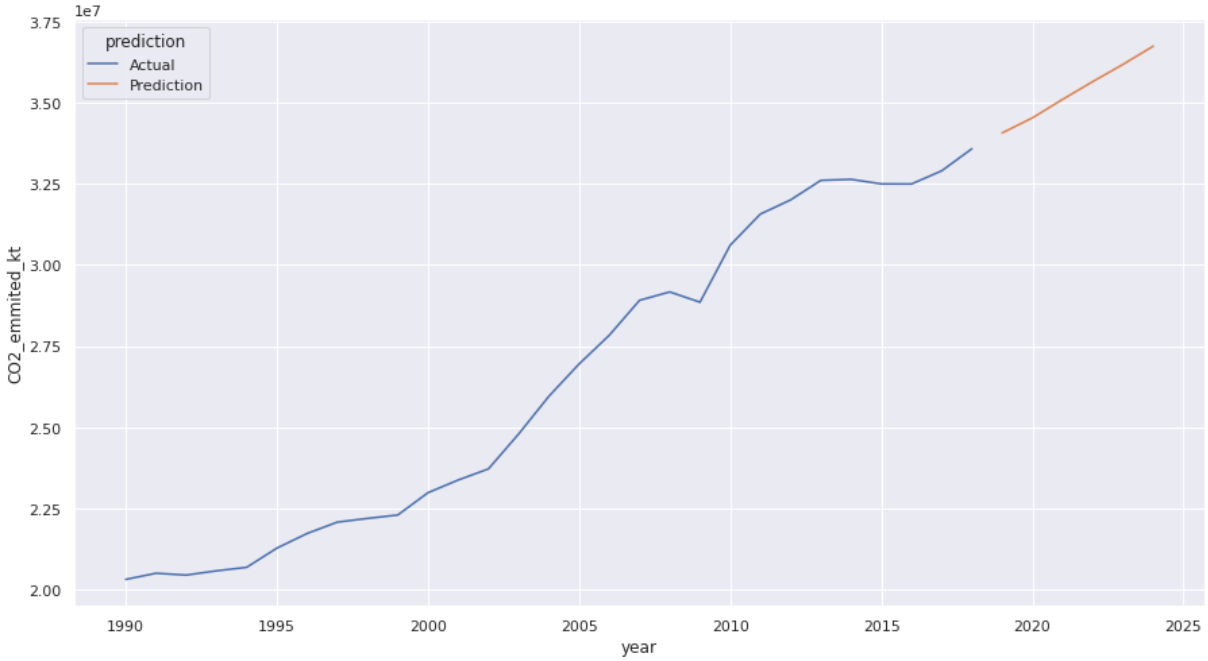
Project Report Update - Interactive graphs

Team 74

Models

after reviewing the results obtained in the predictions model **1 CNN LSTM**



Y lo obtenido en el modelo ARIMA (1,1,1)

