Name: Waleed Altamimi

Group: DATA – ASU Capstone Project

Sponsored By: [Yanbor LLC](#)

Website: OUReport.com

Tornadoes in 2023 in the U.S

URL:
https://www.ncdc.noaa.gov/stormevents/listevents.jsp?eventType=%28C%29+Tornado&beginDate_mm=01&beginDate_dd=01&beginDate_yyyy=2023&endDate_mm=12&endDate_dd=31&endDate_yyyy=2023&hailfilter=0.00&tornfilter=0&windfilter=000&sort=DT&submitbutton=Search&statefips=-999%2CALL

Introduction:

Tornadoes are formidable and unpredictable forces of nature. They have always held a significant place in the environmental landscape of the United States. Throughout 2023, the nation has witnessed a remarkable pattern of tornado activity,

particularly notable for its concentration in specific regions. This report provides an in-depth analysis of tornado activities from January 1, 2023, to the present, focusing on their frequency, intensity, and geographic distribution in central and eastern U.S.

The study of tornadoes is crucial, not just for academic interest but for practical, life-saving purposes. These natural phenomena, characterized by their high wind speeds and potential for destruction, pose serious risks to life, property, and the broader environment. Understanding where and why tornadoes occur, their paths, and their impacts is vital for the safety and preparedness of communities, particularly in the most affected regions.

In this report, we employ advanced mapping and data analysis tools provided by Google Maps and Google Earth Pro, in conjunction with OUreport.com, to offer a comprehensive view of the tornado landscape in 2023. Our goal is to analyze and present data on tornado occurrences in a manner that is both informative and accessible, providing valuable insights for emergency response teams, policymakers, researchers, and the general public.

We organize the report into several key sections, starting with this introduction to set the stage and underscore the importance of understanding tornado activity in the United States. The following sections will delve into detailed statistical analyses,

examine the regional impacts of these tornadoes, and conclude with a synthesis of our findings, highlighting their implications for future preparedness and response strategies.

Reports and maps:

First, we are using OURepotrs and the integrated Google maps and Google Earth pro to generate maps that show all the earthquakes last month:

Quick Start

Registration

Sign In

How to play in Sandbox

OUReports Youtube Channel

OUReports Video Demonstration

Sandbox

How to play with *Analytics* , *Charts* , and *Maps*

Analytics, Charts, and

Reports:　　　　　　　_Create new report_　　　　　　_Import data_　　　　　　☑ Advanced User

Search: [＿＿＿＿＿＿] [Search]　　　90 reports

Created by	Show Report	Edit	Copy	Delete	Expiration	Maps	Analytics	Data	Charts
csvdemo43_4_16_2020_1_50PM	Country Areas	locked	copy		2028-09-29 10:49:00		analytics	data	charts
csvdemo43_1_14_2023_10_17AM	Alzheimer	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_7_22_2021_3_31PM	Arts Comp	edit	copy	delete	2028-09-29 10:49:00	map	analytics	data	charts
csvdemo43_5_31_2020_2_34PM	Covid (test)	edit	copy	delete	2028-09-29 10:49:00	map	analytics	data	charts
csvdemo43_7_18_2020_4_19PM	Covid 2020	edit	copy	delete	2028-09-29 10:49:00	map	analytics	data	charts
csvdemo43_3_15_2021_12_06PM	Covid 2021	edit	copy	delete	2028-09-29 10:49:00	map	analytics	data	charts
csvdemo43_3_22_2021_12_43PM	Covid Daily by State	edit	copy	delete	2028-09-29 10:49:00	map	analytics	data	charts
csvdemo43_3_22_2021_11_57AM	Covid Daily Vaccination	edit	copy	delete	2028-09-29 10:49:00	map	analytics	data	charts
csvdemo43_3_22_2021_12_59PM	Covid latest	edit	copy	delete	2028-09-29 10:49:00	map	analytics	data	charts
csvdemo43_3_15_2021_10_47AM	Covid Vaccination by Country	edit	copy	delete	2028-09-29 10:49:00	map	analytics	data	charts
csvdemo43_3_30_2021_10_42AM	Covid Vaccination by State in US	edit	copy	delete	2028-09-29 10:49:00	map	analytics	data	charts
csvdemo43_6_1_2022_1_21PM	Crime 2018-2019	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_15_2023_9_38PM	Data imported into 2024_budget_recommendations_positions_and_salaries on 10-15-2023 9-38-05 PM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_16_2023_12_23AM	Data imported into car_accidents_tempe_2023 on 10-16-2023 12-23-13 AM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_15_2023_7_42PM	Data imported into car_accidents_tempe_from_2023 on 10-15-2023 7-42-24 PM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_11_6_2023_9_48PM	Data imported into earthquakes_last_month on 11-6-2023 9-48-29 PM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_15_2023_8_24PM	Data imported into fruitprices2020 on 10-15-2023 8-24-58 PM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_16_2023_12_22AM	Data imported into mass_shooting_states_years on 10-16-2023 12-22-28 AM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_16_2023_8_21PM	Data imported into monthly_counts_of_deaths_test5 on 10-16-2023 8-21-58 PM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_30_2023_8_19PM	Data imported into NYPD_Shooting_Incident_2019_2022 on 10-30-2023 8-19-29 PM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_23_2023_7_35PM	Data imported into real_estate_2020_connecticut1 on 10-23-2023 7-35-19 PM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_23_2023_11_13PM	Data imported into school_attendance on 10-23-2023 11-13-05 PM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_11_8_2023_12_48AM	Data imported into tobacco_survey_1999_2017 on 11-8-2023 12-48-12 AM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_11_14_2023_12_37AM	Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts
csvdemo43_10_15_2023_8_28PM	Data imported into vegetable_prices_2020 on 10-15-2023 8-28-37 PM	edit	copy	delete	2029-06-26 00:00:00	map	analytics	data	charts

In the provided picture, you can observe a list of reports on OUReports.com. You can import your own data by clicking on the "Import data" button. However, I have selected the "Map" option for the "Data imported into Tornadoes_in_2023" report. After choosing the "Map" option, you will be directed to the "Map Format" page. Initially, you can choose the map type as shown in the first picture below. After that, you must configure the longitude and latitude settings to generate the map. Since it is "Path" type, so there are begin latitude, end latitude, begin longitude and end latitude.

