

Supplementary Materials for

Political storms: Emergent partisan skepticism of hurricane risks

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A The Rush Limbaugh Show (September 5, 2017)



The screenshot shows the website for The Rush Limbaugh Show. The browser's address bar displays the URL: rushlimbaugh.com/daily/2017/09/05/my-analysis-of-the-hurricane-irma-panic/. The navigation menu includes links for Home, Military Support, Store, Need Help?, More, Watch, Listen, and a search icon. The main header features the show's title, "THE Rush Limbaugh SHOW", in a stylized, glowing gold font. Below the header, the featured article is titled "My Analysis of the Hurricane Irma Panic" and is dated "Sep 5, 2017".

B The Washington Post (September 6, 2017)



The screenshot shows a news article from The Washington Post. The browser's address bar displays the URL: washingtonpost.com/news/to-your-health/wp/2017/09/06/rush-limbaughs-hurricane-survival-guide-stop-buying-water-and-dont-listen-to-the-news/. The Washington Post logo and the tagline "Democracy Dies in Darkness" are visible at the top. The article is categorized under "Health" and has the headline "Rush Limbaugh's hurricane survival guide: Stop buying water and don't listen to the news". The author is listed as "By Avi Selk" and the publication date is "September 6, 2017 at 12:47 p.m. PDT".

C CNN (September 8, 2017)

money.cnn.com/2017/09/08/media/rush-limbaugh-evacuates-hurricane-irma/index.html

CNN BUSINESS Markets Tech Media Success Video

Rush Limbaugh evacuates Florida home after floating unfounded theories about Hurricane Irma

by [Oliver Darcy](#) @oliverdarcy
September 8, 2017, 6:03 PM ET



Hurricane Irma's trail of destruction

D Twitter (September 10, 2017)

 **Ann Coulter** ✓
@AnnCoulter

HURRICANE UPDATE FROM MIAMI: LIGHT RAIN; RESIDENTS AT RISK OF DYING FROM BOREDOM

2,676 6:47 AM - Sep 10, 2017

12.2K people are talking about this

E USA Today (September 13, 2017)

usatoday.com/story/money/2017/09/12/rush-limbaugh-ann-coulter-facing-blowback-hurricane-irma-comments/654353001/

USA TODAY

News Sports Entertainment Life [Money] Tech Travel Opinion

MONEY

Rush Limbaugh, Ann Coulter facing blowback on Hurricane Irma comments

Mike Snider USA TODAY
Published 8:37 p.m. ET Sep. 12, 2017 | Updated 9:21 a.m. ET Sep. 13, 2017

F Google Trends over 5 years (January 2013-December 2017)

