Crater Lake, Oregon

Around 530,000 people each year visit Crater Lake National Park in the Cascade Range of southern Oregon. Volcanic peaks, evergreen forests, and Crater Lake’s incredibly blue water are among the park’s main attractions. Crater Lake partially fills the caldera that formed approximately 7,700 years ago by the eruption and subsequent collapse of a 12,000-foot volcano called Mount Mazama. The calderas and climatic eruption of Mount Mazama drastically changed the landscape all around the volcano and opened a basin that allowed for a lake to form in southern Oregon.

Prior to the climactic event, Mount Mazama had a 400,000-year history of cone building activity before the final destruction of the cone in Mount Mazama. Since the climactic eruption, there have been several less violent, smaller postcaldera eruptions within the caldera. However, relatively little was known about the specifics of these eruptions because their products were obscured beneath Crater Lake’s surface. As the Crater Lake region is still potentially volcanically active, understanding past eruptions is important to understanding future eruptions, which could threaten buildings and people in Crater Lake National Park, and the major transportation corridor east of the Cascades.

Recently, the lake bottom was mapped with a high-resolution multibeam echosounder. This new bathymetric survey provides a 2m/pixel view of the lake floor from its deepest basins virtually to the shoreline. Using Geographic Information Systems (GIS) applications, the bathymetry data can be visualized and analyzed to shed light on the geology, geophysics, and geologic history of Crater Lake.