After choosing the "path" type, the end longitude and end latitude will appear in the format page as shown in the picture.

below:

Online Data Analytics and Reporting

Help

Left sidebar navigation:
- Log Off;
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Map type: [Paths]   **Maps:** [Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM]   **Map Name:** [Data imported into tornado_in_2023 on 11-14-2023 12-37-2']   [add]   [del]

Fields for placemarks:

Field:
[   ]
[Placemark Name]

[Placemark Longitude]   [Placemark Latitude]
[Placemark end Longitude]   [Placemark end Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude) or (latitude,longitude): ☐ (lat,lon)
[Placemark Geolocation]   [Placemark Geolocation End]

Text for description in balloon:
[   ]
Fields for description in balloon:
[   ]
[Add To Description]

Fields for additional Placemarks:
[   ]
[Add Placemark Longitude]   [Add Placemark Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude): ☐ (lat,lon)
[Add Placemark Geolocation]

Key Fields for additional records from data table :
[   ]
[Add Key Fields for additional records]

Map presentation:

☐ show pins
☐ show circles around pins
☐ show links to data reports in ballons

Geo restrictions: [   ]

Numeric field for color density and circle radius: [   ]
Highest density color: [■] saved
Multiply to adjust the radius by: [0.01]
[Update Color and Field for color density]

Numeric field for extruded altitude: [   ]
Multiply by: [0.001]
Initial altitude: [   ]   Line width: [   ]
Extruded color based on value in the field: [   ]
[Update field for extruded altitude and color]

Fields selected:	In Map for:	Text:	#	Delete

Key Fields selected:	Friendly Names/text			Delete

[Open Google Map Chart Report]   [Make simplified kml file and open it in Google Map]   [Make and download kml file to open it with Google Earth Pro]   (To install the Google Earth Pro app click: here)

Online Data Analytics and Reporting

Map Report Definition   Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM   Help

Map type: [Paths ▾]   Maps: [Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM ▾]   Map Name: [Data imported into tornado_in_2023 on 11-14-2023 12-37-2] [add] [del]

Fields for placemarks:

Field:
[▾]

DEATHSINDIRECT
SOURCE
FLOODCAUSE
TORLENGTH
TORWIDTH
BEGINRANGE
BEGINAZIMUTH
ENDRANGE
ENDAZIMUTH
ENDLOCATION
ENDDATE
ENDTIME
BEGINLAT
BEGINLON
ENDLAT
ENDLON
EVENTNARRATIVE
EPISODENARRATIVE
ABSOLUTEROWNUMBER
Indx

[Placemark Latitude   ]

[Placemark end Latitude   ]

on format: POINT(latitude,longitude) or (latitude,longitude): ☐ (lat,lon)

[Placemark Geolocation End   ]

[   ]

Fields for additional Placemarks:
[▾]

[Add Placemark Longitude   ]   [Add Placemark Latitude   ]

or if coordinates are in geolocation format: POINT(latitude,longitude): ☐ (lat,lon)

[Add Placemark Geolocation   ]

Key Fields for additional records from data table :
[▾]

[Add Key Fields for additional records   ]

Map presentation:

☐ show pins
☐ show circles around pins
☐ show links to data reports in ballons

Geo restrictions: [   ]

Numeric field for color density and circle radius: [▾]
Highest density color: [████] saved
Multiply to adjust the radius by: [0.01]

[Update Color and Field for color density   ]

Numeric field for extruded altitude: [▾]
Multiply by: [0.001]
Initial altitude: [   ]   Line width: [   ]
Extruded color based on value in the field: [▾]

[Update field for extruded altitude and color   ]

Fields selected:	In Map for:	Text:	#	Delete

Key Fields selected:	Friendly Names/text			Delete

[Open Google Map Chart Report   ]   [Make simplified kml file and open it in Google Map   ]   [Make and download kml file to open it with Google Earth Pro   ]   (To install the Google Earth Pro app click: here)

Online Data Analytics and Reporting

Map Report Definition   Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM   Help

Map type: [Pins ▾]   Maps: [Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM ▾]   Map Name: [Data imported into tornado_in_2023 on 11-14-2023 12-37-2ʼ]   [add]   [del]

Fields for placemarks:

Field:
[▾]
[Placemark Name]

[Placemark Longitude]   [Placemark Latitude]

[Placemark end Longitude]   [Placemark end Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude) or (latitude,longitude): ☐ (lat,lon)

[Placemark Geolocation]   [Placemark Geolocation End]

Text for description in balloon:
[   ]

Fields for description in balloon:
[▾]
[Add To Description]

Fields for additional Placemarks:
[▾]
[Add Placemark Longitude]   [Add Placemark Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude): ☐ (lat,lon)

[Add Placemark Geolocation]

Key Fields for additional records from data table :
[▾]
[Add Key Fields for additional records]

Map presentation:

:
☑ show pins
☑ show circles around pins
☑ show links to data reports in ballons

Geo restrictions: [   ]

Numeric field for color density and circle radius: [DAMAGEPROPERTYNUM ▾]
Highest density color: [████] saved
Multiply to adjust the radius by: [0.01]
[Update Color and Field for color density]

Numeric field for extruded altitude: [DAMAGEPROPERTYNUM ▾]
Multiply by: [0.001]
Initial altitude: [   ]   Line width: [   ]
Extruded color based on value in the field: [▾]
[Update field for extruded altitude and color]

Fields selected:	In Map for:	Text:	#	Delete
BEGINLAT	PlacemarkLatitude		0	delete
BEGINLON	PlacemarkLongitude		0	delete
ENDLAT	PlacemarkLatitudeEnd		1	delete
ENDLON	PlacemarkLongitudeEnd		1	delete

Once you have selected "Latitude," click on "Placemark Latitude," and it will appear in the "Fields selected" box. Similarly, you should follow the same steps for "Longitude."

