



# DO ALIENS EXIST?

Project 1 - Group 5  
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# MOTIVATION AND SUMMARY

Hypothesis of the project:  
Aliens exist

Questions we asked

- ✦ Do aliens exist?
- ✦ Are there patterns which exist in UFO sightings?

Patterns we looked at

- ✦ Geography
- ✦ Timing
- ✦ Space weather events
- ✦ Descriptions of the UFO sighting



# DATA WE USED

## MAIN DATASET

**Kaggle Dataset: UFO Sightings**  
Contains over 80,000 reports of  
UFO sightings over the last  
century



## ADDITIONAL DATASETS

### US Military Bases

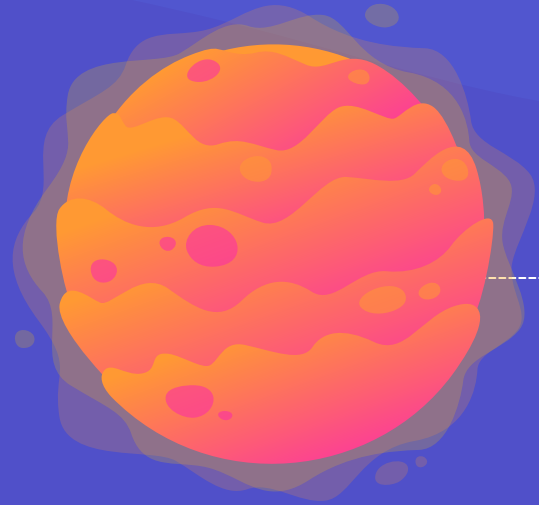
Depicts the most commonly  
known Department of Defense  
sites in US

### NASA Solar Flare Data

Solar flares from 2008 to 2014



# QUESTIONS



## GEOGRAPHY

Is there a pattern to the geographic location of UFO sightings?

Is there a relationship between US Military base locations and UFO sightings?



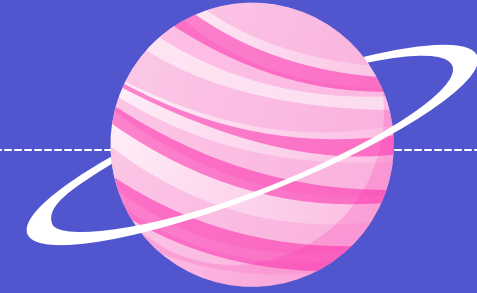
## TIME

Is there a pattern to the timing of UFO sightings?



## SPACE WEATHER

Is there a relationship between UFO sightings and solar flare activity?



## DESCRIPTIONS

What are the most common shape descriptions of UFOs?

What are the most common words used in the UFO sightings description?

# DATA CLEANUP AND EXPLORATION



## PROCESS

Reading through the data  
Deciding what was useful + thinking about what we were interested in  
Looking into other datasets that related to our interests and questions

## INSIGHTS

Lots of data to explore (80,000 records)  
Some parts were quite messy (eg. time format)  
Very US-centric data

## PROBLEMS

Sometimes slow + difficult to process this much data in Python, especially for mapping  
Limiting our questions given there was so much scope for exploration  
Being quite ambitious in the questions we wanted to answer



