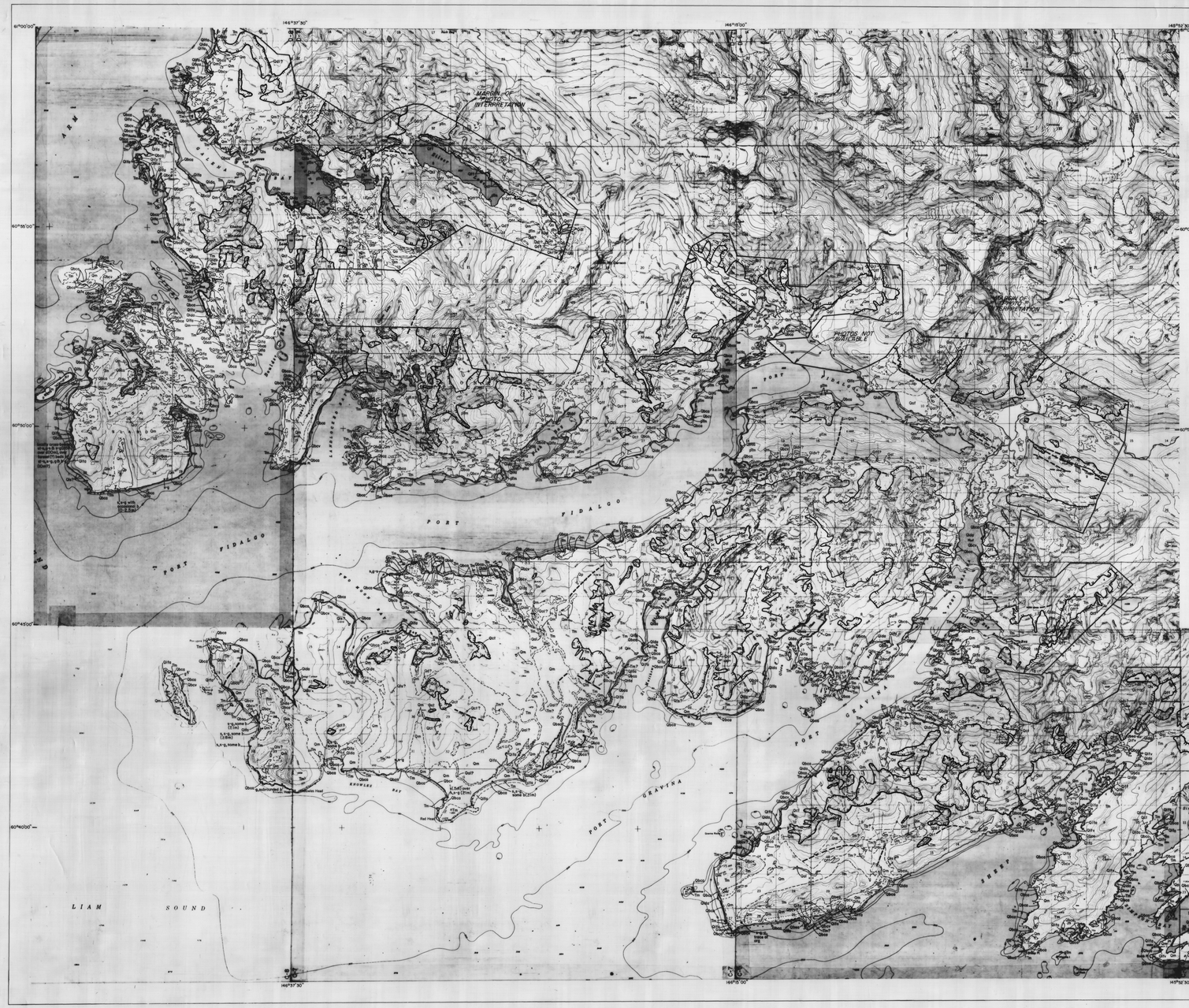

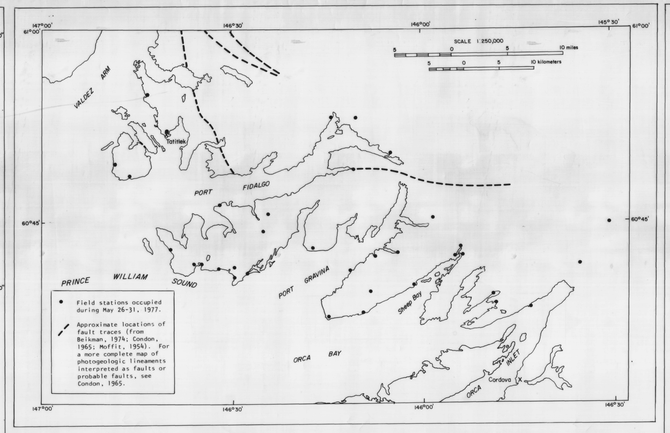

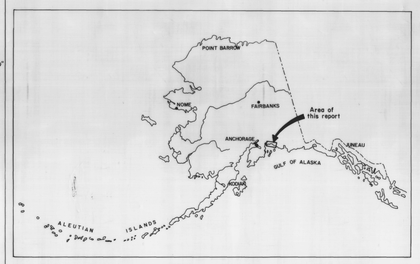

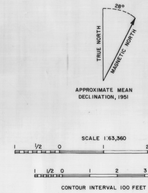

EXPLANATION

Unconsolidated Deposits

Terrestrial deposits

Qm Muskeg. Organic deposits which range from .5 m to about 2 m thick where observed in banks. Locally characterized by small pools, terraces, and/or low stringlike ridges.

Qp Swamp deposits inferred to be mainly organic materials and fine detritus. Thicknesses unknown.

Qff Deposits of small, steep alluvial-colluvial fans. Inferred to consist chiefly of poorly sorted stream deposits and possibly earthflow or talus deposits.

Qaf Deposits of relatively large alluvial fans. Inferred to consist of moderately sorted sand, sandy gravel, and bouldery gravel.

Qal Alluvial-fluvial deposits including deposits in active stream channels and beneath flood plains inferred to be subject to periodic flooding. Inferred to consist of sand, sandy gravel, and bouldery gravel, possibly including silty sand. Thicknesses unknown but may exceed 10 m in larger valleys of the area.

Qo Alluvial-fluvial deposits of previous river stages, presumably glacial outwash deposits. Distinguished from unit Qal by occurrence as apparently inactive floodplain deposits or as higher, apparently inactive stream terrace deposits. Inferred to be mainly sand, sandy gravel, and bouldery gravel.

Qkt Kame terrace deposits. Occurrences shown here are limited to valley walls. Identified on the basis of elongate form of deposit with flat upper surface and steep side facing valley floor. Inferred to consist chiefly of poorly to moderately sorted sand, gravel, and boulders.

