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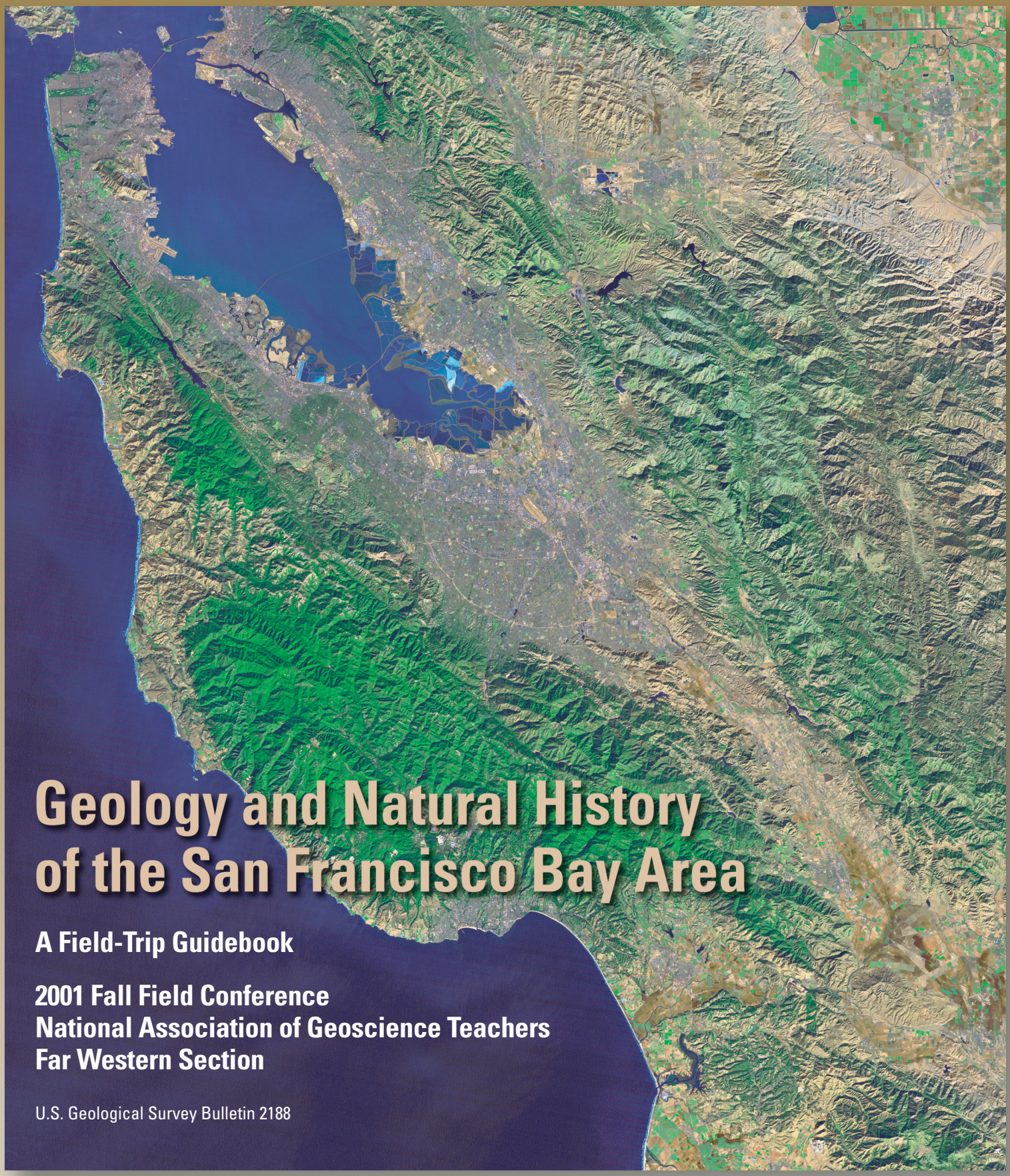