# DATA ANALYSIS

See our Jupyter Lab Notebook

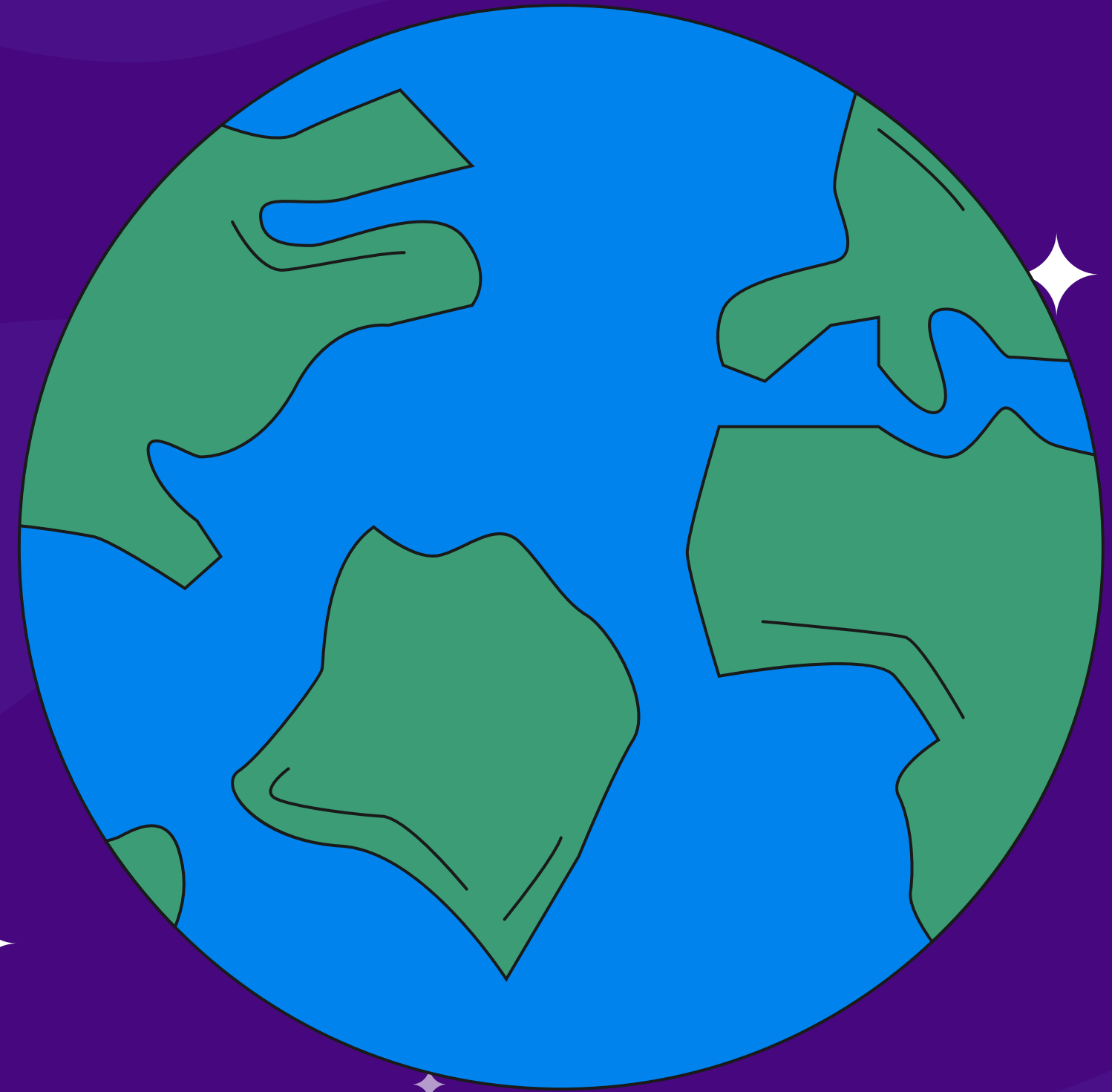




# OUR FINDINGS

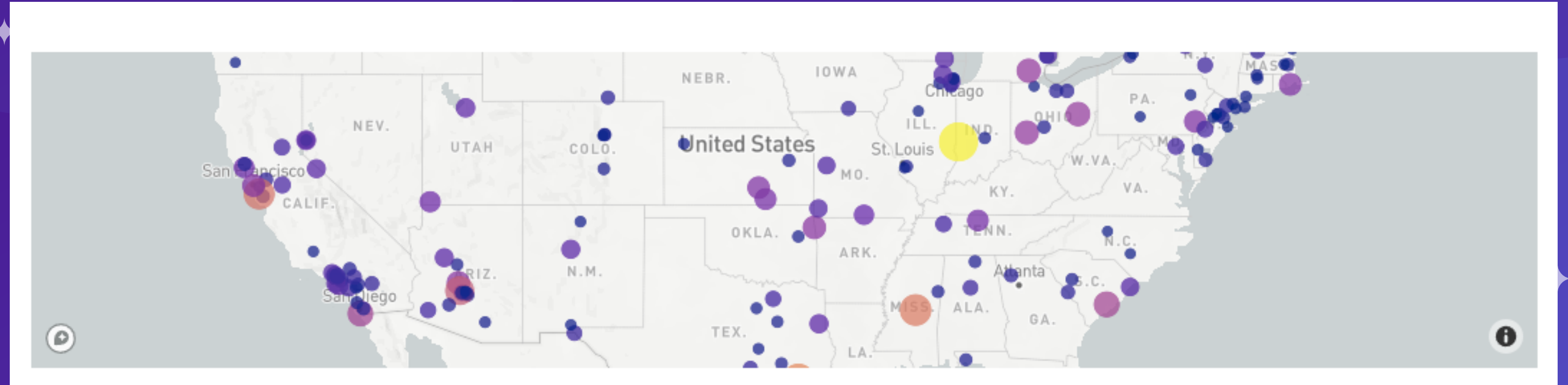


# GEOGRAPHY

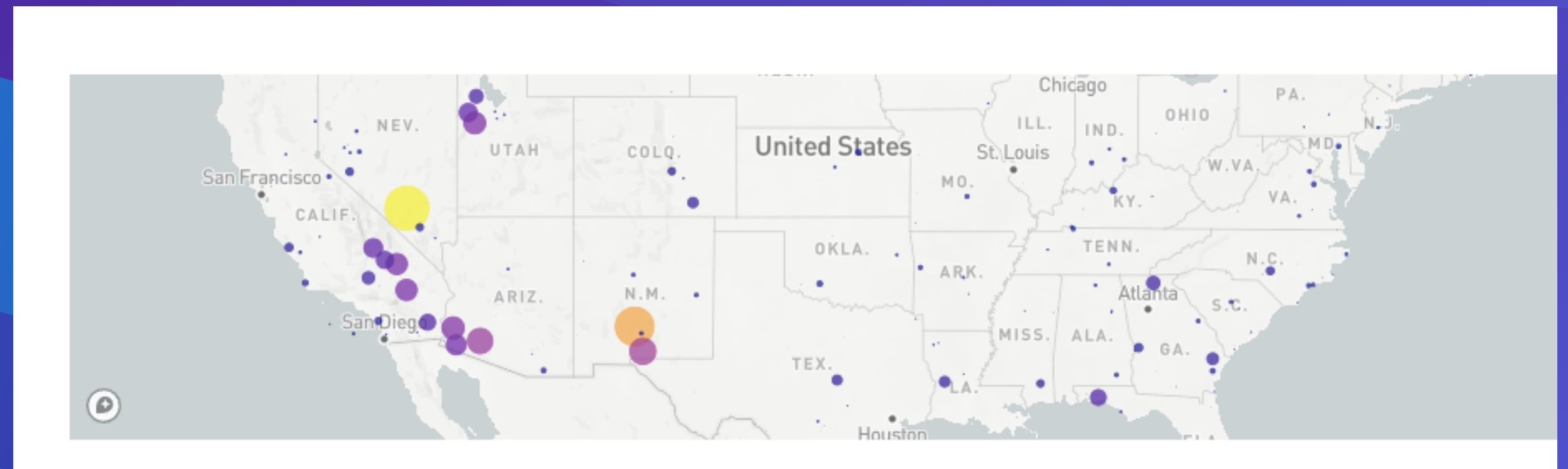




# UFO SIGHTINGS IN THE UNITED STATES

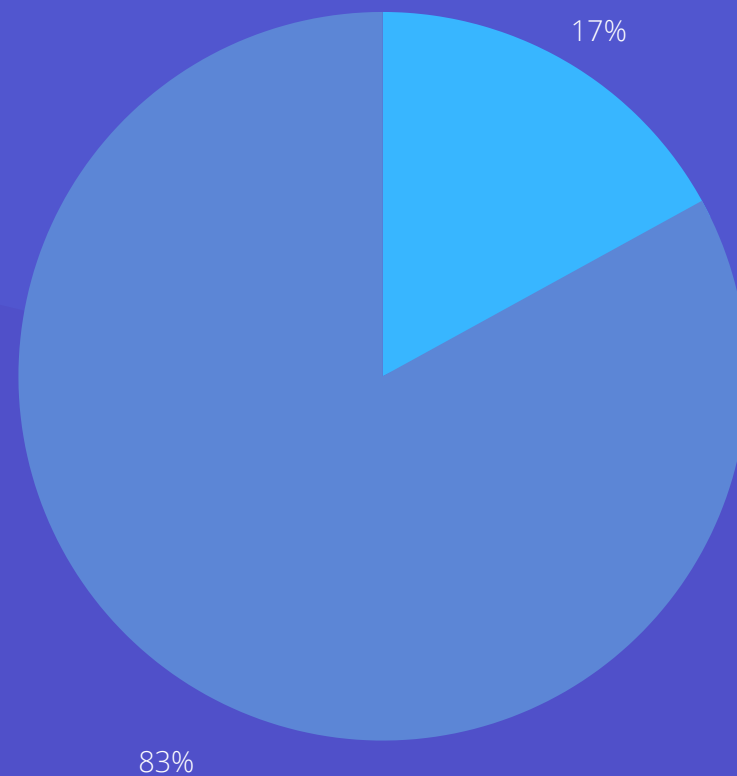