Now, you can assign text to each field under "Text for Description in Balloon" and "Fields for Description in Balloon," as shown in the picture below, and this information will appear in the "Fields Selected" box.

Navigation (left panel):

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Main panel:

Map type: [Paths]   Maps: [Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM]   Map Name: [Data imported into tornado_in_2023 on 11-14-2021]   [add]   [del]

Fields for placemarks:

Field:
[ ]

[Placemark Name]

[Placemark Longitude]   [Placemark Latitude]

[Placemark end Longitude]   [Placemark end Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude) or (latitude,longitude): ☐ (lat,lon)

[Placemark Geolocation]   [Placemark Geolocation End]

Text for description in balloon:
[State:]
Fields for description in balloon:
[STATEABBR]
[Add To Description]   ←

Fields for additional Placemarks:
[ ]

[Add Placemark Longitude]   [Add Placemark Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude): ☐ (lat,lon)

[Add Placemark Geolocation]

Key Fields for additional records from data table :
[ ]

[Add Key Fields for additional records]

Map presentation:

☑ show pins
☑ show circles around pins
☑ show links to data reports in ballons

Geo restrictions: [U.S]

Numeric field for color density and circle radius: [DAMAGEPROPERTYNUM]
Highest density color: [■] saved
Multiply to adjust the radius by: [0.01]
[Update Color and Field for color density]

Numeric field for extruded altitude: [DAMAGEPROPERTYNUM]
Multiply by: [0.001]
Initial altitude: [ ]   Line width: [ ]
Extruded color based on value in the field: [ ]
[Update field for extruded altitude and color]

Fields selected:	In Map for:	Text:	#	Delete
BEGINLAT	PlacemarkLatitude		0	delete
BEGINLON	PlacemarkLongitude		0	delete
Indx	PlacemarkName	U.S	0	delete
ENDLAT	PlacemarkLatitudeEnd		1	delete
ENDLON	PlacemarkLongitudeEnd		1	delete

Key Fields selected:	Friendly Names/text	Delete

Also, we can use the color density feature as shown below, I chose the color for the Damage property field as shown below:

Online Data Analytics and Reporting

Map type: [Paths ▾]   Maps: [Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM ▾]   Map Name: [Data imported into tornado_in_2023 on 11-14-2023 12-37-2] [add] [del]

Fields for placemarks:

Field:
[▾]

[Placemark Name]

[Placemark Longitude]   [Placemark Latitude]

[Placemark end Longitude]   [Placemark end Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude) or (latitude,longitude): ☐ (lat,lon)

[Placemark Geolocation]   [Placemark Geolocation End]

Text for description in balloon:
[   ]
Fields for description in balloon:
[▾]

[Add To Description]

Fields for additional Placemarks:
[▾]

[Add Placemark Longitude]   [Add Placemark Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude): ☐ (lat,lon)

[Add Placemark Geolocation]

Key Fields for additional records from data table :
[▾]

[Add Key Fields for additional records]

Map presentation:

☑ show pins
☑ show circles around pins
☑ show links to data reports in ballons

Geo restrictions: [U.S]

Numeric field for color density and circle radius: [DAMAGEPROPERTYNUM ▾]
Highest density color: [████] saved
Multiply to adjust the radius by: [0.01]

[Update Color and Field for color density] ←

Numeric field for extruded altitude: [DAMAGEPROPERTYNUM ▾]
Multiply by: [0.001]
Initial altitude: [   ]   Line width: [   ]
Extruded color based on value in the field: [▾]

[Update field for extruded altitude and color]

Fields selected:	In Map for:	Text:	#	Delete
BEGINLAT	PlacemarkLatitude		0	delete
BEGINLON	PlacemarkLongitude		0	delete
Indx	PlacemarkName	U.S	0	delete
ENDLAT	PlacemarkLatitudeEnd		1	delete
ENDLON	PlacemarkLongitudeEnd		1	delete

Log Off;
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  Filters
  Sorting
Report Format Definition
  Advanced Report Designer
  Columns, Expressions
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  See Crystal Report
Show Analytics
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  Export Overall Statistics to Excel
  See Groups Statistics
  See Fields Correlation
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Online Data Analytics and Reporting

Map Report Definition   Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM   Help

Map type: [Paths ▾]   Maps: [Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM ▾]   Map Name: [Data imported into tornado_in_2023 on 11-14-2023 12-37-2]   [add]   [del]

Fields for placemarks:

Field:
[_____ ▾]

[Placemark Name]

[Placemark Longitude]   [Placemark Latitude]

[Placemark end Longitude]   [Placemark end Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude) or (latitude,longitude): ☐ (lat,lon)

[Placemark Geolocation]   [Placemark Geolocation End]

Text for description in balloon:
[_____]

Fields for description in balloon:
[_____ ▾]

[Add To Description]

Fields for additional Placemarks:
[_____ ▾]

[Add Placemark Longitude]   [Add Placemark Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude): ☐ (lat,lon)

[Add Placemark Geolocation]

Key Fields for additional records from data table :
[_____ ▾]

[Add Key Fields for additional records]

Map presentation:

:
☑ show pins
☑ show circles around pins
☑ show links to data reports in ballons

Geo restrictions: [U.S]

Numeric field for color density and circle radius: [DAMAGEPROPERTYNUM ▾]
Highest density color: [■■■■] saved
Multiply to adjust the radius by: [0.01]

[Update Color and Field for color density]

Numeric field for extruded altitude: [DAMAGEPROPERTYNUM ▾]
Multiply by: [0.001]
Initial altitude: [4000]   Line width: [4]
Extruded color based on value in the field: [DAMAGEPROPERTYNUM ▾]

[Update field for extruded altitude and color]

Fields selected:	In Map for:	Text:	#	Delete
BEGINLAT	PlacemarkLatitude		0	delete
BEGINLON	PlacemarkLongitude		0	delete
Indx	PlacemarkName	U.S	0	delete
ENDLAT	PlacemarkLatitudeEnd		1	delete
ENDLON	PlacemarkLongitudeEnd		1	delete

