

**USGIF**  
**geoint<sup>2023</sup>**  
SYMPOSIUM  
TWENTIETH ANNIVERSARY

FROM MAPS TO  
METAVERSE

# Exploring the World of Visual Geospatial Analysis

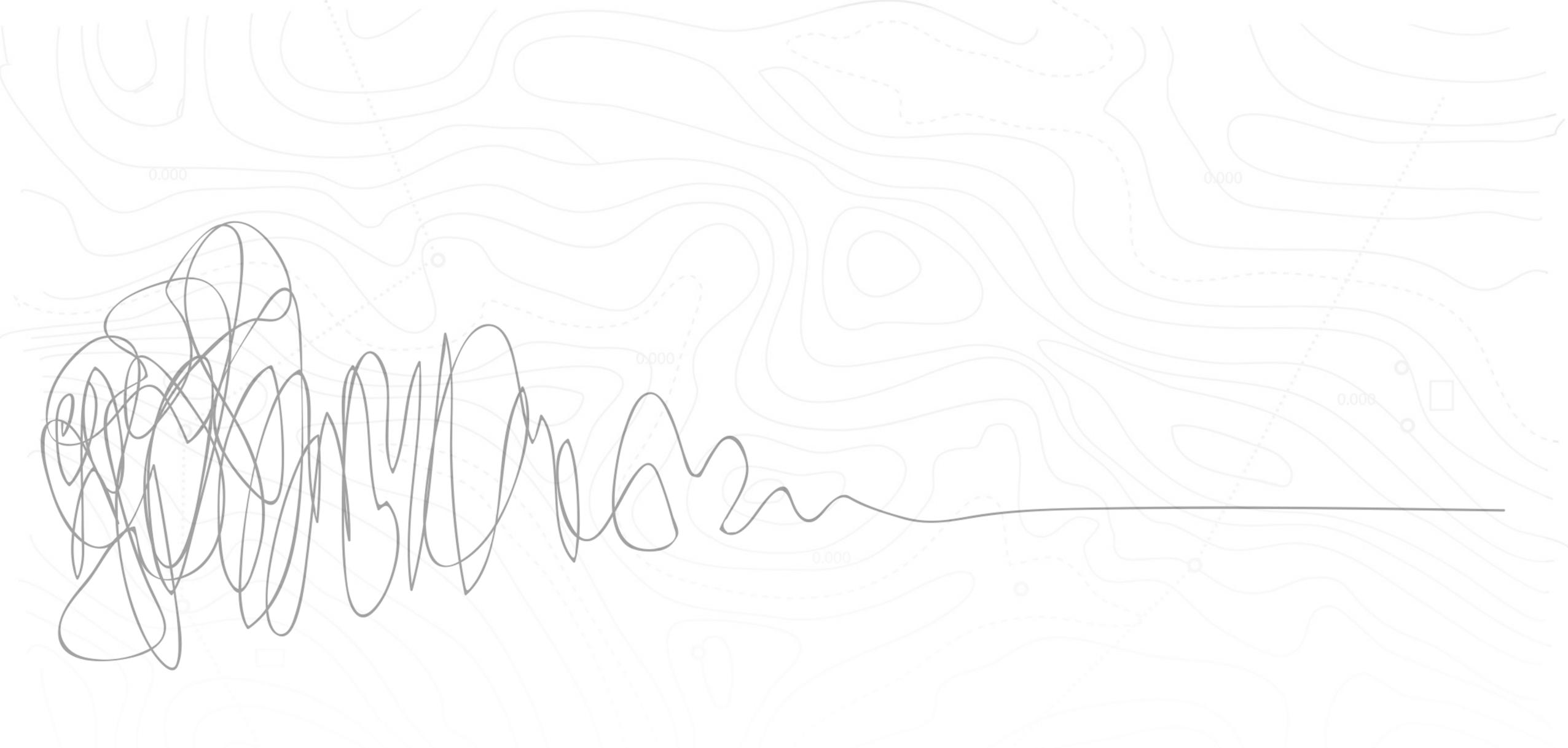
**Ross Paulson**

Principal Solutions Engineer, Tableau/Salesforce

**Josh Gillmore**

Principal Solutions Engineer, Tableau/Salesforce

# Exploring the World of Visual Geospatial Analysis



# Agenda

- Data
  - Flat data
  - Extracted
  - Spatial Files
- Maps types
  - Geocoding
  - Lat/lon
  - Hexbin'ing
- Analytics
  - Spatial joining
  - Intersections
  - Proximity
- Examples
  - ACLED
  - Spatial Joining (Hawaii)

AI

Cool Stuff

Spatial Joining

Foundational

# Geocoding Roles

Airports

Area Codes (US)

CBSA/MSA (US)

City

Congressional District (US)