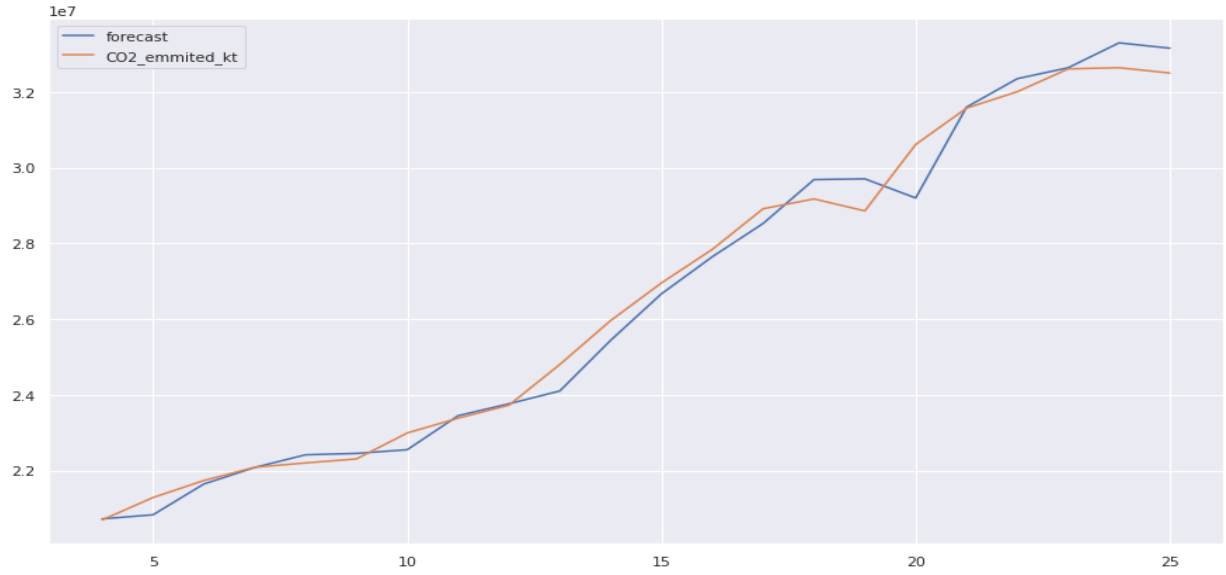
ARIMA Model Results

Dep. Variable:	D2.CO2_emmited_kt	No. Observations:	24
Model:	ARIMA(1, 2, 1)	Log Likelihood	-348.617
Method:	css-mle	S.D. of innovations	465487.594
Date:	Thu, 16 Jun 2022	AIC	705.233
Time:	02:00:28	BIC	709.946
Sample:	2	HQIC	706.483

	coef	std err	z	P>|z|	[0.025	0.975]
const	1.532e+04	1.71e+04	0.898	0.379	-1.81e+04	4.88e+04
ar.L1.D2.CO2_emmited_kt	0.2736	0.217	1.260	0.222	-0.152	0.699
ma.L1.D2.CO2_emmited_kt	-0.9999	0.166	-6.030	0.000	-1.325	-0.675

Roots

	Real	Imaginary	Modulus	Frequency
AR.1	3.6551	+0.0000j	3.6551	0.0000
MA.1	1.0001	+0.0000j	1.0001	0.0000



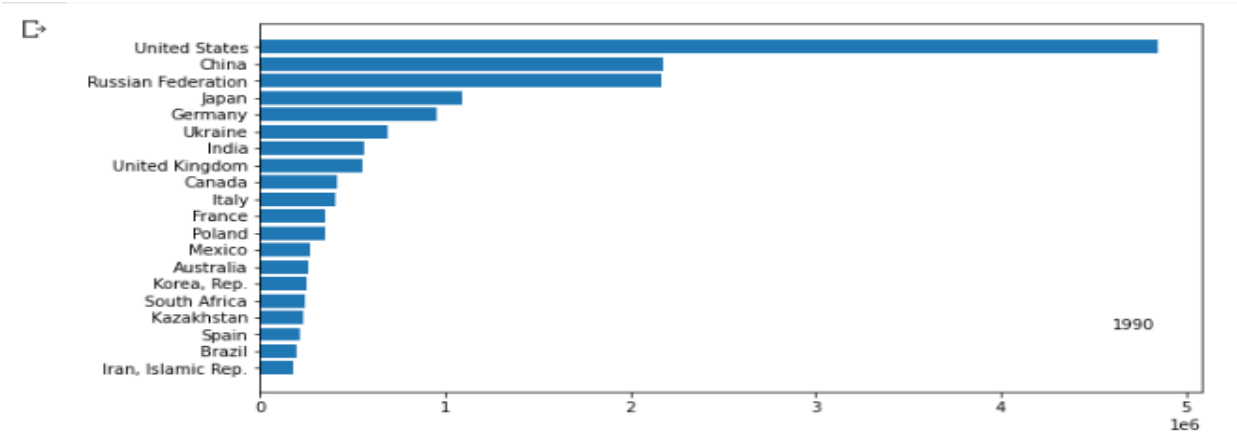
Where it was evidenced that even after more than 20 years since the beginning of the carbon bond strategy, there is no evidence of a decreasing projection in terms of minimizing the impacts on the emission levels generated and projected in the following 3 years.

It is proposed by this line of development to show the projection for the year 2050 based on this same model.

Interactive graphs

The construction of interactive graphics that will be added to the application as part of a pedagogical component begins, making several deployments in the behavior at a global and regional level against carbon credits, population and economic data are included at this stage of development brought from the world bank database.