## RELATIONSHIP TO US MILITARY BASES ??





**TIMING**



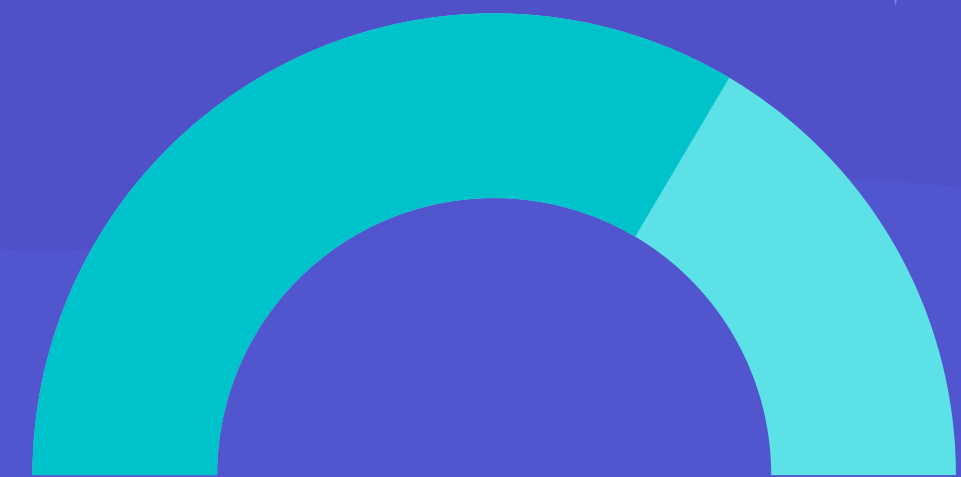
**17.5%**

the percent of UFO sightings