Country/Region

County

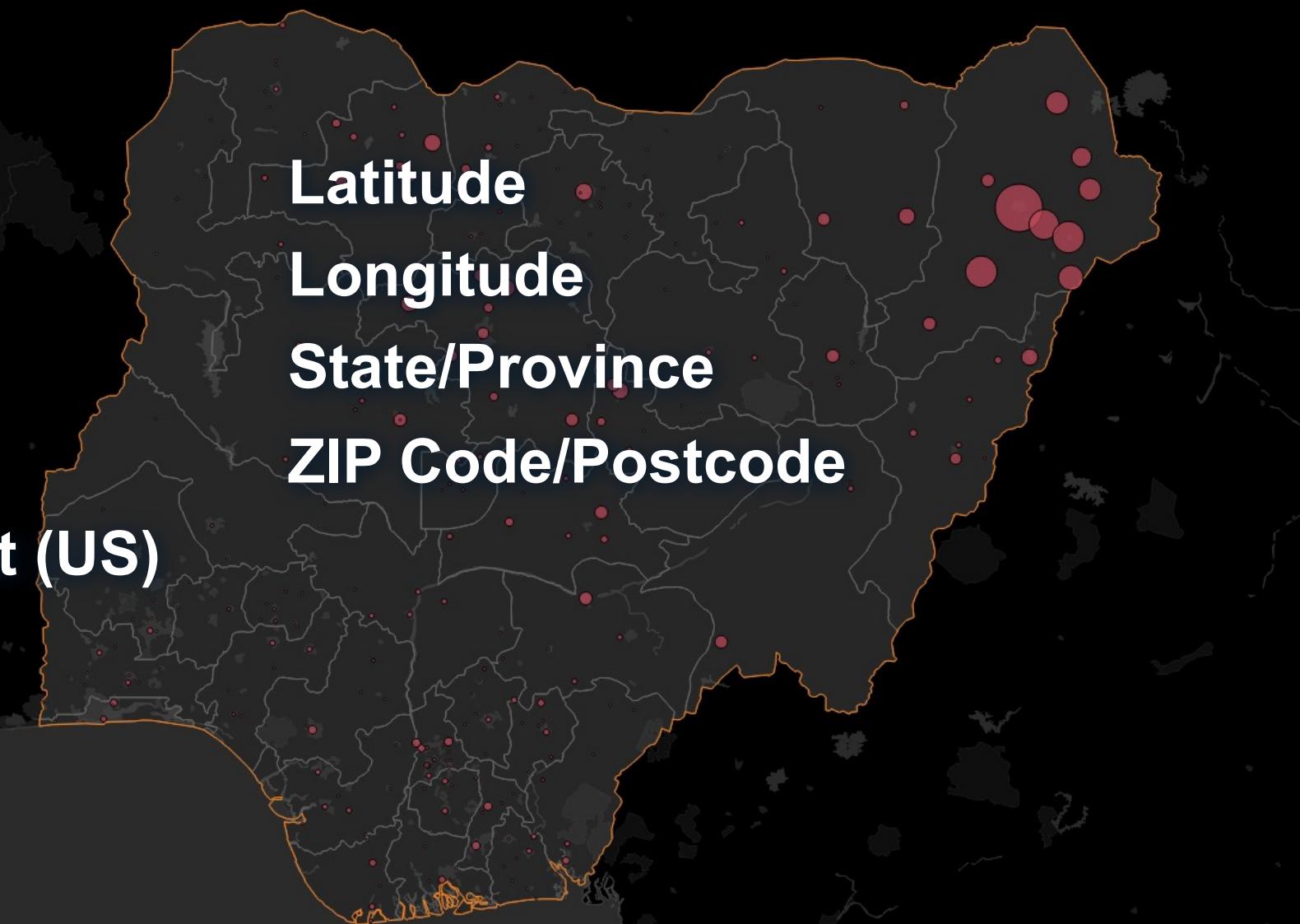
NUTS (Europe)

Latitude

Longitude

State/Province

ZIP Code/Postcode



# Geocoding

Text to maps....

Plotting countries, Admin1, locations

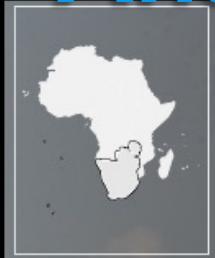
Admin1: Borno  
Country: Nigeria  
Event: 4,207  
Fatalities: 35,445  
Ratio: 8.425

# Geocoding

Text » spatial data...

Makepoint( Latitude, Longitude)

