Download the FREE SOS Explorer™ Mobile App Now!

Scan the QR code or look for SOS Explorer in the Apple App Store or Google Play Store

Keeping it local: how to access the climate data of your own backyard

Science On a Sphere, NOAA View, Climate Explorer, and more!

Who am I?

TOM DI LIBERTO - (he/him) Washington, DC (Anacostans)

Climate Scientist and Science Communicator for NOAA's Climate.gov in NOAA's Climate Program Office

Tom.DiLiberto@noaa.gov

What is NOAA and what does it do?

Under the Department of Commerce…

to observe and monitor weather and climate on the Earth.

Data from the ATMOSPHERE & the OCEAN is collected by people and remote sensing tools...

to support real-time observations, short-term and long-range forecasts, and predictions.

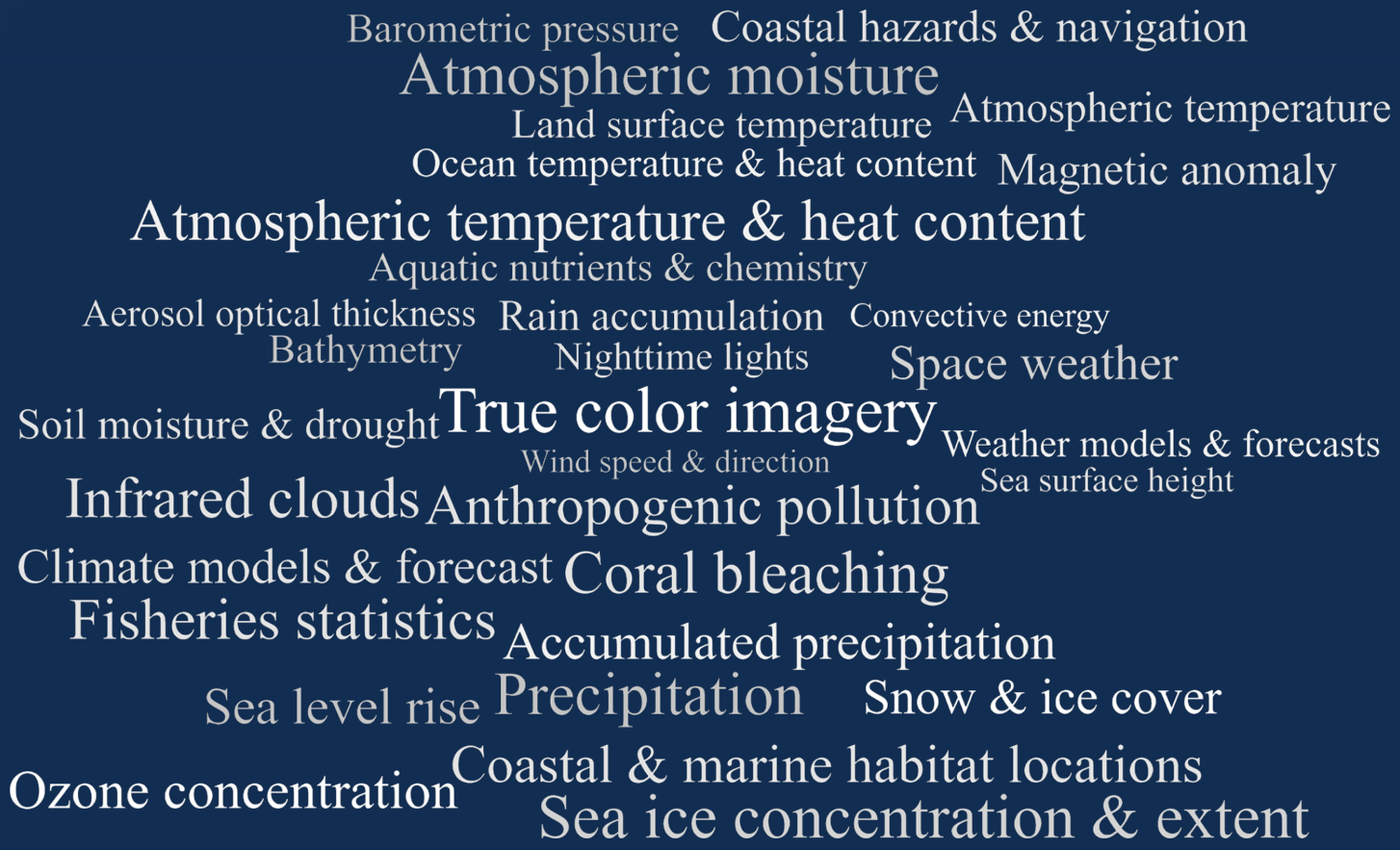
Data becomes products, applications and tools, for…