Once you have determined what information you want to display, you can click on the "Make simplified kml file and open it in Google map" button:

Map type: Paths   Maps: Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM   Map Name: Data imported into tornado_in_2023 on 11-14-2023 12-37-2'   [add]   [del]

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  ◇ Export Report to Excel
  ◇ Export Report to Word
  ◇ Export Report to PDF
  ◇ See Crystal Report
◆ Show Analytics
  ◇ See Data Overall Statistics
  ◇ Export Overall Statistics to Excel
  ◇ See Groups Statistics
  ◇ See Fields Correlation
  ◇ Matrix Balancing

Fields for placemarks:

Field:
[Placemark Name]

[Placemark Longitude]   [Placemark Latitude]

[Placemark end Longitude]   [Placemark end Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude) or (latitude,longitude): ☐ (lat,lon)

[Placemark Geolocation]   [Placemark Geolocation End]

Text for description in balloon:

Fields for description in balloon:

[Add To Description]

Fields for additional Placemarks:

[Add Placemark Longitude]   [Add Placemark Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude): ☐ (lat,lon)

[Add Placemark Geolocation]

Key Fields for additional records from data table :

[Add Key Fields for additional records]

Map presentation:

☑ show pins
☑ show circles around pins
☑ show links to data reports in ballons

Geo restrictions: U.S

Numeric field for color density and circle radius: DAMAGEPROPERTYNUM ▾
Highest density color: ▮ saved
Multiply to adjust the radius by: 0.01
[Update Color and Field for color density]

Numeric field for extruded altitude: DAMAGEPROPERTYNUM ▾
Multiply by: 0.001
Initial altitude: 4000   Line width: 4
Extruded color based on value in the field: DAMAGEPROPERTYNUM ▾
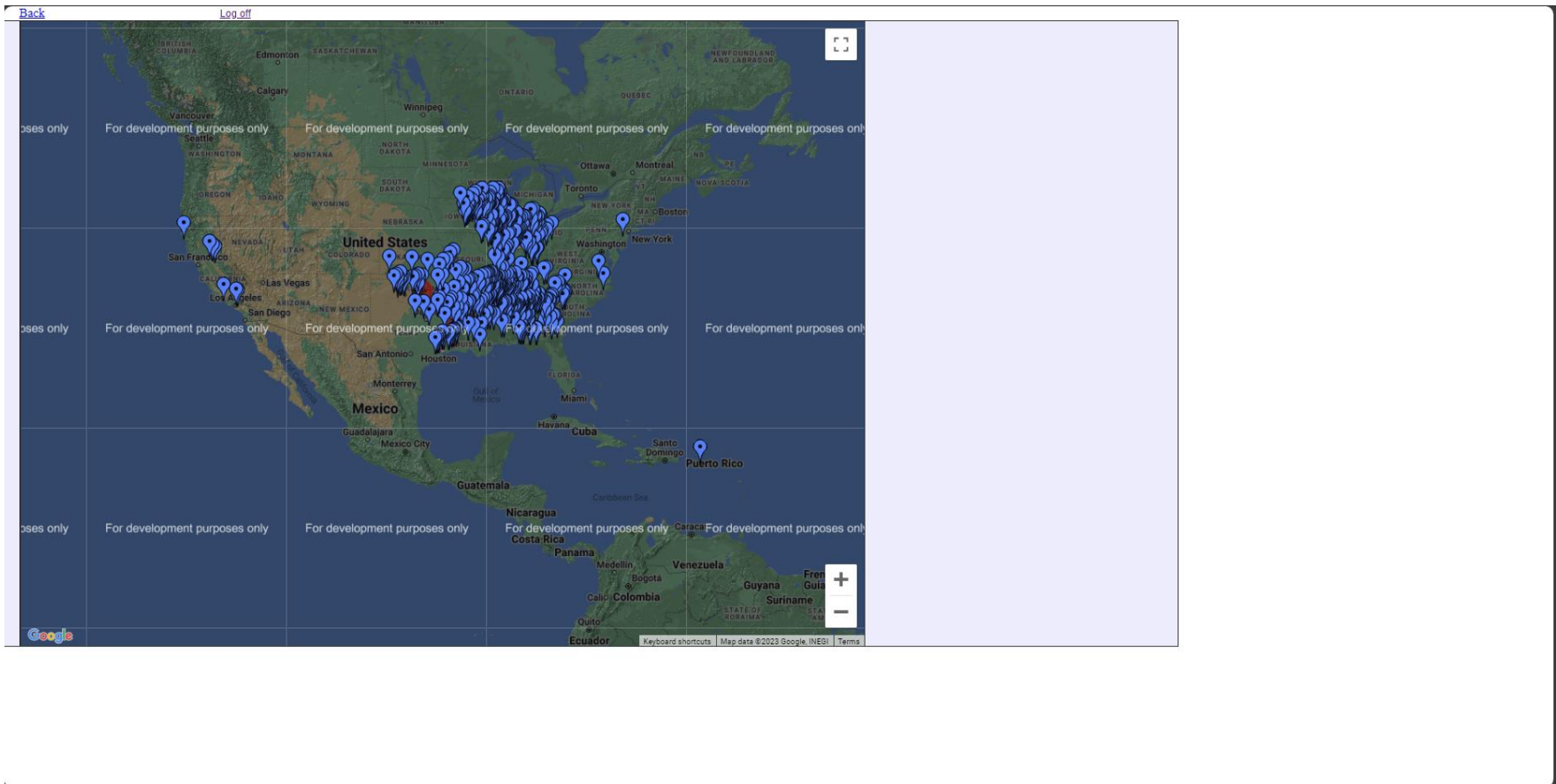[Update field for extruded altitude and color]