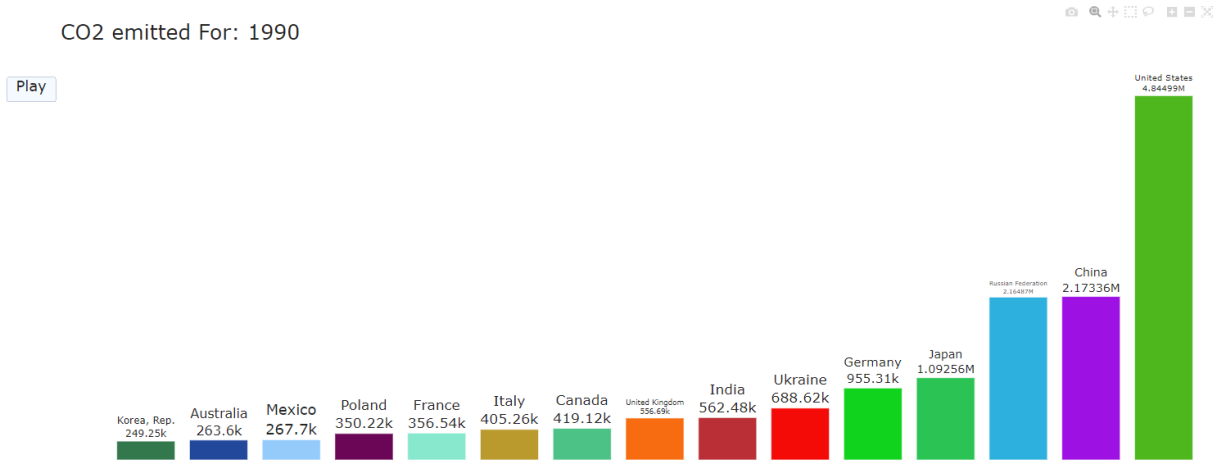
CO2 emitted



Animation is created with the behavior of emissions by country in the last 20 years, obtaining the following result.

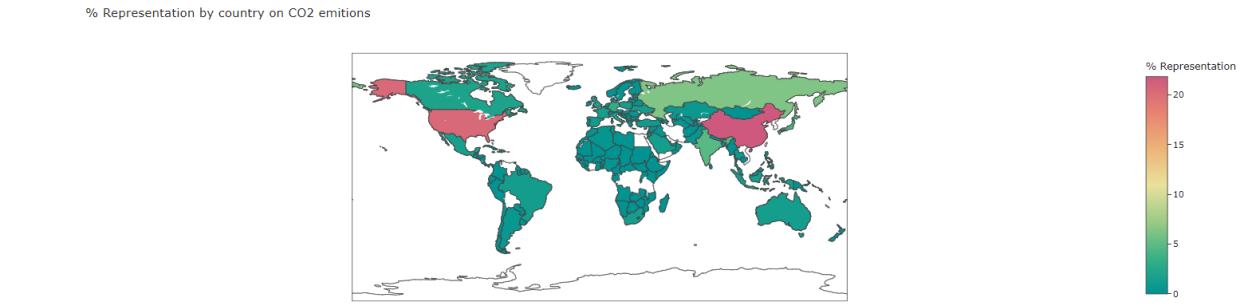
Available in: [Animation],

However, incompatibility was evidenced when deploying in dash, making it necessary to migrate the simulation in an environment compatible with the tool to be used.

