

# Intro. to Environmental Earth Science



Counts for majors, minors, certificates, electives...

# Dr. Heinzl – Course leader

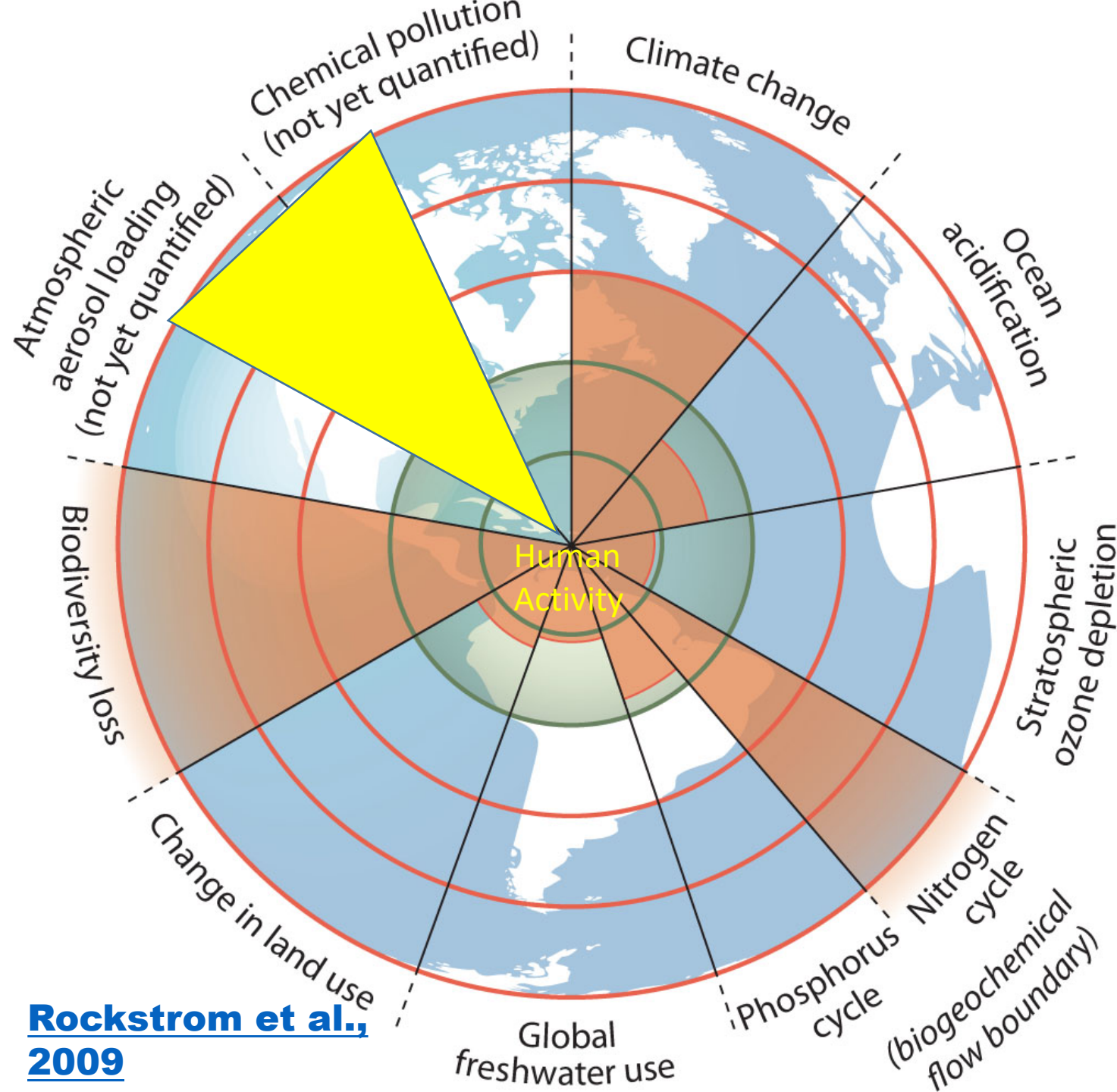


# 3 by 5 cards

- Name
- Major
- Hometown
- Fav. Band

# Earth Systems Under Stress

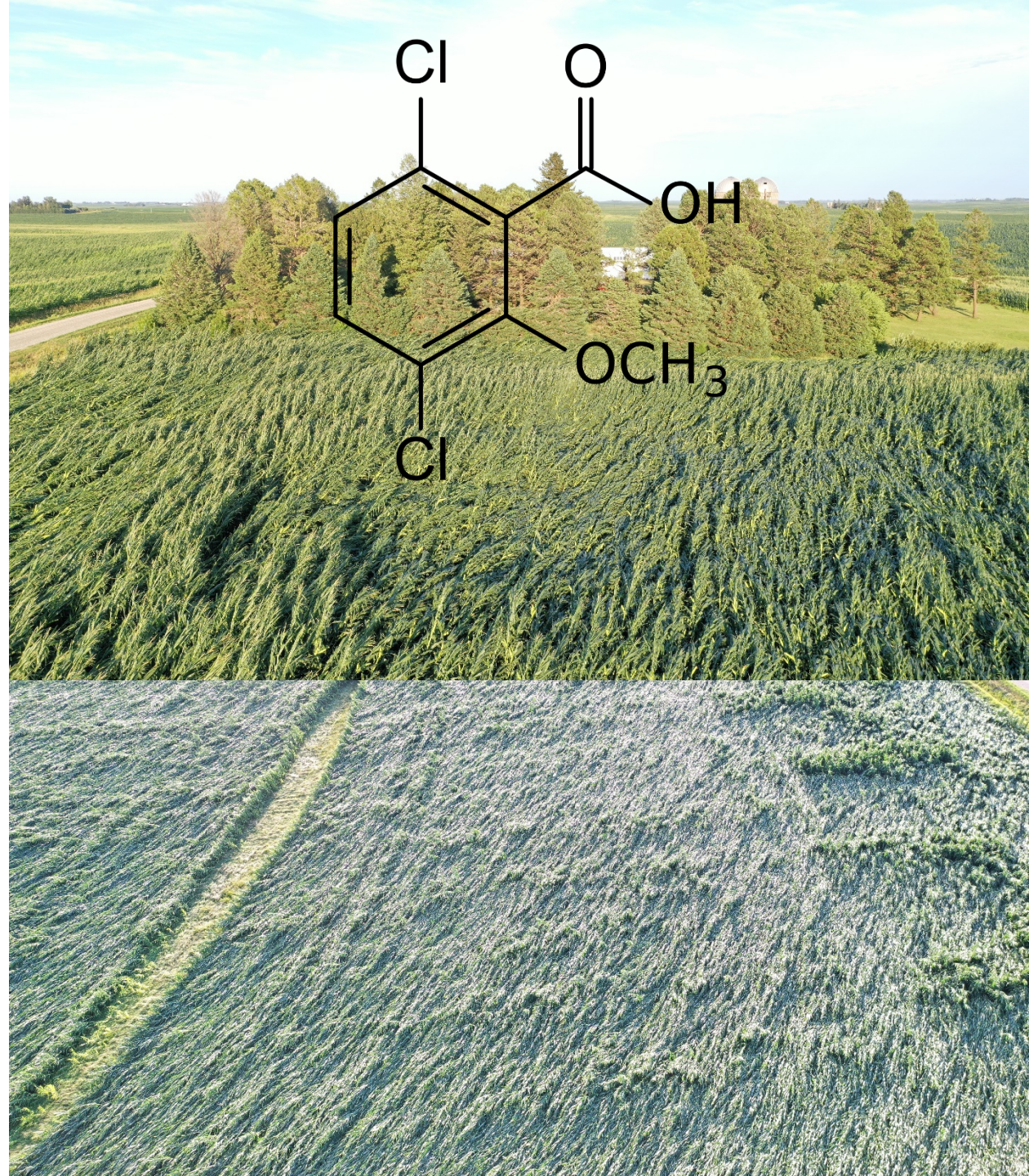
## *BioGeoChemistry*



**Rockstrom et al., 2009**

# Iowa's Air land and Water 2020

- Quadruple D Summer
- Derecho
- Drought
- Dicamba 2020: What went wrong in Iowa?
  - Atmospheric Loading, Avg daily wind speeds

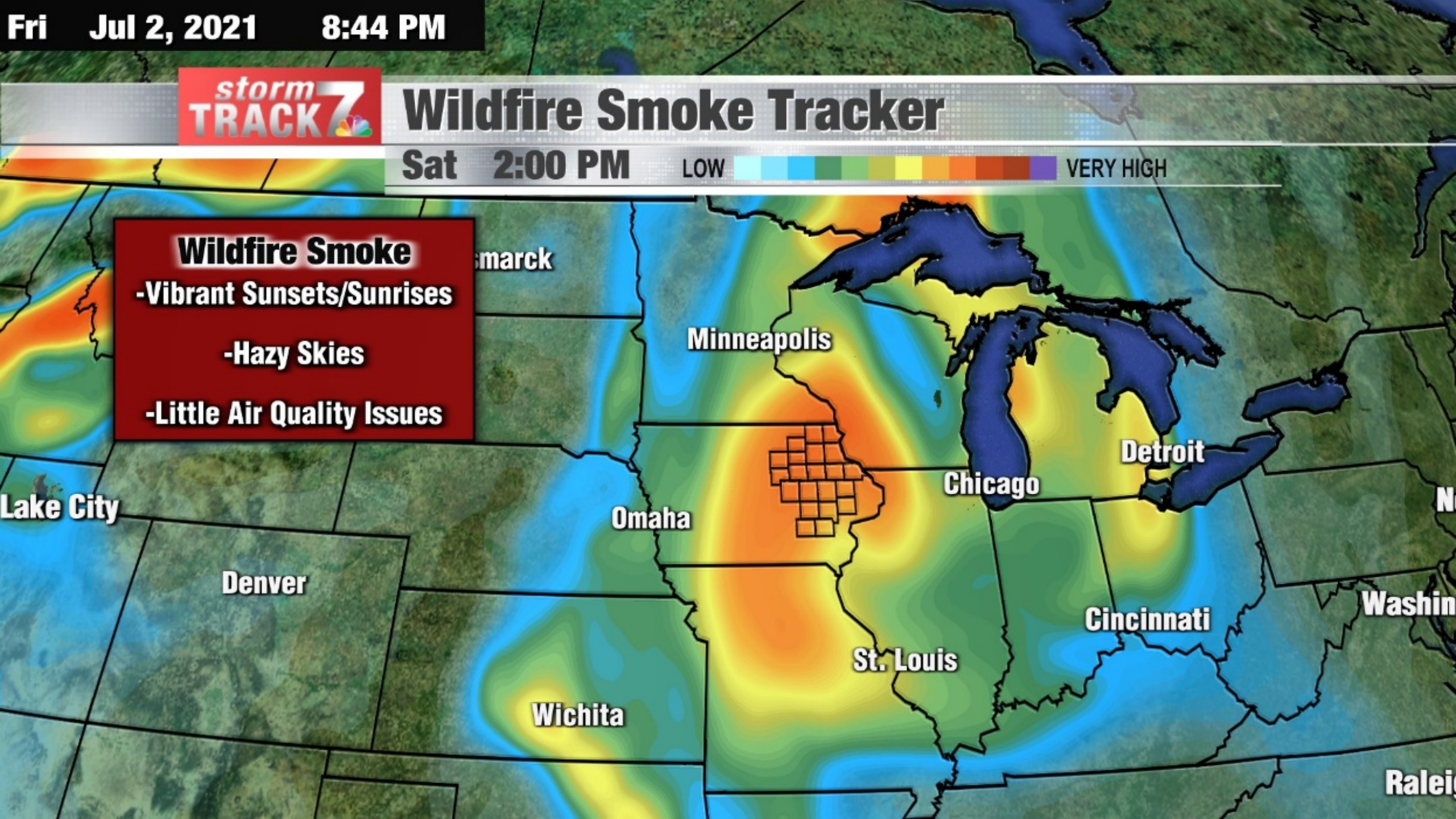




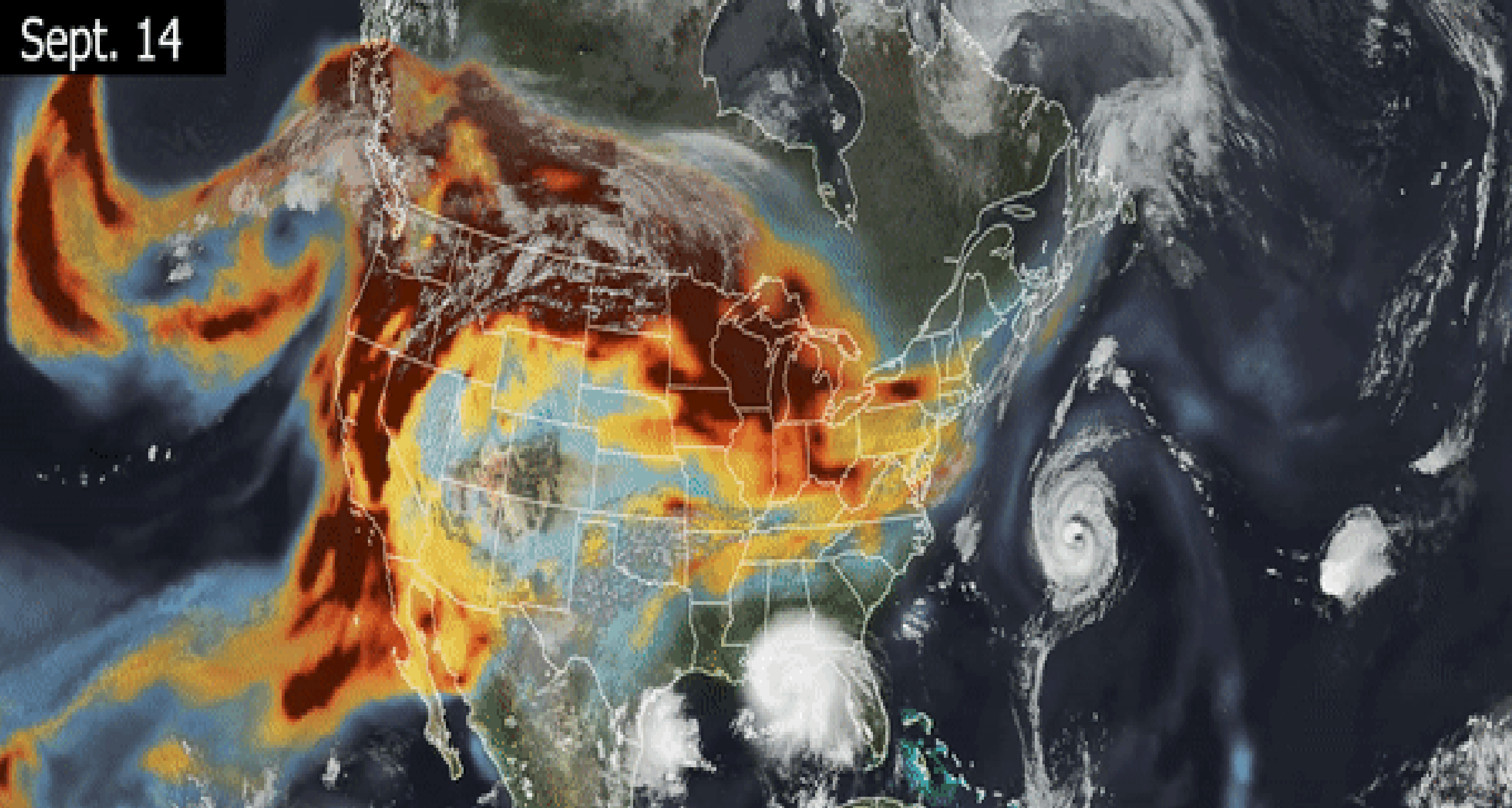
# Wildfire Smoke Tracker

Sat 2:00 PM LOW [color scale] VERY HIGH

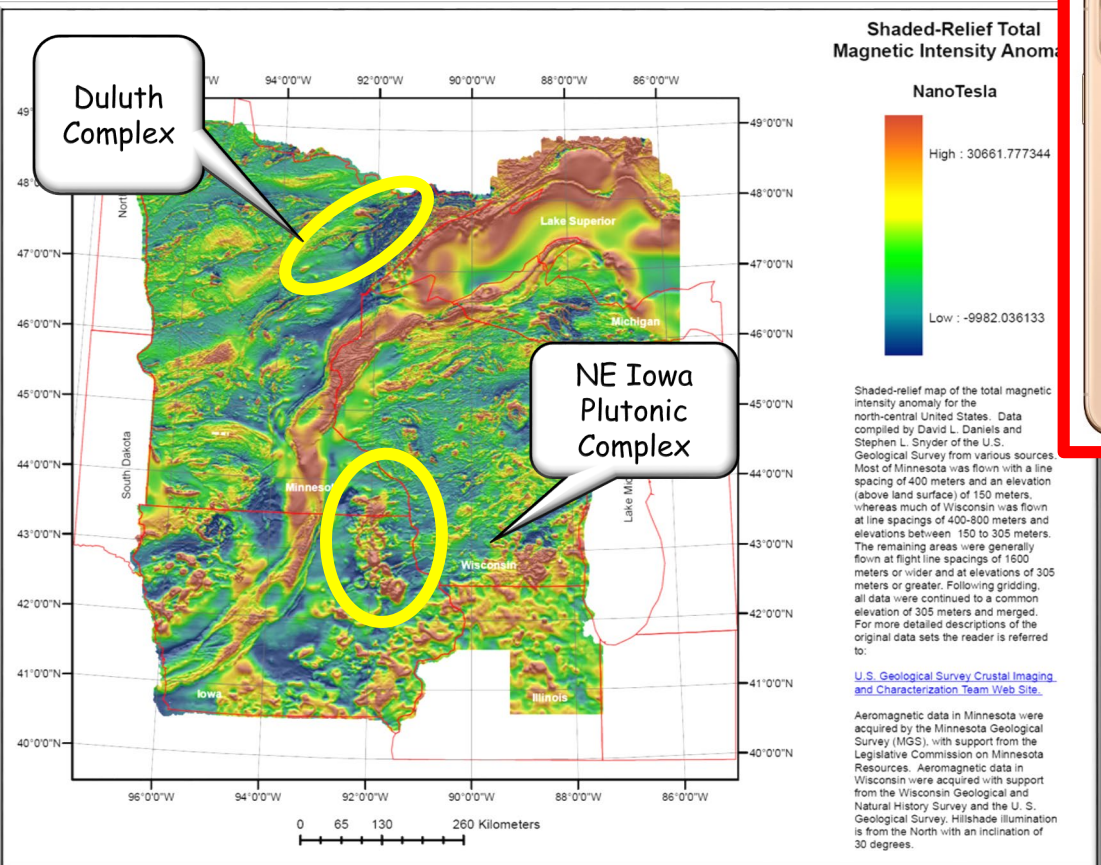
**Wildfire Smoke**  
-Vibrant Sunsets/Sunrises  
-Hazy Skies  
-Little Air Quality Issues



Sept. 14



# Natural Resources and Civilizations





# Environmental Work



 Black Hawk Soil and Water Conservation District



The Leader In  
Environmental  
Testing



# Informed Citizens

Science

Education

Government

Religion

Business

Health



# Moving Forward

- Work to stay positive
  - Resist anxiety & apathy
- Be active
- Start local move global
- Acknowledge and celebrate gender and cultural differences
- Never stop learning and communicating



# SUSTAINABLE DEVELOPMENT GOALS

**1** NO POVERTY



**2** ZERO HUNGER



**3** GOOD HEALTH AND WELL-BEING



**4** QUALITY EDUCATION



**5** GENDER EQUALITY



**6** CLEAN WATER AND SANITATION



**7** AFFORDABLE AND CLEAN ENERGY



**8** DECENT WORK AND ECONOMIC GROWTH



**9** INDUSTRY, INNOVATION AND INFRASTRUCTURE



**10** REDUCED INEQUALITIES



**11** SUSTAINABLE CITIES AND COMMUNITIES



**12** RESPONSIBLE CONSUMPTION AND PRODUCTION



**13** CLIMATE ACTION



**14** LIFE BELOW WATER



**15** LIFE ON LAND



**16** PEACE, JUSTICE AND STRONG INSTITUTIONS



**17** PARTNERSHIPS FOR THE GOALS





*You All*

Emma

Dawson

Andrew

Annalee

Jessi

Zachariah

Sydney

Anna

Elizabeth

Kaitlyn

Miranda

Damien

Kyler

Dre

Yeo

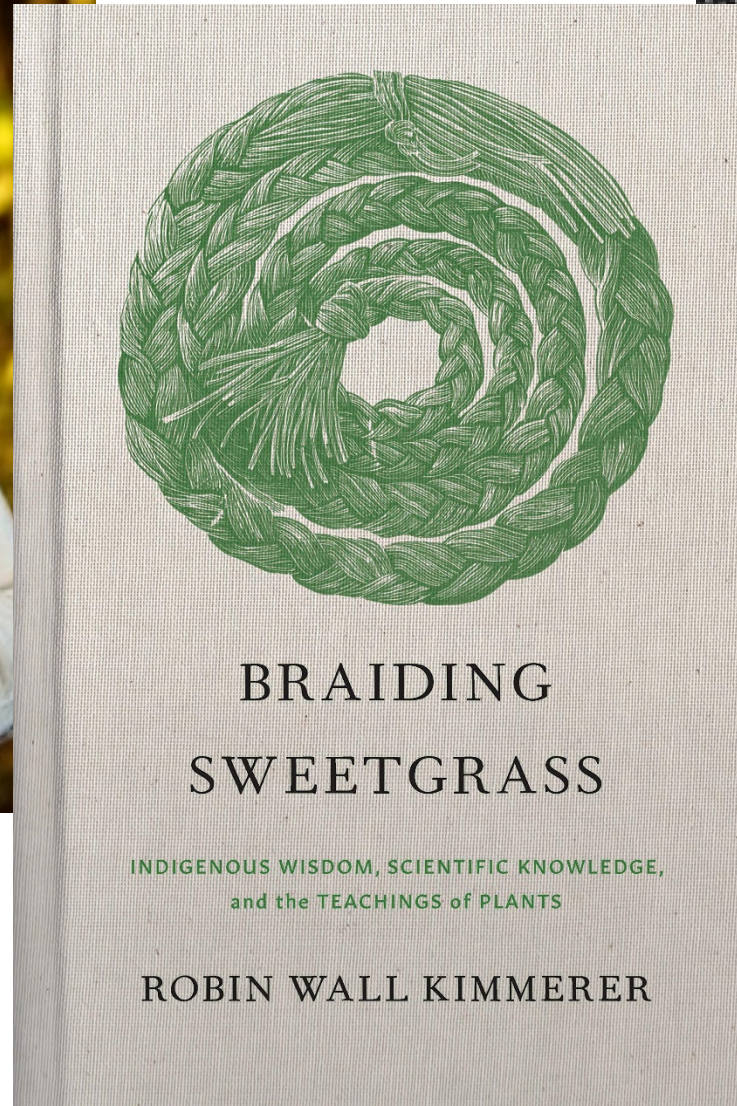
Avery

Gejwan

Laikyn

Faith

# Robin Wall Kimmerer



# A PRICELESS GIFT

In 1879, General William Jackson Palmer, founder of Colorado Springs, convinced his friend, Charles Elliott Perkins to purchase land in Garden of the Gods. Perkins eventually bought a total of 480 spectacular acres surrounding the Gateway Rocks, paying a total of \$10,473. He was the president of the Chicago, Burlington and Quincy Railroad and lived in Iowa. He never built on his Colorado land, but he generously allowed the public to enjoy his property.

Perkins expressed his wish for the land to become a public park, but he died before arrangements could be made. Perkins' children followed their father's wishes and offered the land to the City of Colorado Springs. In late 1909, the City Council accepted the land with specific restrictions:

- The park shall be free of charge to visitors.
- The public park will be forever known as Garden of the Gods.
- No intoxicating liquors may be manufactured or sold in the park.
- No structures be erected, except those necessary to maintain the park.

*Garden of the Gods is now just over 1,300 acres and provides a beautiful haven for both visitors and wildlife.*



Charles Elliott Perkins

Perkins was born on November 24, 1840 in Cincinnati, Ohio.

When he was 16 years old, he moved to Burlington, Iowa.

In 1859, Perkins began working as a clerk in the railroad business.

Over the next 22 years, he worked his way up to become President of the Chicago, Burlington & Quincy Railroad and was a highly respected businessman.

Perkins and his wife, Edith Forbes Perkins, had 7 children.

Charles Elliott Perkins died on November 8, 1907 at the age of 67.

His children carried out his wish to have Garden of the Gods become a public park.

Pikes Peak Library District photo.

GARDEN OF THE GODS PARK



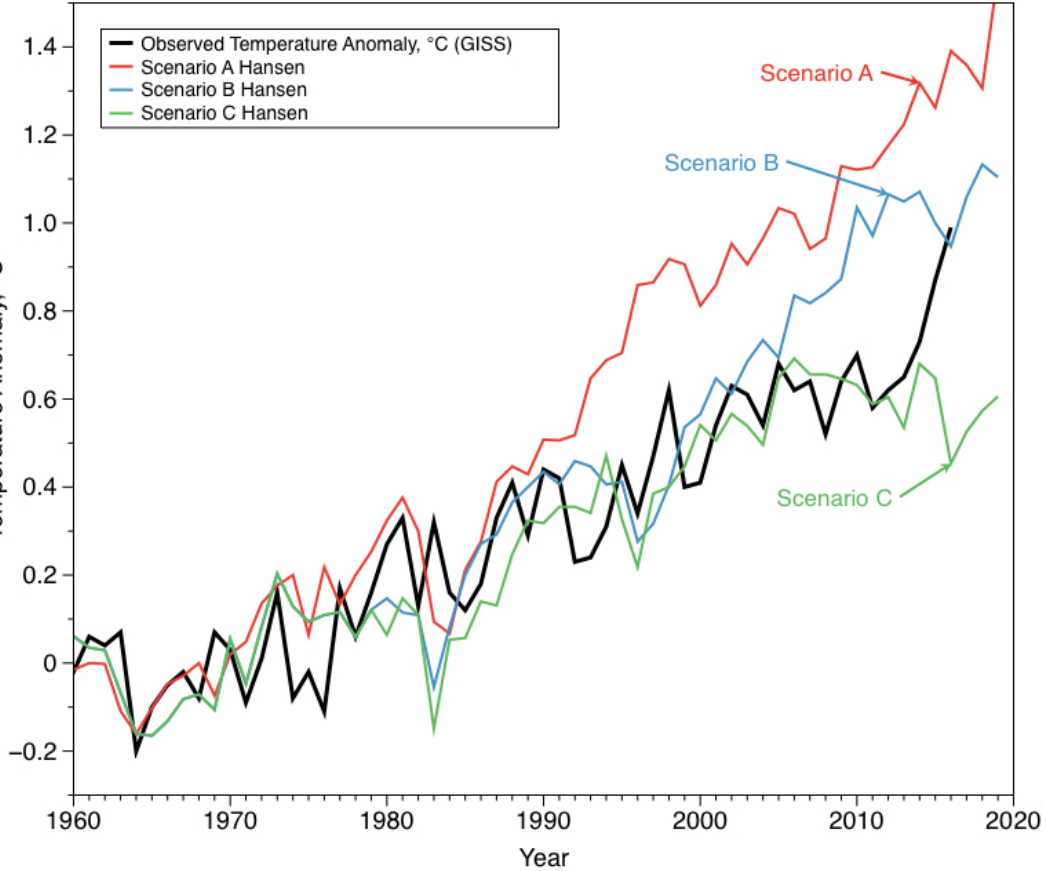


# Erin Brockovich



# James Hansen

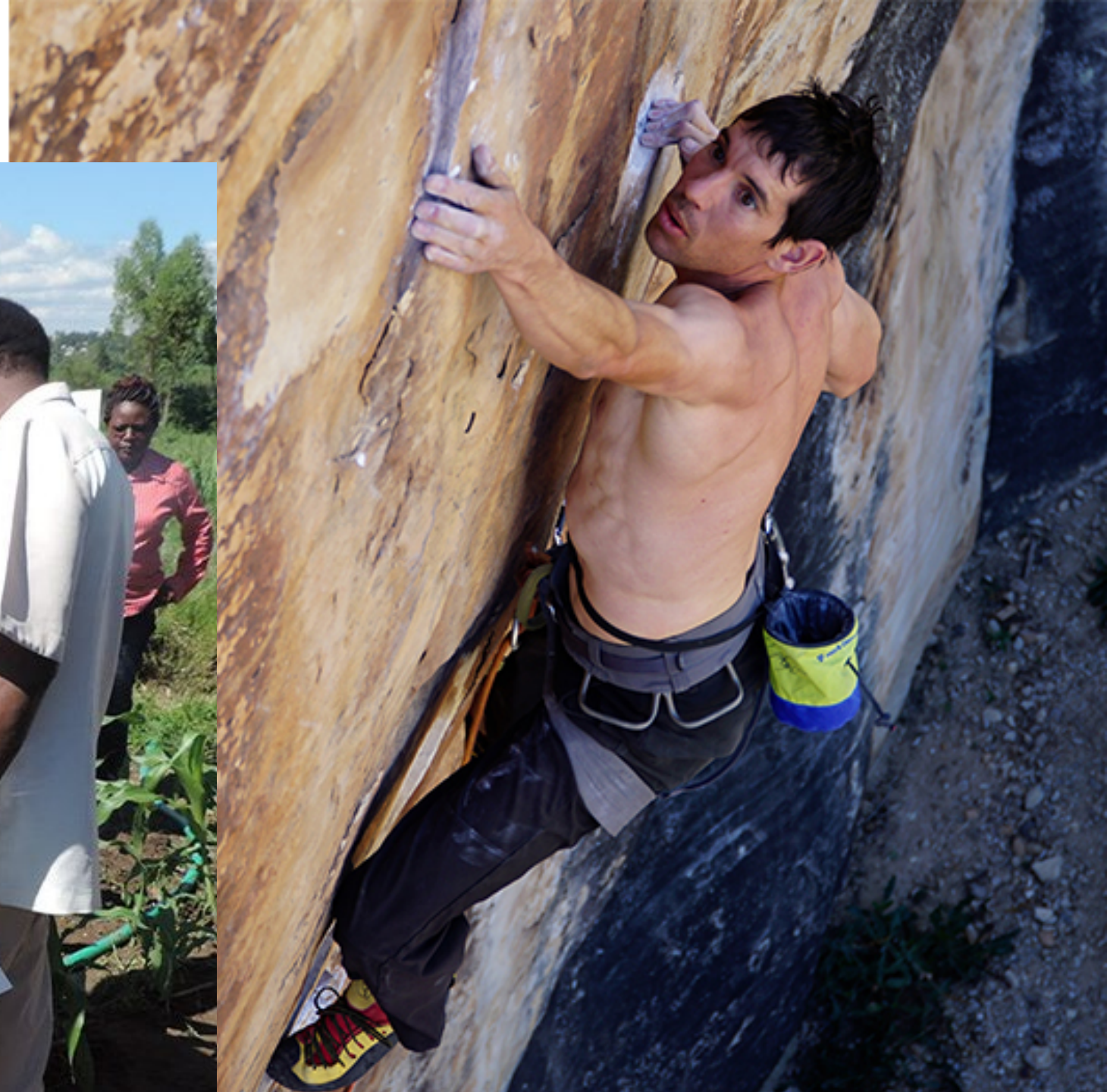
Hansen's 1988 Predictions Compared to Observations



# Greta Thunberg



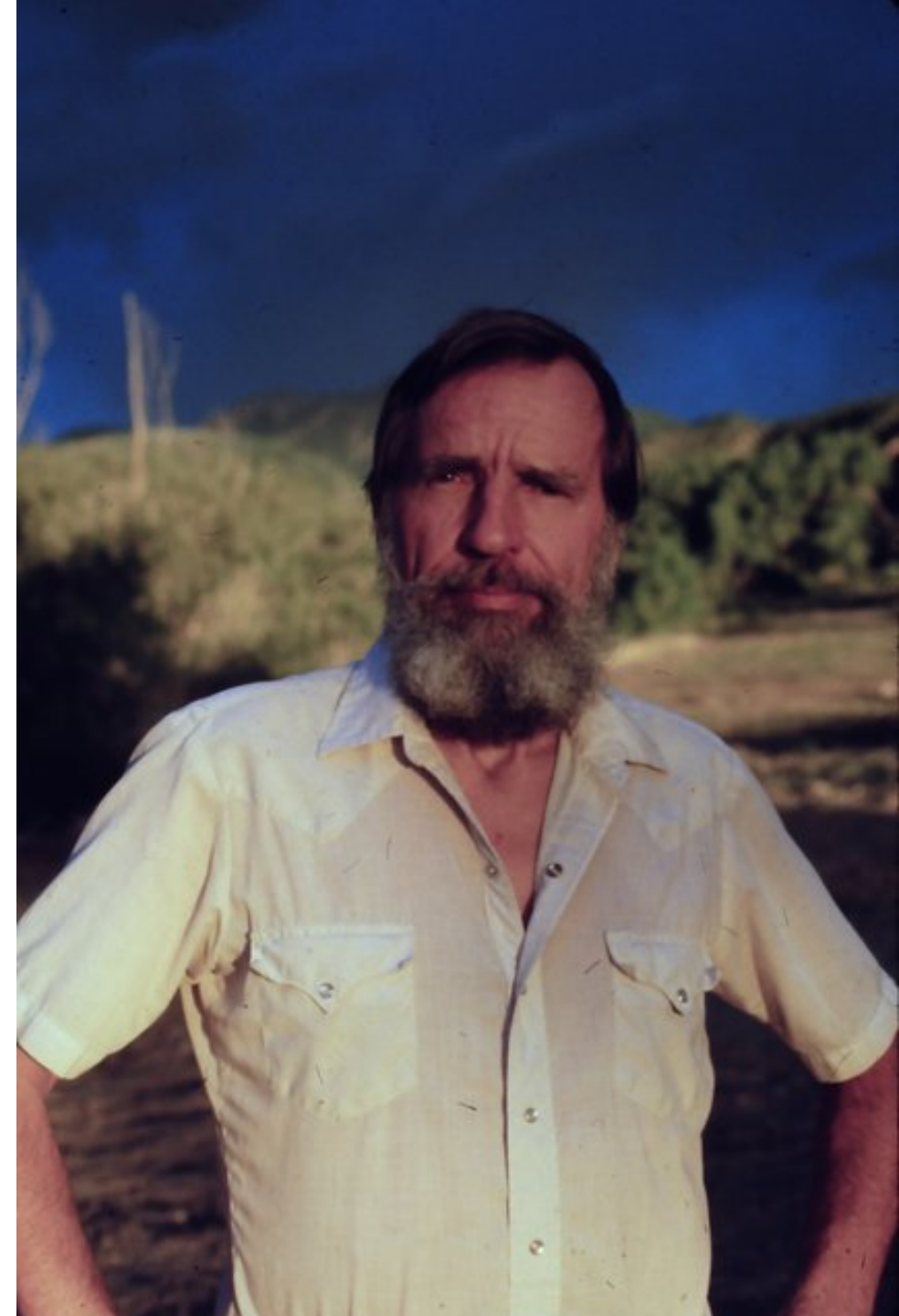
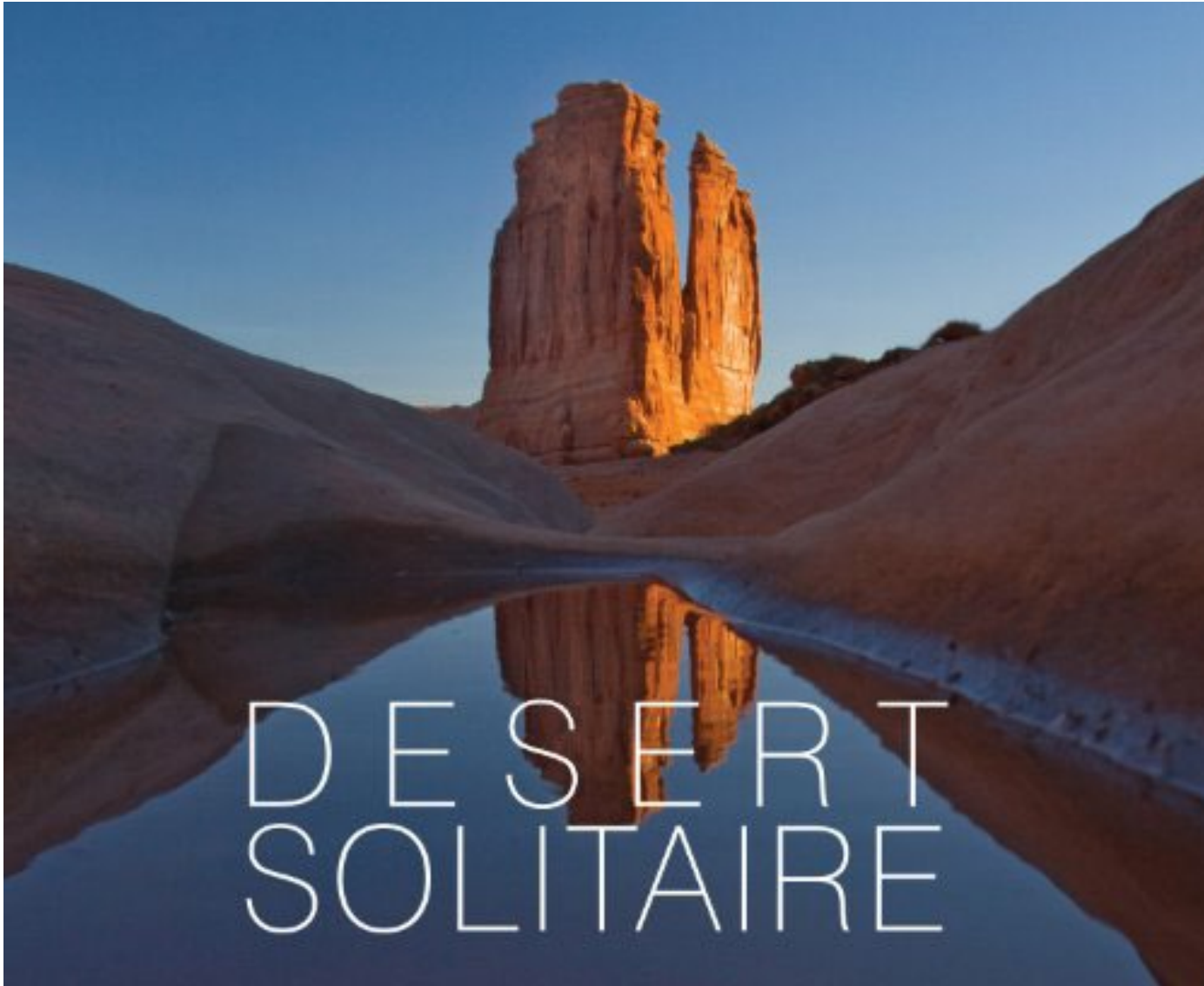
Alex Honnold



Vandana  
Shiva

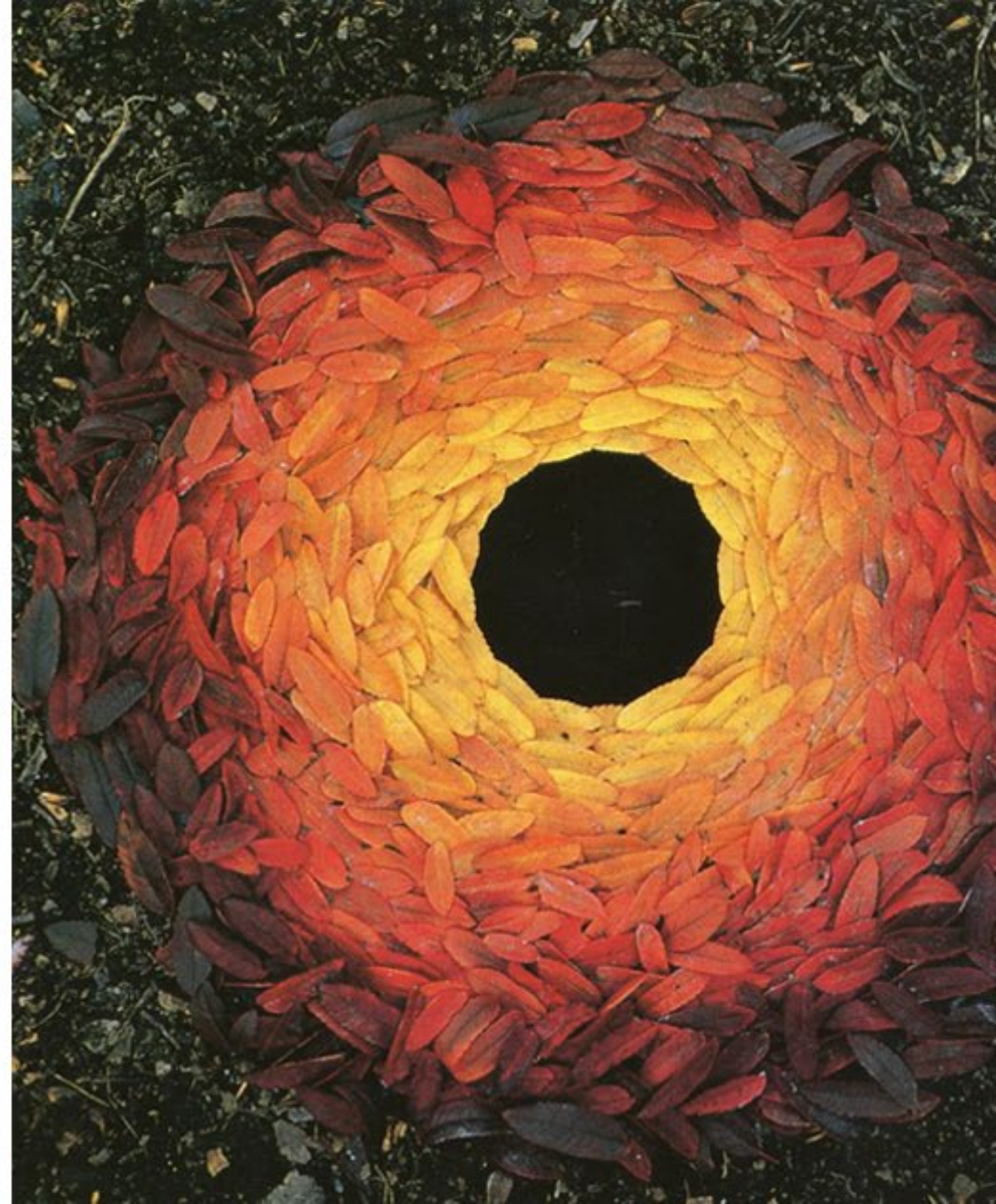


# Edward Abbey





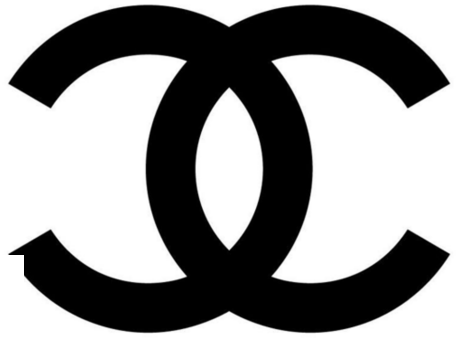
Andy Goldsworthy



# Geo-Experienced Quiz







1. Why do the Earth's rivers contain fresh water, while the oceans are salty?



3. What types/sources of energy are capable of producing change upon the Earth's surface?

2. How are the terms climate and weather similar and/or different?

4. Is soil the same as dirt?  
Agriculture, how many types?



5. Where does your tap water come from, list what factors determine your drinking water's quality?



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