& Science On a Sphere®

NOAA EDUCATION


learn
What Would You Explore?
explore


Category
All
Loaded datasets
Hot Air: Atmosphere and Climate Change (movie)
Human Impacts on Marine Ecosystems
Human Transportation
Hurricane Sandy - 2012
Hurricane Season 2017
Hurricane Tracks: Cumulative - 1950 - 2005
Io: Jupiter's Moon
Location: 36.105N, 128.031W
NOAA's SOS Explorer™
Feedback
2D/3D
Overlays
Tools
Quit


Barometric pressure
Coastal hazards & navigation
Atmospheric moisture
Land surface temperature
Atmospheric temperature
Ocean temperature & heat content
Magnetic anomaly
Atmospheric temperature & heat content
Aquatic nutrients & chemistry
Aerosol optical thickness
Rain accumulation
Convective energy
Bathymetry
Nighttime lights
Space weather
Soil moisture & drought
True color imagery
Weather models & forecasts
Wind speed & direction
Sea surface height
Infrared clouds
Anthropogenic pollution
Climate models & forecast
Coral bleaching
Fisheries statistics
Accumulated precipitation
Sea level rise
Precipitation
Snow & ice cover
Coastal & marine habitat locations
Ozone concentration
Sea ice concentration & extent

How educators benefit from NOAA data

Knowledge of a completely free data

Plethora of data (global to local)

Specialized educational pages

NOAA content experts and outreach specialists who are just an email away

www.noaa.gov/education *www.climate.gov*

outreach@noaa.gov

How do you use NOAA data?

If you use NOAA data, how do you use it?

How do you wish to use NOAA data?

How to connect NOAA data and products to content

Goal: to build comfort with using NOAA products

Case study: *Temperature*

Goal: to make non-science connection with NOAA data

Case study: *Sea Level Rise*

Goal: Build familiarity with global vs local data

Global: entry level data

Science On a Sphere

NOAAView

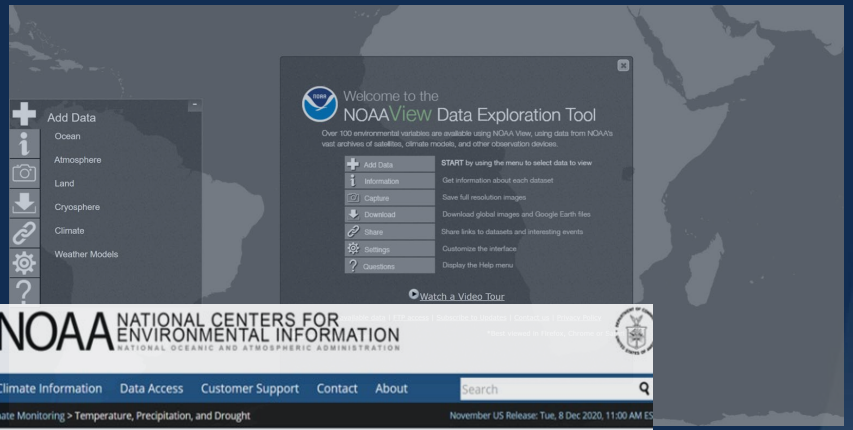
Local: Intermediate to experienced data

climate.gov's Climate Explorer

NCEI - Climate at a Glance

xmACIS2 - EXPERT level

Where can entry data be found?



NOAA EDUCATION

Making that global to local connection with NOAA data...

Case study: Temperature change

Connections:

How rare is what just happened?

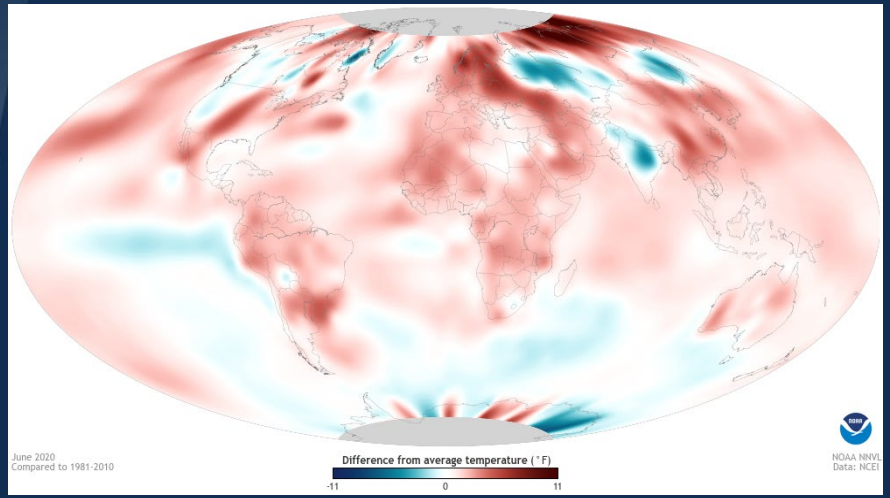
Who is vulnerable to changes in local temperatures?

What do forecasts for the future mean for communities?

