USGS science for a changing world

Figure 1. Location map.

Figure 2. Photograph of the Purisima Formation/terrace deposit contact along the back-cliff portion of Seabright Beach (contact shown by arrow). Note the vegetated debris line along the base. The geologic units shown here are nearly equal in thickness. However, to the west, the Purisima Formation thickens and it is no longer exposed in outcrop on this side of the Santa Cruz Harbor.

Figure 3. Photograph showing the Purisima Formation along San Lorenzo Point. Note the massive bedding, the very thin layer of terrace deposits (contact marked by arrow), and the reddish coloration of the outcrop.
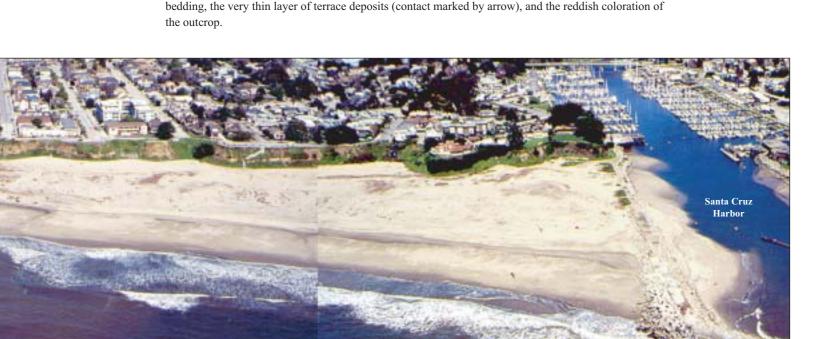
Figure 4. This oblique aerial photomosaic of Seabright Beach shows the layout of the beach with respect to San Lorenzo River and San Lorenzo Point to the west and the Santa Cruz Harbor Jetty to the east.

INTRODUCTION

GEOLOGY

SEISMIC AND CLIMATIC EVENTS

WAVE AND CLIMATIC SETTING

CLIFF RETREAT

PROCESSES OF SEACLIFF FAILURE

RESULTS

REFERENCES

Figure 5. Orthophotomosaic (CAMS imagery flown 2/9/98 at a scale of 1:7500) of Seabright Beach showing retreat magnitude and cliff edge position.

Aerial photography from Coastal Aerial Mapping System (CAMS), February 9, 1998
Universal Transverse Mercator projection, zone 10

October 1989
March 1998

Figure 6a. Enlarged section of the western portion of orthophoto mosaic (fig. 5, A) showing failure signatures for four time periods.

Aerial photography from Coastal Aerial Mapping System (CAMS), February 9, 1998
Universal Transverse Mercator projection, zone 10

