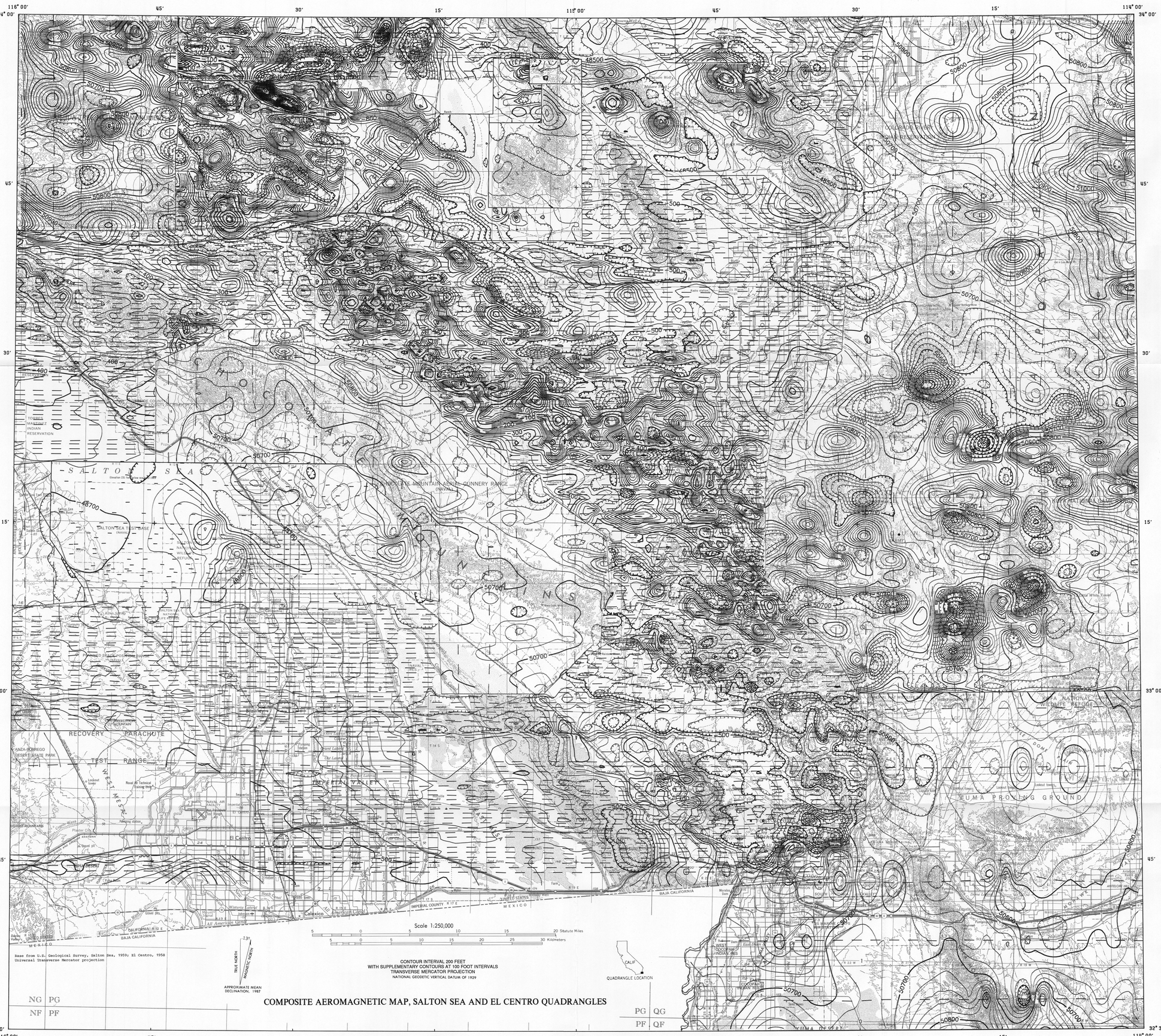
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-2023
SHEET 2 OF 3



COMPOSITE AEROMAGNETIC MAP, SALTON SEA AND EL CENTRO QUADRANGLES



EXPLANATION

MAGNETIC CONTOURS : Contours show total residual magnetic intensity of the earth's field in nanoteslas (nT). Hachures indicate direction of decreasing intensity within closed magnetic lows. Contour interval is 20 nT with index contours at 100 nT.

FLIGHT PATH : Showing location and spacing of data. Flight paths are not shown where line spacing is less than 0.80 km.

Blank areas represent regions with no data coverage.

Residual magnetic anomalies were calculated by subtracting the International Geomagnetic Reference Field (IGRF) updated to the date flown (Cain and others, 1967 ; Peddie,1983) from each survey. The final map was contoured by computer at a 20 nT interval using a grid with an interval of 1 km. Note - The abnormally wide flight line spacing of the El Centro NURE data (9.65 km) prevents smooth contouring and produces a "beaded" appearance. Caution must be taken to use These data along flight line profiles only.

References cited

Cain, J.C., Hendricks, S.J., Langel, R.A., and Hudson, W.V., 1967, A proposed model for the International Geomagnetic reference field--1965 (GSFC X-612-67-173, JULY 1967): Journal of Geomagnetism and Geoelectricity, v.19, p.335-355.

Grauch, V. J. S., 1984, Aeromagnetic map of the Eagle Mountains area, Riverside County, California: U.S. Geological Survey Open-File Report 84-500, scale 1:62,500.

Grimsom, Andrew, and Muffler, L. J. P., 1971, Aeromagnetic map and interpretation of the Salton Sea geothermal area, California: U.S. Geological Survey Geophysical Investigations Map GP-754, scale 1:62,500.

LKB Resources, Inc., 1979a, Aerial Gamma-Ray and Magnetic Reconnaissance Survey: Colorado-Arizona Area, Salton Sea NI 11-9, [1° by 2° sheet; National Uranium Resource Evaluation program, GJBX-012(80)]: Grand Junction, Colo., U.S. Department of Energy, variously paged.

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U.S. Geological Survey, 1983, Aeromagnetic map of the Salton Sea area, California: U.S. Geological Survey Open-File Report 83-664, scale 1:250,000.

U.S. Geological Survey, 1985, Aeromagnetic map of the Palen area, Riverside county, California: U.S. Geological Survey Open-File Report 85-281, scale 1:62,500.

U.S. Geological Survey, 1987, Aeromagnetic Map of the Maria Mountains area, Riverside County, California: U.S. Geological Survey Open-File Report 87-363, scale 1:62,500.

This map is a composite aeromagnetic map of the Salton Sea and El Centro quadrangles compiled from the following seven surveys (see figures 1 and 2) The Salton Sea/El Centro data and the data from the National Uranium Resource Evaluation program were obtained from the contractor's tapes. All other data were digitized from published maps.

Area on figure	Flight lines	Altitude*	Year Flown	References
A	0.40-km	305 m AG	1954	Eagle Mountains Survey (Grauch, 1984a)
B	0.80-km E-W	305 m AG	1981	Salton Sea/El Centro Survey (U.S. Geological Survey, 1983)
C	0.40-km NW-SE	153 m AG	1957	Maria Mountains Survey (U.S. Geological Survey, 1987)
D	4.83-km N-S	122 m AG	1979	National Uranium Resource Evaluation Program - Salton Sea Survey (LKB Resources, Inc., 1979a)
E	9.65-km E-W	122 m AG	1979	National Uranium Resource Evaluation Program - El Centro Survey (LKB Resources, Inc., 1979b)
F			1955	Palen Mountains Surveys
F1	0.40-km E-W	366 m BE	"	(U.S. Geological Survey, 1985)
F2	0.40-km N-S	976 m BE	"	
F3	0.40-km N-S	549 m BE	"	
F4	0.40-km E-W	763 m BE	"	
G	0.80-km E-W	244 m BE	1965	Salton Sea Geothermal Area Survey (Grimsom and Muffler, 1971)

* BE = barometric elevation, AG = above ground

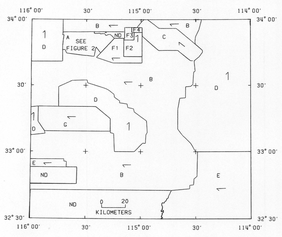


Figure 1 : Survey areas and corresponding flight line directions (half arrows). ND, no available data. See listing in text for area designations.

