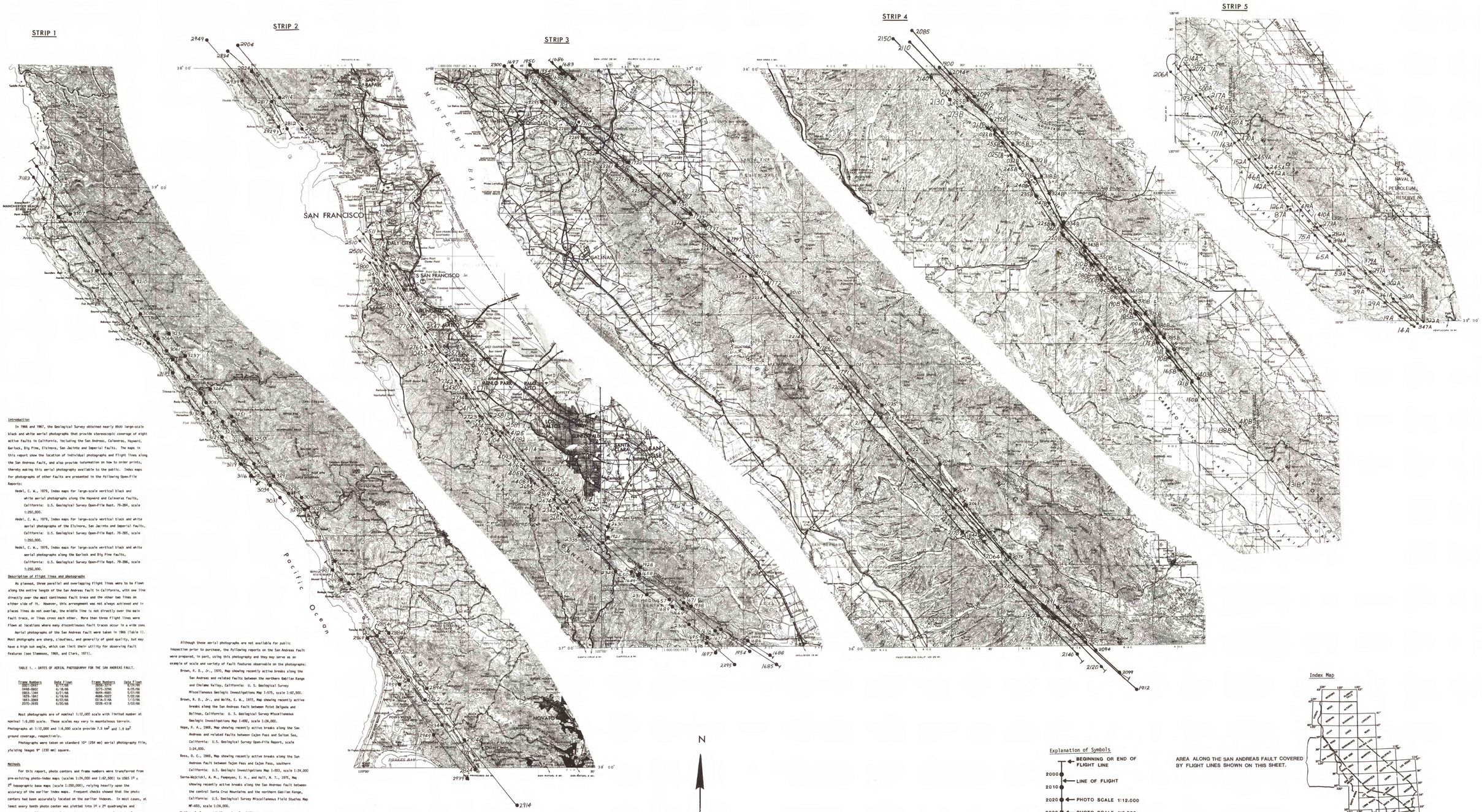


Introduction

In 1966 and 1967, the Geological Survey obtained nearly 85000 large-scale black and white aerial photographs that provide stereoscopic coverage of eight active faults in California, including the San Andreas, Calaveras, Hayward, Garlock, Big Pine, Elsinore, San Jacinto and Imperial faults. The maps in this report show the location of individual photographs and flight lines along the San Andreas fault, and also provide information on how to order prints, thereby making this aerial photography available to the public. Index maps for photographs of other faults are presented in the following Open-File Reports:

Hedel, C. W., 1979, Index maps for large-scale vertical black and white aerial photographs along the Hayward and Calaveras faults, California: U.S. Geological Survey Open-File Rept. 79-284, scale 1:250,000.

Hedel, C. W., 1979, Index maps for large-scale vertical black and white aerial photographs of the Elsinore, San Jacinto and Imperial faults, California: U.S. Geological Survey Open-File Rept. 79-285, scale 1:250,000.

Hedel, C. W., 1979, Index maps for large-scale vertical black and white aerial photographs along the Garlock and Big Pine faults, California: U.S. Geological Survey Open-File Rept. 79-286, scale 1:250,000.

Description of flight lines and photographs

As planned, three parallel and overlapping flight lines were to be flown along the entire length of the San Andreas fault in California, with one line directly over the most continuous fault trace and the other two lines on either side of it. However, this arrangement was not always achieved and in places lines do not overlap, the middle line is not directly over the main fault trace, or lines cross each other. More than three flight lines were flown at locations where many discontinuous fault traces occur in a wide zone.