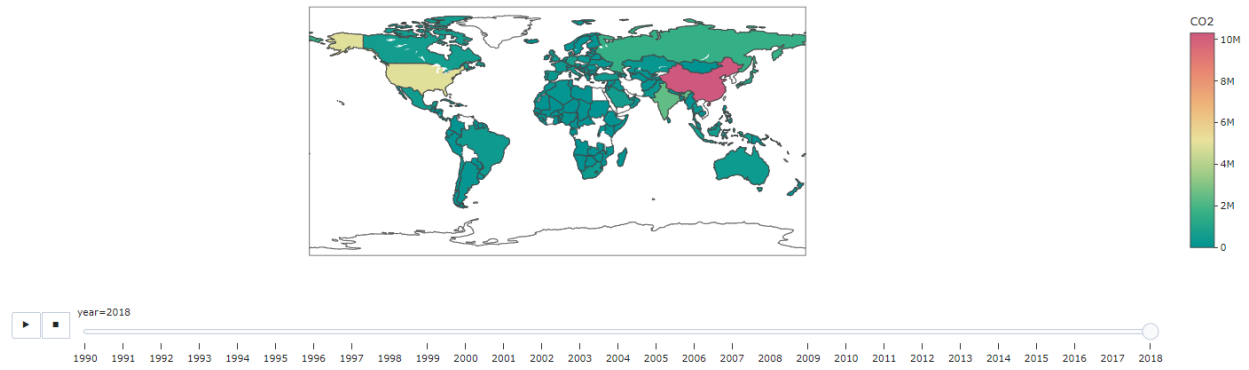


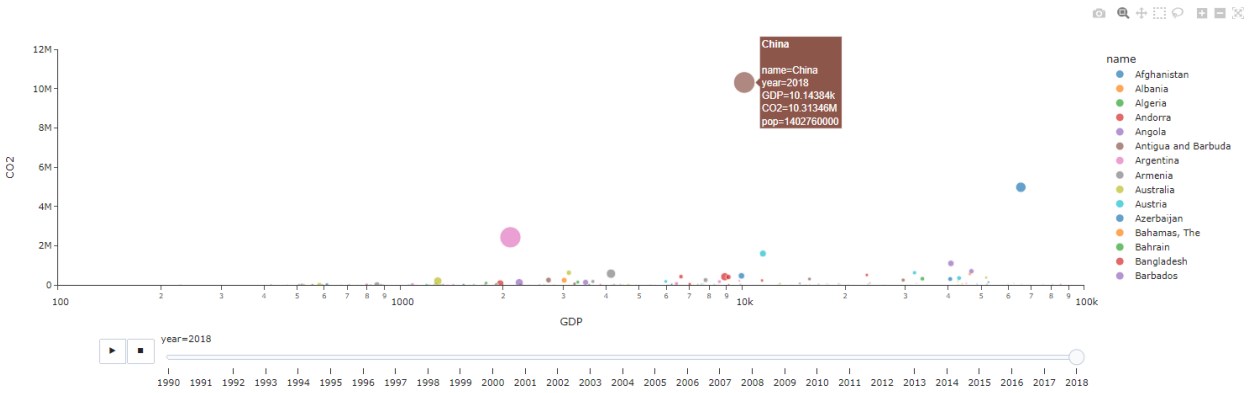
A variable is created to show the percentage of representation of emissions by country and is later displayed.

	index	name	CO2	% Representation	code
0	35	China	169414.16	21.843747	CHN
1	181	United States	158927.74	20.491660	USA
2	140	Russian Federation	48348.20	6.233870	RUS