that occurred on **Saturdays**



**JULY**

the month with the highest number of UFO sightings

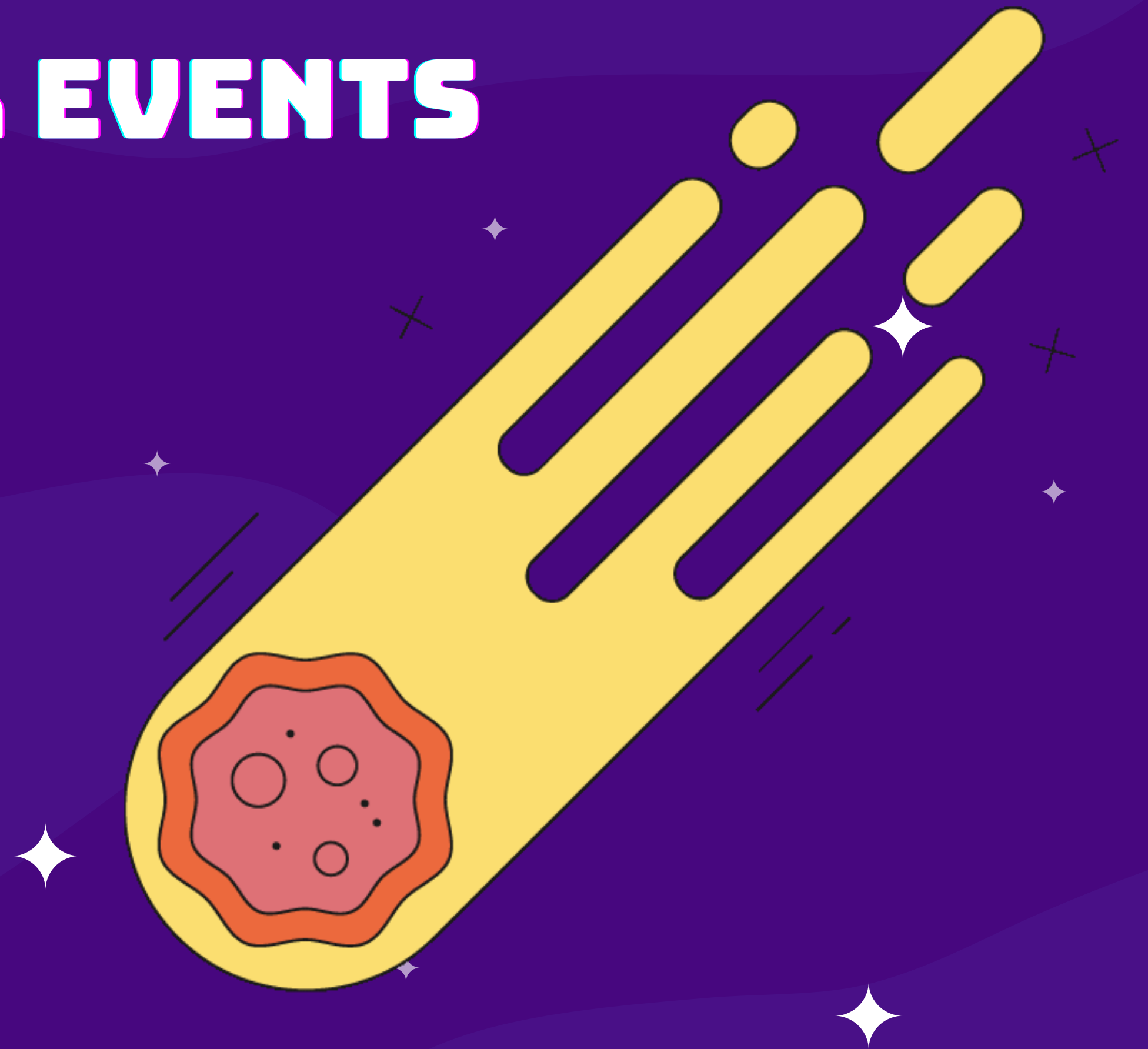


