

Código Azul: Marea de Datos



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IT ACADEMY



Indicadores Ambientales Globales

- Medidas estadísticas utilizadas para evaluar el estado y las tendencias del medio ambiente a nivel mundial.
- Permiten monitorizar el impacto de las actividades humanas sobre la naturaleza y ayudan a los gobiernos, organizaciones y ciudadanos a tomar decisiones informadas para la protección del medio ambiente.



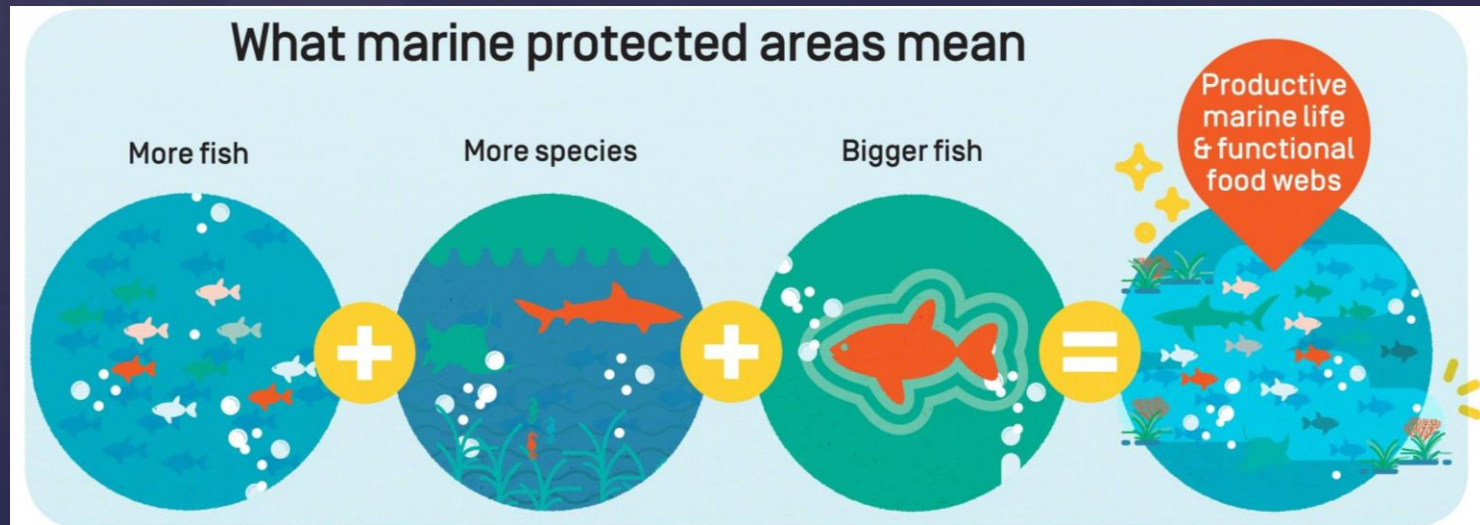
1. Índice de Áreas Marinas Protegidas (AMPs/ **MPAS**)

2. Índice de Estado de los Ecosistemas Marinos
3. Índice de Salud de los Arrecifes de Coral
4. Índice de Cambios en la Temperatura y Contaminación Marina
5. Índice de Biodiversidad en Áreas Protegidas
6. Índice de Resiliencia al Cambio Climático

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Áreas Marinas Protegidas (MPAS)

Las Áreas Marinas Protegidas son zonas del océano o mares donde las actividades humanas están reguladas para conservar la biodiversidad marina, los hábitats y los recursos naturales.



Los datos: método de testeo

Origen:

kaggle

Tipo y cantidad de
archivos:

64 archivos CSV

Método de carga:

Librería OS



The screenshot displays the Kaggle dataset browser interface for the 'Global Environmental Indicators' dataset. The top navigation bar shows the dataset name, upload date (28/04/2025 21:36), and file type (Carpeta de archivos). Below this, a tree view on the left lists categories: Air and Climate, Biodiversity, Energy and Minerals, Forests, Governance, Inland Water Resources, Land and Agriculture, Marine and Coastal Areas, Natural Disasters, and Waste. A blue arrow points from the 'Global Environmental Indicators' dataset to the tree view. The tree view shows sub-categories under 'Air and Climate' (CH4_Emissions, CO2_Emissions, GHG_Emissions, GHG_Emissions_by_Sector, N2O_Emissions, NOx_Emissions, SO2_emissions) and 'Terrestrial_Marine protected areas' (Terrestrial_Marine protected areas). The right panel shows a list of 64 CSV files, including 'Actual evapotranspiration', 'Fresh groundwater abstracted', 'Fresh surface water abstracted', 'Freshwater abstracted as proportion of r...', 'Freshwater abstracted', 'Inflow of surface and groundwaters from ...', 'Internal flow', 'Net freshwater supplied by water supply ...', 'Net freshwater supplied by water supply ...', 'Non-treated wastewater', 'Population connected to wastewater coll...', 'Population connected to wastewater trea...', 'Precipitation', 'Public Water Supply', 'Renewable freshwater resources per capi...', 'Renewable freshwater resources', 'Total population supplied by water suppl...', 'Wastewater generated', 'Wastewater generation and treatment', 'Wastewater treated in independent treat...', 'Wastewater treated in other treatment pl...', 'Wastewater treated in urban treatment pl...', and 'Water resources'. The 'Marine protected areas' category is highlighted with a yellow box, and the 'Municipal waste collection (latest year)' file is highlighted with a blue box.