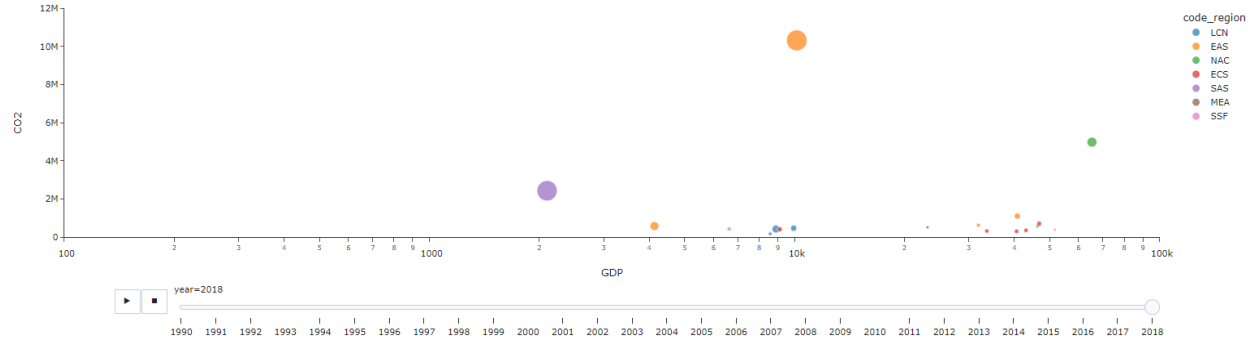


Animation with the behavior of emissions by country

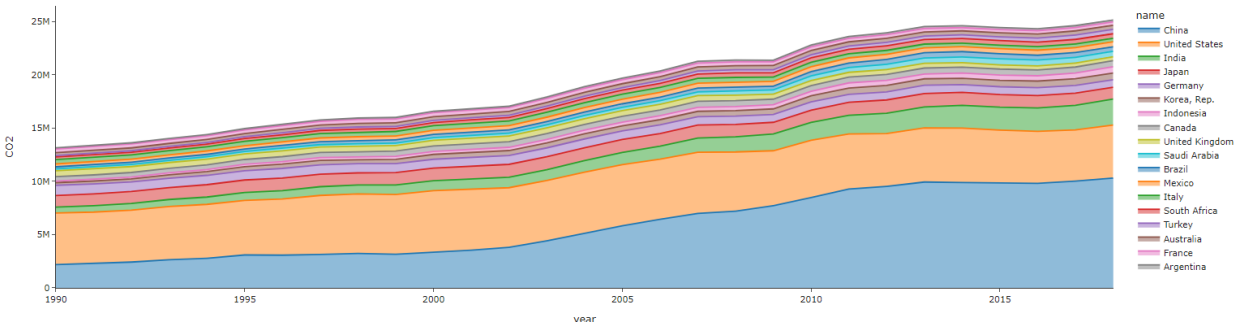




Animation with the behavior of emissions against the GDP (Gross Domestic Product) of the member countries of the G20



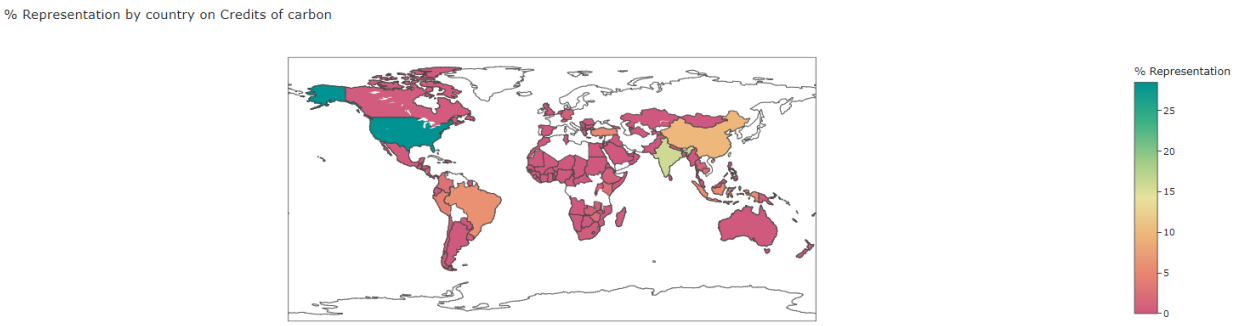
The behavior of this group of countries can be seen in the following graph of areas



Carbon Market

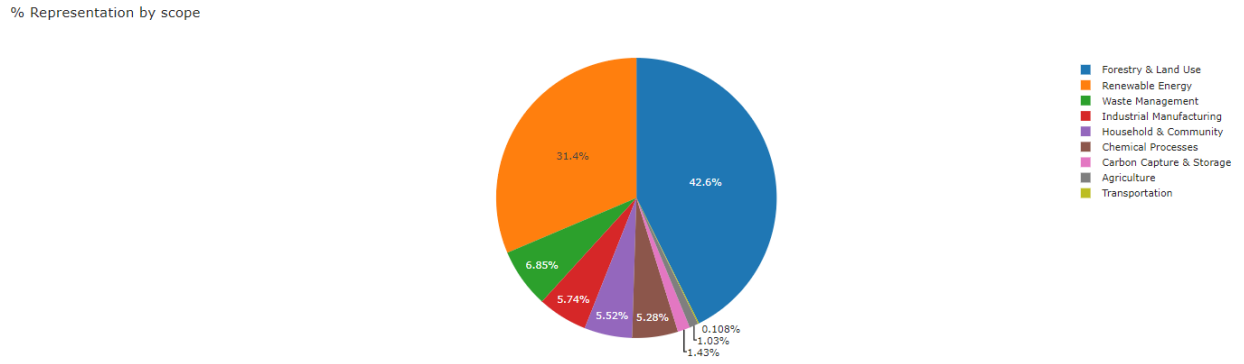
A variable is created to show the percentage of representation in the carbon markets by country and is subsequently displayed:

	country	total_credits	% Representation	code
114	United States	630127.144	28.489768	USA
46	India	351686.525	15.900708	IND
21	China	218245.441	9.867472	CHN
11	Brazil	133413.850	6.032004	BRA
47	Indonesia	118096.626	5.339471	IDN

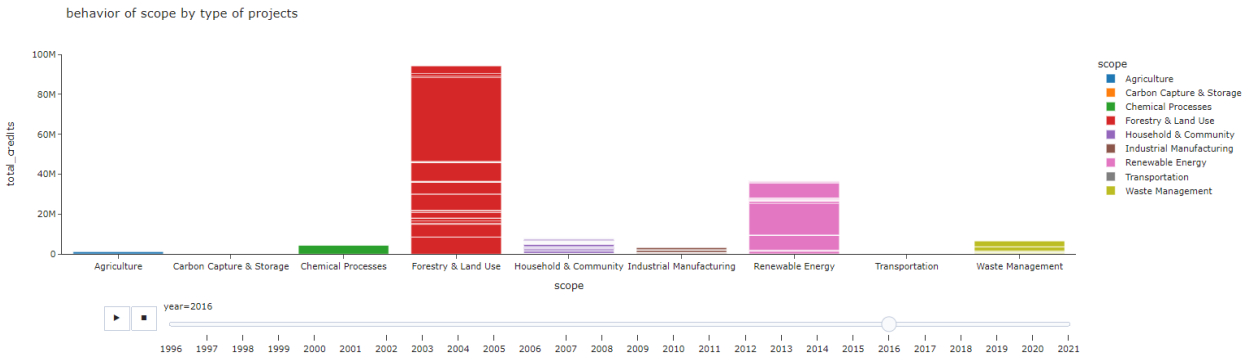


A variable is created to show the percentage of representation in the carbon markets by type of project and is subsequently displayed:

	scope	total_credits	% Representation
3	Forestry & Land Use	943214.998	42.645324
6	Renewable Energy	694399.487	31.395696
8	Waste Management	151563.844	6.852615
5	Industrial Manufacturing	126972.623	5.740779
4	Household & Community	122078.407	5.519498

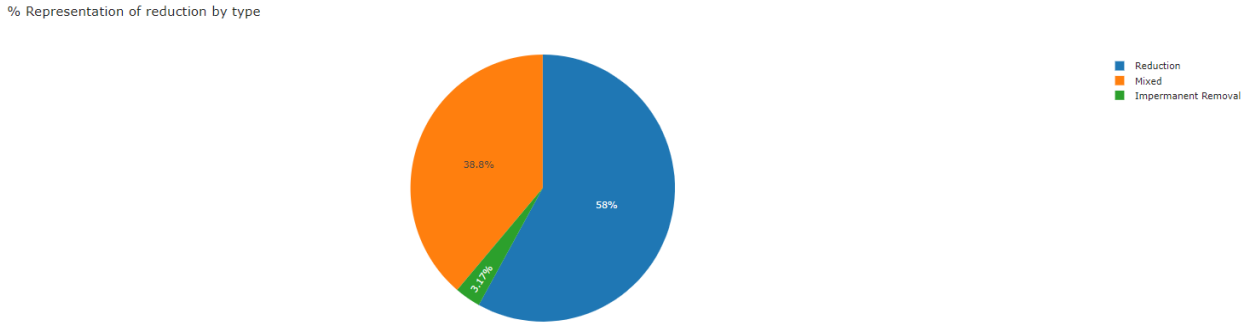


And a simulation of their behavior over time is created:



A variable is created to show the percentage of representation in the carbon markets by types of removal and is subsequently displayed:

	reduction_removal	total_credits	% Representation
0	Impermanent Removal	70105213	3.169648
1	Mixed	858194672	38.801323
2	Reduction	1283466631	58.029029



And a simulation of their behavior over time is created: