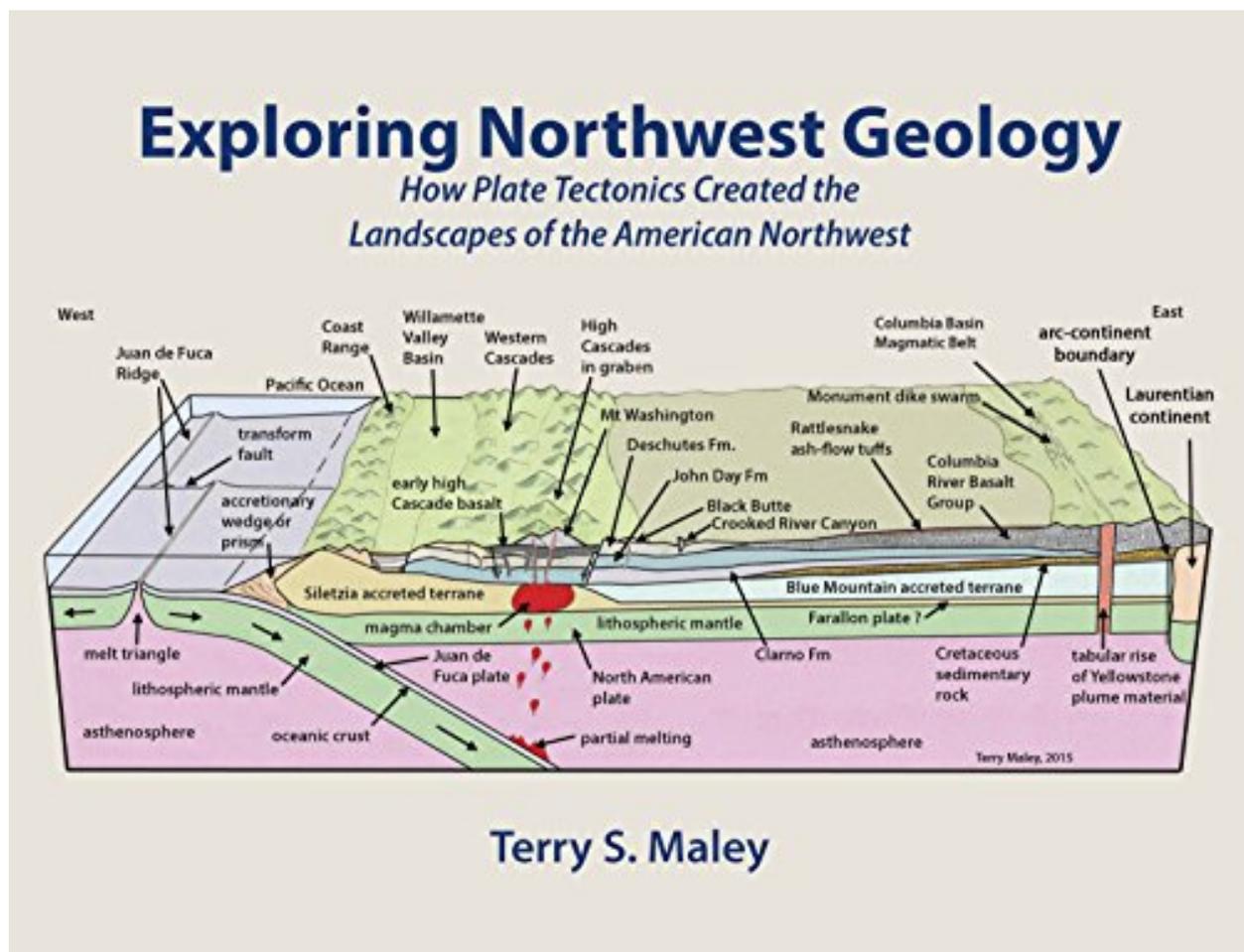


# Exploring Northwest Geology: How Plate Tectonics Created the Landscapes of the American Northwest



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## Synopsis

Many scenic landscapes in the northwest derive their form, color and uniqueness almost entirely from geology. The northwest has outstanding examples of almost every type of landform, scientifically significant feature, and rock type. The oldest rocks are more than 2500 million years old and contain a record of many the events that transpired during this vast period of geologic time, including accretion of a significant portion of the Pacific Northwest terranes. During the last 20,000 years, the northwest has experienced major earthquakes, catastrophic floods, huge glacial ice sheets and volcanic eruptions. By visiting these diverse geologic environments, it is possible to develop a broad background in field geology applicable to understanding geology almost anyplace on earth. The book begins with an overview of plate tectonics and how it became the great unifying Theory of the Earth sciences. This theory gave us a conceptual understanding of the origin and evolution of the major features of the continents and ocean basins. Throughout most of geological time archipelagos and microcontinents (the building blocks) have accreted to continents and continents have broken apart by rifting. Few continental margins of the Earth have been as affected by these processes as the American Northwest. The Cascadia subduction zone and Cascade magmatic arc are an important and integral part of the Ring of Fire. The role of plate tectonics in the evolution of the American Northwest is extensively covered to help in understanding the origin of large-scale Northwest landscapes. Geologic provinces and major rock types of the northwest are covered in detail. Geologically significant landforms and features are scattered throughout the northwest and adjacent states. Many of these features are scientifically significant because they are among the best examples of their kind regionally, nationally, and in a few cases, globally. Surface features formed by water, such as glaciation, rivers and canyons and catastrophic floods are also described and illustrated.



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