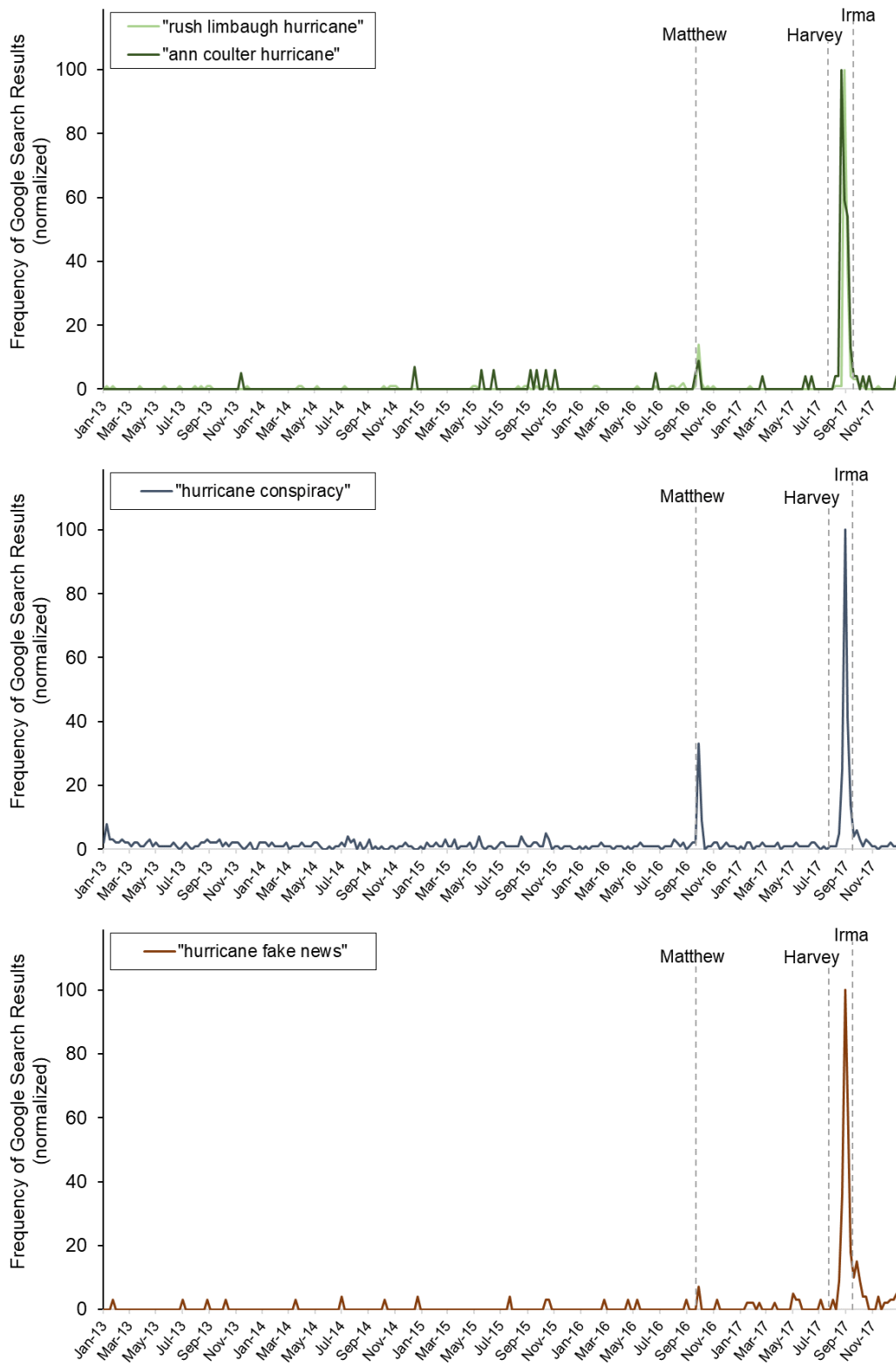
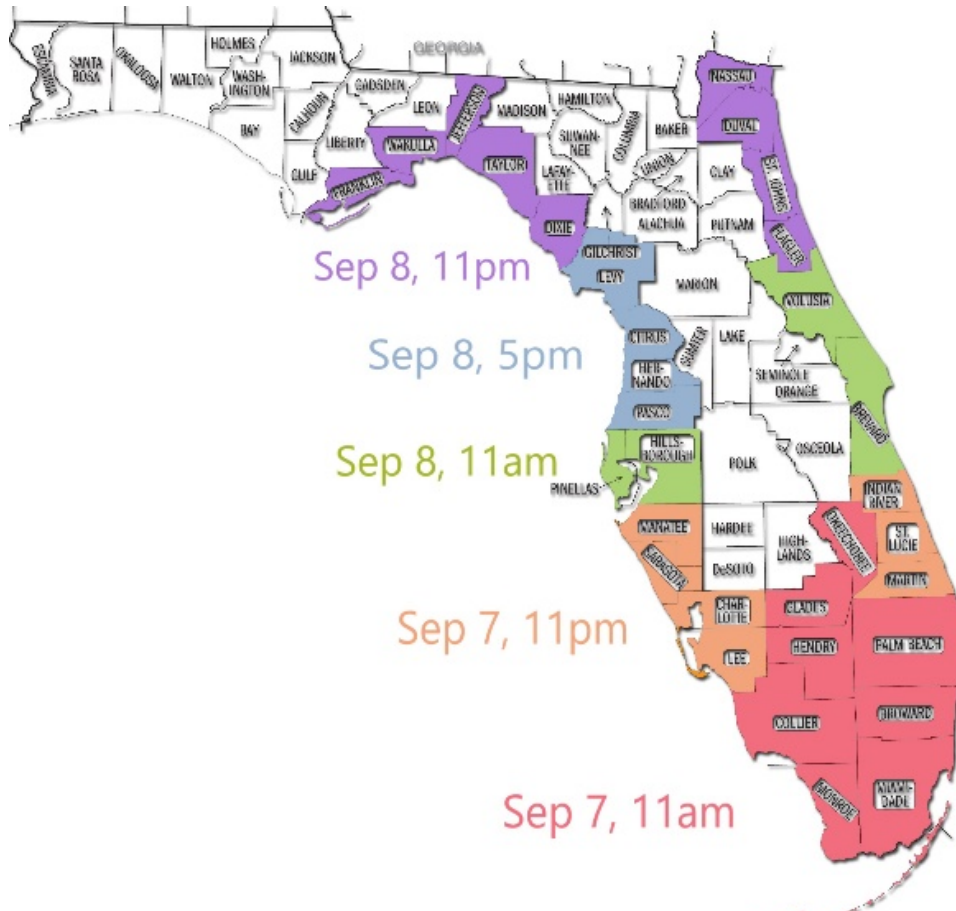