Fields selected:	In Map for:	Text:	#	Delete
BEGINLAT	PlacemarkLatitude		0	delete
BEGINLON	PlacemarkLongitude		0	delete
Indx	PlacemarkName	U.S	0	delete
ENDLAT	PlacemarkLatitudeEnd		1	delete
ENDLON	PlacemarkLongitudeEnd		1	delete
---	PlacemarkDescription	State:	2	delete
STATEABBR	PlacemarkDescription		2	delete
---	PlacemarkDescription	Damage:	3	delete
DAMAGEPROPERTYNUM	PlacemarkDescription		3	delete

Key Fields selected:	Friendly Names/text	Delete

[Open Google Map Chart Report]   [Make simplified kml file and open it in Google Map]   [Make and download kml file to open it with Google Earth Pro]   (To install the Google Earth Pro app click: here)

To save KML definition add the comments for history

Here we can see all the options that we have selected, paths, pins, and circles around pins. In addition, once we click on any pin the fields and the descriptions will be appeared in the light of the page as shown below:
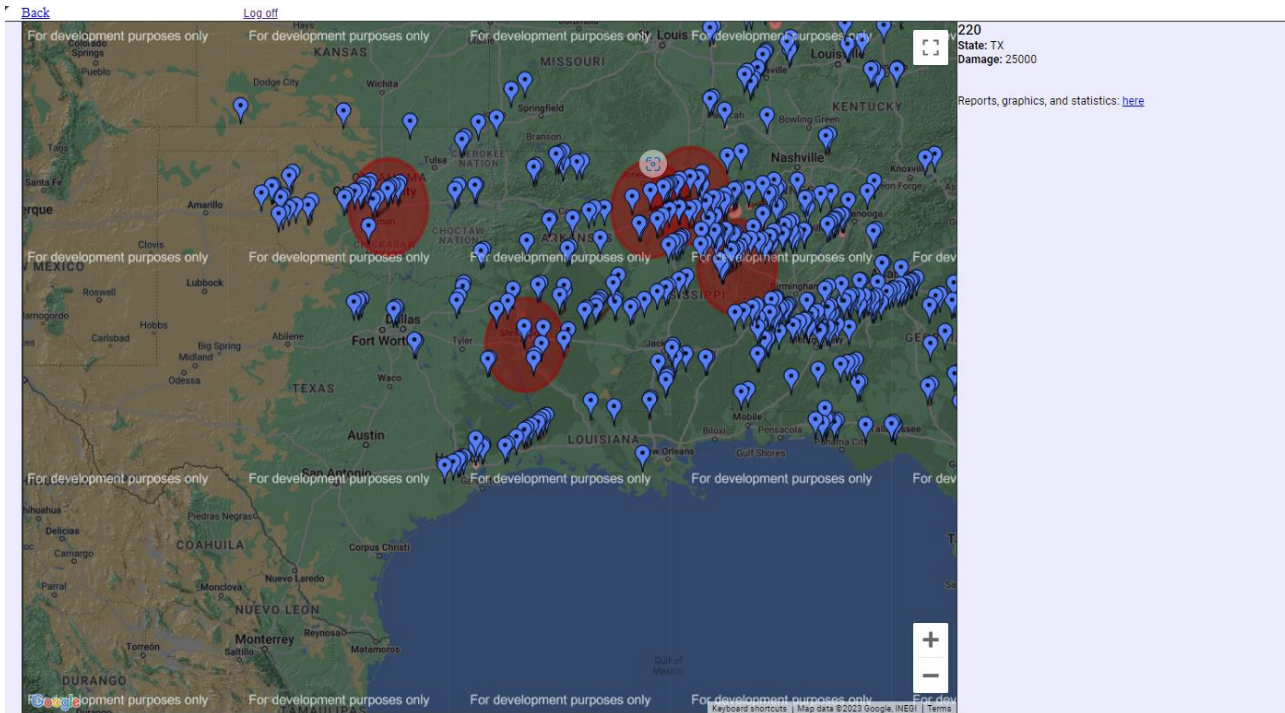
We can use another option to generate the map using google map, we can click on "Open Google Chart Report" button:

Map type: [Paths ▼] Maps: [Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM ▼]   Map Name: [Data imported into tornado_in_2023 on 11-14-2023 12-37-2] [add] [del]

- Report Definition
- Report Parameters
- Share Report (Users)
- Report Data Query
  - Data fields
  - Joins
  - Filters
  - Sorting
- Report Format Definition
  - Advanced Report Designer
  - Columns, Expressions
  - Groups, Total
  - Combine Values
  - Map Definition
- Explore Report Data
  - Export Data to Excel
  - Export Data to CSV
  - Export Data to Delimited File
  - Export Data to XML
- Show Report
  - Show Generic Report
  - Show Report Graphs
  - Export Report to Excel
  - Export Report to Word
  - Export Report to PDF
  - See Crystal Report
- Show Analytics
  - See Data Overall Statistics
  - Export Overall Statistics to Excel
  - See Groups Statistics
  - See Fields Correlation
  - Matrix Balancing

Fields for placemarks:

Field:
[▼]

[Placemark Name]

[Placemark Longitude]   [Placemark Latitude]

[Placemark end Longitude]   [Placemark end Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude) or (latitude,longitude): ☐ (lat,lon)

[Placemark Geolocation]   [Placemark Geolocation End]

Text for description in balloon:
[ ]
Fields for description in balloon:
[▼]

[Add To Description]

Fields for additional Placemarks:
[▼]

[Add Placemark Longitude]   [Add Placemark Latitude]

or if coordinates are in geolocation format: POINT(latitude,longitude): ☐ (lat,lon)

[Add Placemark Geolocation]

Key Fields for additional records from data table :
[▼]

[Add Key Fields for additional records]

Map presentation:

:
☑ show pins
☑ show circles around pins
☑ show links to data reports in ballons

Geo restrictions: [U.S]

Numeric field for color density and circle radius: [DAMAGEPROPERTYNUM ▼]
Highest density color: [▬] saved
Multiply to adjust the radius by: [0.01]

[Update Color and Field for color density]

Numeric field for extruded altitude: [DAMAGEPROPERTYNUM ▼]
Multiply by: [0.001]
Initial altitude: [4000]   Line width: [4]
Extruded color based on value in the field: [DAMAGEPROPERTYNUM ▼]