Aerial photographs of the San Andreas fault were taken in 1966 (Table 1). Most photographs are sharp, cloudless, and generally of good quality, but may have a high sun angle, which can limit their utility for observing fault features (see Slemmons, 1969, and Clark, 1971).

TABLE 1. - DATES OF AERIAL PHOTOGRAPHY FOR THE SAN ANDREAS FAULT.

Frame Numbers	Date Flown	Frame Numbers	Date Flown
0001-0447	6/17/66	2836-3274	6/24/66
0448-0602	6/18/66	3275-3298	6/25/66
0603-1341	6/21/66	4844-4885	5/01/66
1342-1862	6/22/66	4886-5143	5/02/66
1863-2069	6/22/66	0016-3144	1/13/66
2070-2655	6/20/66	0228-4318	3/03/66

Most photographs are of nominal 1:12,000 scale with limited number at nominal 1:6,000 scale. These scales may vary in mountainous terrain. Photographs at 1:12,000 and 1:6,000 scale provide 7.5 km^2 and 1.9 km^2 ground coverage, respectively.

Photographs were taken on standard 10" (254 mm) aerial photography film, yielding images 9" (230 mm) square.

Methods

For this report, photo centers and frame numbers were transferred from pre-existing photo-index maps (scales 1:24,000 and 1:62,500) to USGS 1° x 2° topographic base maps (scale 1:250,000), relying heavily upon the accuracy of the earlier index maps. Frequent checks showed that the photo centers had been accurately located on the earlier indexes. In most cases, at least every tenth photo center was plotted into 1° x 2° quadrangles and connected by a line on which intervening photo centers are located. In areas where flight lines cross or become clustered, connecting lines differ from the actual line of flight to aid in clarity of presentation.

Ordering aerial photographs

Aerial photographs are available as 10" (254 mm x 254 mm) contact prints and enlargements up to 40" x 40" (1.02 m x 1.02 m). Current price lists and ordering procedures can be obtained by writing to:

United States Geological Survey
Geologic Division - Mail Stop 19
345 Middlefield Road
Menlo Park, California 94025

Although these aerial photographs are not available for public inspection prior to purchase, the following reports on the San Andreas fault were prepared, in part, using this photography and they may serve as an example of scale and variety of fault features observable on the photographs:

Brown, R. D., Jr., 1970, Map showing recently active breaks along the San Andreas and related faults between the northern Gabilan Range and Cholame Valley, California: U. S. Geological Survey Miscellaneous Geologic Investigations Map I-575, scale 1:62,500.

Brown, R. D., Jr., and Wolfe, E. W., 1972, Map showing recently active breaks along the San Andreas fault between Point Delgada and Bolinas, California: U. S. Geological Survey Miscellaneous Geologic Investigations Map I-692, scale 1:24,000.

Hope, R. A., 1969, Map showing recently active breaks along the San Andreas and related faults between Cajon Pass and Salton Sea, California: U.S. Geological Survey Open-File Report, scale 1:24,000.

Ross, D. C., 1969, Map showing recently active breaks along the San Andreas fault between Tejon Pass and Cajon Pass, southern California: U.S. Geologic Investigations Map I-553, scale 1:24,000

Sarna-Wojcicki, A. M., Pampeyan, E. H., and Holt, R. T., 1975, Map showing recently active breaks along the San Andreas fault between the central Santa Cruz Mountains and the northern Gabilan Range, California: U.S. Geological Survey Miscellaneous Field Studies Map MF-650, scale 1:24,000.

Vedder, J. G., and Wallace, R., E., 1970, Map showing recently active breaks along the San Andreas and related faults between Cholame Valley and Tejon Pass, California: U.S. Geological Survey Miscellaneous Geologic Investigations Map I-574, scale 1:24,000.

References

Clark, M. M., Solar position diagrams--solar altitude, azimuth, and time at different latitudes: U.S. Geological Survey Professional Paper 750-B, p. B146-B148.

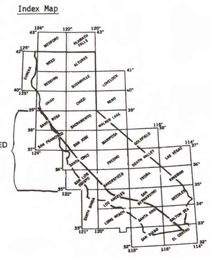
Slemmons, D. B., 1969, New methods of studying seismicity and surface faulting: EOS (American Geophysical Union Transactions), v. 50, p. 397-398.

Explanation of Symbols

- 2000 — BEGINNING OR END OF FLIGHT LINE
- 2010 — LINE OF FLIGHT
- 2020 — PHOTO SCALE 1:12.000
- 2030 — PHOTO SCALE 1:6.000
- 2040 — FRAME NUMBER
- 2050

AREA ALONG THE SAN ANDREAS FAULT COVERED BY FLIGHT LINES SHOWN ON THIS SHEET.

Index Map



Route of flight lines through 1° x 2° quadrangles (scale 1:250,000) along the San Andreas fault.

INDEX MAPS FOR LARGE-SCALE VERTICAL BLACK AND WHITE AERIAL PHOTOGRAPHS ALONG THE SAN ANDREAS FAULT, CALIFORNIA

By
Charles W. Hedel and Hector A. Villalobos
1979

BASE MAPS ON THIS SHEET FROM UKIAH (1971), SANTA ROSA (1970) SAN FRANCISCO (1969), SAN JOSE (1969), SANTA CRUZ (1965), SAN LUIS OBISPO (1969), AND BAKERSFIELD (1971) U.S. GEOLOGICAL SURVEY 1° X 2° QUADRANGLES (SCALE 1:250,000).

This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.