Category	File Name
Air and Climate	CH4_Emissions
	CO2_Emissions
	GHG_Emissions
	GHG_Emissions_by_Sector
	N2O_Emissions
	NOx_Emissions
	SO2_emissions
Terrestrial_Marine protected areas	Terrestrial_Marine protected areas
Marine protected areas	Marine protected areas
	Climatological disasters
	Geophysical disasters
	Hydrological disasters
Agricultural Land	Agricultural Land
	Consumption of fertilizers per
	Terrestrial protected areas
Global Environmental Indicators	Actual evapotranspiration
	Fresh groundwater abstracted
	Fresh surface water abstracted
	Freshwater abstracted as proportion of r...
	Freshwater abstracted
	Inflow of surface and groundwaters from ...
	Internal flow
	Net freshwater supplied by water supply ...
	Net freshwater supplied by water supply ...
	Non-treated wastewater
	Population connected to wastewater coll...
	Population connected to wastewater trea...
	Precipitation
	Public Water Supply
	Renewable freshwater resources per capi...
	Renewable freshwater resources
	Total population supplied by water suppl...
	Wastewater generated
	Wastewater generation and treatment
	Wastewater treated in independent treat...
	Wastewater treated in other treatment pl...
	Wastewater treated in urban treatment pl...
	Water resources
	Municipal waste collection (latest year)
Hazardous waste generated per capita	
Hazardous waste generated	
Hazardous waste incinerated	
Hazardous waste landfilled	
Hazardous waste recycled	
Hazardous waste treated or disposed	
Municipal waste collected	
Municipal waste collection (latest year)	
Municipal waste collection at city level in...	
Municipal waste treatment (latest year)	
Municipal waste treatment at city level in...	
Percentage of haz waste treated or dispo...	
Percentage of municipal waste collected ...	
Total ewaste collected	
Total ewaste generated	
Total population served by municipal wa...	

Los datos: carga de datos

Origen:

kaggle

Tipo y cantidad de
archivos:

64 archivos CSV

Método de analizar:

Librería OS



```
import os
import pandas as pd

root_dir = "C:/Users/CanteMosh/Desktop/data
analysis.Fatima/project/Global Environmental
Indicators"

folders = [
    "Air and Climate", "Biodiversity", "Energy
and Minerals", "Forests",
    "Governance", "Inland Water Resources",
    "Land and Agriculture",
    "Marine and Coastal Areas", "Natural
Disasters", "Waste"
]

data_archive = {}
```

```
for folder in folders:
    folder_path = os.path.join(root_dir, folder)
    csv_files = [f for f in
os.listdir(folder_path) if f.endswith('.csv')]

    for file in csv_files:
        file_path = os.path.join(folder_path,
file)

        df = pd.read_csv(file_path)
        data_archive[file] = df
```

Los datos: método de testeo

Origen:

kaggle

Tipo y cantidad de
archivos:

64 archivos CSV



Método de carga:

Librería OS



Datos
normales

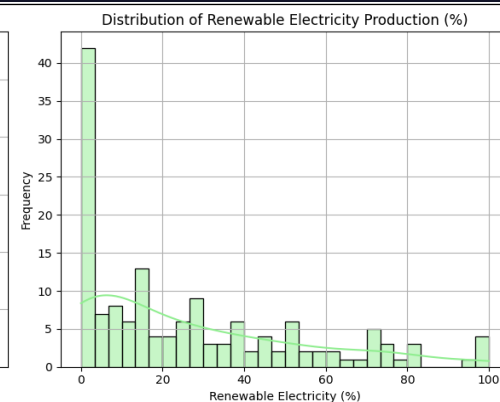
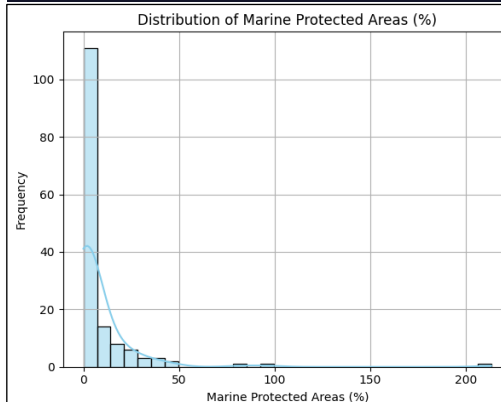
Test
pearson