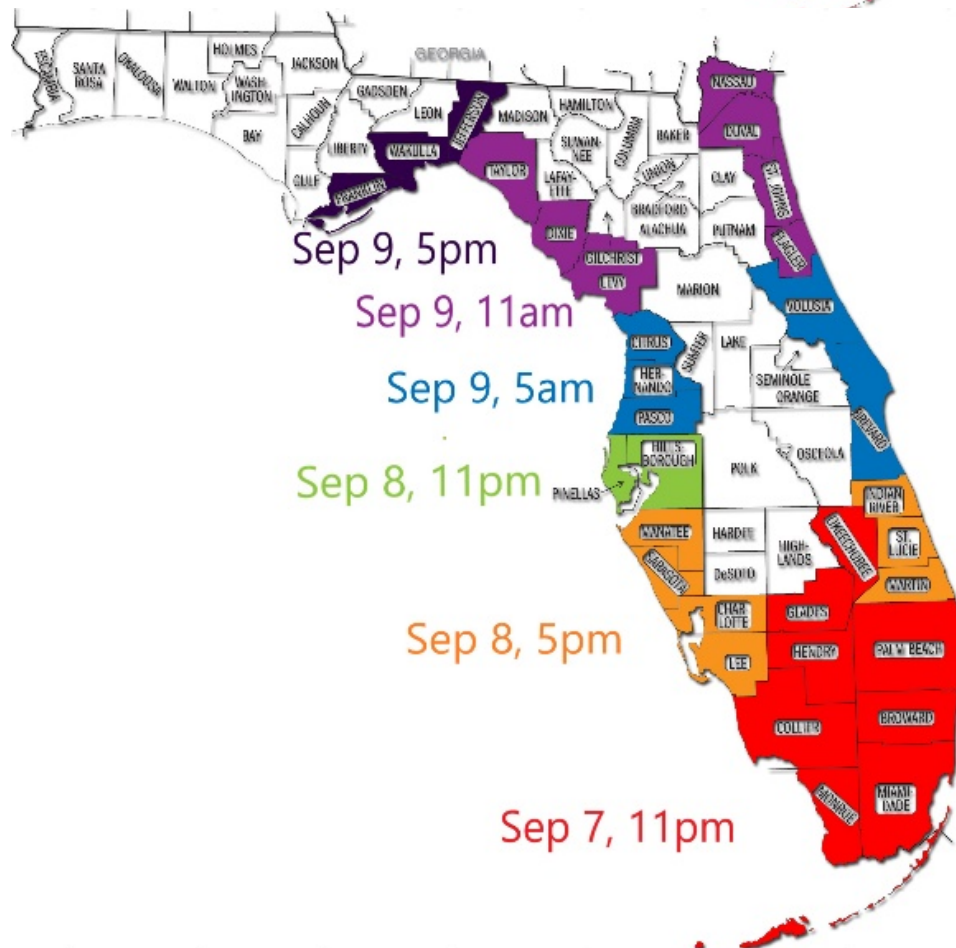