# Analytics to Design

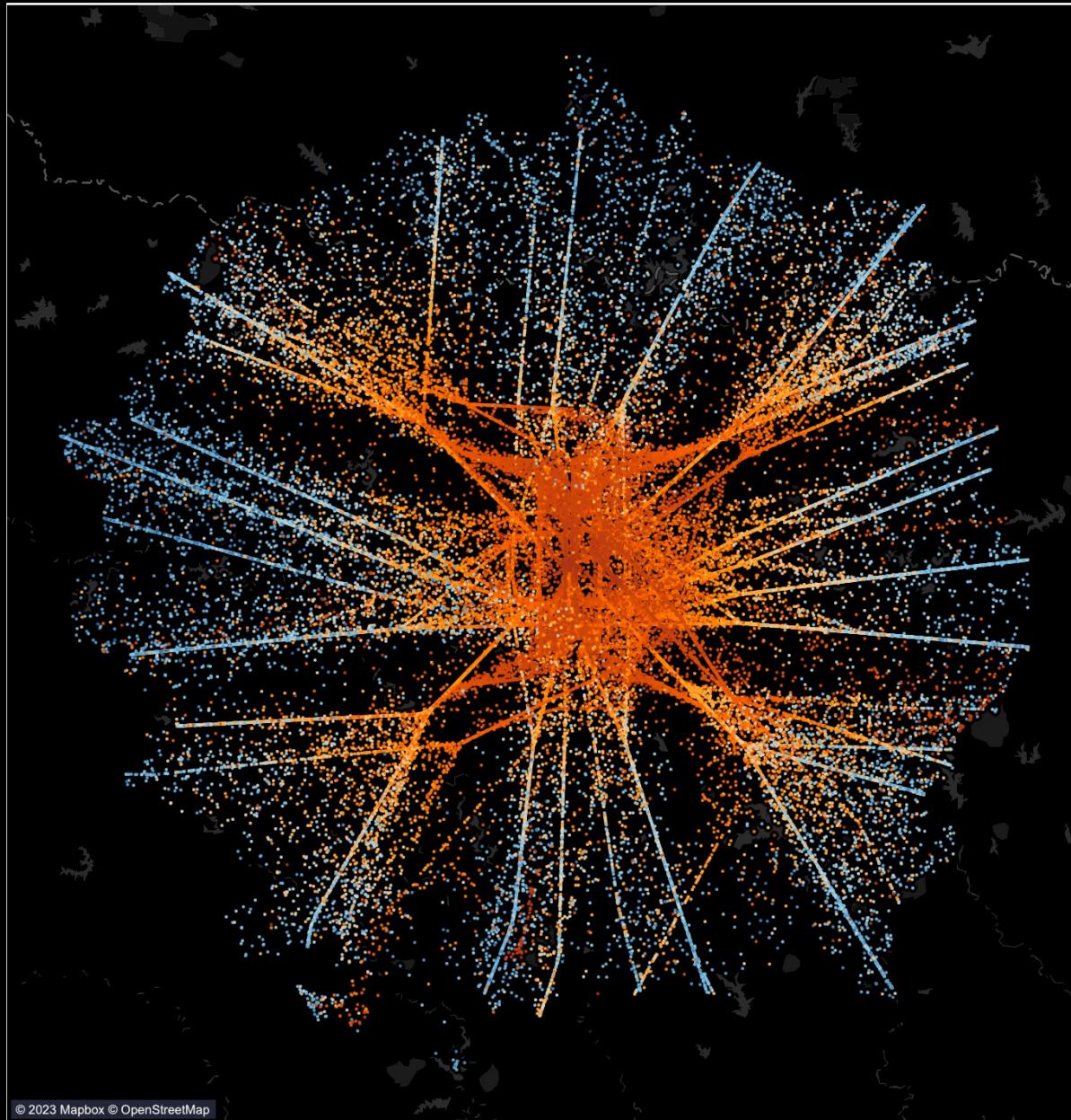


Riots	1,347	7,520
Violence against civilians	824	1,975
Battles	110	148
Protests	33	9,841
Explosions/Remote violence	11	21
Strategic developments	4	331

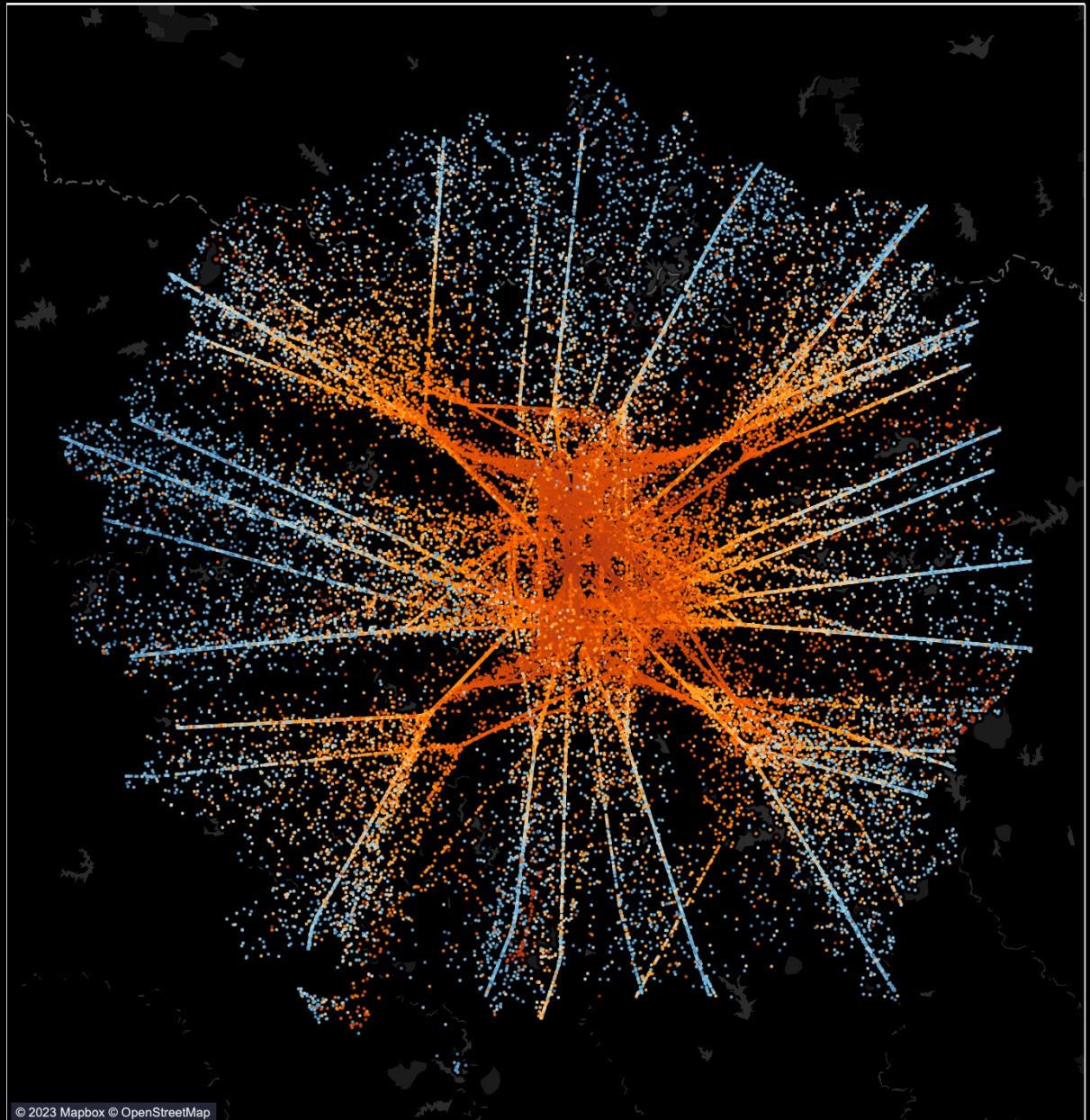
Mob violence	1,129	2,417
Attack	821	1,868
Violent demonstration	218	5,103
Armed clash	110	148
Excessive force against protesters	33	105
Remote explosive/landmine/IED	9	15
Other	4	45
Sexual violence	3	54
Grenade	2	4
Abduction/forced disappearance		53
Agreement		5
Arrests		63
Change to group/activity		31
Chemical weapon		1
Disrupted weapons use		9
Headquarters or base established		2
Looting/property destruction		176
Peaceful protest		9,061
Protest with intervention		675
Shelling/artillery/missile attack		1