Figure 6b. Enlarged section of the eastern portion of orthophotomosaic (fig. 5, B) showing failure signatures for four time periods.
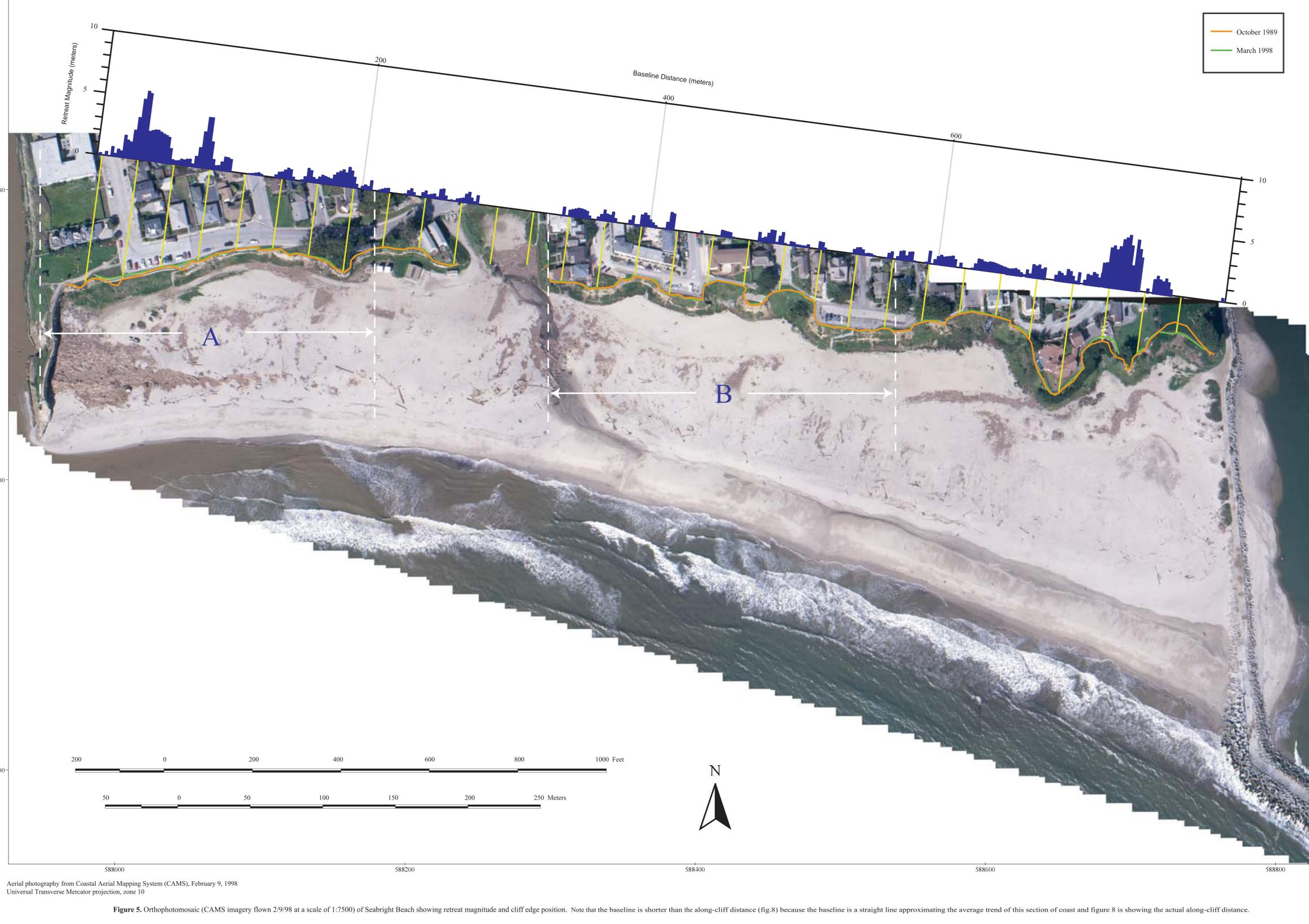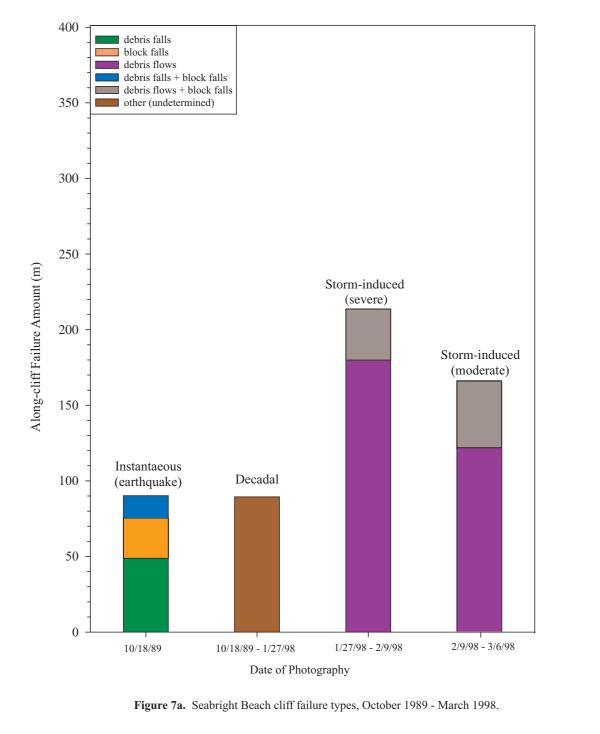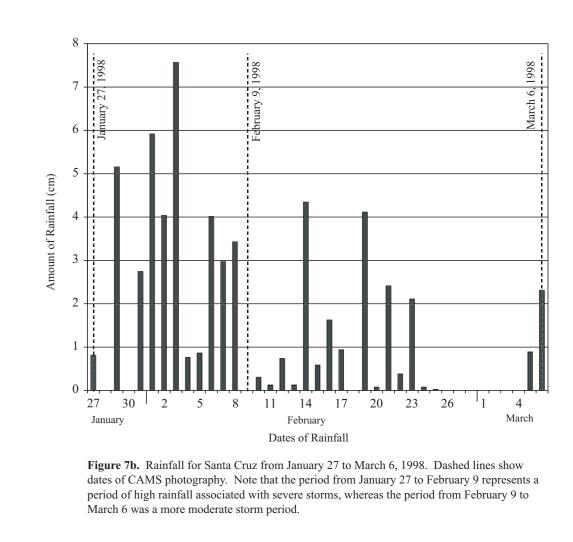
Aerial photography from Coastal Aerial Mapping System (CAMS), February 9, 1998
Universal Transverse Mercator projection, zone 10