Fig. S1. Media reporting of public comments made by Rush Limbaugh and Ann Coulter before Hurricane Irma.

A



B



C

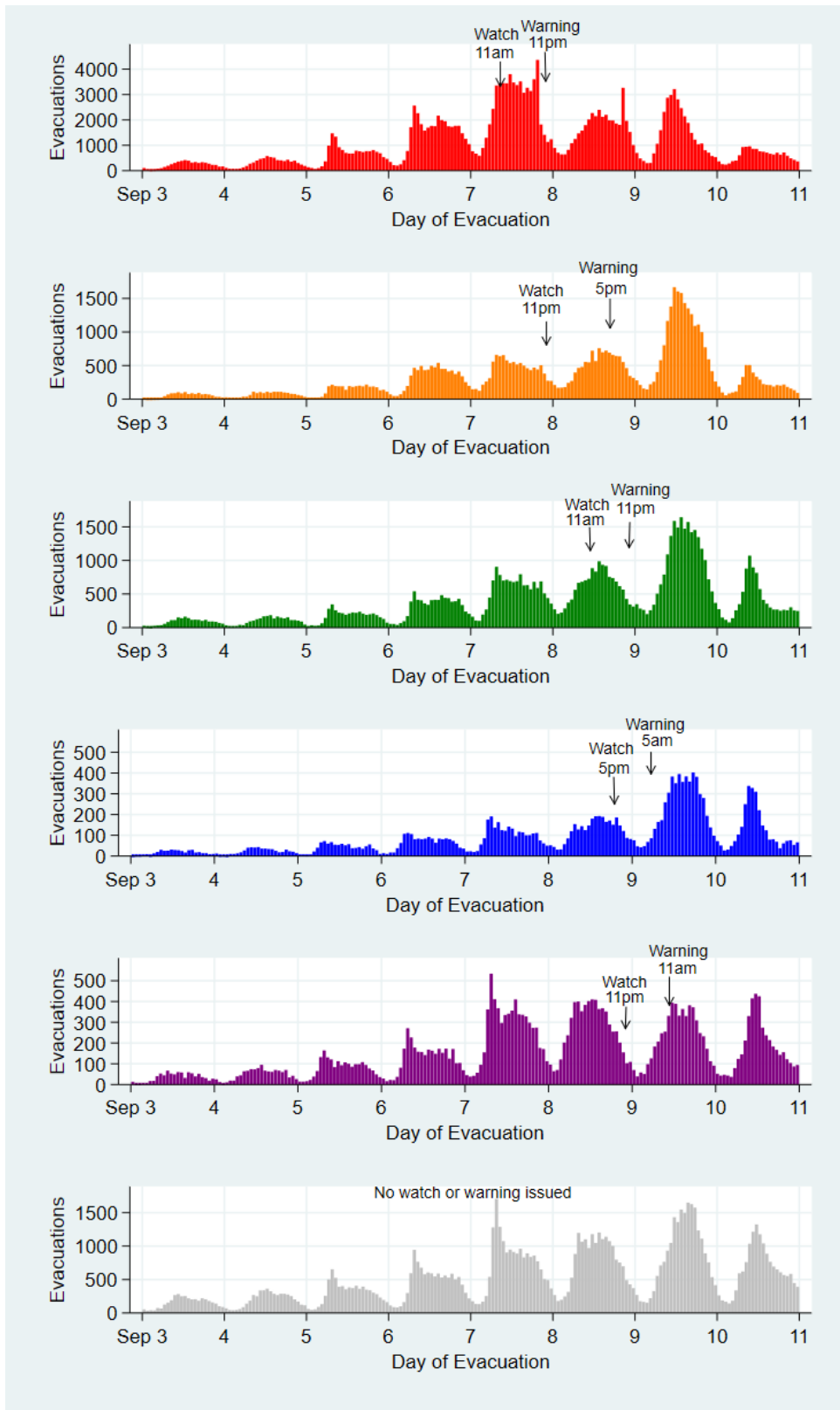


Fig. S2. Dates and times of National Hurricane Center watches (A) and warnings (B) and histograms of hourly evacuation times (C) during Hurricane Irma (September 2017).