# Demo

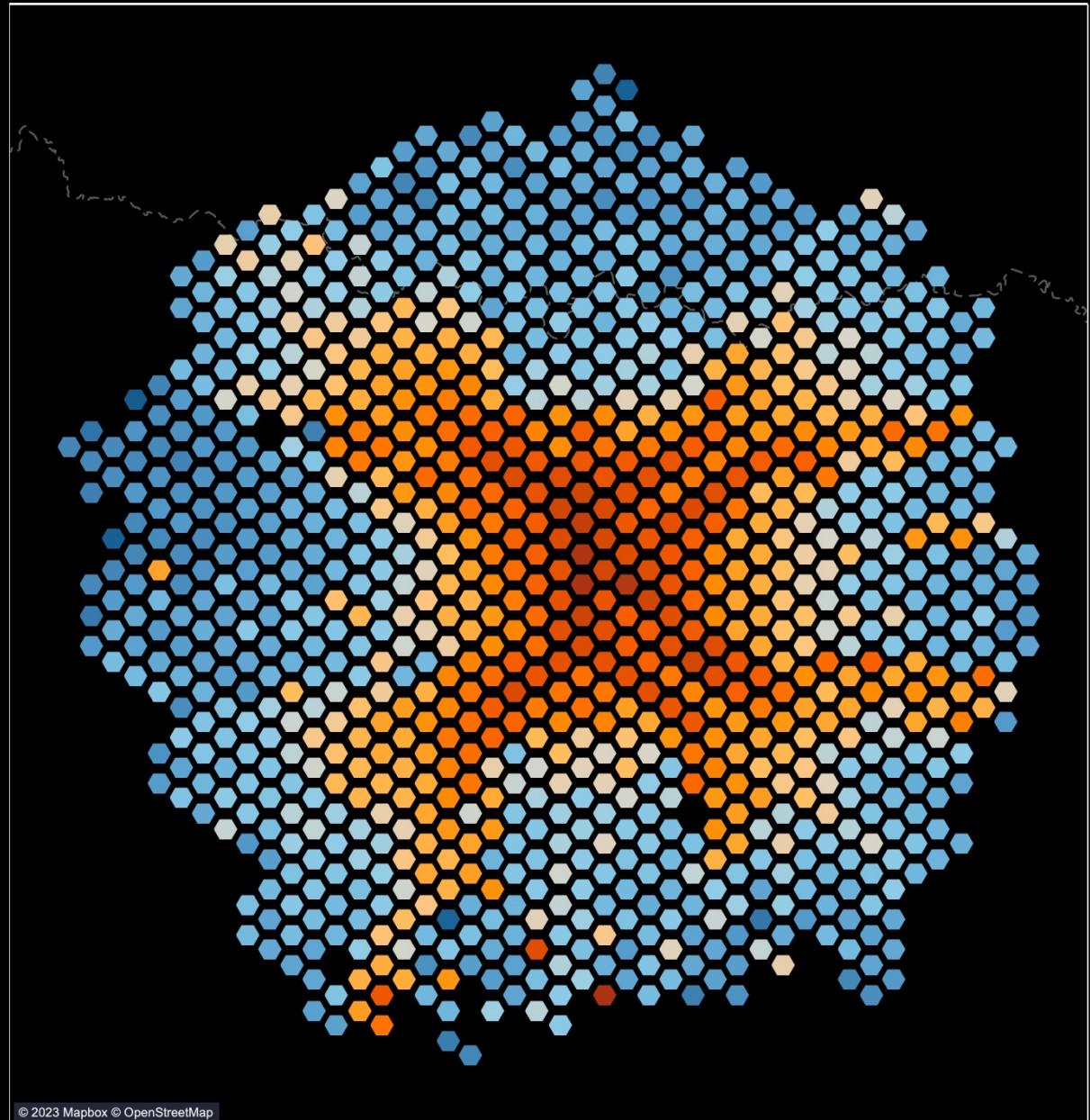
DFW points - 134,546 points



DFW points - 134,546 points



DFW HEX - 1,002 bins



# Spatial Exploration







## Lava Flow Amounts | May 5, 2018

Day of FlowTime1

May 5, 2018

Show history

May 13 May 28 Jun 12 Jun 27 Jul 12 Jul 27 Aug 11



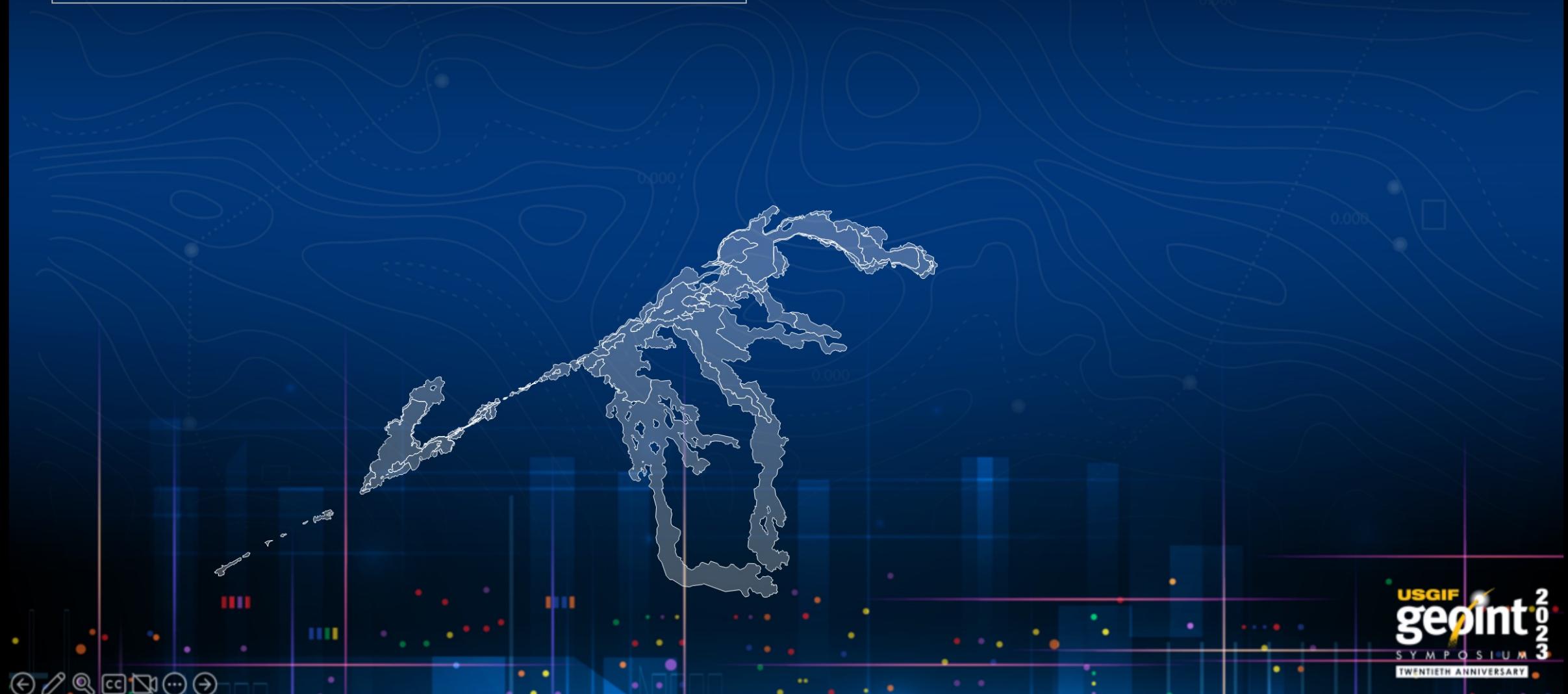
## Lava Flow Amounts | May 19, 2018



Day of FlowTime1

May 19, 2018

Show history



## Lava Flow Amounts | May 27, 2018



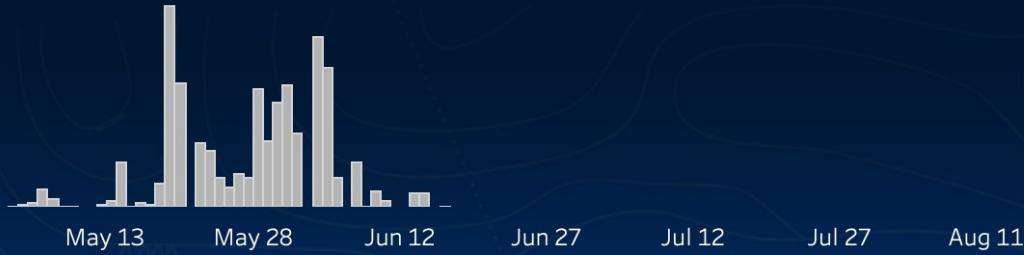
Day of FlowTime1

May 27, 2018

