

Geologic Processes Outstandingly Remarkable Value

Geology tells the rivers' history through rock. Glacial landforms are the foundation for the hydrology and biology of the Merced River and South Fork Merced River, and the geology dictates the form of the rivers and surrounding area. The glaciers that carved the river valleys left a spectacular concentration of unique geologic features of grand scale, and created the rivers' steep gradients.



Jen Nereselian

The course of the Merced runs through and is shaped by the dramatic U-shaped glacially carved Yosemite Valley



Pam Meierding

Bridalveil Fall "Hanging Valley" was created by glacial processes



Pam Meierding

Glacial polish above Nevada Fall



Jay Semmer

This wild section of the Merced River above Bunnell Point illustrates the relationship between the geology and the course of the river

Supporting evidence and examples of the Geologic Processes ORV include, but are not limited to:

- Glacial processes formed the iconic U-shaped Yosemite Valley.
- The "Giant Staircase," which includes Vernal and Nevada Falls, is one of the finest examples of stair-step river morphology in the Sierra Nevada.
- The corridors of the Merced River and South Fork Merced River contain some of the best evidence of glacial processes in the Sierra Nevada, such as glacial erratics, moraines, rouches mountonnées, and striations, as well as some of the best examples of glacial polish in the United States.
- El Capitan Moraine, located in the western part of the Yosemite Valley, marks the greatest extent of recent glacial advance and dammed the waters of the Merced River, forming a great lake. The flat floor of today's Yosemite Valley is the former lake bottom that resulted from the accumulation of more than 2,000 feet of sediment carried by the Merced River from its upper watershed.
- Active rockfalls occurring along the rivers provide opportunities to observe dynamic and ongoing geologic processes.
- The first glacier identified by John Muir was in the Merced River drainage. John Muir's geologic discoveries, and the dynamic geologic processes in the Merced river corridor have historically been a primary focus of interpretation within the park.