

# Numerical models for rising sea levels

Lynda Johnson

# Analysis on the Billboard Chart

## The Hot 100: Most Popular Songs



# Billboard Hot 100:

the music industry standard record chart in the United States for songs.  
Chart rankings are based: sales (physical & digital), radio play, and online streaming in US

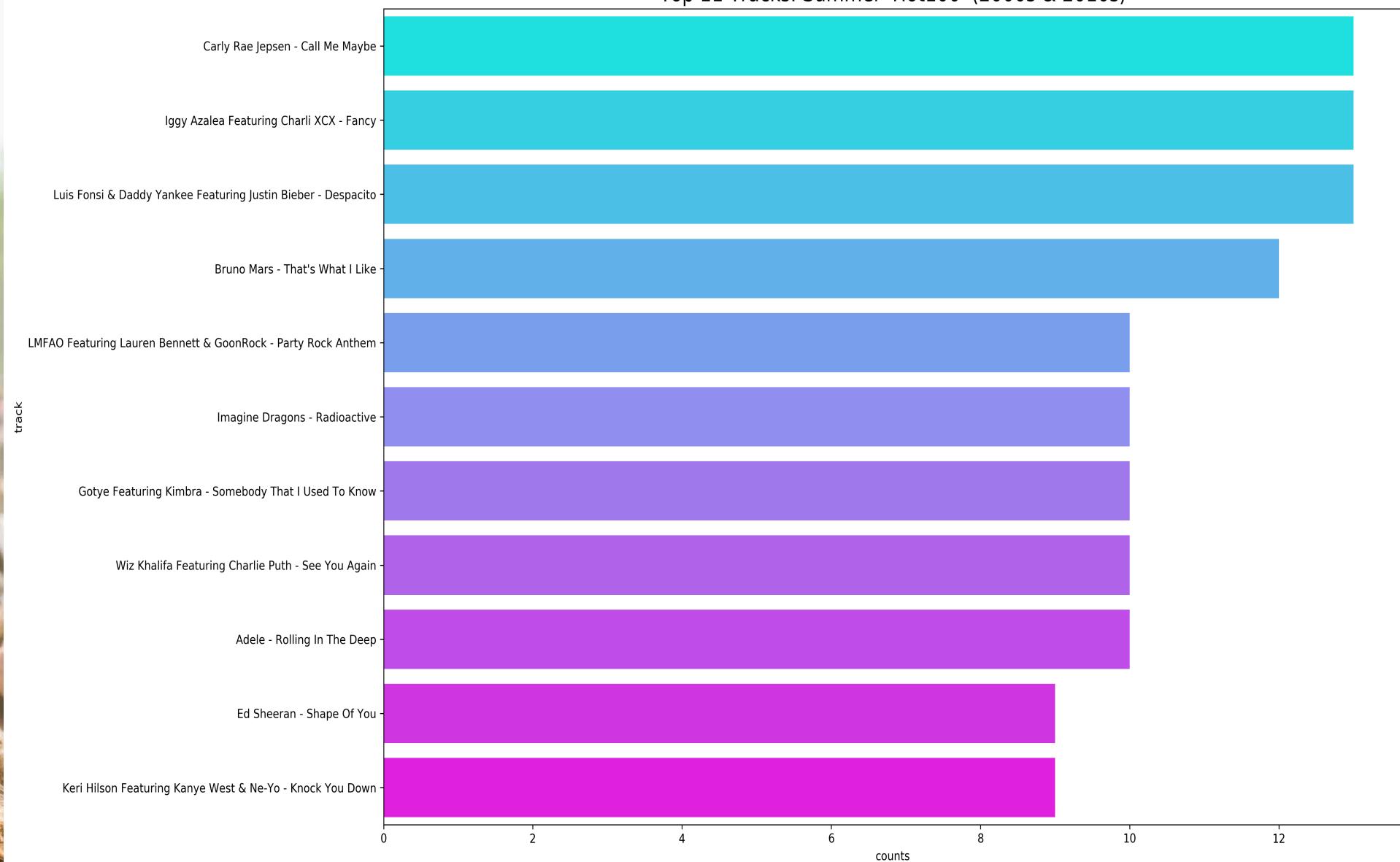
- ~ 300,000 tracks cumulated since August 16th of 1958
- ~ 28,000 tracks removing the duplicates

Obtain features such as:  
-1W Rank, CW Rank, Peak Rank, Date, (Season, Month, Year, WoW Delta etc. )

# What are some noticeable Summer songs for past 19 years?

Weeks on chart >= 12. Rank <= 5, Date >= 2000-01-01, Months in [6.7.8]

Top 11 Tracks: Summer 'Hot100' (2000s & 2010s)



Top 10 tracks: Highly Ranked & numerous Appearances in 'Hot100' (2018)



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## **Spotify Web API**

Based on simple REST principles, the Spotify Web API endpoints return JSON metadata. API provides audio features for every songs in the library

- key: the estimated overall key of the track; e.g. 0 = C, 1 = C#/D♭, 2 = D...etc
- mode: the modality (major or minor) of a track. Major = 1, Minor = 0
- danceability: how suitable a track is for dancing (0.0 - 1.0)
- energy: perceptual measure of intensity and activity (0.0 - 1.0)
- valence: musical positiveness conveyed by a track (0.0 - 1.0)
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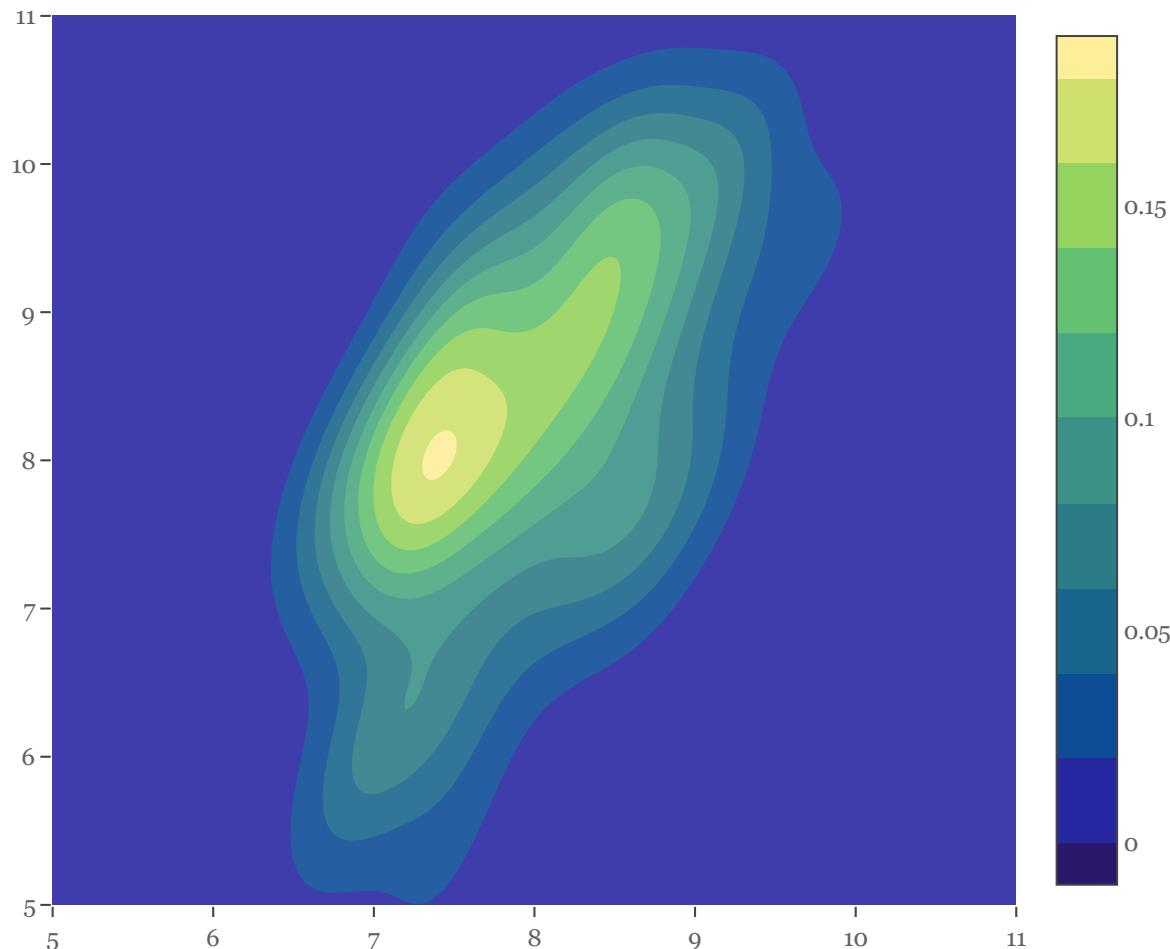
# Recent Publications

1. Author Surname, Author Initial. Title.  
Publication Title Volume number, Year Published.
  
2. Author Surname, Author Initial. Title.  
Publication Title Volume number, Year Published.
  
3. Author Surname, Author Initial. Title.  
Publication Title Volume number, Year Published.



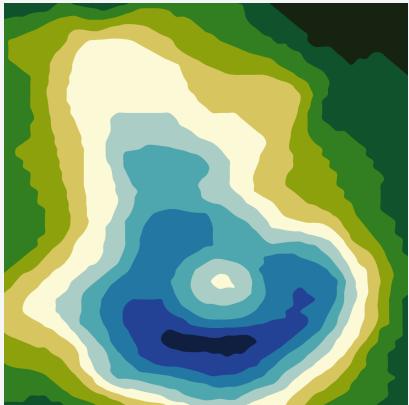
# Research

This chart is interactive: Hover and zoom (click-drag) below to interact with the chart data.



Core samples, tide gauge readings, and, most recently, satellite measurements tell us that over the past century, the Global Mean Sea Level (GMSL) has risen by 4 to 8 inches (10 to 20 centimeters). However, the annual rate of rise over the past 20 years has been 0.13 inches (3.2 millimeters) a year, roughly twice the average speed of the preceding 80 years.

# Research



## Changing Salinity along Arctic Coastlines

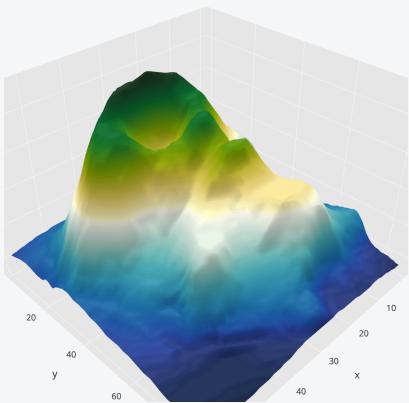
Oceanography covers a wide range of topics, including marine life and ecosystems, ocean circulation, plate tectonics and the geology of the seafloor, and the chemical and physical properties of the ocean.



[Publication](#)



[Jupyter notebook](#)



## Precision Bathymetry with Ocean Drones

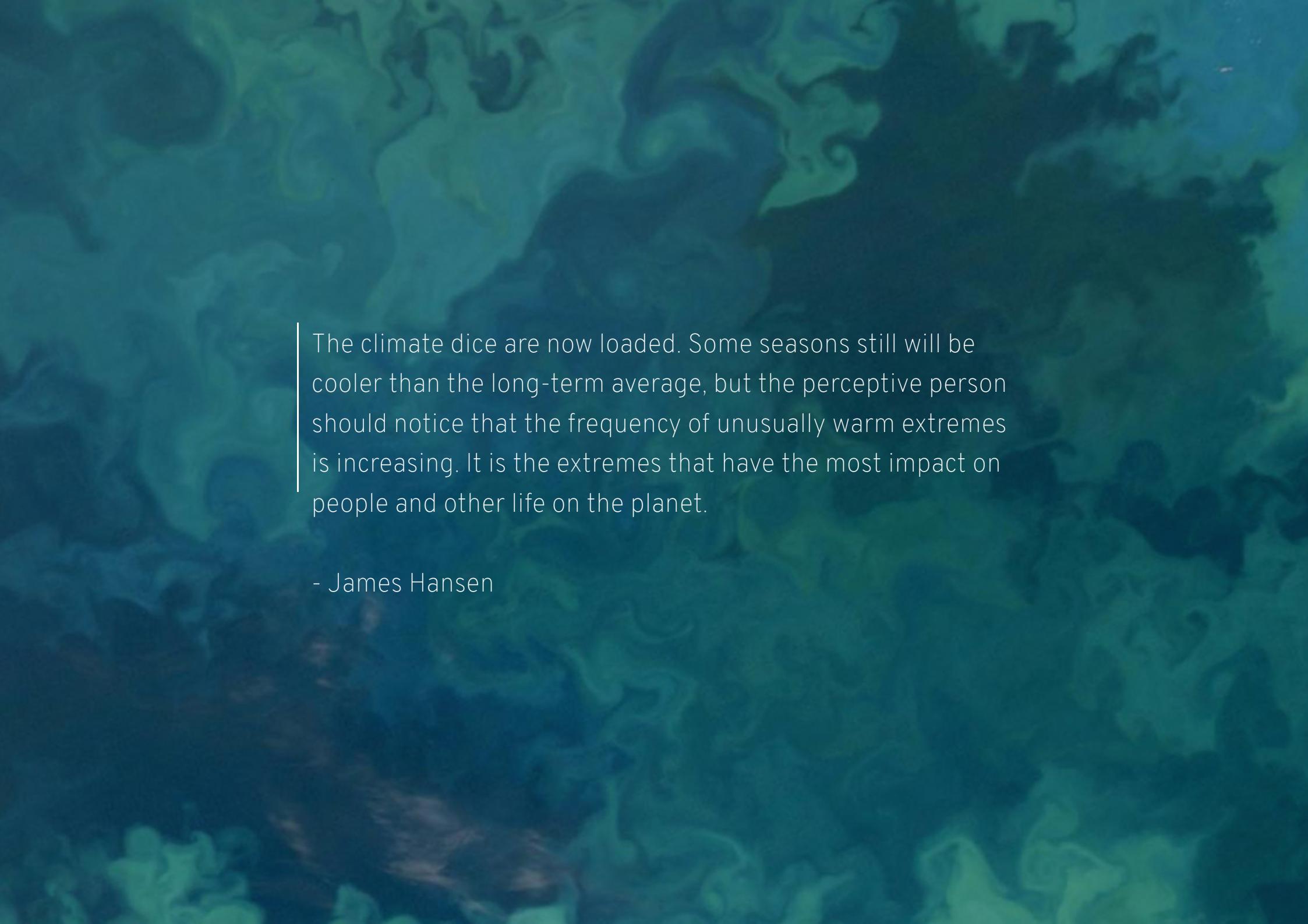
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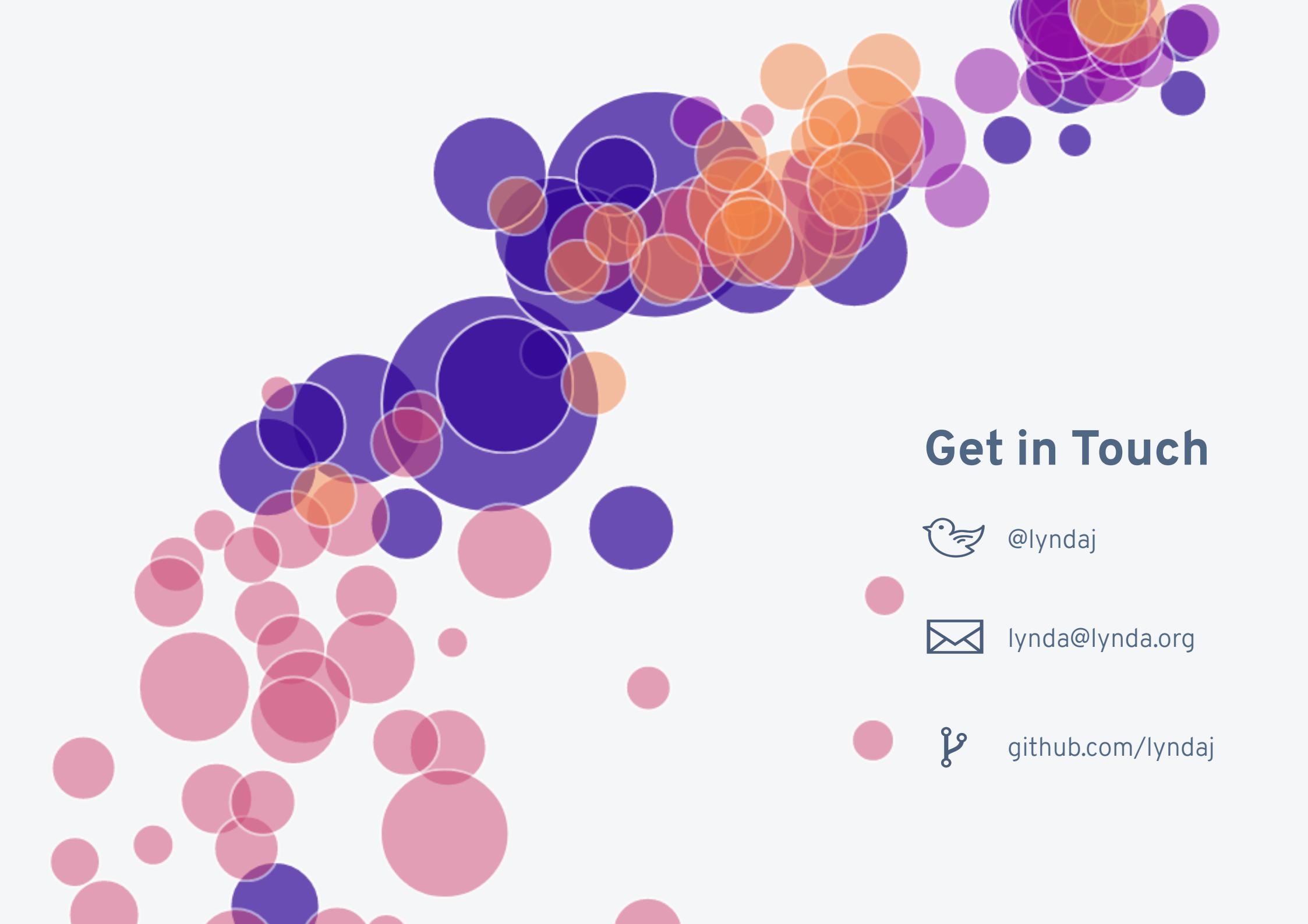


[Jupyter notebook](#)



The climate dice are now loaded. Some seasons still will be cooler than the long-term average, but the perceptive person should notice that the frequency of unusually warm extremes is increasing. It is the extremes that have the most impact on people and other life on the planet.

- James Hansen



## Get in Touch

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 [github.com/lyndaj](https://github.com/lyndaj)