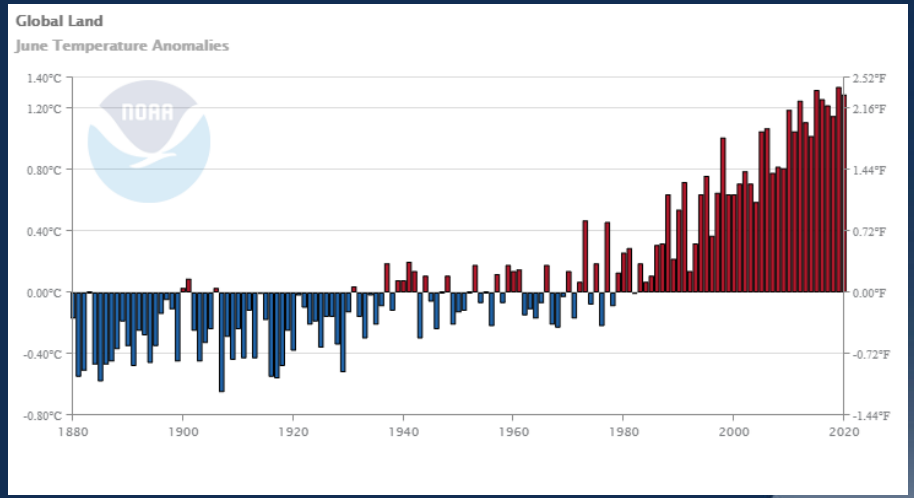
What can communities do to prepare/adapt?

Global Temperature Change

Temperature anomaly *(climate.gov)*



Global land temperature anomaly *(climate.gov)*

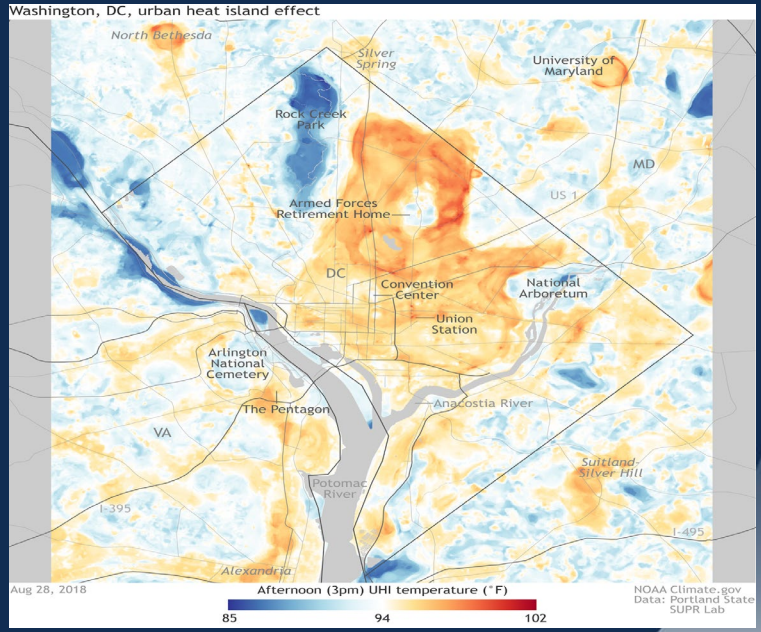


https://climate.gov/news-features/understanding-climate/climate-change-global-temperature

Local Temperature Change

Days above 90º *(Climate Explorer)*

Detailed maps of urban heat islands *(Climate.gov)*



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Local Temperature History

xmACIS2 - http://xmacis.rcc-acis.org/

Consecutive days above 115°F record

Number of Consecutive Days Max Temperature >= 115 for PHOENIX AIRPORT, AZ

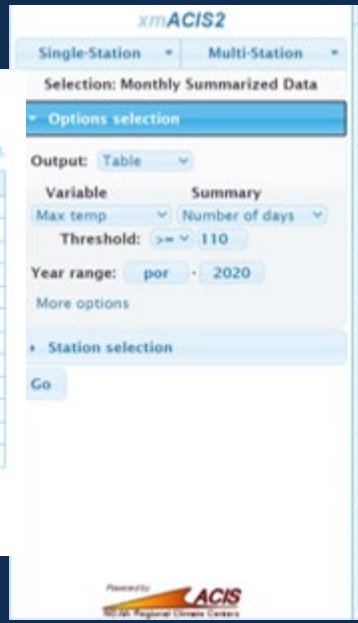
Click column heading to sort ascending, click again to sort descending.

Rank	Run Length	Ending Date
1	4	2020-08-19
-	4	2020-07-31
-	4	1995-07-29
-	4	1990-06-28
-	4	1979-06-28
-	4	1968-06-22
7	3	2018-07-25
-	3	2017-06-21
-	3	2013-06-30
-	3	2003-07-16

Last value also occurred in one or more previous years.

