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# Observations of Surface Water Extent for the Elephant Butte Reservoir in New Mexico

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## **OBSERVATIONS OF SURFACE WATER EXTENT FOR THE ELEPHANT BUTTE RESERVOIR IN NEW MEXICO**

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Since the launch of NASA's Terra satellite in December 1999 the Advanced Spaceborne Thermal Emission and Reflection (ASTER) radiometer has made more than two dozen of observations of the Elephant Butte Reservoir located on the Rio Grande river in central New Mexico. The first observations were in June 2000 and the most recent were in May 2005. This period includes low water levels resulting from the the recent drought conditions and the earlier full high water conditions in 2000. There was about a 25 m change in water level during this time. The area of the reservoir was estimated for each of these scenes and compared with known water levels. The ASTER data were the Level 2 products which include both the visible reflectance and the thermal infrared (surface temperature). Both spectral regions provide good contrasts between water and surrounding land. This contrast makes the area estimation straightforward. There was a large range in surface water area observed from 30,000 km<sup>2</sup> to more than 75,000 km<sup>2</sup>. An approximately linear relation between area and water level was found.

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