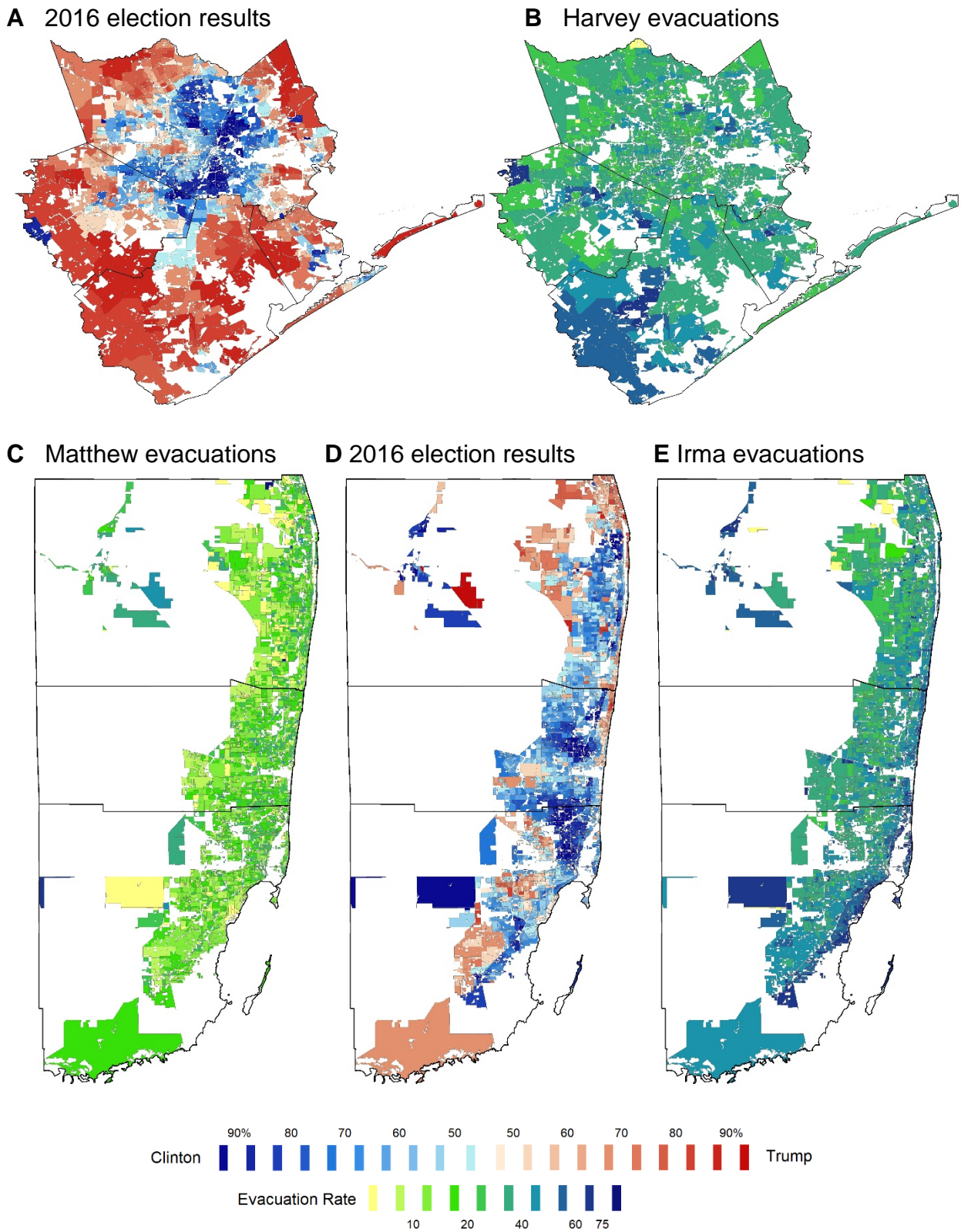
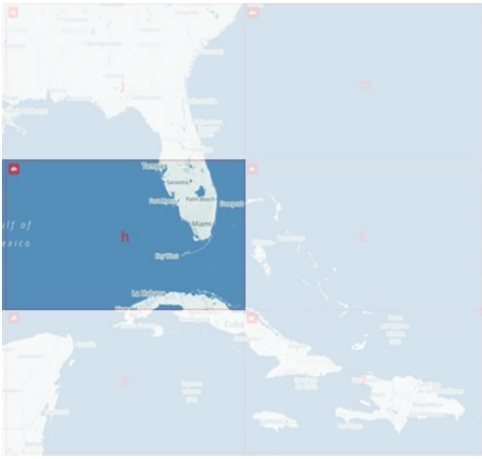


Fig. S3. Hurricane evacuation rates and voting results near (A-B) Houston, Texas and (C-E) Miami, Florida.

Geohash-2 (1,250 km × 625 km)



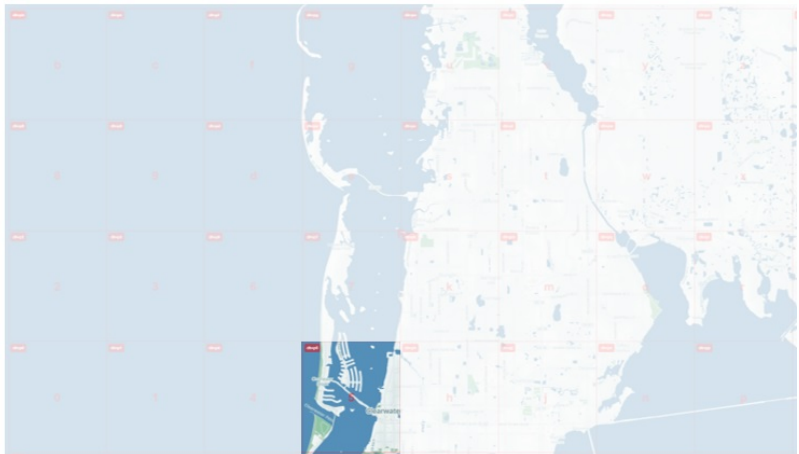
Geohash-3 (156 km × 156 km)



Geohash-4 (39 km × 19.5 km)



Geohash-5 (4.9 km × 4.9 km)



Geohash-6 (1.2 km × 0.6 km)



Geohash-7 (0.15 km × 0.15 km)



Fig. S4. Geohash maps with approximate dimensions in Florida (source: Mapzen).