Period of record: 1933-06-01 to 2020-11-29

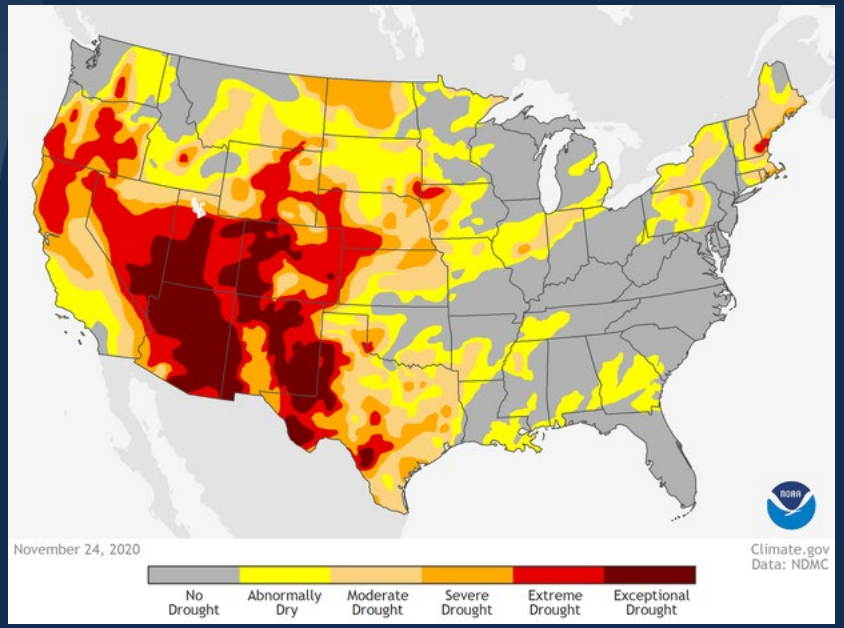
Number of days above 100°F in Phoenix, AZ



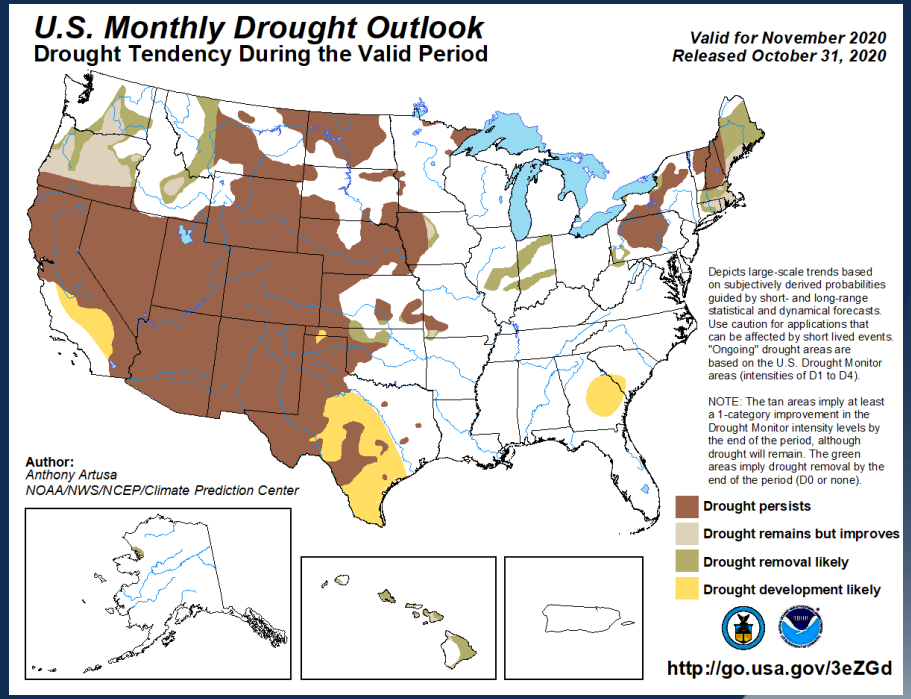
1998	0	0	0	0	0	2	11	4	0	0	0	0	17
1999	0	0	0	0	0	1	2	1	0	0	0	0	4
2000	0	0	0	0	2	0	8	3	2	0	0	0	15
2001	0	0	0	0	0	4	5	5	2	0	0	0	16
2002	0	0	0	0	0	12	9	6	1	0	0	0	28
2003	0	0	0	0	1	2	15	6	2	0	0	0	26
2004	0	0	0	0	0	2	6	4	0	0	0	0	12
2005	0	0	0	0	0	4	15	5	0	0	0	0	24
2006	0	0	0	0	0	6	13	0	0	0	0	0	19
2007	0	0	0	0	0	10	12	9	1	0	0	0	32
2008	0	0	0	0	1	14	6	1	0	0	0	0	22
2009	0	0	0	0	0	1	15	11	0	0	0	0	27
2010	0	0	0	0	0	5	10	6	2	0	0	0	23
2011	0	0	0	0	0	9	9	13	2	0	0	0	33
2012	0	0	0	0	0	7	4	10	0	0	0	0	21
2013	0	0	0	0	0	8	7	7	3	0	0	0	25
2014	0	0	0	0	0	2	7	1	0	0	0	0	10
2015	0	0	0	0	0	11	1	8	0	0	0	0	20
2016	0	0	0	0	0	12	15	3	0	0	0	0	30
2017	0	0	0	0	0	11	8	4	2	0	0	0	25
2018	0	0	0	0	0	5	10	7	0	0	0	0	22
2019	0	0	0	0	0	4	11	12	2	0	0	0	29
2020	0	0	0	0	2	7	19	22	3	0	0	M	53
Mean	0	0	0	0	0	5	7	4	1	0	0	0	16
Max	0 2020	0 2020	0 2020	0 2020	2 2020	18 1974	19 2020	22 2020	4 1982	0 2020	0 2020	0 2019	53 2020
Min	0 2020	0 2020	0 2020	0 2020	0 2019	0 2000	0 1955	0 2006	0 2018	0 2020	0 2020	0 2019	0 1947