Show history



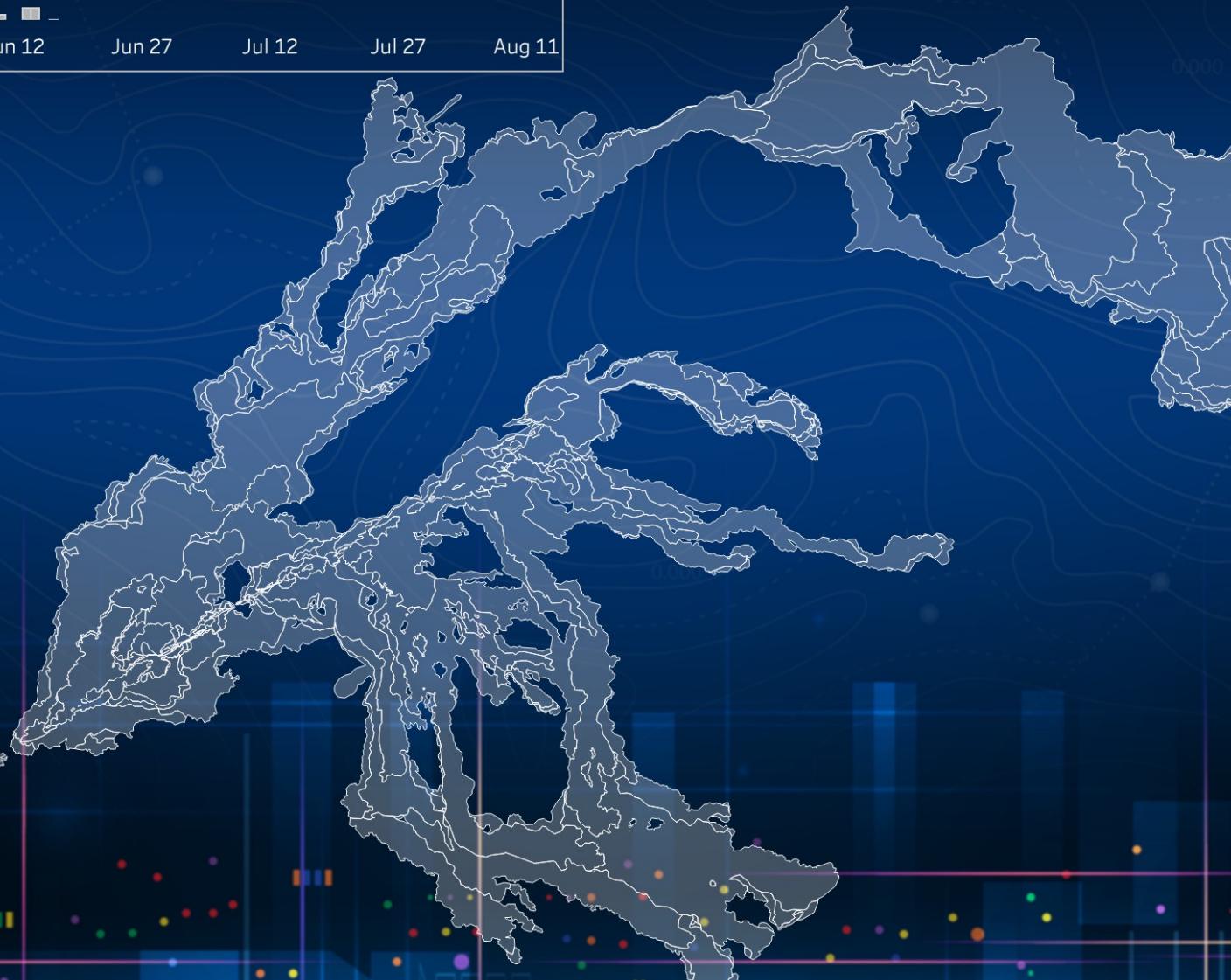
## Lava Flow Amounts | June 16, 2018



Day of FlowTime1

June 16, 2018

Show history



## Lava Flow Amounts | July 3, 2018



Day of FlowTime1

< July 3, 2018 >



Show history



## Lava Flow Amounts | August 9, 2018

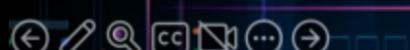


Day of FlowTime1

August 9, 2018



Show history



KIL\_2018\_LERZ\_FlowChronologyPolys.shp is made of 2 tables. ⓘ

KIL\_2018\_LERZ\_FlowChronology... — BigIslandHawaii.csv

Join

Inner      Left      Right      Full Outer

Data Source: BigIslandHawaii.csv

Lava Flow      Intersects      Makepoint([Lat],[Lon])

Add new join clause

Join calculation

Makepoint([Lat],[Lon])

The calculation is valid.

Apply      OK

KIL\_2018\_LERZ\_FlowChro... ▾      13 fields 1928 rows

Name

KIL\_2018\_LERZ\_FlowChronologyPolys.shp

Fields

Type	Field Name	Physical Table	Rem...
🕒	FlowTime1	KIL_2018_LERZ_FlowChr...	FlowTi...
Abc	EruptDay1	KIL_2018_LERZ_FlowChr...	Erupt...
#	EruptDay2	KIL_2018_LERZ_FlowChr...	Erupt...
Abc	Data Source	KIL_2018_LERZ_FlowChr...	DataS...

