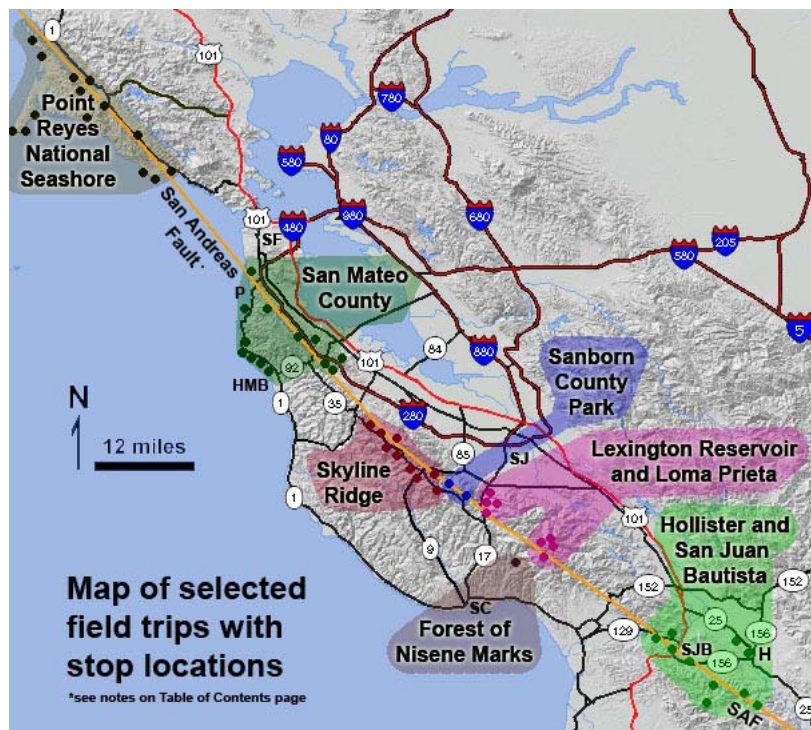


The San Andreas Fault In The San Francisco Bay Area, California:

A Geology Fieldtrip Guidebook To Selected Stops On Public Lands



By Philip W. Stoffer

U.S. Geological Survey
Open-File Report 2005-1127

2005

ABSTRACT:

This guidebook contains a series of geology fieldtrips with selected destinations along the San Andreas Fault in part of the region that experienced surface rupture during the Great San Francisco Earthquake of 1906. Introductory materials present general information about the San Andreas Fault System, landscape features, and ecological factors associated with faults in the South Bay, Santa Cruz Mountains, the San Francisco Peninsula, and the Point Reyes National Seashore regions. Trip stops include roadside areas and recommended hikes along regional faults and to nearby geologic and landscape features that provide opportunities to make casual observations about the geologic history and landscape evolution. Destinations include the sites along the San Andreas and Calaveras faults in the San Juan Bautista and Hollister region. Stops on public land along the San Andreas Fault in the Santa Cruz Mountains in Santa Clara and Santa Cruz counties include in the Loma Prieta summit area, Forest of Nicene Marks State Park, Lexington County Park, Sanborn County Park, Castle Rock State Park, and the Mid Peninsula Open Space Preserve. Destinations on the San Francisco Peninsula and along the coast in San Mateo County include the Crystal Springs Reservoir area, Mussel Rock Park, and parts of Golden Gate National Recreation Area, with additional stops associated with the San Gregorio Fault system at Montara State Beach, the James F. Fitzgerald Preserve, and at Half Moon Bay. Field trip destinations in the Point Reyes National Seashore and vicinity provide information about geology and character of the San Andreas Fault system north of San Francisco.

Notes about cover map image: Small dots within colored areas show the location of stops discussed in chapter field guides. Abbreviations for locations include San Francisco (SF), San Jose (SJ), Hollister (H), San Juan Bautista (SJB), Half Moon Bay (HMB), Pacifica (P), and Santa Cruz (SC). The orange line represents the San Andreas Fault (SAF) section that ruptured in the Great San Francisco Earthquake of 1906.

Special thanks to SEPM (Society of Sedimentary Geology)!

Parts of this field trip were previewed on the Pacific Section SEPM Fall Field Trip, October 9-10, 2004. The society hosts field trips annually. Special thanks are extended to the society and its leaders for organizing and supporting these outdoor education experiences!

TABLE OF CONTENTS

Introduction	1
San Andreas Fault: An Overview	1
Bay Area Faults and Earthquakes	4
Comparison of the Bay Area earthquakes: 1906 and 1989	5
Comparison of Earthquake Magnitude and Intensity Scales	7
Geologic Features of the San Andreas Fault	8
A Geologic Time Scale	11
Types of Faults	12
Geomorphic Features Observable Along Faults	13
Geomorphic Features Associated With Landslides	16
Plant Communities of the San Francisco Bay Region	18
Field Trip to the Calaveras and San Andreas Faults: Hollister and San Juan Bautista Region	23
Field Trip to Lexington Reservoir and Loma Prieta Peak Areas	37
Forest of Nisene Marks State Park: Epicenter of the 1989 Loma Prieta Earthquake	51
Lyndon Canyon and Ranch Lake Trail, Sanborn County Park	53
Earthquake Trail, Sanborn County Park	55
Field Trip to the Skyline Ridge Region in the Santa Cruz Mountains	68
The San Andreas and San Gregorio Fault Systems in San Mateo County	81
Geology at Point Reyes National Seashore and Vicinity	102