[Update field for extruded altitude and color]

Fields selected:	In Map for:	Text:	#	Delete
BEGINLAT	PlacemarkLatitude		0	delete
BEGINLON	PlacemarkLongitude		0	delete
Indx	PlacemarkName	U.S	0	delete
ENDLAT	PlacemarkLatitudeEnd		1	delete
ENDLON	PlacemarkLongitudeEnd		1	delete
---	PlacemarkDescription	State:	2	delete
STATEABBR	PlacemarkDescription		2	delete
---	PlacemarkDescription	Damage:	3	delete
DAMAGEPROPERTYNUM	PlacemarkDescription		3	delete

Key Fields selected:		Friendly Names/text		Delete

[Open Google Map Chart Report]   [Make simplified kml file and open it in Google Map]   [Make and download kml file to open it with Google Earth Pro]   (To install the Google Earth Pro app click: here)

After clicking on it, you will be directed to the page shown in the first picture below. You'll notice two "Chart Type" options, and you can add them to a dashboard by clicking on "Add to Dashboard." This action will reveal the options depicted in the third picture, allowing you to select where you want to add them. You can choose a dashboard from the list of available dashboards, or you can create your own dashboard by entering its name and clicking on the "Find" button. Once you do this, it will be added to the list, and then you can select the dashboard and click on "Add."
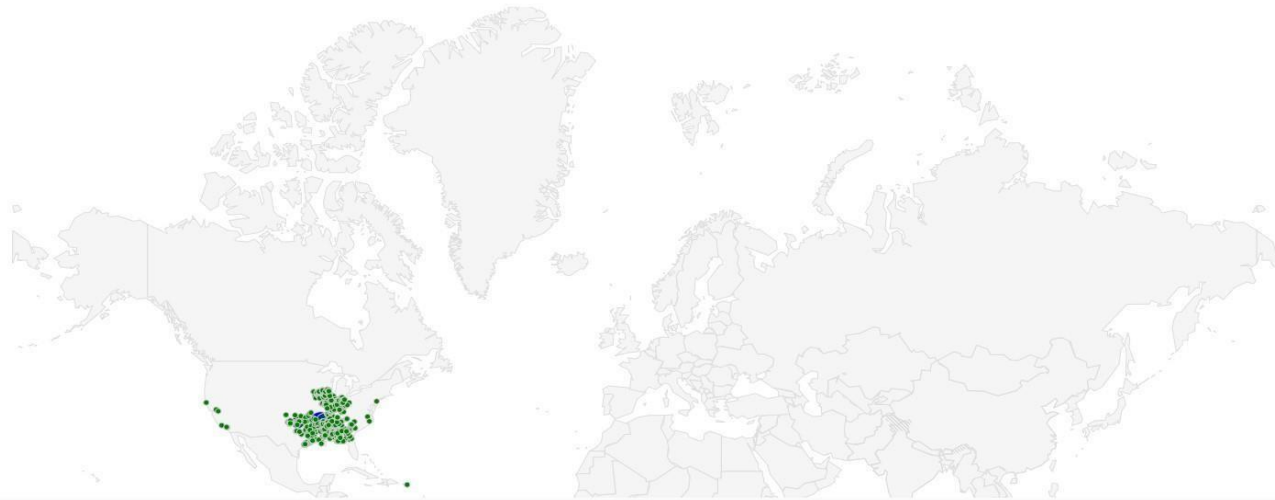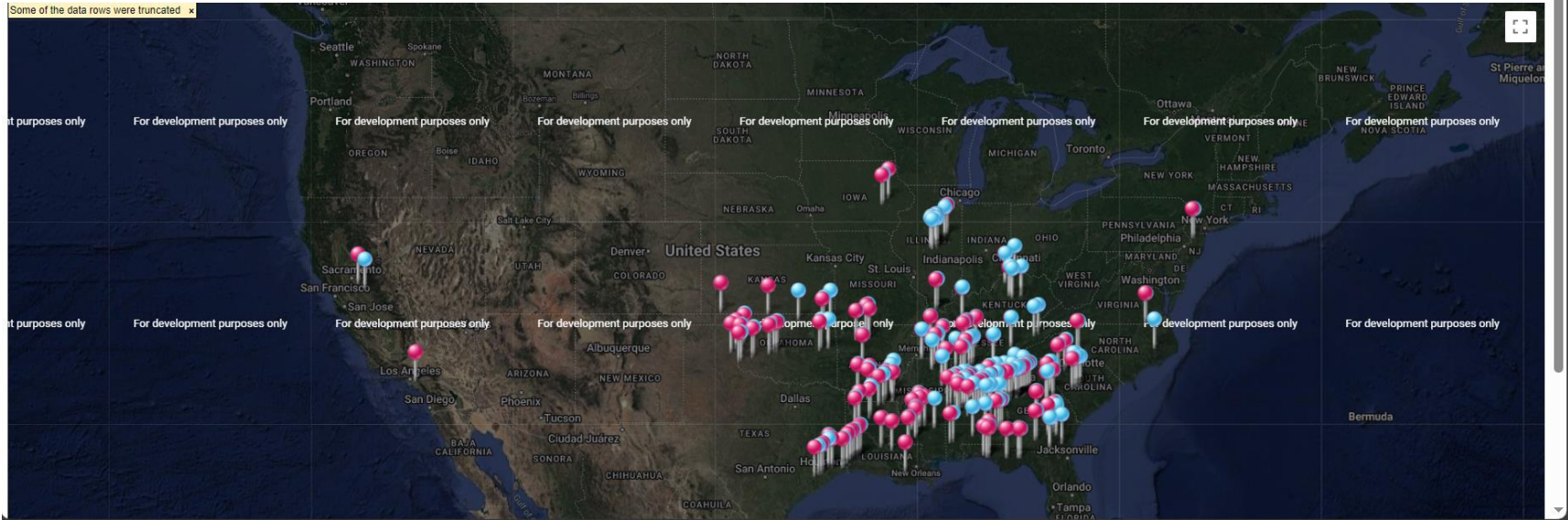
Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM: — Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM (500 placemarks) —

