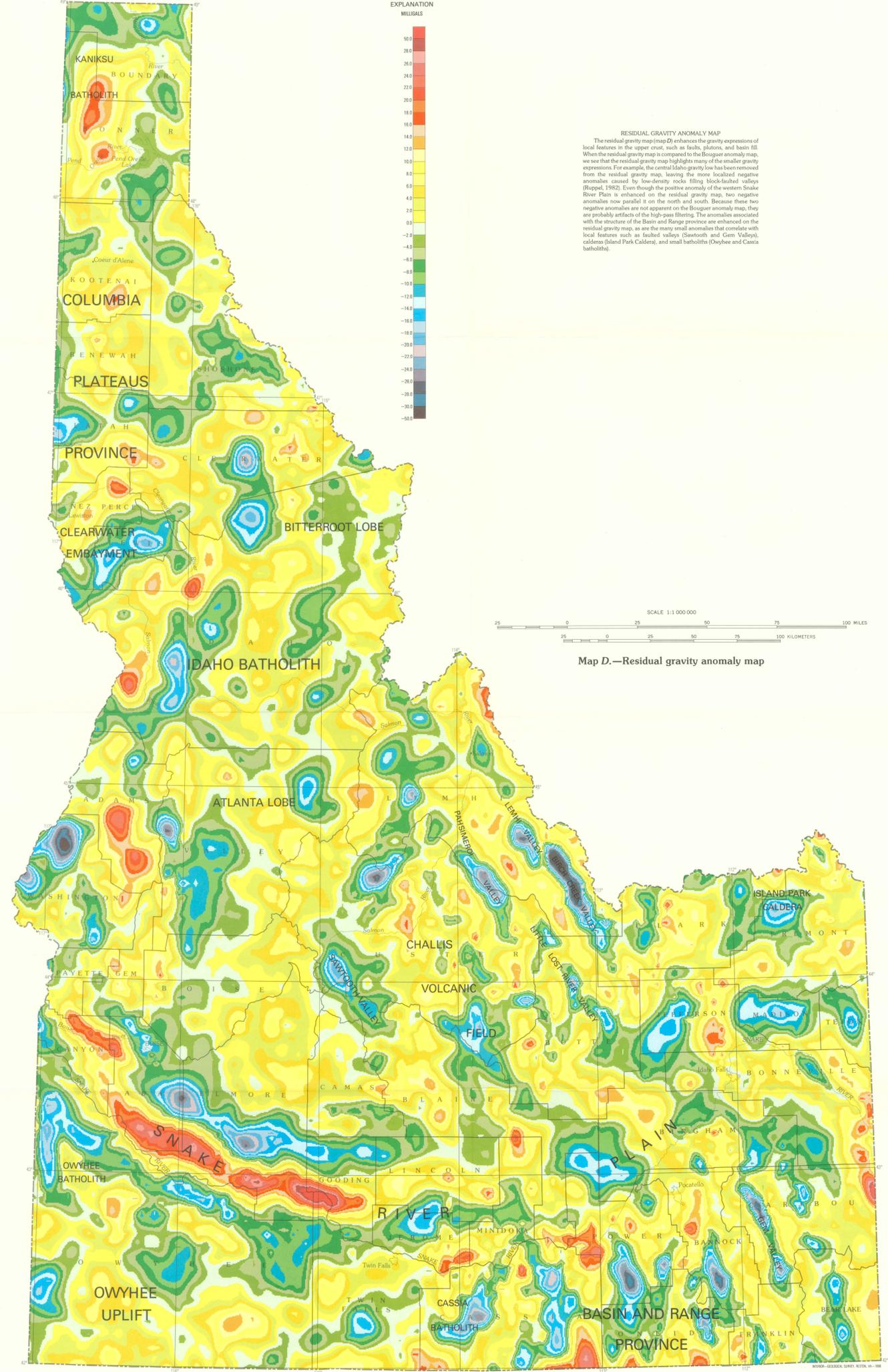


Map C.—Regional gravity anomaly map



Map D.—Residual gravity anomaly map

EXPLANATION
MILIGALS

0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
-55.0
-60.0
-65.0
-70.0
-75.0
-80.0
-85.0
-90.0
-95.0
-100.0
-105.0
-110.0
-115.0
-120.0
-125.0
-130.0
-135.0
-140.0
-145.0
-150.0
-155.0
-160.0
-165.0
-170.0
-175.0
-180.0
-185.0
-190.0
-195.0
-200.0
-205.0
-210.0
-215.0
-220.0
-225.0
-230.0
-235.0
-240.0
-245.0
-250.0
-255.0
-260.0
-265.0
-270.0
-275.0
-280.0
-285.0
-290.0
-295.0
-300.0

REGIONAL GRAVITY ANOMALY MAP
The regional gravity map (map C) enhances the gravity expressions of features in the mid to lower crust or deeper; however, shallow, broad features in the upper crust are also enhanced, such as the basalt of the Columbia Plateaus province and the western Snake River Plain. When the regional gravity map is compared to the Bouguer anomaly map, we see that the regional gravity map lacks many of the smaller gravity expressions. For example, a positive anomaly and a negative anomaly associated with the Owyhee Uplift on the Bouguer anomaly map appear on the regional gravity map as a single negative anomaly centered on the uplift. The small anomalies in the Basin and Range province on the Bouguer anomaly map do not appear on the regional gravity map. The two linear gravity lows seen on the Bouguer anomaly map in the eastern part of the central Idaho gravity low do not appear on the regional gravity map; however, the central Idaho gravity low still extends eastward, suggesting that some low-density regional feature (either the Idaho batholith or the Challis volcanic field) may extend eastward in the subsurface.

EXPLANATION
MILIGALS

50.0
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0

RESIDUAL GRAVITY ANOMALY MAP
The residual gravity map (map D) enhances the gravity expressions of local features in the upper crust, such as faults, plutons, and basin fill. When the residual gravity map is compared to the Bouguer anomaly map, we see that the residual gravity map highlights many of the smaller gravity expressions. For example, the central Idaho gravity low has been removed from the residual gravity map, leaving the more localized negative anomalies caused by low-density rocks filling block-faulted valleys (Ruppel, 1982). Even though the positive anomaly of the western Snake River Plain is enhanced on the residual gravity map, two negative anomalies now parallel it on the north and south. Because these two negative anomalies are not apparent on the Bouguer anomaly map, they are probably artifacts of the high-pass filtering. The anomalies associated with the structure of the Basin and Range province are enhanced on the residual gravity map, as are the many small anomalies that correlate with local features such as faulted valleys (Sawtooth and Gem Valleys), calderas (Island Park Caldera), and small batholiths (Owyhee and Cassia batholiths).

BOUGUER GRAVITY ANOMALY MAP AND FOUR DERIVATIVE MAPS OF IDAHO

By
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1988