



Outlines of fields plotted by A. M. Gooding from 1948 aerial photographs. Base after U. S. Geological Survey quadrangle maps Fairbanks D-1, D-2

INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C. W-4110

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DISTRIBUTION OF PERMAFROST AND CLEARED FIELDS IN THE FAIRBANKS AREA, ALASKA, 1948

EXPLANATION

PHYSIOGRAPHIC UNITS	PERMAFROST	EFFECTS OF PERMAFROST ON CULTIVATED FIELDS
Flood plain	Depth to permafrost 2 to 4 feet in older deposits of flood plain; more than 4 feet on inside of meander curves near rivers. Depth to permafrost up to 40 feet in cleared or burned-over areas. Permafrost 2 to 265 feet thick; absent beneath present and recent river channels, sloughs, or lakes. Unfrozen layers and areas comprise irregular unfrozen passages throughout permafrost. Large ground-ice masses lacking. Ground-ice occurs only as granules and cement between mineral grains.	No mounds or pits develop from thawing permafrost. Drainage improves after clearing and subsequent lowering of the permafrost table. Soil moisture decreases after field has been cleared 2 to 3 years.
Alluvial fans and colluvial slopes	Depth to permafrost 3 to 4 feet on lower slopes; 5 to 20 feet near contact with permafrost-free upper hillsides. Permafrost forms continuous layers 2 to 175 feet thick; thick toward hills. Many large masses of ground-ice in polygonal network.	Melting ground-ice masses form thermokarst mounds and pits in fields. May be necessary to abandon fields or reduce them to pasture a few years after clearing.
Silt lowland	Depth to permafrost 1 to 3 feet, permafrost forms a continuous layer as much as 175 feet thick. Abundant ground-ice masses in polygonal network.	Drainage poor. Clearing of land produces seasonal quagmire. Melting of ice masses forms mounds, pits, and cave-in lakes.
Hill tops and south-facing slopes	None	None
Cleared field with no mounds or pits due to melting ground-ice	Cleared field with mounds and pits produced by melting ground-ice (See table 2)	Thermokarst pit formed by melting ground-ice
		Contact between physiographic features, questioned where probable