Variable	Matthew	Harvey	Irma
Smartphone sample size	378,248	1,032,525	1,321,571
Trump vote share by precinct (%)	49.2	52.3	49.4
Evacuated home for >24 hours (%)	16.4	32.7	37.2
Evacuated home for >48 hours (%)	13.4	27.2	31.1
Highest alert received (%)			
Hurricane Watch or Warning	34.6	8.8	73.1
Tropical Storm Watch or Warning	34.7	31.7	1.3
Flood risk factors			
Distance to Nearest Coast (km)	22.7	116.7	20.8
Elevation (m)	3.9	33.4	3.6
Residential density (%)			
Urban	88.4	74.3	88.0
Suburban	3.4	7.6	3.4
Rural	8.2	18.0	8.5
Census demographics			
Median age (years)	41.0	35.8	41.9
Median household income (\$000s)	56.4	67.2	57.6
College degree (%)	28.6	30.7	30.2
Employment (%)	55.6	60.7	55.3
Race/Ethnicity (%)			
Black	14.0	9.4	11.7
Asian	2.8	4.2	2.7
Hispanic	23.7	34.7	24.9
White	58.4	50.9	59.7

Table S1. Geographic and demographic statistics by hurricane.

Independent variable	Dependent variable: >24-hour evacuation			
	(1)	(2)	(3)	(4)
Trump Vote Share	0.0115* (0.00418)	-0.00626 (0.00563)	-0.00998 (0.00674)	0.00659 (0.00713)
Trump Share × After Limbaugh	-0.117*** (0.00951)	-0.130*** (0.00875)	-0.0959*** (0.00809)	-0.104*** (0.00804)
Hurricane Alert Received	0.107*** (0.00279)	0.0727*** (0.00273)	0.144*** (0.00364)	0.0870*** (0.00404)
Distance to Coast		-0.00108*** (0.00007)	-0.00180*** (0.00013)	-0.00200*** (0.00020)
Distance to Coast ²		0.000003*** (0.0000002)	0.000007*** (0.0000005)	0.000009*** (0.0000008)
Elevation		0.00020 (0.00015)	-0.00169*** (0.00032)	-0.00379*** (0.00035)
Elevation ²		-0.000001 (0.000001)	0.000005* (0.000002)	0.00002*** (0.000002)
Census Tract Suburb		0.0448*** (0.00735)	0.0126 (0.00675)	0.00798 (0.00546)
Census Tract Rural		0.0155*** (0.00373)	0.0102 (0.00431)	0.00191 (0.00448)
Census Median Age		0.00066*** (0.00017)	-0.00012 (0.00015)	-0.00025 (0.00014)
Census Median Income		-0.00045*** (0.00005)	-0.00049*** (0.00005)	-0.00043*** (0.00005)
Census College Grad		0.101*** (0.00784)	0.0949*** (0.00701)	0.0852*** (0.00734)
Census Employment		-0.0298* (0.0093)	-0.0403*** (0.00867)	-0.0415*** (0.00817)
Census Race Black		-0.0314*** (0.00355)	-0.0350*** (0.00343)	-0.0242*** (0.00328)
Census Race Asian		-0.0227* (0.00805)	-0.0338*** (0.00681)	-0.0198* (0.00709)
Census Race Hispanic		0.0265*** (0.00325)	-0.0110** (0.00302)	-0.00291 (0.00284)
Constant	0.302*** (0.00308)	0.346*** (0.0106)	0.388*** (0.0103)	0.423*** (0.0109)
Fixed Effects (# units)	Hurricane (3)	Hurricane (3)	Hurricane (3), County (166)	Hurricane (3), Geohash-4 (708)
Observations	2,727,999	2,677,181	2,677,181	2,677,175
Adjusted R ²	0.031	0.035	0.043	0.044

Table S2. Regression models of partisan skepticism on >24-hour evacuations.

*** $p < 0.0001$, ** $p < 0.001$, * $p < 0.01$. Standard errors are clustered at the level of political variation (precinct-level) and reported in parentheses.

