EFFECTS OF SURFACE TEMPERATURE CHANGE ON CLIMATE-RELATED DISASTER

Prepared By-

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TOPICS

Main Question

Used Data

Pipeline

Analysis

Findings

MAIN QUESTION

How have different regions around the world been affected by changes in surface temperature in terms of climate-related disasters?

USED DATA

Annual Surface Temperature Change

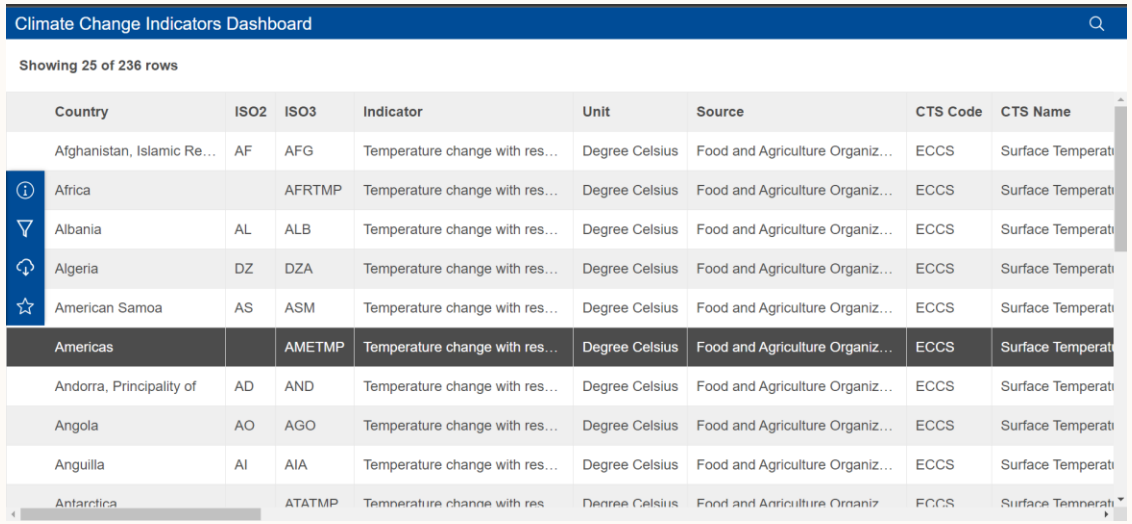
Metadata URL:
https://climatedata.imf.org/datasets/4063314923d74187be9596f10d034914/explore

Data URL:
https://opendata.arcgis.com/datasets/4063314923d74187be9596f10d034914_0.csv

Data Type: CSV

Description: This dataset shows annual estimates of mean surface temperature change measured with respect to a baseline climatology, corresponding to the period 1961-2022.

Data Structure: Semi-structured Data



Country	ISO2	ISO3	Indicator	Unit	Source	CTS Code	CTS Name
Afghanistan, Islamic Re…	AF	AFG	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu
Africa		AFRTMP	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu
Albania	AL	ALB	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu
Algeria	DZ	DZA	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu
American Samoa	AS	ASM	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu
Americas		AMETMP	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu
Andorra, Principality of	AD	AND	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu
Angola	AO	AGO	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu
Anguilla	AI	AIA	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu
Antarctica		ATATMP	Temperature change with res…	Degree Celsius	Food and Agriculture Organiz…	ECCS	Surface Temperatu

USED DATA

Climate-related Disasters Frequency

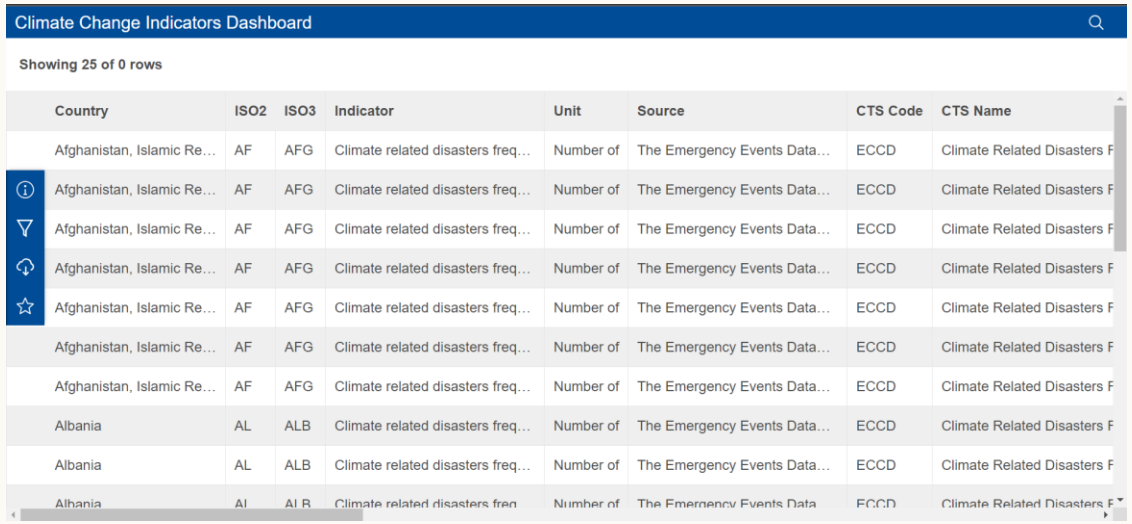
Metadata URL: https://climatedata.imf.org/datasets/b13b69ee0dde43a99c811f592af4e821/explore