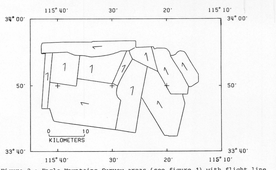
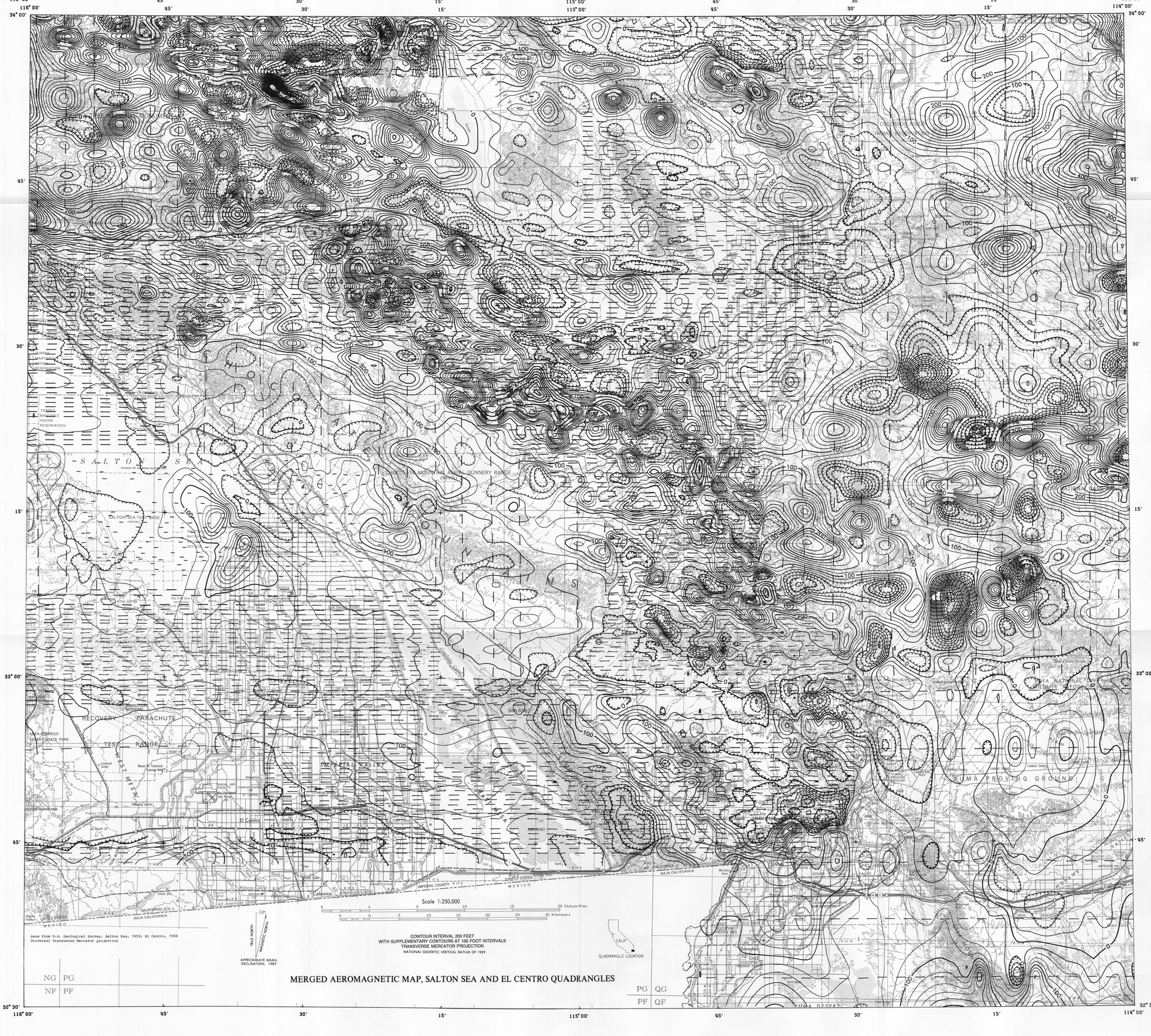


Figure 2 : Eagle Mountains Survey areas (see figure 1) with flight line directions (half arrows). All surveys flown with 0.40-km line spacing. Grauch(1984) continued all areas to 305 m above ground and merged them together.



MERGED AEROMAGNETIC MAP, SALTON SEA AND EL CENTRO QUADRANGLES



EXPLANATION

MAGNETIC CONTOURS : Contours show total residual magnetic intensity of the earth's field in nanoteslas (nT). Hachures indicate direction of decreasing intensity within closed magnetic lows. Contour interval is 20 nT with index contours at 100 nT.

FLIGHT PATH : Showing location and spacing of data. Flight paths are not shown where line spacing is less than 0.80 km.

Blank areas represent regions with no data coverage.

Residual magnetic anomalies were calculated by subtracting the International Geomagnetic Reference Field (IGRF) updated to the date flown (Cain, and others 1967 ; Peddie,1983) from each survey. The data were continued to a common average height of 305 m above terrain. Continuations were performed by a fast Fourier transfon/Taylor's series expansion method using the computer program of Grauch (1984b). The surveys were then merged by applying appropriate datum shifts. Where adjacent data sets overlapped, priority was given to the survey closest to the ground with the exception of the National Uranium Resource Evaluation data, which were used only to fill in gaps after all other available data were merged. The final map was contoured by computer at a 20 nT interval using a grid with an interval of 1 km. Note - The abnormally wide flight line spacing of the El Centro NURE data (9.65 km) prevents smooth contouring and produces a "beaded" appearance. Caution must be taken to use These data along flight line profiles only.

References cited

Cain, J.C., Hendricks, S.J., Langel, R.A., and Hudson, W.V., 1967, A proposed model for the International Geomagnetic reference field--1965 (GSFC X-612-67-173, JULY 1967): Journal of Geomagnetism and Geoelectricity, v.19, p.335-355.

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Grauch, V. J. S., 1984b, Taylor: a Fortran program using Taylor series expansion for level-surface or surface-level continuation of potential-field data: U.S. Geological Survey Open-File Report 84-501.

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This map is a merged aeromagnetic map of the Salton Sea and El Centro quadrangles derived from the composite map composed of the following seven surveys (see figures 1 and 2). The Salton Sea/El Centro data and the data from the National Uranium Resource Evaluation program were obtained from the contractor's tapes. All other data were digitized from published maps.

Area on figure	Flight lines	Altitude*	Year Flown	References
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* BE = barometric elevation, AG = above ground

AEROMAGNETIC MAPS OF THE COLORADO RIVER REGION INCLUDING THE KINGMAN, NEEDLES, SALTON SEA, AND EL CENTRO 1° by 2° QUADRANGLES, CALIFORNIA, ARIZONA, AND NEVADA

By

By John Mariano and V.J.S. Grauch

1988