🕒	KIL_2018_LERZ_FlowChronologyPolys.shp	Abc	KIL_2018_LERZ_FlowChronologyPolys.shp	#	KIL_2018_LERZ_FlowChronologyPolys.shp	Abc	KIL_2018_LERZ_FlowChronologyPolys.shp
	FlowTime1	FlowTime1	EruptDay1	EruptDay1	EruptDay2	EruptDay2	Data Source
	5/4/2018 5:30:00 AM	02A			2.0000	Constructed from FlowChron...	
	5/4/2018 5:30:00 AM	02A			2.0000	Constructed from FlowChron...	
	6/4/2018 10:00:00 PM	33B			33.2500	Constructed from FlowChron...	
	5/25/2018 12:15:00 PM	23			23.0000	Constructed from FlowChron...	
	6/4/2018 10:00:00 PM	33B			33.2500	Constructed from FlowChron...	
	6/4/2018 10:00:00 PM	33B			33.2500	Constructed from FlowChron...	
	6/3/2018 1:00:00 AM	32A			32.0000	Constructed from FlowChron...	

KIL\_2018\_LERZ\_FlowChronologyPolys.shp is made of 2 tables. ⓘ

KIL\_2018\_LERZ\_FlowChronology...

BigIslandHawaii.csv

Data

Analytics

- 📁 KIL\_2018\_LERZ\_FlowChronologyPolys
- 📁 KIL\_2018\_LERZ\_FlowChronologyPolys + Buildings

Search



Tables

- Abc Data Source
- Abc EruptDay1
- # EruptDay2
- Abc FlowTime1
- Abc Measure Names
- # Area
- 🌐 Lava Flow
- # Shape Area
- # Shape Leng
- # KIL\_2018\_LERZ\_FlowChronologyPolys.shp (Count)
- 🌐 Latitude (generated)
- 🌐 Longitude (generated)
- # Measure Values



Data

Analytics

- 📁 KIL\_2018\_LERZ\_FlowChronologyPolys
- 📁 KIL\_2018\_LERZ\_FlowChronologyPolys + Buildings

Search



Tables

- BigIslandHawaii.csv
  - Abc Building
  - # ID
- KIL\_2018\_LERZ\_FlowChronologyPolys.shp
  - Abc Data Source
  - Abc EruptDay1
  - # EruptDay2
  - 🕒 FlowTime1
  - Abc Measure Names
- BigIslandHawaii.csv
  - 🌐 Lat
  - 🌐 Lon
- KIL\_2018\_LERZ\_FlowChronologyPolys.shp
  - 🌐 Lava Flow
  - # Shape Area
  - # Shape Leng
  - # Area
  - 🌐 Structures
  - # KIL\_2018\_LERZ\_FlowChronologyPolys.shp (Count)
  - 🌐 Latitude (generated)
  - 🌐 Longitude (generated)
  - # Measure Values