Chart type: GeoChart ⌄

| GeoChart |
| MapChart |

Chart type: MapChart

GeoChart
MapChart

Some of the data rows were truncated   x

Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM: --- Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM (500 placemarks) ---

Chart type: GeoChart ▼

Add To Dashboard   ✖

Name: [_____]   Find   Add

                                                                                     Cancel

Dashboards
☐ Acc
☐ Accidents
☐ Car_Accidents
☐ Covid 2020
☐ Covid Daily
☐ Covid Vaccination
☐ Covid Vaccination by State
☐ Dashboard csvdemo
☐ Earthquakes

Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM: --- Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM (500 placemarks) ---

Chart type: MapChart ⌄

Add To Dashboard	✕

Name: [Tornadoes] [Find] ⬅

Dashboards

☐ Acc
☐ Accidents
☐ Car_Accidents
☐ Covid 2020
☐ Covid Daily
☐ Covid Vaccination
☐ Covid Vaccination by State
☐ Dashboard csvdemo
☐ Earthquakes
☐ Earthquakes Last Month

[Add]

[Cancel]

Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM: --- Data imported into tornado_in_2023 on 11-14-2023 12-37-21 AM (500 placemarks) ---

Chart type: MapChart ⌄

Add To Dashboard   ✖

Name: [   ]   [Find]   [Add]

Dashboards   [Cancel]

☐ Earthquakes Last Month
☐ Happiness
☐ Macro Economics
☐ MonthlyDeath
☐ My Dashboard
☐ Real Estate
☐ Shooting_Incidents
☐ Storms
☐ Tobacco usage
☑ Tornadoes

Online User Reporting

Help   Report a problem   Log off

User Dashboards:

Search: [   ] [Search]   19 dashboards

Link to Dashboard

Acc
Accidents
Car_Accidents
Covid 2020
Covid Daily
Covid Vaccination
Covid Vaccination by State
Dashboard csvdemo
Earthquakes
Earthquakes Last Month
Happiness
Macro Economics
MonthlyDeath
My Dashboard
Real Estate
Shooting_Incidents
Storms
Tobacco usage
Tornadoes

Some of the data rows were truncated   x

maximize   delete from dashboard   maximize   delete from dashboard

Send dashboard link to email address: [   ] [Share]

Once you've added the map to the dashboard, you can maximize it and click on any pin on the map to view the associated information.
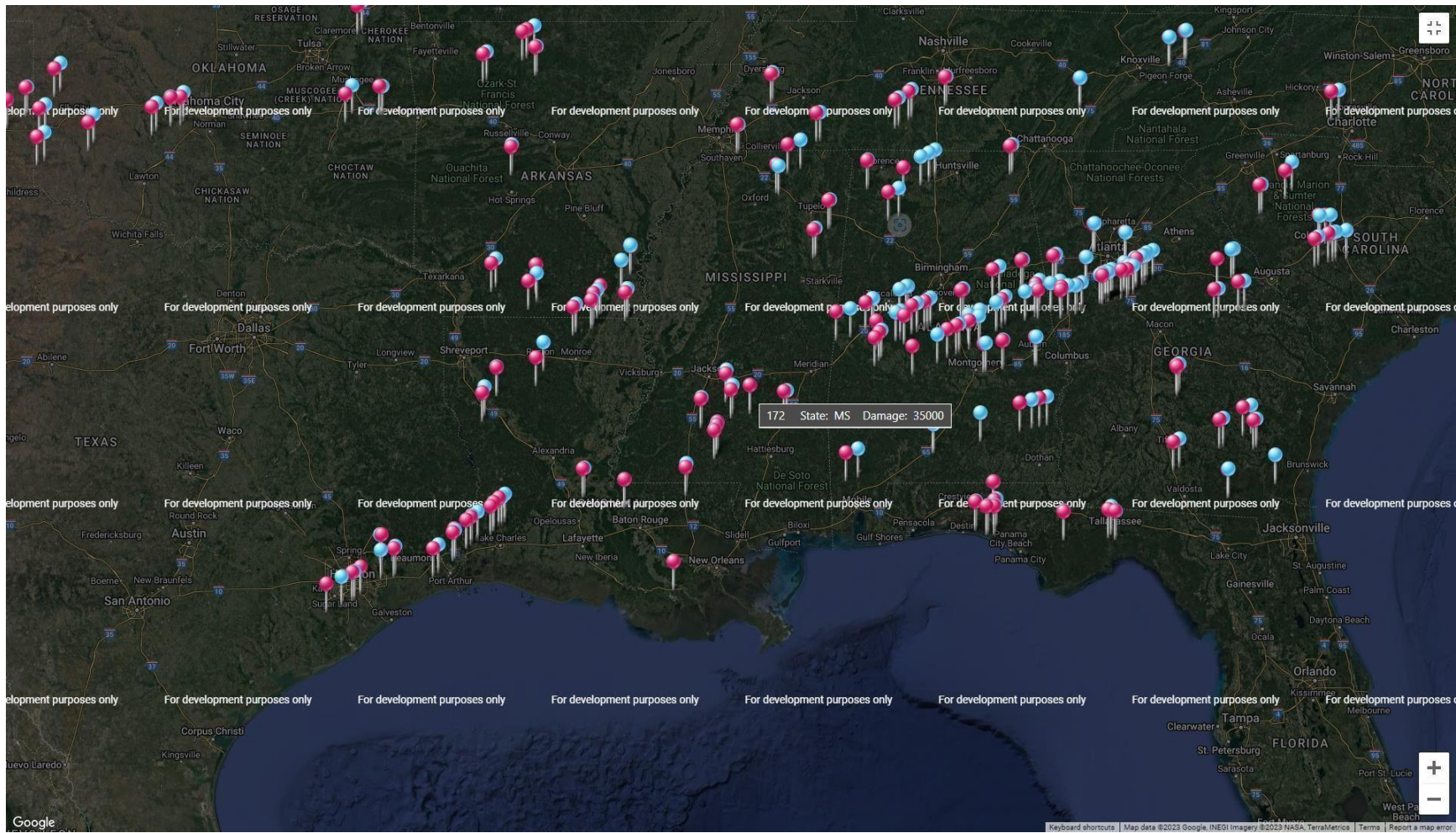
Additionally, you have the option to display the selected information in "Google Earth Pro." Before doing so, you need to install the Google Earth Pro app. The file has been downloaded and we can open it from Google Earth app.

