

Data injustice and attribution of drought events: Implications for global climate policy

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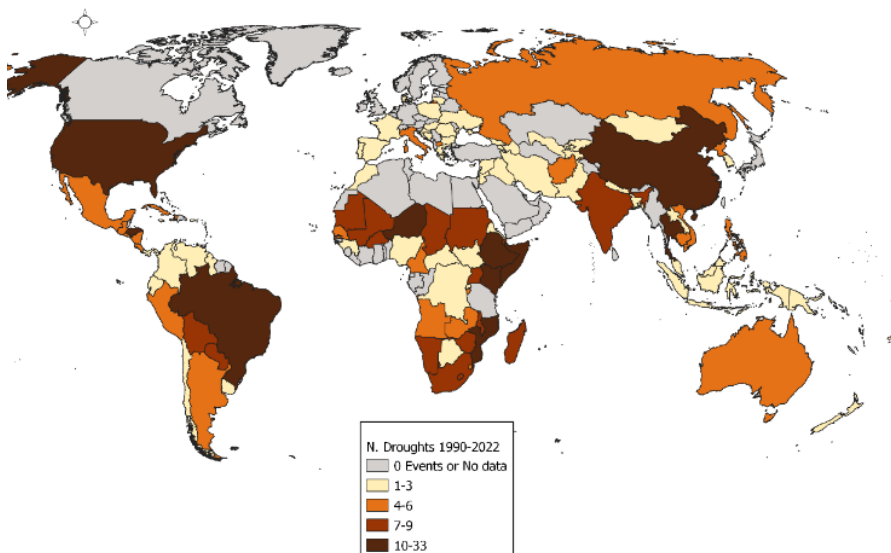
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ANNEX 1

Figure 1 shows drought events occurring a) over thirty-two years, 1990-2022, to provide the long-term historical context, and b) from 2010-2020 which is the time frame considered in the analysis and statistical testing

a)



b)

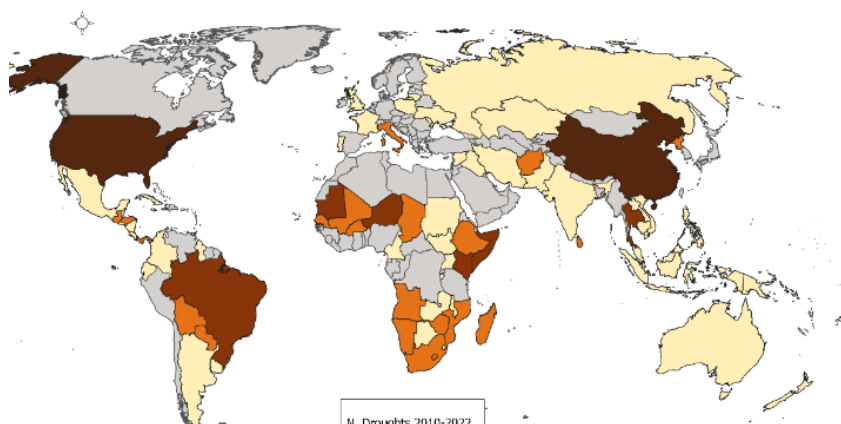
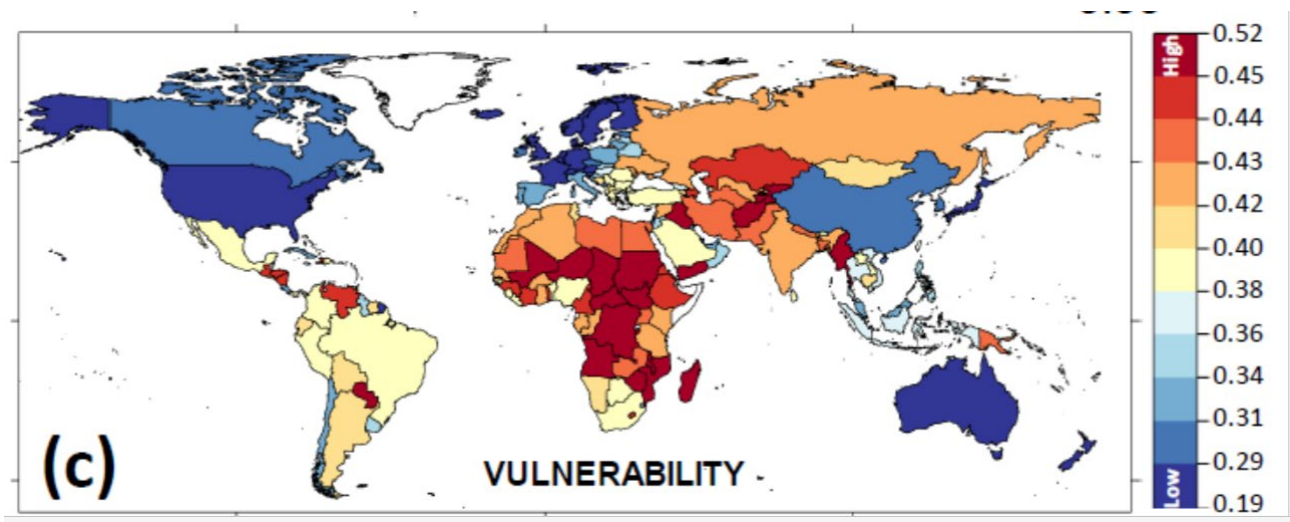
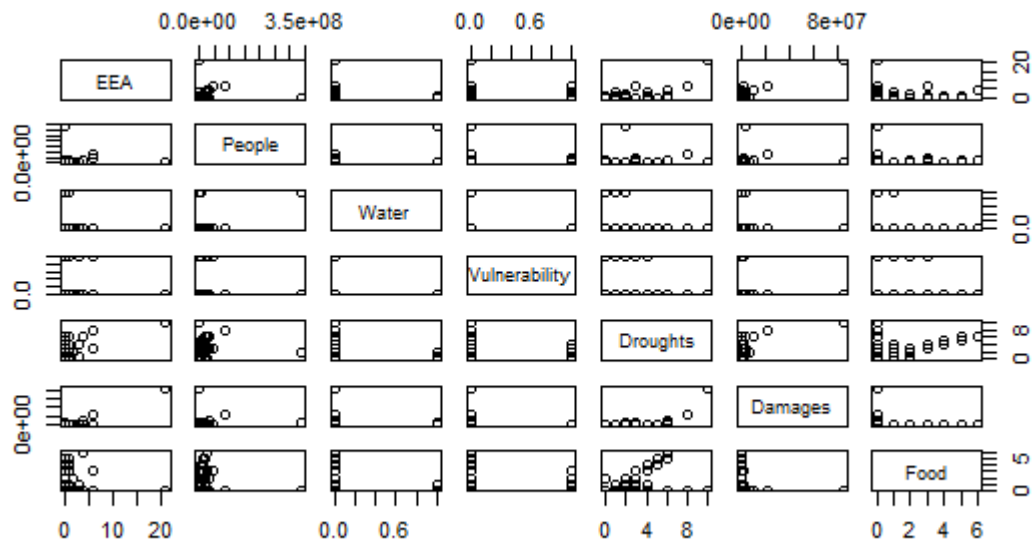


