Droughts are a common phenomenon throughout the Earth's surface. The Southwestern United States has been dealing with serious droughts over the last two decades. During 2011 the Rio Grande Basin - that extends from the San Juan Mountains in Southern Colorado to the Gulf of Mexico - experienced a severe drought. Located midway along the Rio Grande is the Elephant Butte Reservoir. It was built in 1916 to regulate the amount of water flowing from the upper portion of the basin to the lower sections of the basin. The reservoir is part of the Rio Grande Project, a project to provide irrigation and power to south central New Mexico and west Texas. It provides irrigation water to 178,000 acres of land and hydroelectric power to the nearby region. This study used two Landsat 5 satellite data sets to measure and to illustrate how much the reservoir's water level had decreased during the 2011 drought. The first data set was acquired on August 20, 1991 and the second on August 27, 2011. The reservoir provides a barometer of the drought condition throughout the basin. The drought was mainly attributed to La Nina conditions in the equatorial region of the eastern Pacific Ocean. La Nina cooled sea surface temperatures, and thereby, influenced weather patterns in southwestern United States, resulting in the dry conditions. Image A shows the reservoir and surrounding area in 1991. The water level in this image is at the reservoir’s normal level. In image B the water in the reservoir has been separated from other water bodies in study area and is displayed in blue. The reservoir at this date, 1991, covered 27,524 acres (43 square miles). Image C is based on the 2011 data set and displays in red the decrease in the reservoir’s water level due to the drought. The surface area of the reservoir had shrunk to 6,432 acres (10 square miles) - a drop of 76.63 percent.