Temperature Connection

Drought Monitor/Outlook – Climate.gov



Climate Prediction Center



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Case study: Sea Level Rise

Connections:

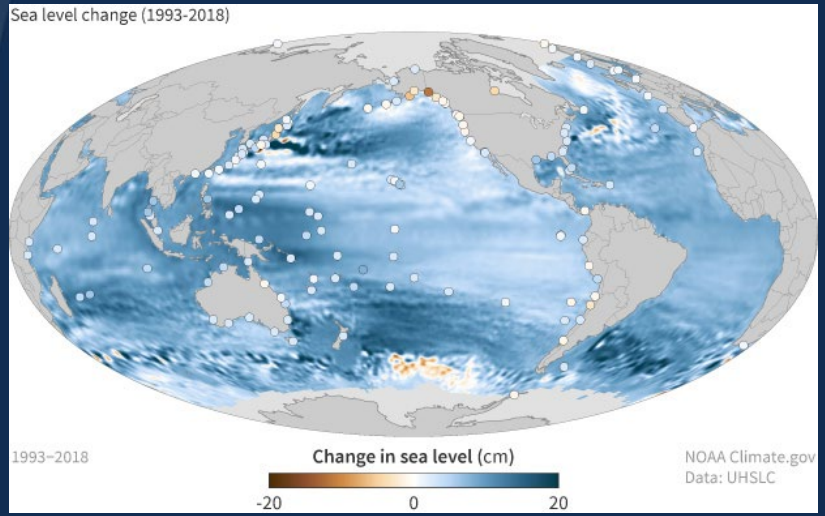
Who lives in the most vulnerable areas to sea level rise?

What do forecasts for the future mean for coastal communities?

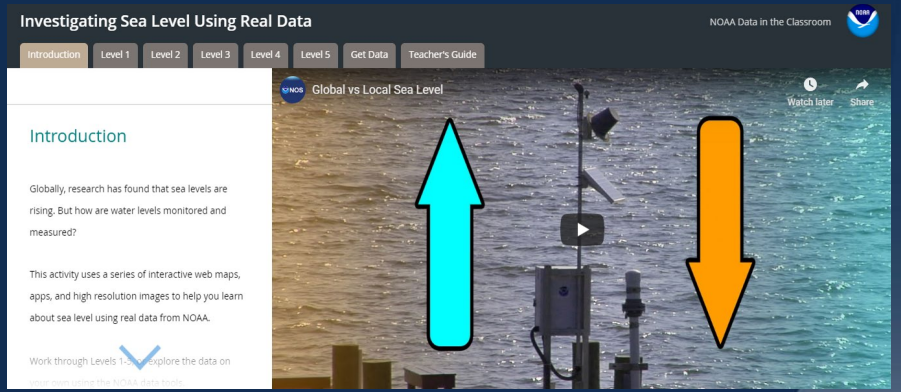
What can communities do to prepare/adapt?

Global Sea Level Rise

Understanding Climate Change (*climate.gov*)



Investigating Sea Level Rise (*dataintheclassroom.noaa.gov*)



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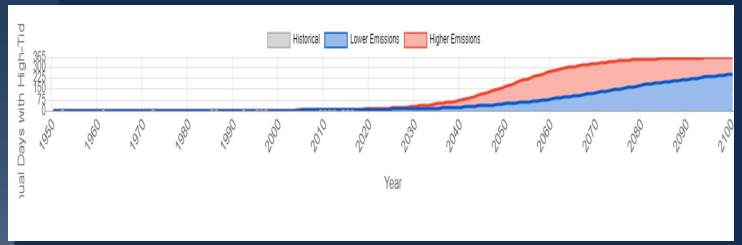
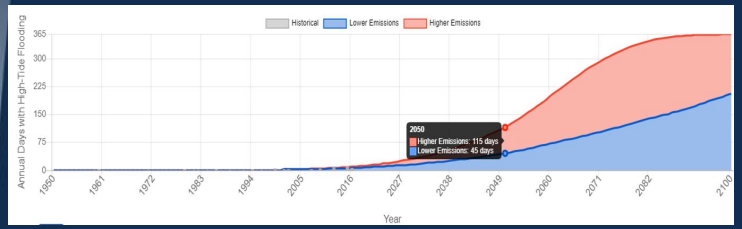
Local Sea Level Rise