Datos no
normales

Test
spearman

```
from scipy.stats import shapiro

#LOS CODIGOS DE Dataset
if p > 0.05:
    print("Los datos tienen una distribución aproximadamente normal")
else:
    print("Los datos no siguen una distribución normal")
```

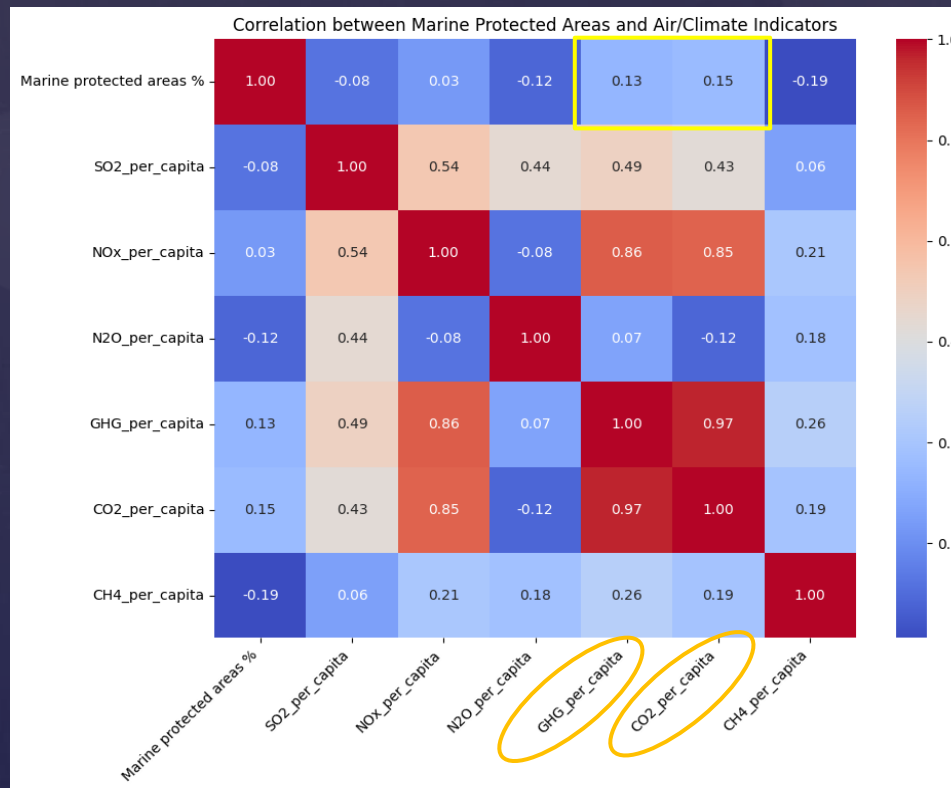


Preguntas y hipótesis

Relación entre áreas protegidas y diferentes gases de efecto invernadero

