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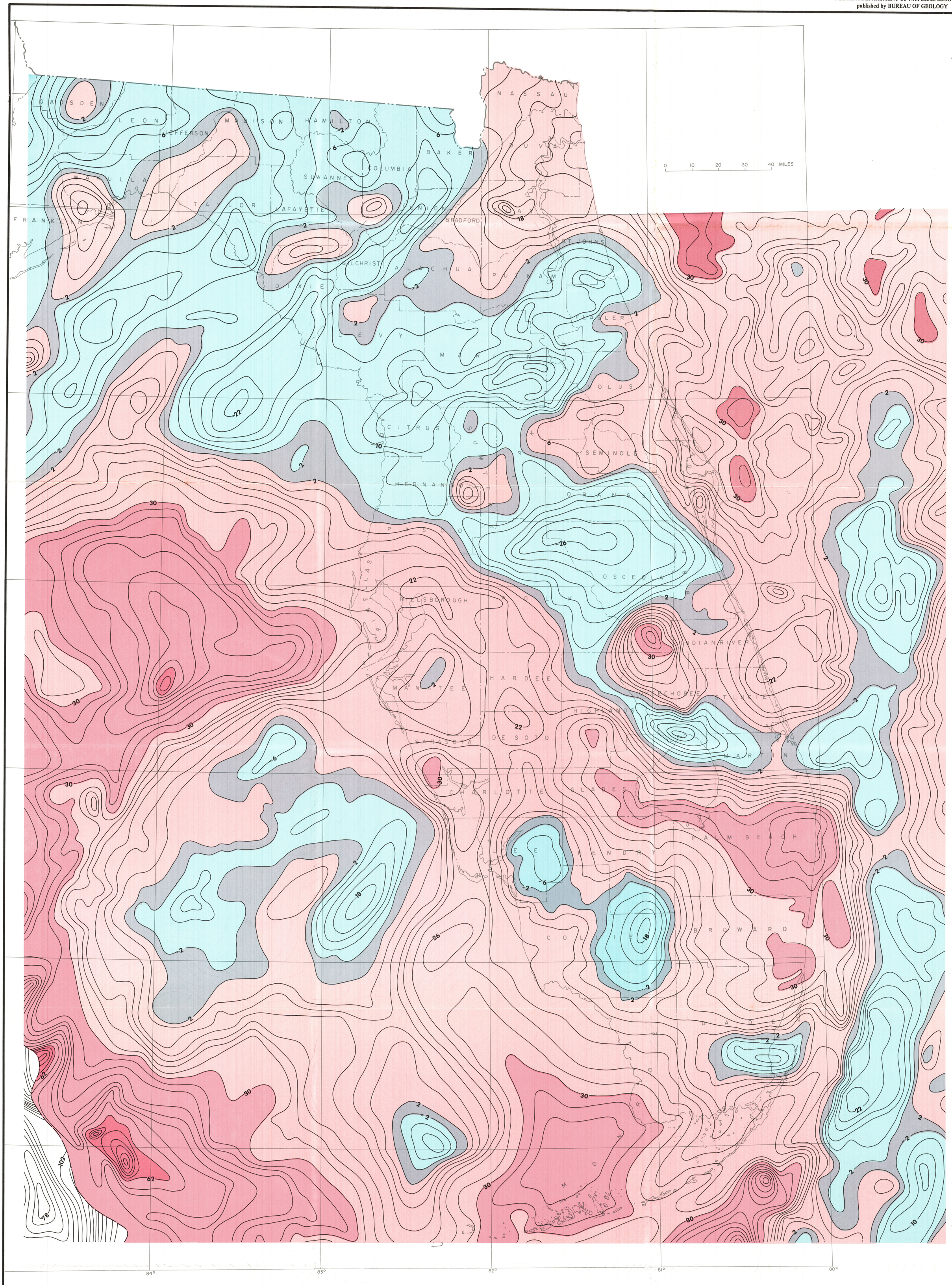

BOUGUER ANOMALY MAP OF THE FLORIDA PENINSULA AND ADJOINING CONTINENTAL SHELVES

By
W. R. Oglesby,[1] M. M. Ball[2] and Susan Chaki[3]

This map was prepared from data supplied by the Department of Defense Gravity Library and incorporates the previous data published as Map Series No. 41, 1971, by the Bureau of Geology, Florida Department of Natural Resources. The density value employed to correct the Free Air values to the Bouguer Anomaly values is 2.0, except in the extreme Southwest corner of the map (uncolored) where a density of 2.67 was used. This increase in density value was selected for the small area beyond the continental slope, where the shelf sediments are missing.

It is interesting to compare the present map with one contained in Map Series No. 19 (1965, Florida Division of Geology), an isopachous map of the Sunniland Limestone of the South Florida Basin. The similarity between the two maps suggests that the large minimum area located in the Gulf of Mexico west of Fort Myers may be favorably located for Lower Cretaceous reef build-up. The minimum area east of Miami in the Straits of Florida may also contain Lower Cretaceous reefing. Northward beyond the confines of the South Florida Basin, the minimum anomalies are not associated with Lower Cretaceous reef build-up, as the Sunniland Limestone is in fact absent. It appears that marine influx into the South Florida Basin during Cretaceous deposition of alternating carbonate-evaporite cyclothems occurred in the region of the positive anomaly in the Lower Keys leading into the basin, where barrier reefs were lacking. The northeast flank of the minimum anomaly west of Fort Myers is underlain by anhydrite. The Lee County minimum was tested to the basement at Lehigh Acres where diabase was recovered in cores. It is assumed the diabase was a dike or sill, probably cutting a rhyolitic mass. The density of rhyolite, approximately 2.65, is considerably less than the average density of the sediments at depth in the Lower Cretaceous (limestones of densities of 2.73 and anhydrite, density 2.94). This is sufficient contrast to account for the minimum gravity anomalies. The age of the rhyolite has been determined by Potassium-Argon ratio as Late Triassic or Early Jurassic. The diabase is dated early Jurassic. The rhyolite may have been expressed as topographically high areas during the Lower Cretaceous period, which offered favorable environment on which the reefs developed.

[1] Bureau of Geology
[2] Rosentiel School of Marine and Atmospheric Science
University of Miami
[3] Bureau of Geology

Max.
+62
+30
+ 2
- 2
-30

POSITIVE ANOMALY INCREASE

NEGATIVE ANOMALY INCREASE

EXPLANATION

2 — Contour Interval - 4 milligals

Base of the Continental Slope

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