The bathymetry of Crater Lake was mapped using a Kongsberg Simrad EM1002 high-resolution, multibeam echo sounder in order to provide an accurate base map for ongoing limnological and biological studies and to improve understanding of geologic features and processes within the lake basin. Crater Lake occupies the caldera that formed by collapse during the climactic eruption of Mount Mazama $\sim$7,700 (calendrical) yr ago. The new survey provides a 2 m/pixel high-resolution view of lake-floor morphology virtually to the shoreline, includes coregistered, calibrated acoustic-backscatter information, and refines the post-caldera-collapse geologic history deciphered from previous echo-sounding bathymetry (1959), dredge samples, and ROV and submersible traverses. The postcaldera volcanic history began with subaerial andesite lava flows vented west of the center of the caldera and flowing north, followed by construction of the central platform above the same vent. This feature has steep (talus) slopes heading at $\sim$290 m depth from a comparatively flat surface, suggesting subaerial lava flows fragmented where they entered the deepening lake, and earlier shorelines at 378, 358, and 329 m. A similar morphology characterizes the andesitic Wizard Island volcano, west of the central platform, which shows four successive shorelines in the same manner at 358, 329, 180, and 84 m depth. These volcanoes apparently ceased to erupt before the lake filled to its present level $\sim$300 yr after the climactic eruption. Merriam Cone is a symmetrical andesite volcano (summit at 150 m depth) north of the central platform that vented first subaerially, then subaqueously, probably also during this period. A small rhyodacite dome, dated at $\sim$5,000 yr BP, overlies the central platform and abuts the Wizard Island pile. Several large landslides form spectacular deposits on the caldera floor marked by irregular topography and isolated blocks up to 200 m long. The largest, the $\sim$0.5 km$^3$ Chaski Bay slide, originated in the south caldera wall. The three major basins of the lake are virtually flat-floored because sediment gravity flows from the caldera walls have buried depressions in the caldera fill. When combined with a 10-m-resolution DEM of the surrounding terrain, the 2-m-resolution lake-floor bathymetry clearly shows the sources of landslides now marked by embayments in the caldera wall and steep underwater outcrops below promontories. Because the survey nearly reached the lake shore, some of the inclined benches resolved on underwater outcrops can be correlated with contacts between geologic units mapped on the caldera walls above Crater Lake.
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