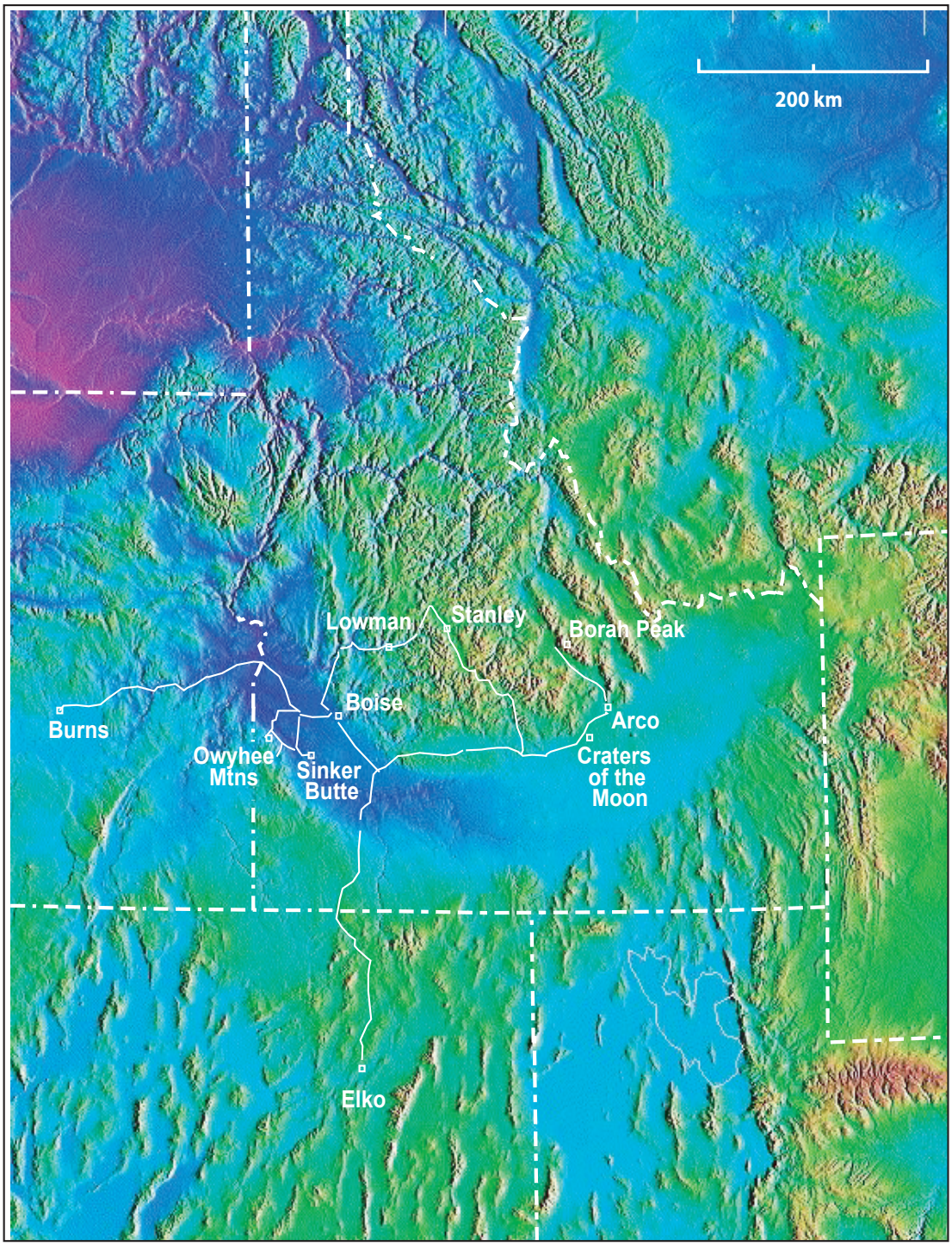

Field-trip routes shown on a digital elevation model (DEM) image (NGSDEM99, National Geodetic Survey, by D.A. Smith and D.R. Roman).

Introduction

This guidebook was produced for the joint Cordilleran (100th Annual) and the Rocky Mountain (56th Annual) Section Meeting of the Geological Society of America in Boise, Idaho, May 1–7, 2004. We are most fortunate in assembling people who have done recent investigations in Idaho, eastern Oregon, and Nevada to write this guidebook and lead the trips. The trips and the guidebook involved authors, leaders, and editors hailing from many universities of the Cordilleran and Rocky Mountain region, the Oregon Department of Mines and Geology, the Idaho Geological Survey, the National Park Service,

the U.S. Bureau of Land Management, and the U.S. Geological Survey. We hope that this cooperative effort to provide new geoscience information will be useful to educators, researchers, government, students, and all those who are interested in the earth and water that underlies this region.