Data URL: https://opendata.arcgis.com/datasets/b13b69ee0dde43a99c811f592af4e821_0.csv

Data Type: CSV

Description: This dataset shows number of climate related natural disasters between 1980-2022.

Data Structure: Semi-structured Data



USED DATA

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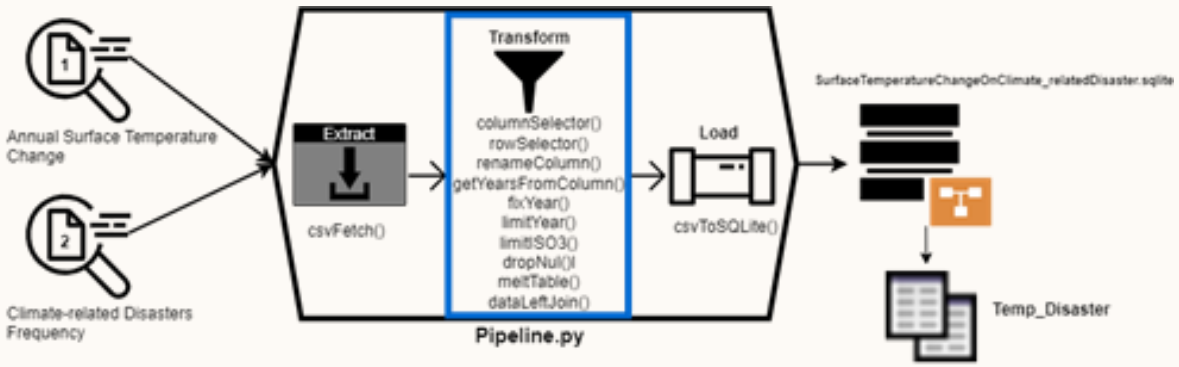
PIPELINE

1. ETL Pipeline.
2. E – Extract
3. T – Transform
4. L – Load



Used Techs-

1. *Python 3*
   - *a. Pandas*
   - *b. sqlite3*
   - *c. colormap*
   - *d. matplotlib*

PIPELINE


```python
class Pipeline():
    PipelineData : object
    url : str
    dropColumns : object
    selectedColumns : object

    def __init__(self, PipelineData = None, url = None, dropColumns = None, selectedColumns = None):
        # Code


    def csvFetch(self):
        # Code


    def columnSelector(self):
        # Code


    def rowSelector(self, row : str, value : str):
        # Code


    def getYearsFromColumn(self):
        # Code

    def renameColumn(self, renameColumns : object):
        # Code


    def fixYear(self):
        # Code


    def limitYear(self, fromYear, toYear):
        # Code

    def limitISO3(self, iso):
        # Code


    def dropNull(self):
       # Code

    def meltTable(self, keep : object, melt : object):
       # Code


    def dataLeftJoin(self, left : object, right : object, key : object, leftSufx : str, rightSufx : str):
        # Code


    def csvToSQLite(self, savingPath : str, sqliteFileName : str, sqliteTableName : str):
        # Code
```

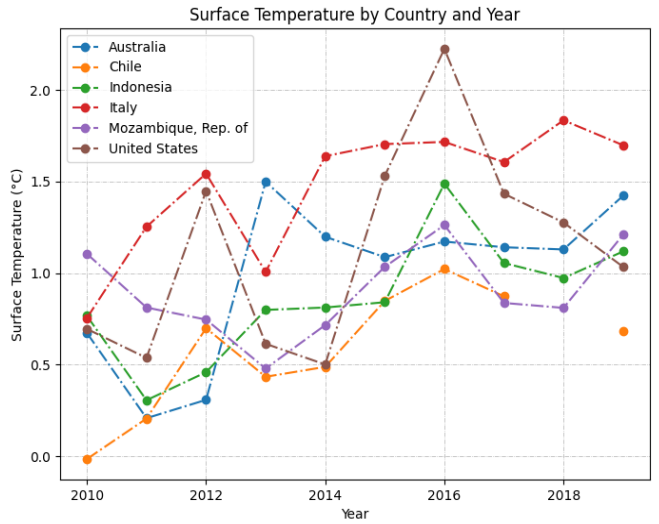
Methods Breakdowns:

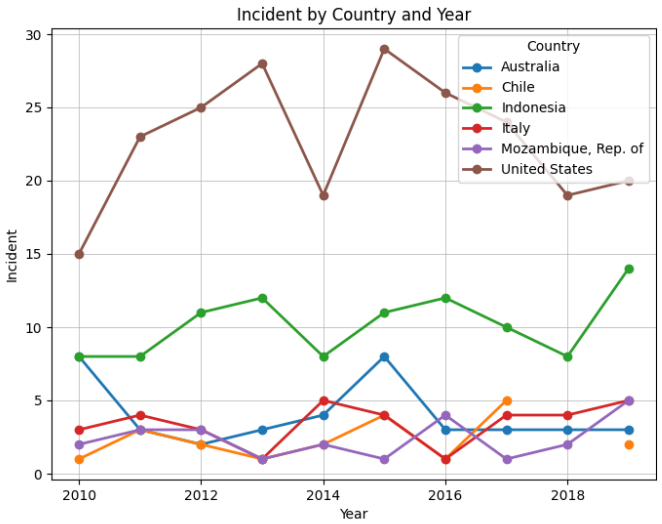
	Methods
E	csvFetch()
T	columnSelector() rowSelector() renameColumn() getYearsFromColumn() fixYear() limitYear() limitISO3() dropNul() meltTable() dataLeftJoin()
L	csvToSQLite()

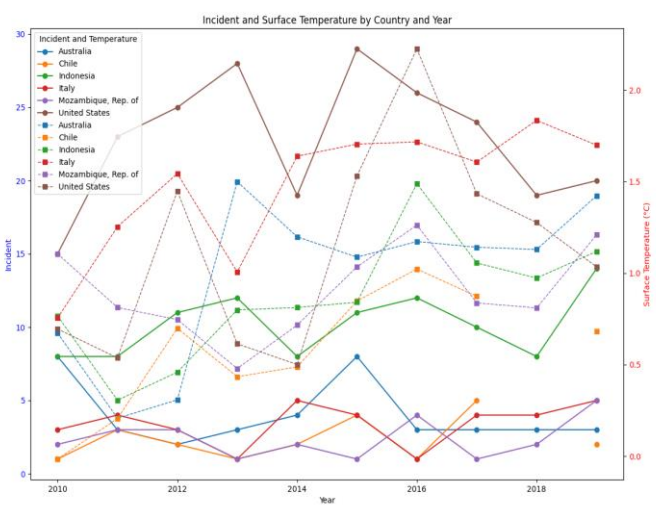
PIPELINE

	ISO3	Country	Year	Temperature	Incident
	Filter	Filter	Filter	Filter	Filter
1	AFG	Afghanistan, Islamic Rep. of	2010	1.613	4.0
2	ALB	Albania	2010	1.191	1.0
3	AGO	Angola	2010	1.194	3.0
4	ATG	Antigua and Barbuda	2010	1.153	1.0
5	ARG	Argentina	2010	0.135	1.0
6	AUS	Australia	2010	0.673	8.0
7	AZE	Azerbaijan, Rep. of	2010	2.327	1.0
8	BGD	Bangladesh	2010	0.768	6.0
9	BRB	Barbados	2010	1.147	2.0
10	BEL	Belgium	2010	0.233	3.0
11	BLZ	Belize	2010	0.843	1.0
12	BEN	Benin	2010	1.23	1.0
13	BOL	Bolivia	2010	0.68	4.0
14	BIH	Bosnia and Herzegovina	2010	0.954	3.0
15	BRA	Brazil	2010	1.112	5.0
16	BGR	Bulgaria	2010	1.361	2.0
17	BFA	Burkina Faso	2010	1.25	1.0
18	KHM	Cambodia	2010	1.225	1.0

ANALYSIS


Surface Temperature by Country and Year
Australia
Chile
Indonesia
Italy
Mozambique, Rep. of
United States
Surface Temperature (°C)
Year
0.0
0.5
1.0
1.5
2.0
2010
2012
2014
2016
2018


Incident by Country and Year
Country
Australia
Chile
Indonesia
Italy
Mozambique, Rep. of
United States
Incident
Year
0
5
10
15
20
25
30
2010
2012
2014
2016
2018


Incident and Surface Temperature by Country and Year
Incident and Temperature
Australia
Chile
Indonesia
Italy
Mozambique, Rep. of
United States
Incident
Surface Temperature (°C)
Year

OBSERVATION

- It is as well possible to believe that the temperature anomalies are increasing, and the incidents number is growing as well, especially in the ***USA*** and ***Indonesia***. Be that as it may, this implies that there is likelihood that the cases of such incidents are linked with increase in temperature as well.

THANK YOU