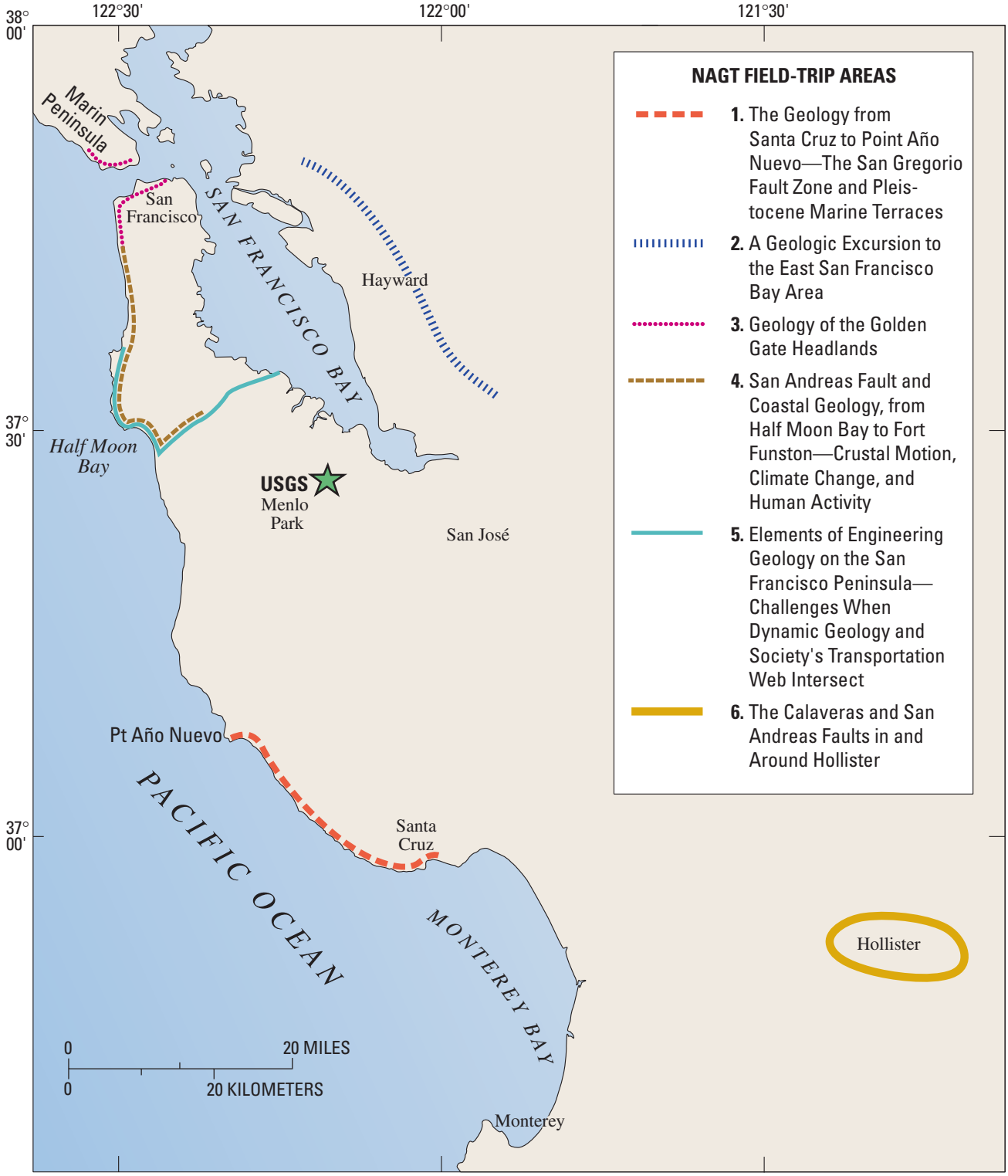
Geology and Natural History of the San Francisco Bay Area

A Field-Trip Guidebook

2001 Fall Field Conference
National Association of Geoscience Teachers
Far Western Section

U.S. Geological Survey Bulletin 2188

U.S. Department of the Interior
U.S. Geological Survey



Map showing field-trip areas for the National Association of Geoscience Teachers, Far Western Section, 2001 Fall Field Conference.

Cover: Satellite image of San Francisco Bay area processed by Michael J. Rymer, USGS. Data from Landsat 5, path 44, row 34, bands 7, 4, and 2 in a respective red, green, and blue (RGB) assemblage. Date of imagery November 30, 1991.

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U.S. Department of the Interior
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Charles G. Groat, Director

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Preface

A National Association of Geoscience Teachers Far Western Section (NAGT-FWS) field conference is an ideal forum for learning about the geology and natural history of the San Francisco Bay area. We visit classic field sites, renew old friendships, and make new ones. This collection of papers includes field guides and road logs for all of the Bay-area trips held during the NAGT-FWS 2001 Fall Field Conference and supplemental chapters on other aspects of the area's natural and human history. The trips touch on many aspects of the geology and natural hazards of the Bay area, especially urban problems associated with living on an active tectonic plate margin: earthquake faults, coastal erosion, landslides, and the utilization of land and natural resources. We hope this conference not only provides a two-day learning opportunity for conference participants but that students and educators will use this field guidebook for future teaching and research.

Many thanks are due to the U.S. Geological Survey (USGS) and San José State University (SJSU) for cohosting the conference. We are grateful to each of the field trip leaders for preparing the trips and writing the accompanying guides. We especially appreciate the many hours put in by the guidebook reviewers, Robert I. Tilling (USGS) and Paula Messina (SJSU), and to the USGS Western Publications Group for editing, layout, and web posting. Additional guidebook contributions include articles by John Galloway, Scott Starratt, Page Mosier, and Susan Toussaint. During the conference guest speakers include Robert I. Tilling (USGS Volcano Hazards Team) and Ross Stein (USGS Earthquake Hazards Team). Workshops prepared for the conference include GIS in the classroom, using USGS data by John Vogel (USGS) and Paula Messina (SJSU), and The Best of BAESI (Bay Area Earth Science Institute), a teacher training organization under the direction of Ellen Metzger (SJSU) and Richard Sedlock (SJSU). The conference provides an opportunity to showcase USGS scientific and education resources with self-guided tours of the USGS Library, the Earth Science Information Center (ESIC), the Visitor Center, and various laboratories on the USGS campus and includes a half-day participatory tour of the USGS research vessel the R/V *Polaris* and the USGS Marine Facility at the Port of Redwood City under the direction of Cynthia L. Brown, Francis Parchaso, and Tara Schraga. Beyond the names mentioned above, a host of USGS and SJSU staff, SJSU students, and NAGT-FWS members contributed to the preparation and orchestration of the conference. We couldn't have done it alone.

Leslie C. Gordon (USGS), Philip W. Stoffer (USGS), and Deborah Harden (SJSU)
NAGT-FWS 2001 Fall Field Conference Organizers