**7356**

the number of sightings in the highest year, **2012**

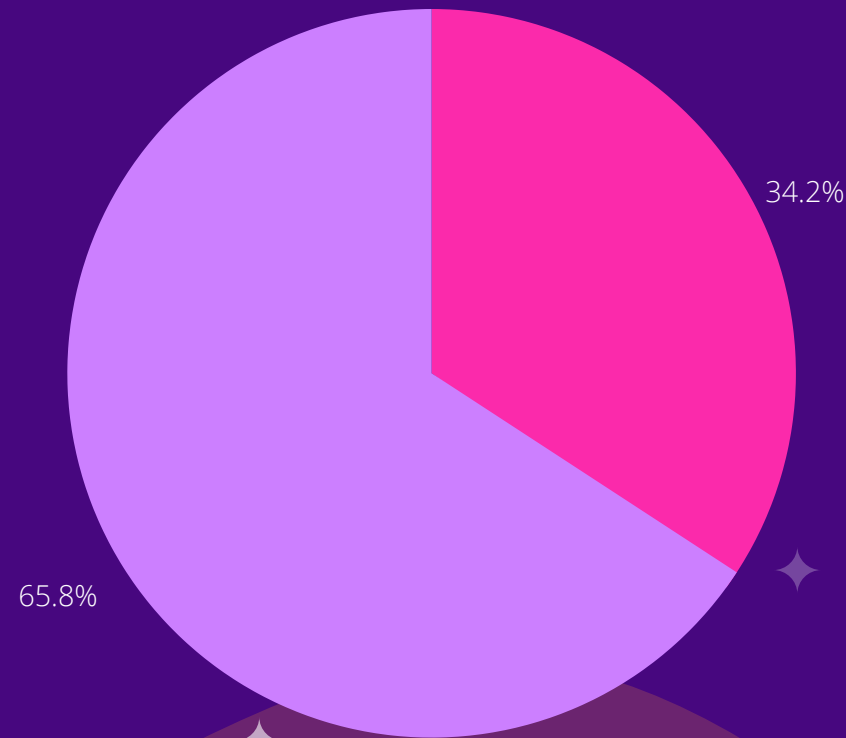
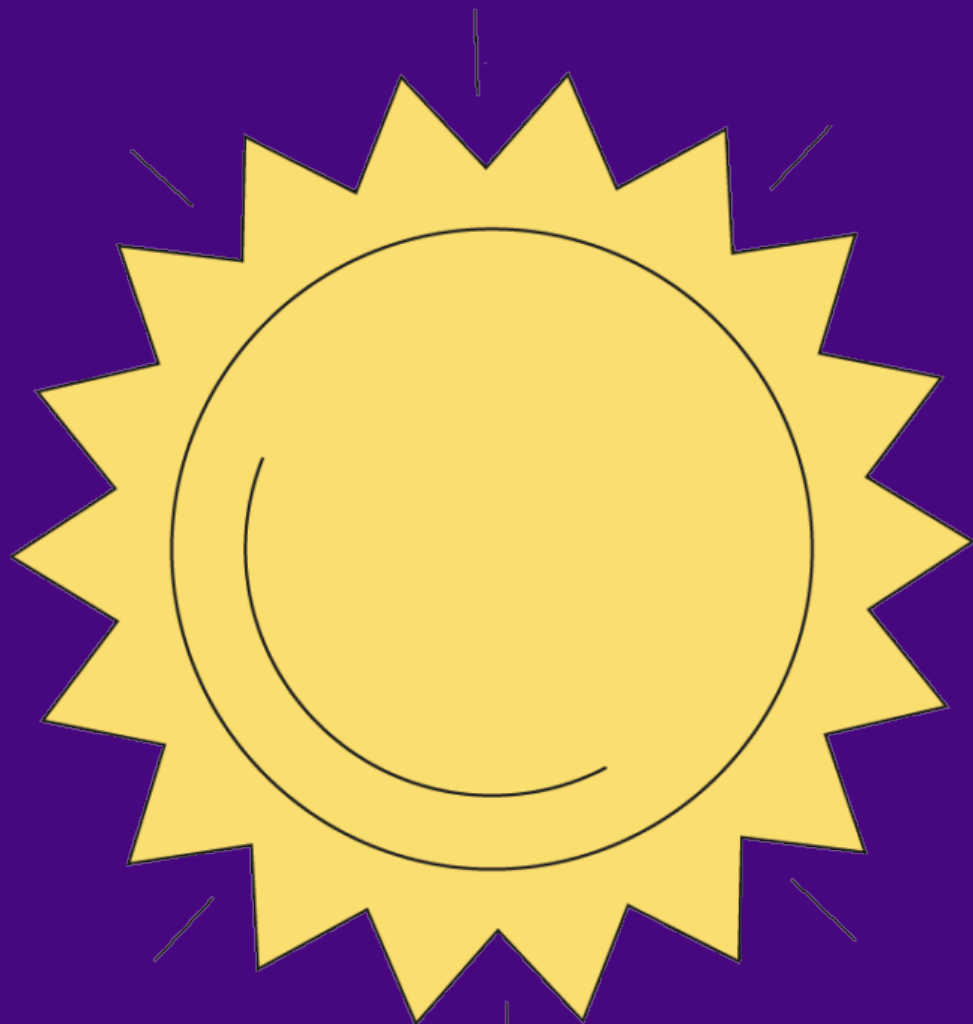