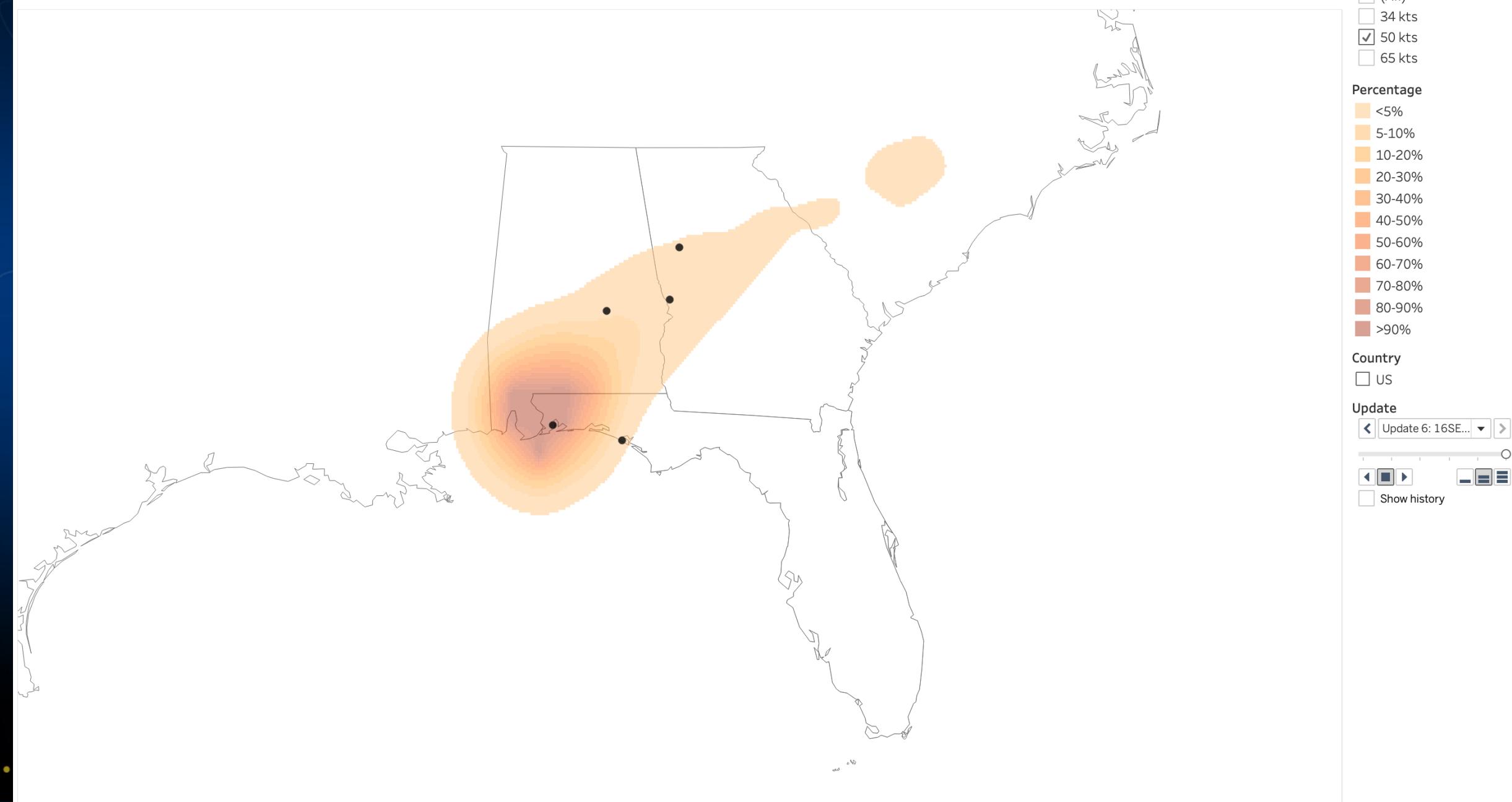




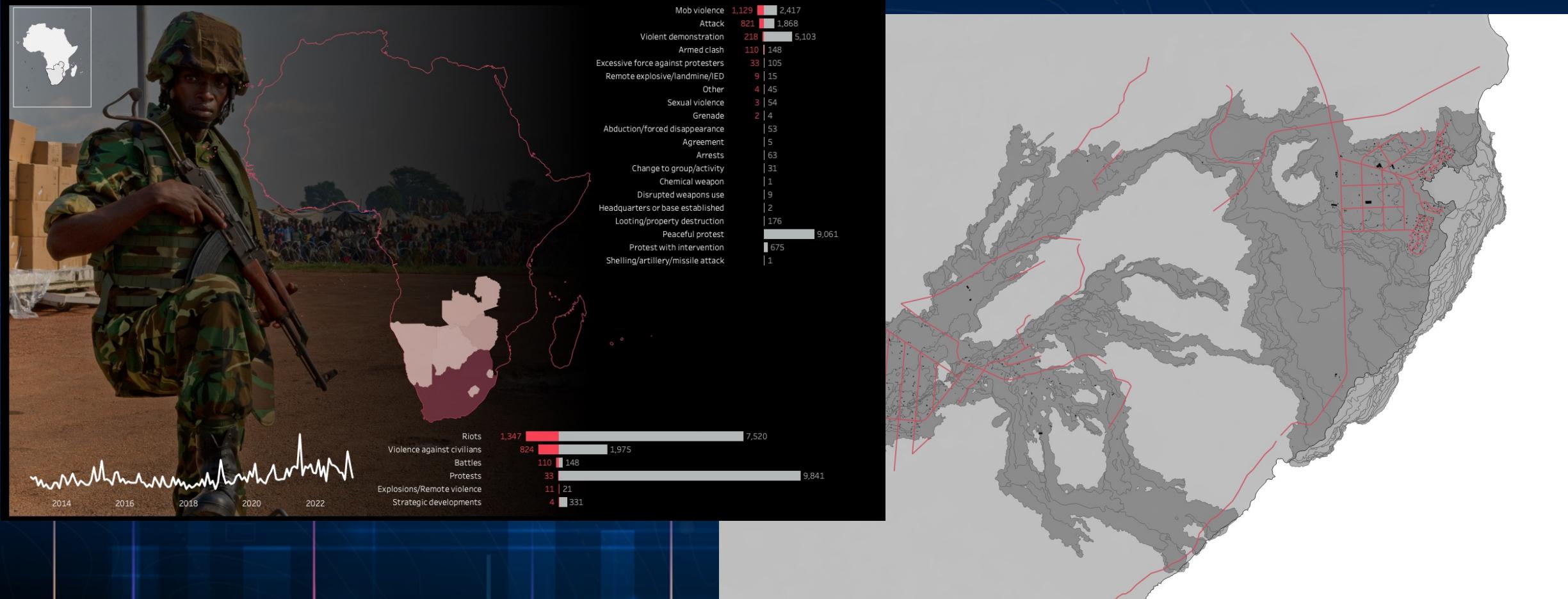




# Hurricane Sally - Update 6: 16SEP 1200



# Summary



# Download data | Github



[github.com/rosspaulson/GEOINT23](https://github.com/rosspaulson/GEOINT23)

<https://www.qrcode-monkey.com/#>

# Ross Paulson

**r paulson@tableau.com**

**(571) 205 - 2727**

**Tableau Public: r paulson**

**<https://public.tableau.com/app/profile/rpaulson>**

# Josh Gillmore

jgillmore@salesforce.com

Tableau Public: gocdashboards

<https://public.tableau.com/app/profile/gocdashboards>