Climate Explorer tools (*climate.gov*)

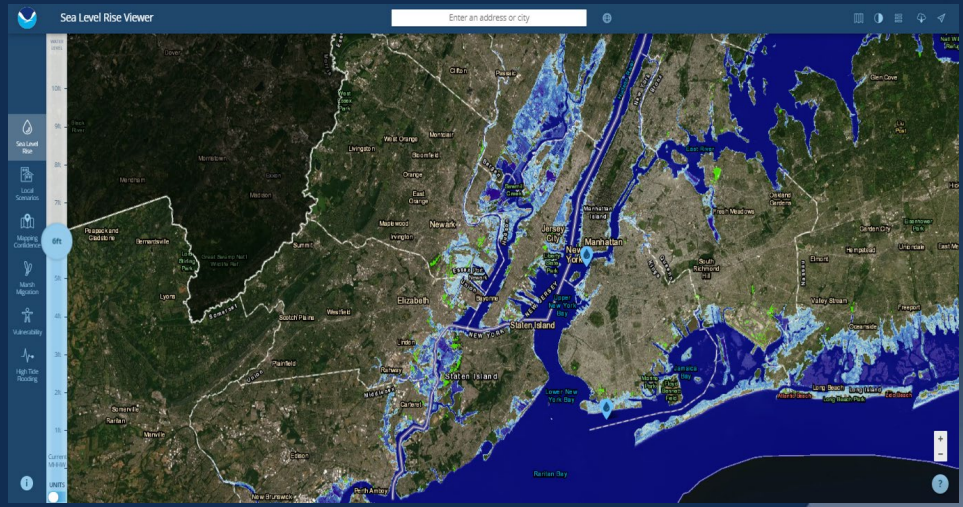


Washington, DC



Charleston, SC

Sea Level Rise Viewer (*coast.noaa.gov/slr*)



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Case studies: Animal impacts

Connections:

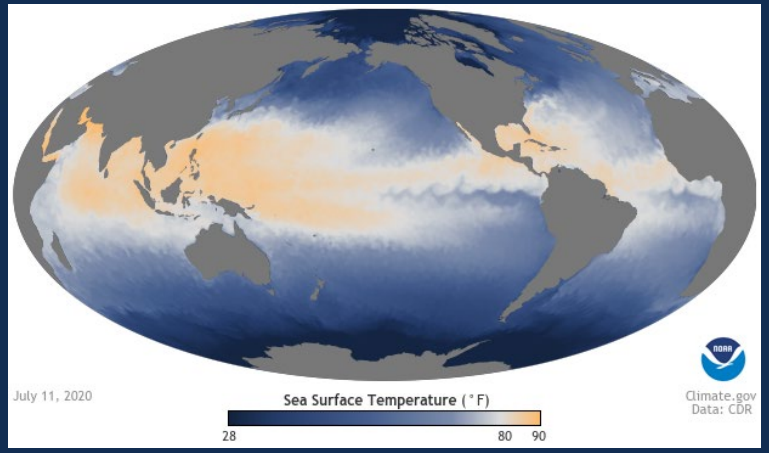
How do the seasons affect animals?

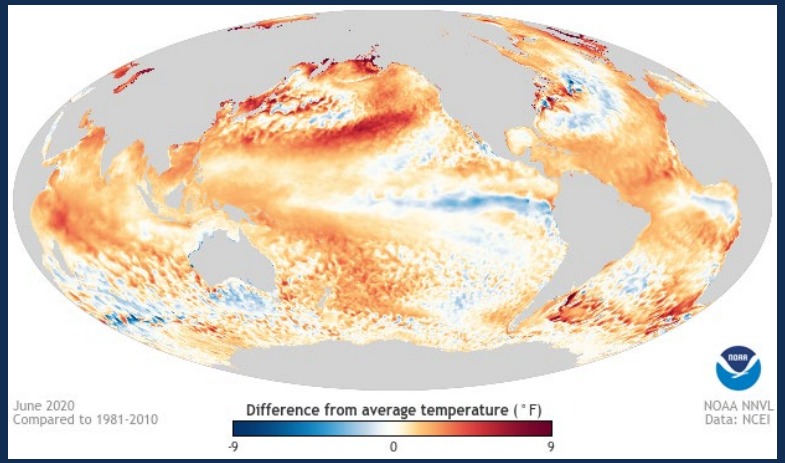
What happens when a habitat or a resource changes for an animal?