# SPACE WEATHER EVENTS



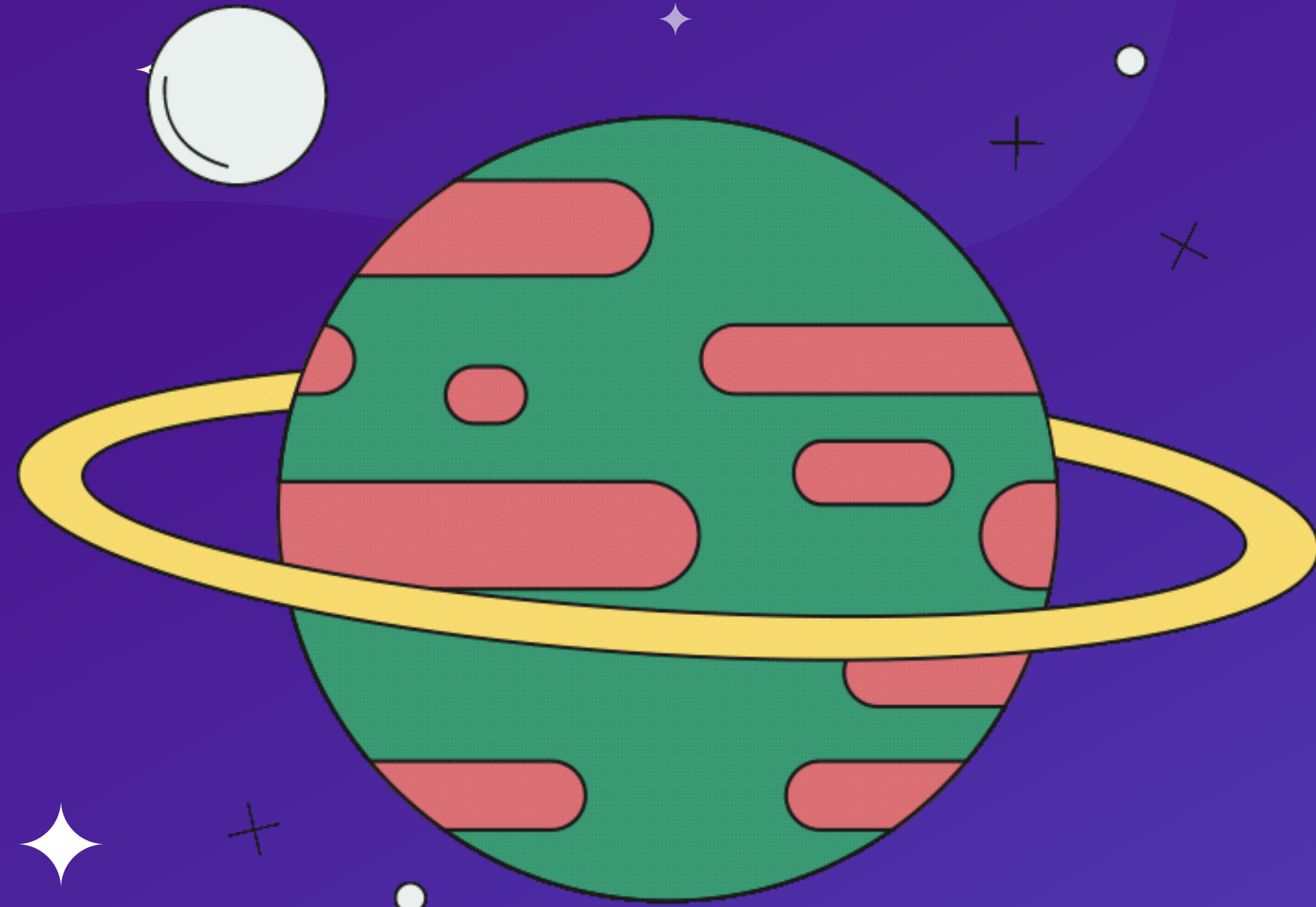
# SOLAR FLARES + UFOS

are they related?



