Abstract

The Waldo Canyon fire was the most destructive wildfire in Colorado’s history until the Black Forest Fire in 2013. The fire followed more than 300 wildfires and claimed at least 21 lives. It started on June 23, 2012 while the highest spread of the fire occurred on June 26, 2012 when the Meteorological Conditions led the fire to spread. The fire was 50% contained on July 10, 2012.

Research Question: How did this fire happen? What were the Meteorological and Climatological conditions prior to the fire and during the fire? How did it spread? What was the vegetation factor in the cause of this fire?

Techniques: Using GIS and National Mapping data collected from Google and NRO websites with information on the wildfires to assess the physical properties and the vegetation to evaluate the risk and analyze the spread of the fire. In addition, data from satellite imagery will help investigate fire and wind and data from supporting maps from Landsat, Forest, and Vegetation, and other major maps. A big component of any fire is how dry and windy the area was. Data from the National Weather Service and other weather websites will be necessary to gather the information to study the Meteorological and Climatological conditions leading up to the event.

Meteorological/Climatological Conditions:

- 2012 set records as being the warmest in the month of June and for the entire year, with only temperatures recorded in the 90’s.
- 2012 was the fourth lowest recorded year of precipitation amounts.

Sources:

- Landsat viewer. USGS, Web. 02 Apr. 2014
- "NASA Observes the Waldo Canyon Fire, Colo." June 2012
- "Map of Vegetation Fuel" Colorado Springs, Colorado
- "Fire Spread Day by Day" Colorado Springs, Colorado
- "Map of Vegetation Fuel" Colorado Springs, Colorado
- "Devastation" Colorado Springs, Colorado
- "Landsat Images of the Burn Scar" Colorado Springs, Colorado
- "Before (June 2011)" Colorado Springs, Colorado
- "After 1 Year Later (August 2013)" Colorado Springs, Colorado
- "Residential Neighborhoods Torched by the Fire" Colorado Springs, Colorado

Conclusion

A ridge in the southwest (upper left) brought hot and dry continental air from the south to the Colorado area, and then the pattern shifted bringing most of the moisture from the east. Steady temperatures, the temperature in which the air temperature must drop to in order to reach dewpoint, was 84 degrees fahrenheit while the air temperature was breaking past 100’s. The weeks were the main contributor to the destructive weather of the fire period. Weather 2012 was a very hot and dry climate, followed by a cooler climate. The year 2013 had quite the opposite weather patterns with very dry and hot summers too. For example, a drenching, a very intense line of storms that originated in Iowa on June 29, 2012, moved very quickly to the eastern seaboard United States experiencing very dry and hot summers too. Other parts of the United States experienced very dry and hot summers too. For example, a drenching, a very intense line of storms that originated in Iowa on June 29, 2012, moved very quickly to the eastern seaboard United States with extremely high temperatures.

The most likely source of the fire was a combination of the 2012 and 2013 fire's lack of rain and dry winds. The fire lasted a week and a half and jumped the area preventing a massive fire in the west central united states. While 2012 was very dry and hot, 2013 was hot and dry. Other parts of the United States experienced very dry and hot summers too. For example, a drenching, a very intense line of storms that originated in Iowa on June 29, 2012, moved very quickly to the eastern seaboard United States with extremely high temperatures. The year 2012 was the fourth lowest recorded year of precipitation amounts.

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It is currently unknown what actually caused the Waldo Canyon Fire, whether it be dry winds or another causes, it is still under investigation. The area is slowly recovering and will take many years to return back to its natural fire. The area that was not burned is area starting to regrow pines and pines growths, while the more rural area is slower to recover.

For more information visit the Waldo Canyon Fire at http://www.fires.waldo-data.com in 2013 for finding wood with weather conditions, vegetation, and to try to model the data that might help forecast fire seasons and prepare emergency responders.