **Geographic Processing:** Using the `RidgeMap` class, the raw data was processed to define the density of the lines (150 sampling lines) and the smoothing of areas with water (`lake_flatness`), ensuring that the focus remained on the mountains and volcanoes.
- **Vertical Exaggeration Adjustment:** The `vertical_ratio` parameter was calibrated to 200, allowing the depth of the relief to be accentuated, creating a more dramatic and imposing three-dimensional visual effect.
- **Aesthetics and Rendering:** The visualization was rendered with the `matplotlib` library, using the copper color map. This metallic gradient reinforces the connection with natural and organic elements of the earth.



3D - BLCNDCR

In this project, I explored the workflow between GIS (Geographic Information Systems) and 3D modeling to create a realistic visualization of the island of Hokkaido, Japan. The process consisted of: Data Extraction: I used the USGS Earth Explorer portal to obtain the raw elevation data (DEM) of the region. QGIS Processing: I performed precise clipping of Hokkaido's geometry and applied a color ramp in shades of blue to highlight the altitude variations. The result was exported as a high-resolution texture (PNG). Blender Rendering: I imported the map into Blender, where I used the elevation data to generate the real 3D displacement map. I configured the lighting and materials to create shadows that emphasize the complexity of the island's mountain ranges. The final result is a piece that combines cartographic precision and three-dimensional aesthetics.