Independent variable	Dependent variable: >48-hour evacuation			
	(1)	(2)	(3)	(4)
Trump Vote Share	0.00817 (0.0041)	-0.0077 (0.00546)	-0.0143 (0.00647)	0.00425 (0.00684)
Trump Share × After Limbaugh	-0.137*** (0.00941)	-0.147*** (0.00852)	-0.107*** (0.00760)	-0.115*** (0.00759)
Hurricane Alert Received	0.100*** (0.00265)	0.0637*** (0.00254)	0.122*** (0.00348)	0.0715*** (0.00363)
Distance to Coast		-0.00107*** (0.00007)	-0.00182*** (0.00013)	-0.00208*** (0.0002)
Distance to Coast ²		0.000003*** (0.0000002)	0.000007*** (0.0000005)	0.000008*** (0.0000008)
Elevation		0.0000231 (0.00015)	-0.00109** (0.00029)	-0.00253*** (0.00030)
Elevation ²		9.81E-08 (0.000001)	0.000002 (0.000002)	0.00001*** (0.000002)
Census Tract Suburb		0.0520*** (0.00749)	0.0173* (0.00603)	0.00998 (0.00514)
Census Tract Rural		0.0148*** (0.00348)	0.0121* (0.00369)	0.00314 (0.00407)
Census Median Age		0.00063** (0.00016)	-0.00019 (0.00015)	-0.00036* (0.00014)
Census Median Income		-0.00042*** (0.00005)	-0.00050*** (0.00005)	-0.00043*** (0.00005)
Census College Grad		0.118*** (0.00766)	0.113*** (0.00655)	0.0999*** (0.00693)
Census Employment		-0.0350** (0.00949)	-0.0491*** (0.00881)	-0.0522*** (0.00831)
Census Race Black		-0.0229*** (0.00345)	-0.0319*** (0.00331)	-0.0200*** (0.00319)
Census Race Asian		-0.0174 (0.00723)	-0.0291*** (0.0064)	-0.0158 (0.00648)
Census Race Hispanic		0.0290*** (0.00327)	-0.0147*** (0.00287)	-0.00655 (0.00275)
Constant	0.257*** (0.00307)	0.297*** (0.0106)	0.346*** (0.0103)	0.383*** (0.0107)
Fixed Effects (# units)		Hurricane (3)	Hurricane (3), County (166)	Hurricane (3), Geohash-4 (708)
Observations	2,727,999	2,677,181	2,677,181	2,677,175
Adjusted R ²	0.027	0.032	0.041	0.043

Table S3. Regression models of partisan skepticism on >48-hour evacuations.

*** $p < 0.0001$, ** $p < 0.001$, * $p < 0.01$. Standard errors are clustered at the level of political variation (precinct-level) and reported in parentheses.

Independent variable	Dependent variable: >24-hour evacuation			
	Florida only (1)	2017 only (2)	Irma only (3)	Irma only (4)
Trump Vote Share	-0.0167 (0.00889)	-0.00905 (0.00652)		
Trump Share × After Limbaugh	-0.105*** (0.00917)	-0.139*** (0.00958)	-0.0742*** (0.0107)	-0.0669*** (0.0106)
Hurricane Alert Received	0.0680*** (0.00296)	0.0726*** (0.00370)	n/a	-0.0341*** (0.00831)
Distance to Coast	-0.00360*** (0.000207)	-0.00127*** (0.0000903)	-0.00564*** (0.000310)	-0.00724*** (0.000427)
Distance to Coast ²	0.0000458*** (0.00000275)	0.00000321*** (0.000000237)	0.0000527*** (0.00000354)	0.0000733*** (0.00000444)
Elevation	-0.0131*** (0.000801)	0.000425 (0.000171)	-0.0168*** (0.00123)	-0.0206*** (0.00129)
Elevation ²	0.000581*** (0.0000431)	-0.00000273 (0.00000107)	0.000729*** (0.0000568)	0.000720*** (0.0000569)
Census Tract Suburb	0.0490*** (0.0100)	0.0472*** (0.00819)	0.0287 (0.0115)	-0.00530 (0.00979)
Census Tract Rural	0.0324*** (0.00524)	0.0170*** (0.00414)	0.0463*** (0.00599)	0.0320*** (0.00659)
Census Median Age	-0.000174 (0.000193)	0.000987*** (0.000189)	-0.000854*** (0.000204)	-0.000914*** (0.000187)
Census Median Income	-0.000745*** (0.0000736)	-0.000403*** (0.0000578)	-0.000647*** (0.0000804)	-0.000584*** (0.0000782)
Census College Grad	0.133*** (0.00879)	0.111*** (0.00864)	0.131*** (0.00898)	0.124*** (0.00899)
Census Employment	-0.0604*** (0.0127)	-0.0251 (0.0100)	-0.0627*** (0.0131)	-0.0510*** (0.0122)
Census Race Black	-0.0491*** (0.00474)	-0.0447*** (0.00406)	-0.0590*** (0.00521)	-0.0492*** (0.00501)
Census Race Asian	-0.0639*** (0.00934)	-0.0239* (0.00870)	-0.0552*** (0.0106)	-0.0393** (0.0105)
Census Race Hispanic	0.0271*** (0.00439)	0.0330*** (0.00368)	-0.0138* (0.00506)	0.00429 (0.00478)
Constant	0.430*** (0.0146)	0.364*** (0.0116)	0.587*** (0.0152)	0.626*** (0.0163)
Fixed Effects (# units)	Hurricane (2)	Hurricane (2)	County (67)	Geohash-4 (284)
Observations	1,662,792	2,306,144	1,291,755	1,291,754
Adjusted R ²	0.055	0.017	0.038	0.041

Table S4. Robustness of estimates to different comparator groups.