Here, we can see the paths and the circles:

You can click on any pin to display its information and the link of the report:
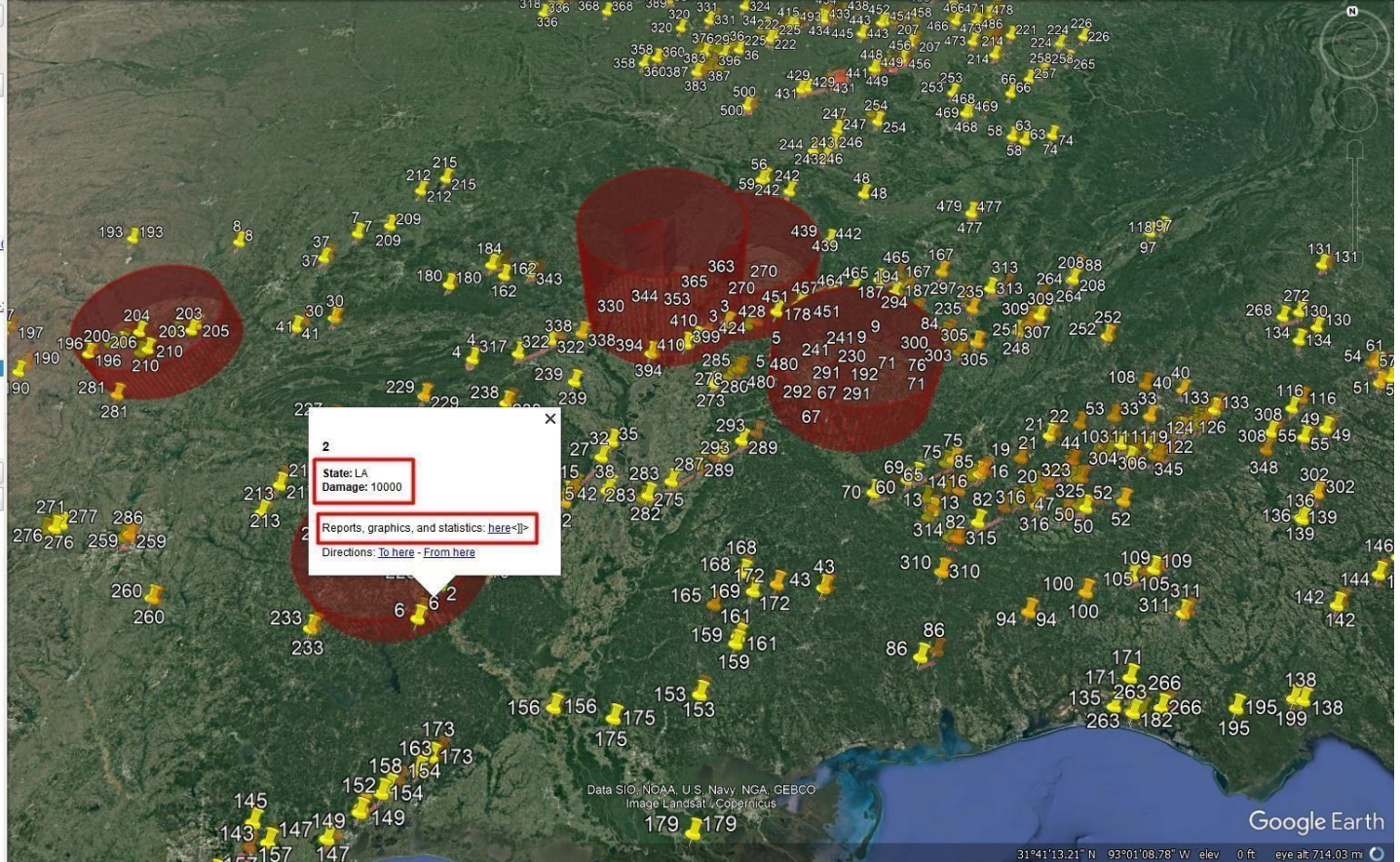
Conclusion:

In conclusion, our extensive analysis of tornado activity in the United States for the year 2023, utilizing sophisticated data analysis and mapping technologies, has yielded significant insights into the patterns and implications of these severe weather events.

One of the most striking findings of our study is the heightened prevalence of tornadoes in the central and eastern regions of the United States. This pattern underscores the geographical and meteorological factors that make these areas particularly susceptible to tornado occurrences. The central part, often referred to as 'Tornado Alley,' and the eastern regions are characterized by unique climatic conditions that facilitate the formation of tornadoes, reflecting the intricate interplay of topography, temperature variations, and atmospheric dynamics.

Recognizing these areas as hotspots for tornado activity is crucial for emergency management, community planning, and disaster mitigation efforts. This understanding necessitates the implementation of robust building standards, efficient early warning systems, and comprehensive public awareness programs to enhance the safety and resilience of communities in these tornado-prone regions.

The findings and visualizations presented in this report are invaluable tools for informed decision-making, aiding in the development of strategies aimed at mitigating the impact of tornadoes and improving preparedness in the central and eastern United States. This report contributes significantly to the body of knowledge needed to bolster tornado resilience and highlights the importance of prioritizing safety measures in regions frequently affected by these natural disasters.

Ultimately, our analysis lays the groundwork for data-driven initiatives that will lead to safer and more resilient communities in the face of tornado threats, particularly in the central and eastern United States. By reducing the impact

of tornadoes and fostering greater disaster preparedness, this report serves as a cornerstone for future efforts in enhancing safety and resilience against one of nature's most unpredictable and destructive phenomena.