Figure 1a) Global map displaying in the shading colors the number of drought events, according to the EM-DAT database, from 1990-2022, and 1b) displaying in the red shading colors the number of drought events, according to the EM-DAT database from 2010 to 2022.

Figure on countries vulnerability for rain-fed agriculture (Meza et al. 2019).



Plot of all variables analyzed in this study.



Summary data output for regressions presented in Table 1 and Table 2.

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
EEA	.25	1.490	256
food	.32	.957	256

Correlations

		EEA	food
Pearson Correlation	EEA	1.000	.126
	food	.126	1.000
Sig. (1-tailed)	EEA	.	.022
	food	.022	.
N	EEA	256	256
	food	256	256

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	food ^b	.	Enter

a. Dependent Variable: EEA

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.126 ^a	.016	.012	1.481

a. Predictors: (Constant), food

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.969	1	8.969	4.090	.044 ^b
	Residual	557.031	254	2.193		
	Total	566.000	255			

a. Dependent Variable: EEA

b. Predictors: (Constant), food

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.188	.098		1.928	.055
	food	.196	.097	.126	2.022	.044

Coefficients^a

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	-.004	.380
	food	.005	.387

a. Dependent Variable: EEA

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
EEA	.25	1.490	256
vulnerability	.07	.263	256

Correlations

		EEA	vulnerability
Pearson Correlation	EEA	1.000	.003
	vulnerability	.003	1.000
Sig. (1-tailed)	EEA	.	.484
	vulnerability	.484	.
N	EEA	256	256
	vulnerability	256	256

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	vulnerability ^b	.	Enter

a. Dependent Variable: EEA

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.003 ^a	.000	-.00	1.493

a. Predictors: (Constant), vulnerability

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
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1	Regression	.004	1	.004	.002	.968 ^b
	Residual	565.996	254	2.228		
	Total	566.000	255			

a. Dependent Variable: EEA

b. Predictors: (Constant), vulnerability

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.249	.097		2.567	.011
	vulnerability	.014	.356	.003	.040	.968

Coefficients^a

95.0% Confidence Interval for B

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	.058	.440
	vulnerability	-.687	.715

a. Dependent Variable: EEA

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
EEA	.25	1.490	256
N.droughts	.80	1.486	256