*** $p < 0.0001$, ** $p < 0.001$, * $p < 0.01$. Standard errors are clustered at the level of political variation (precinct-level) and reported in parentheses.

Dependent variable: >24-hour evacuation			
Independent variable	Trump Share 1 st , 3 rd tertiles only	Trump Share 1 st , 4 th quartiles only	Trump Share 1 st , 5 th quintiles only
Trump Vote Share	0.0138 (0.00851)	0.0232 (0.00956)	0.0224 (0.0107)
Trump Share × After Limbaugh	-0.0995*** (0.00834)	-0.0967*** (0.00862)	-0.101*** (0.00897)
Hurricane Alert Received	0.0800*** (0.00473)	0.0748*** (0.00549)	0.0644*** (0.00603)
Distance to Coast	-0.00182*** (0.000244)	-0.00165*** (0.000241)	-0.00129*** (0.000257)
Distance to Coast ²	0.00000781*** (0.000000957)	0.00000673*** (0.000000940)	0.00000497*** (0.000000966)
Elevation	-0.00281*** (0.000368)	-0.00220*** (0.000363)	-0.00186*** (0.000376)
Elevation ²	0.0000146*** (0.00000226)	0.0000119*** (0.00000221)	0.0000107*** (0.00000223)
Census Tract Suburb	0.00823 (0.00610)	0.00801 (0.00651)	0.00940 (0.00702)
Census Tract Rural	0.00193 (0.00526)	0.00209 (0.00572)	0.00144 (0.00606)
Census Median Age	-0.000289 (0.000171)	-0.000476 (0.000191)	-0.000601* (0.000220)
Census Median Income	-0.000455*** (0.0000704)	-0.000398*** (0.0000675)	-0.000418*** (0.0000811)
Census College Grad	0.0754*** (0.00952)	0.0645*** (0.0114)	0.0624*** (0.0133)
Census Employment	-0.0248 (0.00980)	-0.0148 (0.0100)	-0.0103 (0.0109)
Census Race Black	-0.0291*** (0.00390)	-0.0286*** (0.00434)	-0.0272*** (0.00480)
Census Race Asian	-0.0225* (0.00867)	-0.0188 (0.00957)	-0.0144 (0.0110)
Census Race Hispanic	-0.00319 (0.00351)	0.00305 (0.00388)	0.00672 (0.00425)
Constant	0.412*** (0.0127)	0.403*** (0.0135)	0.399*** (0.0145)
Fixed Effects (# units)	Hurricane (3), Geohash-4 (697)	Hurricane (3), Geohash-4 (683)	Hurricane (3), Geohash-4 (673)
Observations	1,779,452	1,331,334	1,065,264
Adjusted R ²	0.043	0.041	0.037

Table S5. Robustness of estimates using restricted samples (extreme tails of Trump Share). *** $p < 0.0001$, ** $p < 0.001$, * $p < 0.01$. Standard errors are clustered at the level of political variation (precinct-level) and reported in parentheses.

Independent variable	Dependent variable: >24-hour evacuation					
	Irma only (1)	Irma only (2)	Irma only (3)	Irma only (4)	Irma only (5)	Irma only (6)
Trump Share × After Sep.02.2017	-0.106*** (0.00576)					
Trump Share × After Sep.03.2017		-0.116*** (0.00637)				
Trump Share × After Sep.04.2017			-0.129*** (0.00712)			
Trump Share × After Sep.05.2017				-0.143*** (0.00789)		
Trump Share × After Sep.06.2017					-0.148*** (0.00820)	
Trump Share × After Sep.07.2017						-0.125*** (0.00771)
Fixed Effects (# units)	User (1,318,265), Date (10)	User (1,318,265), Date (10)	User (1,318,265), Date (10)	User (1,318,265), Date (10)	User (1,318,265), Date (10)	User (1,318,265), Date (10)
Observations	13,172,650	13,172,650	13,172,650	13,172,650	13,172,650	13,172,650
Adjusted R ²	0.5275	0.5278	0.5282	0.5286	0.5287	0.5283

Table S6. Regression estimates with varying cut-off dates for After Limbaugh.

*** $p < 0.0001$, ** $p < 0.001$, * $p < 0.01$. Standard errors are clustered at the level of political variation (precinct-level) and reported in parentheses.