Metano ← → Óxido nítrico

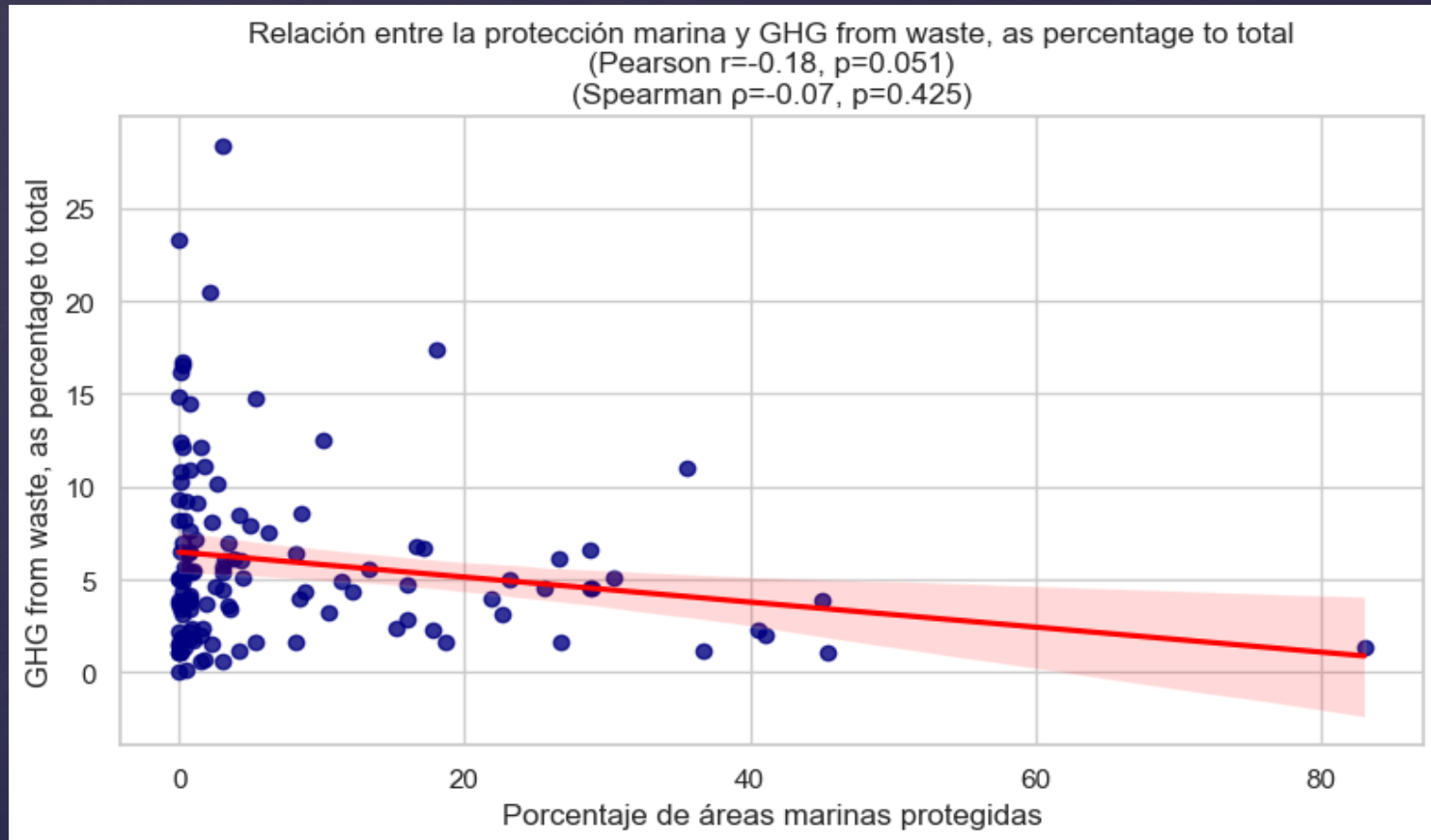
Los gases de efecto invernadero como CO₂, CH₄ y N₂O causan calentamiento global y afectan a los ecosistemas marinos. Por lo tanto, entender si las áreas marinas protegidas ayudan a reducir la emisión de estos gases, puede mejorar la planificación ambiental futura.



GHG: Green House Gas → Gas de efecto invernadero

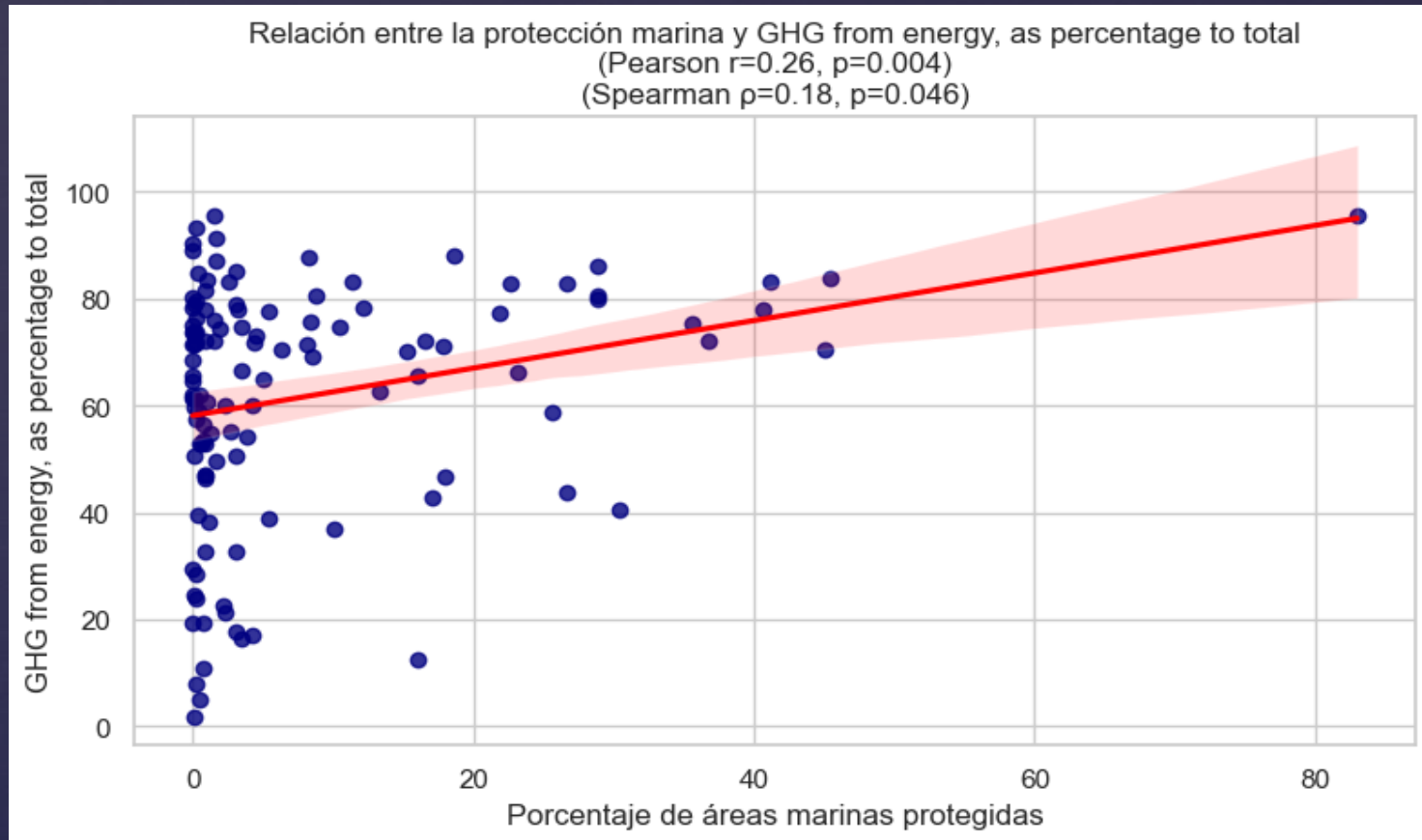
Preguntas y hipótesis

Relación entre áreas protegidas y GHG proveniente de basuras



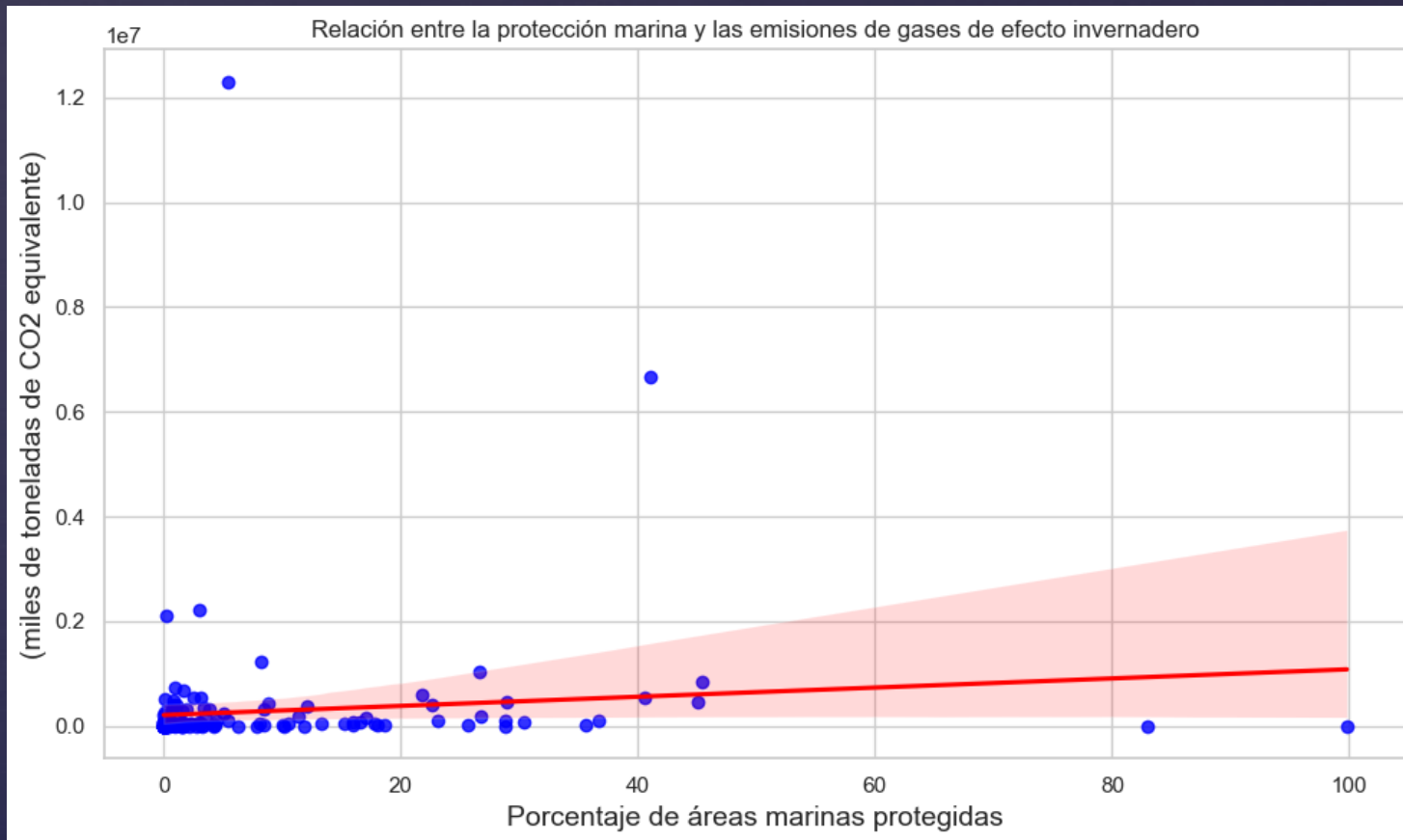
Preguntas y hipótesis

Relación entre áreas protegidas y GHG proveniente de energía



Preguntas y hipótesis

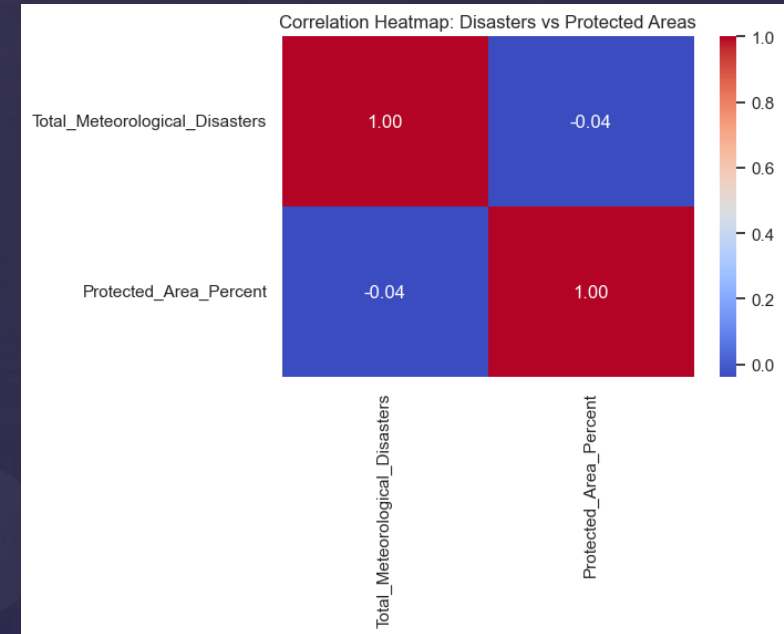
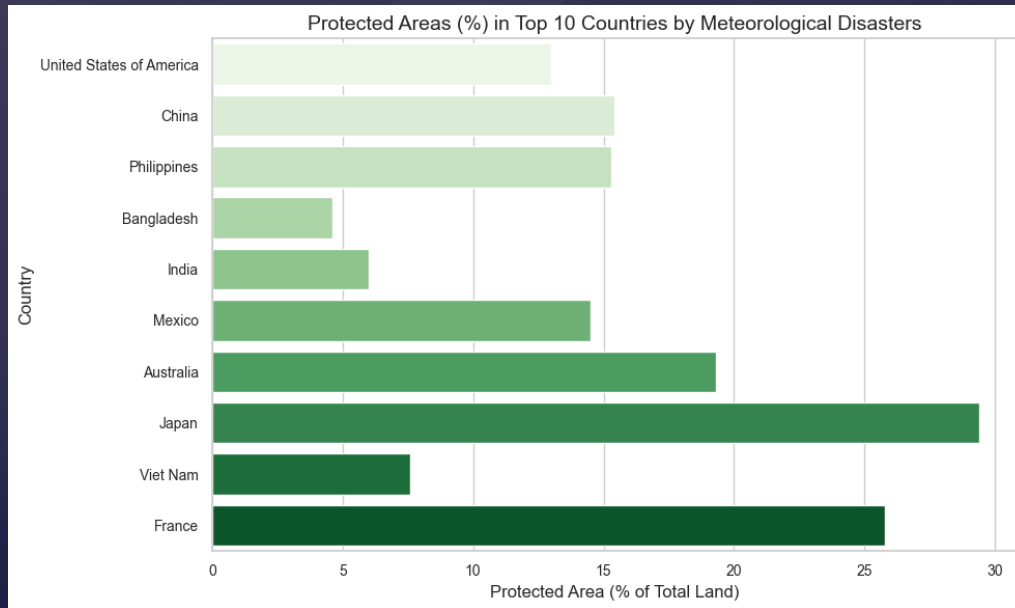
Relación entre áreas protegidas y CO₂