The following provides general locations of the field trips offered in conjunction with the meeting:

The Rattlesnake Tuff and other Miocene silicic volcanism in eastern Oregon. Stops for this field trip are along a circular route (Highways 20, 395, and 26) in the vicinity of Vale and John Day, Oregon. The focus of the trip is the extensive middle to late Miocene rhyolitic ash-flow tuffs that erupted after the main stages of Columbia River Basalt volcanism to the north and Steens Basalt volcanism to the south including the youngest voluminous ash-flow tuff, the 70-Ma Rattlesnake Tuff.

The western margin of North America after the Antler orogeny: Mississippian through Late Permian History in the Basin and Range, Nevada (Cosponsored by the Paleontological Society). Field-trip stops are near Elko and Carlin, Nevada. This trip focuses on the evidence for several Late Paleozoic deformation events that occurred *between* the Antler and Sonoma orogenies. Stops are at field localities that constrain the kinematics of folding and thrusting and the precise timing of angular unconformities that mark the deformation events.

Fire and ice in central Idaho: Modern and Holocene fires, debris flows, and climate in the Payette River Basin, and Quaternary and glacial geology in the Sawtooth Mountains. The first part of this trip, addressing the fire and debris-flow history of the area, follows the South Fork Payette River from Banks to Stanley, Idaho. Storm events following recent fires in the South Fork Payette basin have both produced new deposits and have exposed Holocene fire-related debris-flow and flood sediments and other alluvial fan-building deposits that yield insights into Holocene environmental change. The last two parts of the trip, addressing the glacial history, continue southeast of Stanley along Highway 75 to near Sun Valley, Idaho. Stops address glacial-moraine characteristics and sediment cores from the southeastern Sawtooth Mountains and Stanley Basin that provide evidence of late Pleistocene alpine glaciation. A combination of these glacial records with reconstructions of regional equilibrium line elevations produces late-glacial paleoclimatic inferences for the area.

Owyhee Mountains to the Boise foothills: Geology across and under the western Snake River Plain. This trip traverses the Snake River Plain from the Owyhee front, south of Marsing, Idaho, to the Boise foothills, east of Boise, Idaho and addresses the history of Neogene Lake Idaho along the edges of the western Snake River Plain as recorded in the sedimentary record. The transgressional phase of the last filling of Lake Idaho is marked by an angular unconformity; in the Boise foothills stops are at localities of prodelta muds, Gilbert-deltas, and oolite beds, and finally at the Table Rock Quarries.

Basalt emergent volcanoes and maars, Sinker Butte-Snake River Canyon, Idaho. This trip is at Sinker Butte, which is about 60 miles south of Boise, Idaho. The trip focuses on the sequence of basaltic hydrovolcanic deposits that were erupted from a large emergent Snake River Plain volcano and are now spectacularly well exposed in the walls of the Snake River Canyon. Stops are at localities where deposits having subaqueous and subaerial origins are represented and include the complete sequence of deposits produced at this volcanic center. Volcanism ended with strombolian scoria, spatter, and lava flows.

Twenty years after the Borah Peak Earthquake: Field Guide to Surface-rupturing Earthquakes along the Lost River Fault, Idaho. Following U.S. Highway 93 from Arco to Challis, Idaho, this trip focuses on the character of the historical rupture and the paleoseismic evidence for prehistoric events along this famous normal-fault system. Several stops are along the 34-km-long spectacular surface ruptures from the 1983 (M 7.3) Borah Peak earthquake. Stops north and south of the surface rupture explain the chronology of prehistoric earthquakes along the 140-km-long fault.

Geology of the Craters of the Moon 30' x 60' map area and new perspectives on basaltic volcanism of the eastern Snake River Plain, Idaho. This field trip is in and near Craters of the Moon National Monument, near Arco, Idaho. It focuses on the Holocene and late Pleistocene volcanism confirmed by new $^{40}Ar/^{39}Ar$ ages; geologic mapping of the area around the margins of the Craters of the Moon lava field provides new insights about the processes of basaltic volcanism in Craters of the Moon National Monument.

Miocene Snake River Plain Rhyolites of the Owyhee Front, Owyhee County, Idaho. This trip examines the many forms of rhyolite beautifully exposed along the north side of the Owyhee Mountains, south of Boise, from near Marsing to Walters Ferry, Idaho. This group of rhyolite units seems to have been erupted over a short time after the western Snake River Plain graben started to form and range between 11.7 and 10.6 Ma in age. Stops focus on examining features of rhyolite lava flows, rhyolite spatter, clastigenic units, ignimbrites, domes, and feeder dikes, as well as other features of the western Snake River Plain.

The editors thank the many individuals who served as reviewers for this impressive group of field trip guides.

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