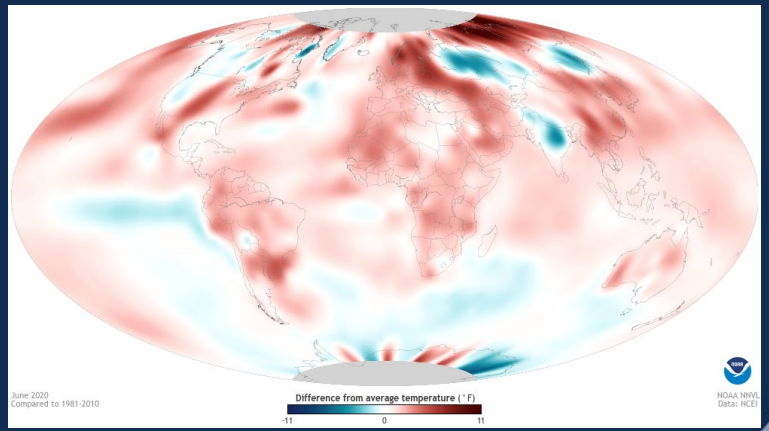
How do humans rely on animals?

Global Animal Impacts

Various ocean and atmospheric temperature anomaly data *(climate.gov)*







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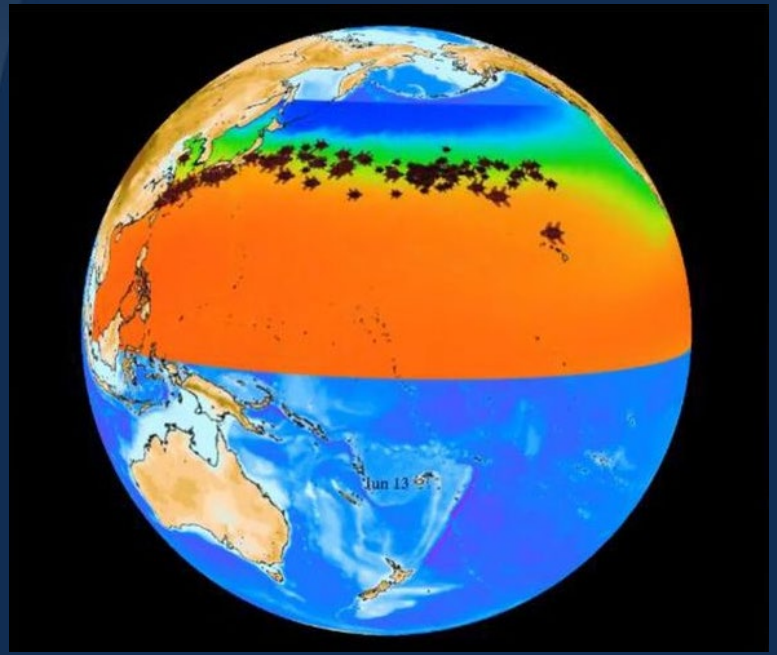
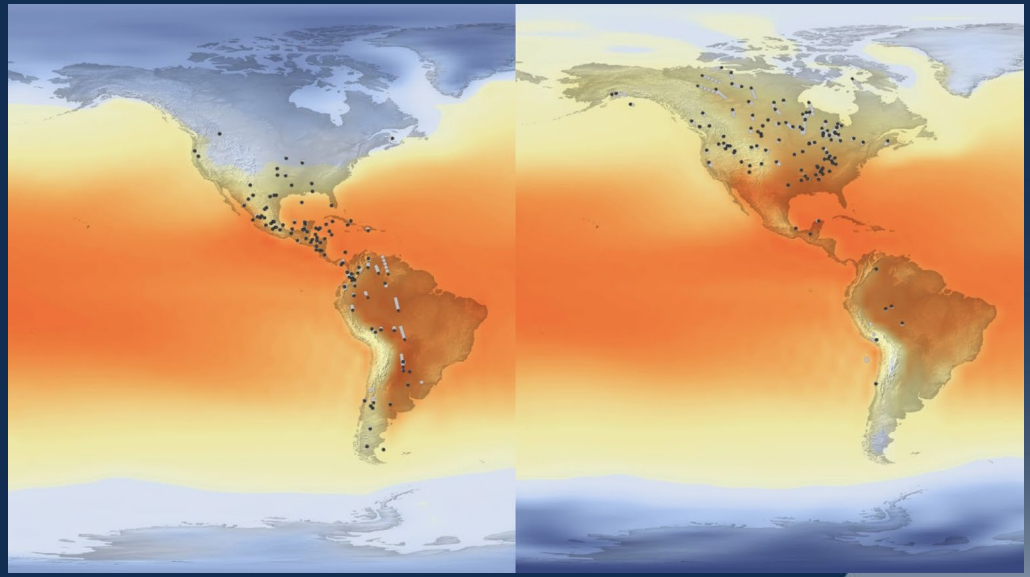
Local Animal Impacts

Sea turtle migration *(Science On a Sphere)*



Seasonal bird migration *(Science On a Sphere)*



Global/Country Climate review

Connections:

How does the last year's temperature/precipitation rank?