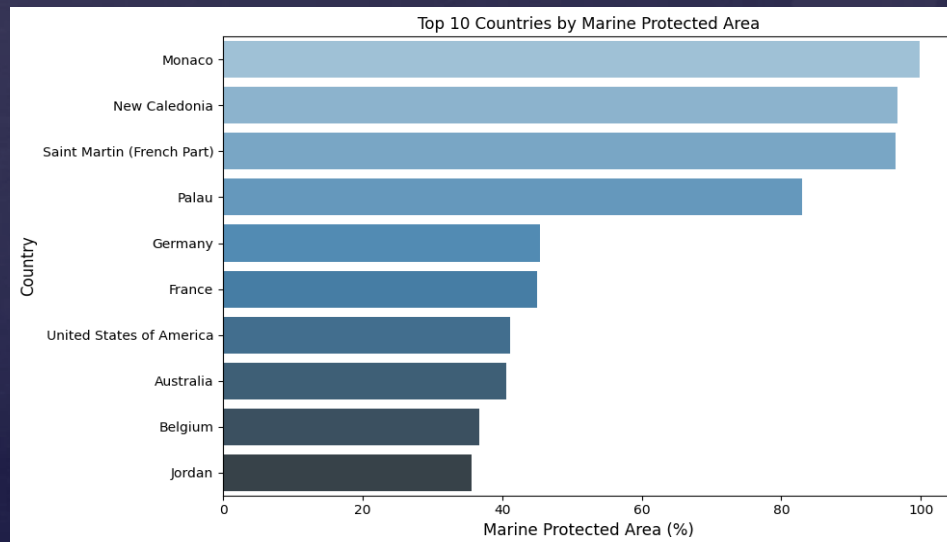
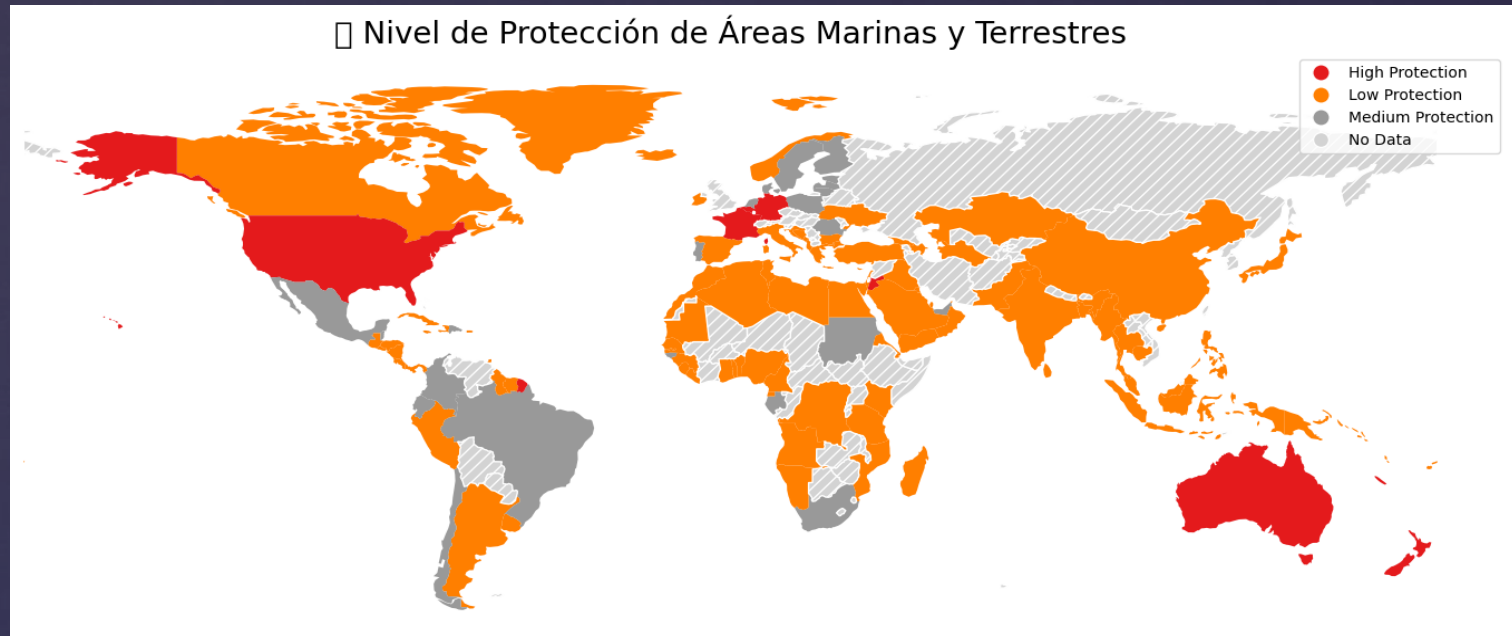
Coeficiente de Spearman: 0.3973, valor p: 0.0000