Correlations

		EEA	N.droughts
Pearson Correlation	EEA	1.000	.561
	N.droughts	.561	1.000
Sig. (1-tailed)	EEA	.	<.001
	N.droughts	.000	.
N	EEA	256	256
	N.droughts	256	256

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	N.droughts ^b	.	Enter

a. Dependent Variable: EEA

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.561 ^a	.315	.312	1.236

a. Predictors: (Constant), N.droughts

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	178.258	1	178.258	116.772	<.001 ^b

Residual	387.742	254	1.527		
Total	566.000	255			

a. Dependent Variable: EEA

b. Predictors: (Constant), N.droughts

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	-.201	.088		-2.286	.023
	N.droughts	.563	.052	.561	10.806	<.001

Coefficients^a

95.0% Confidence Interval for B

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	-.373	-.028
	N.droughts	.460	.665

a.
Dependent
Variable:
EEA

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
EEA	.25	1.490	256
vulnerability	.11	.308	256

Correlations

		EEA	vulnerability
Pearson Correlation	EEA	1.000	.028
	vulnerability	.028	1.000
Sig. (1-tailed)	EEA	.	.329
	vulnerability	.329	.
N	EEA	256	256
	vulnerability	256	256

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	vulnerability ^b	.	Enter

a. Dependent Variable: EEA

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.028 ^a	.001	-.003	1.492

a. Predictors: (Constant), vulnerability

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.437	1	.437	.196	.658 ^b
	Residual	565.563	254	2.227		
	Total	566.000	255			

a. Dependent Variable: EEA

b. Predictors: (Constant), vulnerability

Coefficients^a

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.236	.099		2.391	.018
	vulnerability	.135	.304	.028	.443	.658

Coefficients^a

95.0% Confidence Interval for B

Model		Lower Bound	Upper Bound
1	(Constant)	.042	.430
	vulnerability	-.463	.733

a. Dependent Variable: EEA

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
EEA	.25	1.490	256
waterscarcity	.06	.243	256

Correlations

		EEA	waterscarcity
Pearson Correlation	EEA	1.000	-.033
	waterscarcity	-.033	1.000
Sig. (1-tailed)	EEA	.	.302
	waterscarcity	.302	.
N	EEA	256	256
	waterscarcity	256	256

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	waterscarcity ^b	.	Enter

a. Dependent Variable: EEA

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.033 ^a	.001	-.003	1.492

a. Predictors: (Constant), waterscarcity

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.600	1	.600	.270	.604 ^b
	Residual	565.400	254	2.226		
	Total	566.000	255			

a. Dependent Variable: EEA

b. Predictors: (Constant), waterscarcity

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	.263	.096		2.726	.007
	waterscarcity	-.200	.385	-.033	-.519	.604

Coefficients^a

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	.073	.452
	waterscarcity	-.959	.559

a.
Dependent Variable:
EEA

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
EEA	.25	1.490	256
Totalpeopleaffected	3.42	22.374	256

Correlations

		EEA	Totalpeopleaffected
Pearson Correlation	EEA	1.000	.108
	Totalpeopleaffected	.108	1.000
Sig. (1-tailed)	EEA	.	.043
	Totalpeopleaffected	.043	.
N	EEA	256	256
	Totalpeopleaffected	256	256

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	TotalpeopleAffected ^b	.	Enter

a. Dependent Variable: EEA

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.108 ^a	.012	.008	1.484

a. Predictors: (Constant), TotalpeopleAffected

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.558	1	6.558	2.978	.086 ^b
	Residual	559.442	254	2.203		
	Total	566.000	255			

a. Dependent Variable: EEA

b. Predictors: (Constant), TotalpeopleAffected

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	.225	.094		2.403	.017
	TotalpeopleAffected	.007	.004	.108	1.726	.086

a. Dependent Variable: EEA

Regression

Descriptive Statistics

	Mean	Std. Deviation	N
EEA	.25	1.490	256
Totaldamages\$.59	5.544	256

Correlations

	EEA		Totalpeopleaffected
	EEA	Totaldamages\$	
Pearson Correlation	1.000	.922	.922
		1.000	1.000
Sig. (1-tailed)	.	<.001	<.001
	.000	.	.
N	256	256	256
	256	256	256

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Totaldamages\$ ^b	.	Enter

a. Dependent Variable: EEA

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
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1	.922 ^a	.849	.849	.579
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a. Predictors: (Constant), Totaldamages\$

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	480.797	1	480.797	1433.303	<.001 ^b
	Residual	85.203	254	.335		
	Total	566.000	255			

a. Dependent Variable: EEA

b. Predictors: (Constant), Totaldamages\$

		Coefficients ^a				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.104	.036		2.854	.005
	Totaldamages\$.248	.007	.922	37.859	<.001

a. Dependent Variable: EEA