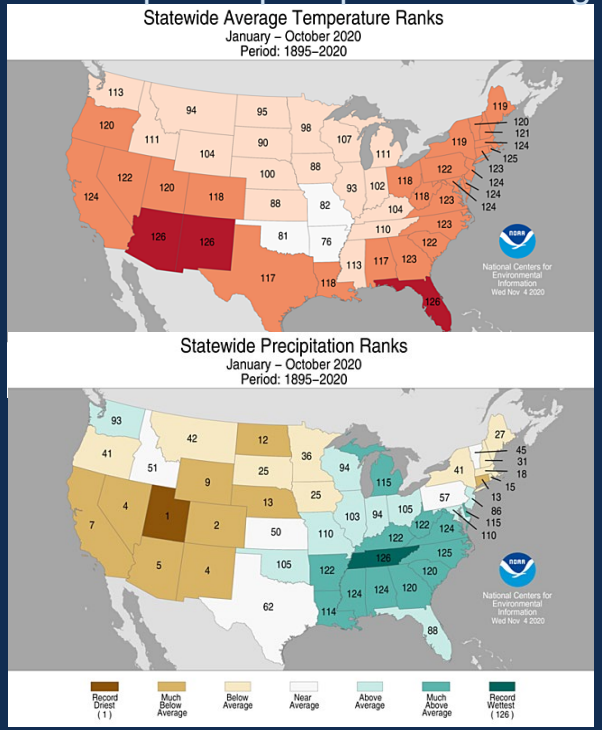
How much rain fell in my state last month?

What are the warmest years on record? Warmest months?

Global Climate Rankings

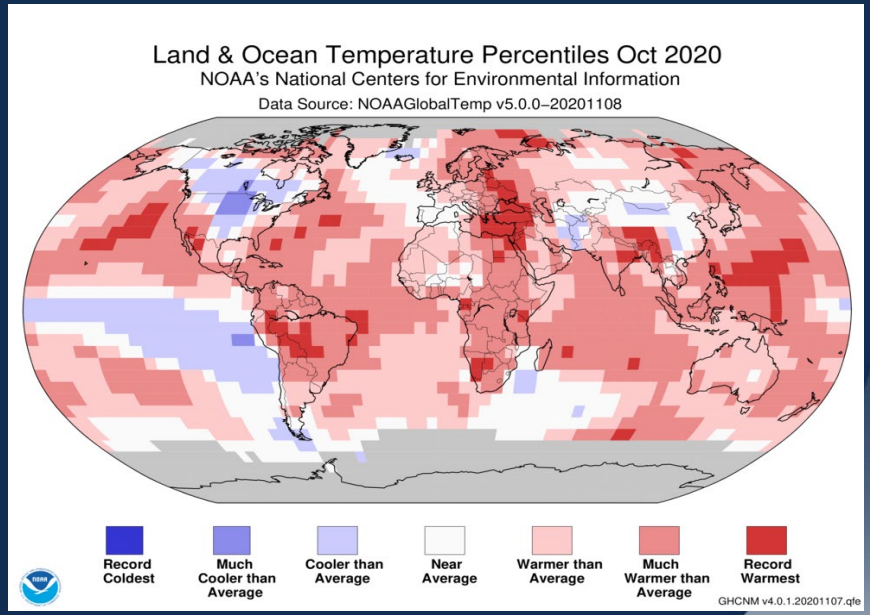
National Centers for Environmental Information

State temperate/precipitation rankings



https://www.ncdc.noaa.gov/temp-and-precip/

Global land temperature anomaly *(climate.gov)*



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Data resources for educators

NOAA Education *(noaa.gov/education/resource-collections)*
Note: How-To Use NOAA Data video helpful with where to start

Science On a Sphere *(sos.noaa.gov)*

NOAA View *(nnvl.noaa.gov/view/globaldata.html)*
Data In the Classroom *(dataintheclassroom.noaa.gov)*

OTHER
xmACIS2 - http://xmacis.rcc-acis.org/

NCEI - https://www.ncdc.noaa.gov/temp-and-precip/
Temperature/Precipitation Ranks, Climate at a Glance

Climate Program Office Resources *(Climate.gov)*
Data Snapshots; Teaching Climate; News and Features

National Integrated Heat Health Information System (NIHHIS) *(https://nihhis.cpo.noaa.gov/)*

US. Climate Resilience Toolkit *(https://toolkit.climate.gov/)*

Climate Explorer *(https://toolkit.climate.gov/#climate-explorer)*

Can't find data or don't know where to go? Email me!

tom.diliberto@noaa.gov
Department of Commerce | National Oceanic and Atmospheric Administration

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Questions?

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