



PERMAFROST MAP OF ALASKA

Compiled by
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SCALE 1:250,000
0 50 100 150 200 250 MILES
0 50 100 150 200 250 KILOMETERS

1965

EXPLANATION
Permafrost is defined here as that part of the lithosphere in which a naturally occurring temperature below 0°C (32°F) has existed continuously for 2 or more years.

AREAS WITHIN PERMAFROST REGION

- Generally underlain by continuous permafrost
- Generally underlain by discontinuous permafrost
- Generally underlain by isolated masses of permafrost

Lowland and upland areas, including hills and mountains areas in which summits generally are less than 2000 feet in altitude. Underlain predominantly by thick unconsolidated deposits but locally underlain by bedrock at or near the surface. Variation in the character of the unconsolidated deposits with depth is common. The thickness and the temperature of permafrost are less variable in these areas than in the mountainous areas.

- Underlain by thick permafrost; areas of fine- and coarse-grained deposits. Maximum determined depth to base of permafrost is 200 feet. Locally, in close proximity to large water bodies, depths between 400 and 800 feet have been determined.
- Underlain by moderately thick permafrost; areas of predominantly fine-grained deposits. Maximum determined depth to base of permafrost is 100 feet. Locally, in close proximity to large water bodies, permafrost is absent.
- Underlain by discontinuous permafrost; areas of predominantly coarse-grained deposits. Maximum determined depth to base of permafrost is 50 feet. In the Copper River Basin and along the north flank of the Alaskan Range extensive areas are free of permafrost.
- Generally underlain by numerous isolated masses of permafrost; areas of predominantly coarse-grained deposits. Maximum determined depth to base of permafrost is 50 feet. In the Copper River Basin and along the north flank of the Alaskan Range extensive areas are free of permafrost.
- Underlain by isolated masses of permafrost; areas of predominantly fine-grained deposits. Permafrost generally occurs either at a considerable depth below the surface as relict permafrost, or near the surface as high and ground insulation is low, especially near the border of the permafrost region.
- Generally free of permafrost; areas of predominantly coarse-grained deposits.

AREAS OUTSIDE OF PERMAFROST REGION

- Generally free of permafrost; a few small isolated masses of permafrost occur at high altitudes, and in lowland areas where ground insulation is high and ground insulation is low, especially near the border of the permafrost region.

SPECIAL FEATURES WITHIN PERMAFROST REGION

Water bodies. Permafrost is either absent or at considerable depth beneath large rivers and large deep lakes throughout the entire permafrost region. The extent in these large water bodies, and also in the ocean waters, tends to decrease the thickness and to increase the temperature of permafrost in adjacent areas. In the southern part of the permafrost region, areas adjacent to large water bodies commonly are free of permafrost.

Glaciers. Almost all areas underlying active glaciers are believed to be free of permafrost.

Thermal springs and active volcanoes. Permafrost is absent in close proximity to thermal springs and active volcanoes. These features are surface manifestations of relatively high near-surface, earth temperatures, which tend to decrease the thickness and to increase the temperature of permafrost.

SELECTED PERMAFROST DATA FROM WELLS AND BORINGS

- 770°
Permafrost present; number denotes approximate depth in feet to base of permafrost. Asterisk after number indicates that depth was estimated by extrapolation of thermal gradient.
- Q100
Permafrost absent; number denotes approximate thickness in feet of unfrozen material.

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