

Name(s) _____ Period _____ Date _____

Extreme Drought and Wildfires

INTRODUCTION

Drought is defined as a prolonged period of time with abnormally low precipitation. As you learned previously, not all areas on the planet will have increases in precipitation. As warmer temperatures and drought conditions increase, there is a also greater likelihood for more wildfires.

Agencies such as NOAA, NASA and United States Geological Survey (USGS) host numerous websites that provide data to the public. In this Investigation, you will analyze just a few of the datasets provided by these agencies.

Exploration 1: Palmer Drought Severity Index

The NOAA National Climatic Data Center is a resource that provides public access to climate and historical weather data and information. In this exploration you will be guided through the website to learn about the resources for analyzing drought severity.

The Palmer Drought Severity Index (PDSI) “attempts to measure the duration and intensity of the long-term drought-inducing circulation patterns.” The product of the PDSI is a map that illustrates areas that are experiencing drought conditions on a monthly basis. In this exploration, you will create an animated PDSI map.

Drought Conditions in 2011

Follow the directions and answer the questions following the animation you created.

- Go to <http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers.php>
- Under **Index**, select *Palmer Drought Severity Index*. Under **Month(s)**, select All Months by clicking on *January*, holding the *control* key and then clicking on *December*. Choose **2011** for both the **Start Year** and the **End Year**.

Index: ▼

Month(s): ▲
 ■
 ▼
 ▼

Start Year: ▼ End Year: ▼

Hold *ctrl* key for multiple selections

You can use the **blue** buttons to *Stop*, *Play* or make the animation *Slower*.



Answer the following questions using the animation you created.

1. What states experienced the worst drought conditions (colored purple for extreme drought and red for severe drought) in 2011?
2. In what months were drought conditions the worst?
3. Were areas of the U. S. experiencing opposite conditions at that same time? If so, generally, where are those areas of the U. S.?

Drought Conditions in 2013

Follow the directions and answer the questions following the animation you created.

- Go to <http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers.php>
- Under **Index**, select *Palmer Drought Severity Index*. Under **Month(s)**, select All Months by clicking on *January*, holding the *control* key and then clicking on *December*. Choose *2013* for both the **Start Year** and the **End Year**.

You can use the **blue** buttons to *Stop*, *Play* or make the animation *Slower*.

Answer the following questions using the animation you created.

1. Generally, what part of the U. S. experienced the worst drought conditions (purple color for extreme drought and red for severe drought) in 2013?
2. In what month were drought conditions the worst?

Drought Conditions in 2014

Follow the directions and answer the questions following the animation you created.

- Go to <http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers.php>
- Under **Index**, select *Palmer Drought Severity Index*. Under **Month(s)**, select All Months by clicking on *January*, holding the *control* key and then clicking on *December*. Choose *2014* for both the **Start Year** and the **End Year**.

You can use the **blue** buttons to *Stop*, *Play* or make the animation *Slower*.

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Answer the following questions using the animation you created.

1. Generally, which states experienced the worst drought conditions (colored purple for extreme drought and red for severe drought) in 2014?
2. In what month were drought conditions the worst?

Exploration 2: U. S. Drought Portal

This website was created by NOAA who is taking the lead in implementing the National Integrated Drought Information System (NIDIS). The U. S. Drought Monitor shows the current drought conditions in the U.S.

1. What date is given for the map on the page?
2. Looking at the map of the U.S. what region or state is currently experiencing the worst drought conditions?
3. Choose a region of the U. S. and learn more about the drought conditions in that region:

Southeast

California

Northwest

4-Corners

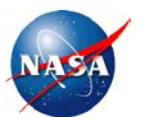
Upper Colorado

Missouri River


Southern Plains

Carolina Coast


- a. What region did you select?
 - b. What is the date for the data presented?
 - c. What areas of the region that you selected are experiencing the most drought conditions?
 - d. What are the Drought Monitor Intensity values for those regions?
4. California is one of the top agricultural production areas in the U. S. and therefore drought conditions can negatively affect agricultural yields. Choose **California**, and answer the following questions.
 - a. What is the date for the data presented?
 - b. What are the current drought conditions? Generally describe the conditions.



2. Make sure that you are zoomed in enough to see the Hot Spots. Now search across the U. S. for current locations for other types of wildfire activity. If you don't see the following symbols, answer **N/A**. Where in the U. S. are there:

a. New Fire locations  ?

b. Active fire reports  ?

c. Fire-related Weather Warnings  ?

3. Search around the world. Find other countries that have multiple Hot Spots. List at least 5 locations in different countries.