Preguntas y hipótesis

Relación entre desastres naturales y áreas protegidas



Otros gráficos generados



Otros gráficos generados??!!

biodiversity.csv

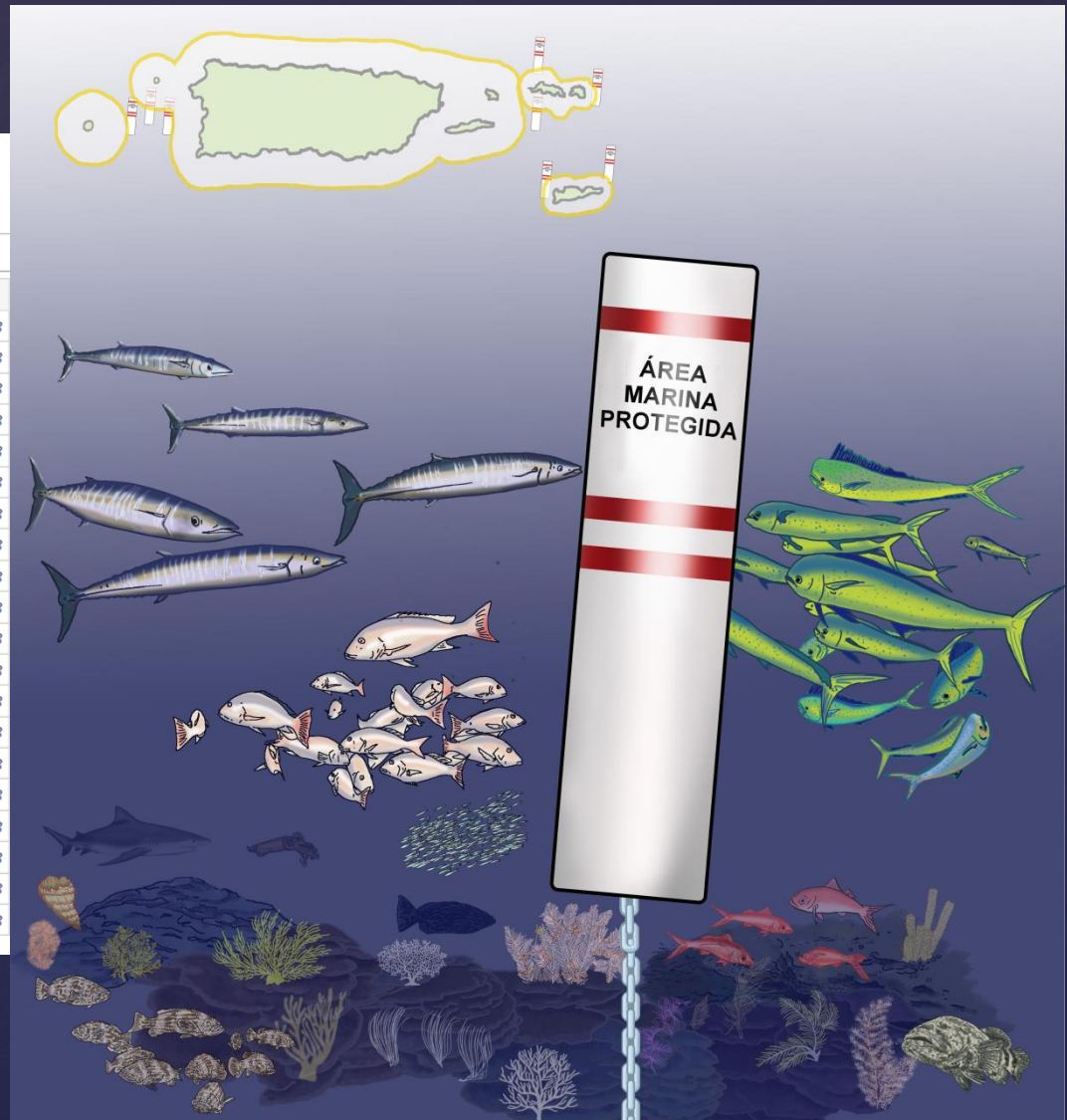
File Origin

65001: Unicode (UTF-8)

Delimiter

Comma

CountryID	Country and area	latest year available
null	World Total	2018
4	Afghanistan	2018
8	Albania	2018
12	Algeria	2018
16	American Samoa	2018
20	Andorra	2018
24	Angola	2018
28	Antigua and Barbuda	2018
32	Argentina	2018
51	Armenia	2018
533	Aruba	2018
36	Australia	2018
40	Austria	2018
31	Azerbaijan	2018
44	Bahamas	2018
48	Bahrain	2018
50	Bangladesh	2018
52	Barbados	2018
112	Belarus	2018
56	Belgium	2018



Muchas gracias!

**Marine
Protected
Area**



Alguna pregunta?

