



Geological landscapes of the Death Valley region[☆]

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1. Introduction

Death Valley's location and climate make it one of the most dramatic geological landscapes on Earth. The region lies near the western edge of cratonic North America, and so it contains a record of plate boundary effects that date back to the Proterozoic. These effects include rifting and the development of the passive margin during the Late Proterozoic, crustal shortening and Sierra Nevada magmatism largely during the Mesozoic, and crustal extension and magmatism during the Late Cenozoic. Because crustal extension continues today, the region also showcases spectacular landforms that relate to active mountain-building.

When combined with this geology, Death Valley's harsh climate makes it unique. As the hottest and

driest area in North America, both its geological record and landforms are unusually visible to geologists and non-geologists alike. It is for this reason that the national park overflows with geology field trips during the spring months, and many visitors gain a deeper understanding of Earth processes.

The authors of this volume represent several hundred years of collective experience working on the geology of the Death Valley region. Lauren Wright and Bennie Troxel alone have logged more than one hundred years. It is easy to see why so many geologists keep coming back: traveling through this landscape is like walking through a beautifully illustrated geology textbook, only better. The following photographs attempt to portray some pages of that textbook, but like all photographs, they fall well short of an actual visit.

Each photograph is keyed to a number on the accompanying geologic map (Miller and Wright, 2004) (Fig. 1). An arrow adjacent to a number indicates the direction of view. Those photographs that portray crustal extension or modern landforms appear in the first section. Those that illustrate the older geologic history appear in the second section.

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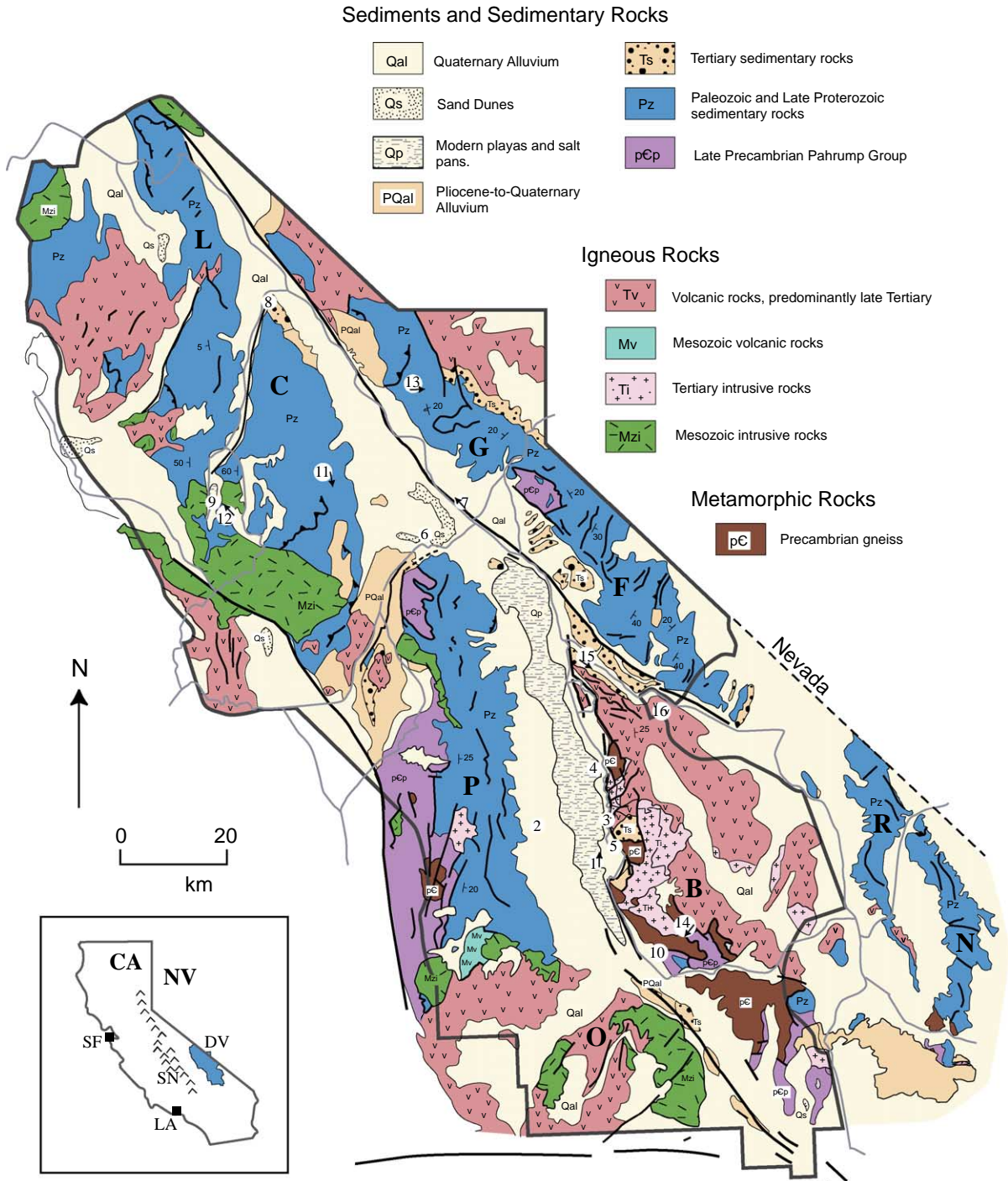


Fig. 1. Geologic map of Death Valley area, compiled by Miller and Wright (2004). Numbers and arrows depict corresponding photo location and direction of view. Abbreviations for mountain ranges are as follows: B: Black Mountains; C: Cottonwood Mountains; F: Funeral Mountains; G: Grapevine Mountains; L: Last Chance Range; N: Nopah Range; O: Owlshead Mountains; P: Panamint Mountains; R: Resting Spring Range. Abbreviations on location map of California are as follows: CA: California; DV: Death Valley National Park; LA: Los Angeles; NV: Nevada; SF: San Francisco; SN: Sierra Nevada Mountains.

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