October 1989
October 1989 - Winter 1998
Winter 1998 - February 1998
February 1998 - March 1998

Figure 7a. Seabright Beach cliff failure types, October 1989 - March 1998.

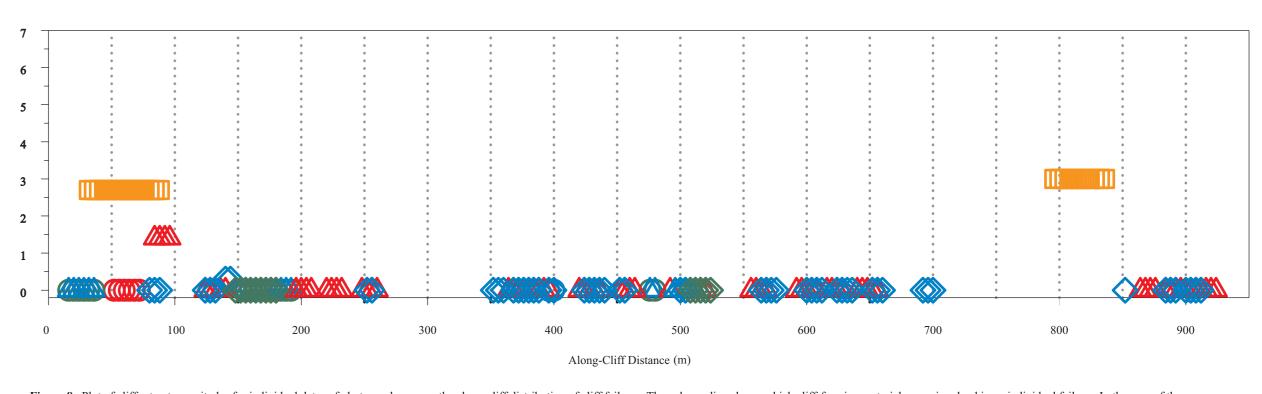Figure 7b. Rainfall for Santa Cruz from January 27 to March 6, 1998.

Figure 8. Plot of cliff retreat magnitudes for individual dates of photography versus the along-cliff distribution of cliff failures.

MAP SHOWING SEACLIFF RESPONSE TO CLIMATIC AND SEISMIC EVENTS, SEABRIGHT BEACH, SANTA CRUZ COUNTY, CALIFORNIA

By

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2002