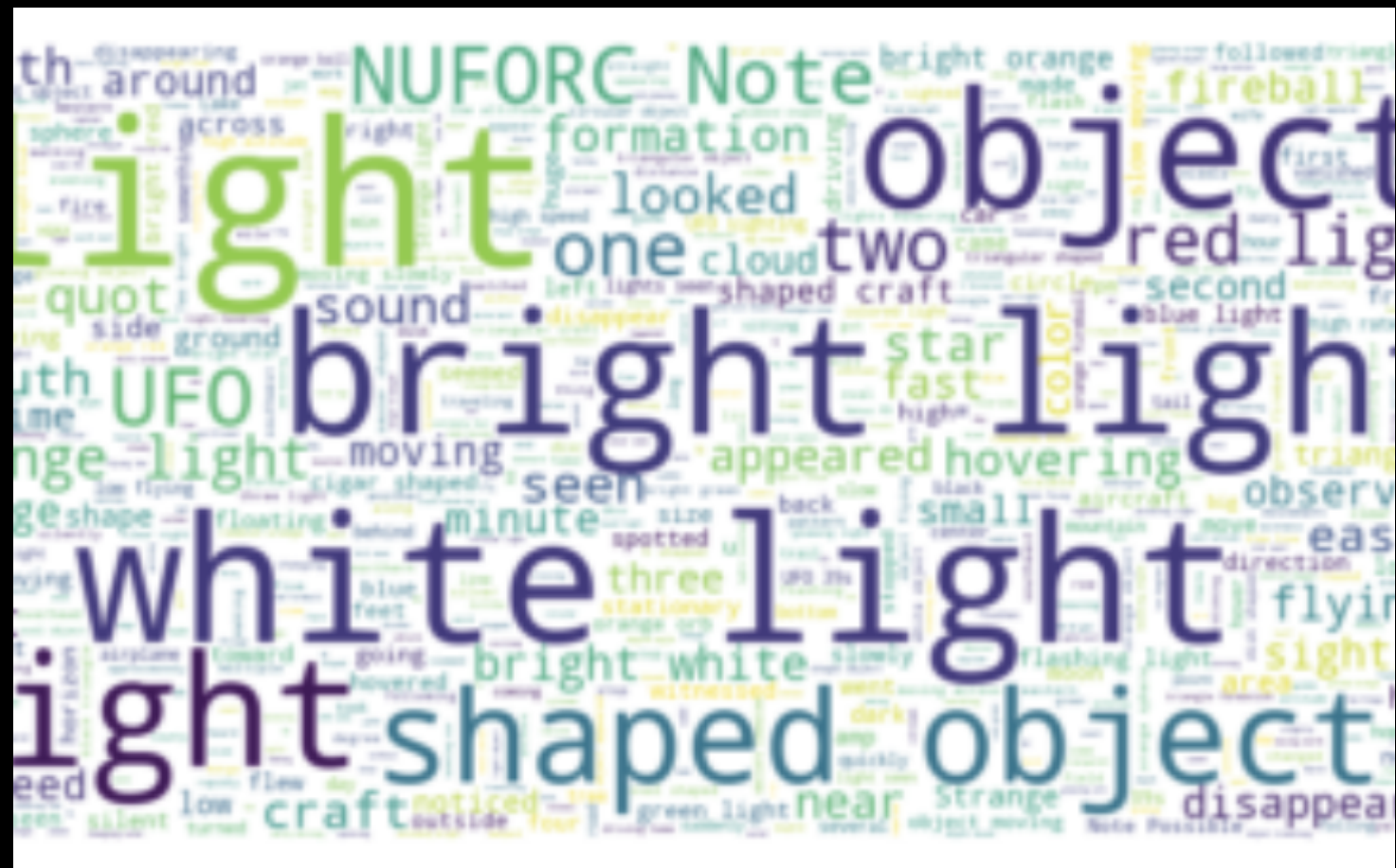
**34.2%**

the percent of days that  
UFO sightings that  
coincided with **solar flares**



**UFO DESCRIPTION**





**LIGHT  
TRIANGLE  
CIRCLE**

The most common UFO shape descriptions

“

**LIGHT**

the most common word used to describe a UFO





# DISCUSSION

Did the findings meet our expectations?

- What inferences or conclusions can be drawn?



# CONCLUSIONS + POSSIBLE INFERENCES



Saturday sightings are  
common

because that's when people are  
out and about  
(and might be using  
substances)



Bright lights

that people think are UFOs  
might be explained by other  
phenomena



UFO sightings

are most common in Northern-  
Hemisphere Summer



The United States

is a favourite spot for UFOs to  
visit



Sightings increased  
drastically since  
2000

maybe due to better data  
capture and communication  
(eg. iPhones, internet)



UFO sightings peaked  
in 2012

which is the end of the world in  
the Mayan calendar

# REFLECTIONS

**Relationship** to **lunar cycle**

**Relationship** to other  
space weather events,  
eg. **meteors**

**Measuring** the distance of  
sightings from a **radius** of  
each military base

**Looking** at relationship with  
military bases outside of  
the US

**Looking** at correlation  
between public holidays  
involving **fireworks** and UFO  
sightings

**Relationship** between  
**substance use** and UFO  
sightings

## DIFFICULTIES

**Complexity** of some of the questions we wanted  
to ask + **matching** that to our skill set

## QUESTIONS THAT COULDN'T BE ANSWERED

Due to time constraints and our skills

## WHAT WE WOULD RESEARCH NEXT

If we had two more weeks





# DO YOU BELIEVE ALIENS EXIST?

"I believe in **aliens**,  
but I **do not** believe  
in your dataset"

- Khuong, TA

THANK YOU!



The aliens are watching