Qd Glacial till deposits. Thicknesses in the map area are unknown, but are probably less than a few meters on the average. Inferred to be mainly nonsorted clasts from silt to boulder sizes, possibly including some clay sized particles.

Qdl Glacial till deposits in the form of lateral moraines. Thicknesses unknown, but within the map area are probably not greater than a few meters on the average. Some occurrences shown here on valley walls may be only inflections in bedrock slopes with little or no till deposits.

Qrg Rock glaciers. Lobate deposits consisting largely of gravel and boulders, characterized by hummocky or lobate surfaces. Occur chiefly in cirques, and are inferred to have been, or now be, cored by an ice matrix and subject to slow downslope movement.

Qat Talus deposits in the form of cones or aprons at the base of steep bedrock slopes. Inferred to consist mainly of poorly sorted, angular pebbles, cobbles, and boulders.

Qtl Protalus lobes or sheets. Inferred to be colluvial deposits, occurring at higher elevations, which are characterized by vaguely humocky surfaces presumed to be the result of slow downslope movement.

Qls Landslide scars and deposits. Occurrences shown here are primarily narrow scars in vegetation cover down relatively steep slopes. The scars are inferred to be slope failures in a thin cover of soil, till, or colluvium on bedrock; failed material may be thinly deposited along the scar or at the foot, or it may have flowed further downslope as an earthflow or debris avalanche.

Marine deposits

(Note: the letter "a" after the following symbols means nonvegetated deposits, whereas "v" means vegetated deposits. Example: Qbca, Qbcv. Vegetated deposits are not necessarily free from saltwater inundation, but may be reached by highest tides or waves.)

Qbc Beach deposits consisting chiefly of gravel, or mixed sand and gravel. Includes local boulder beaches, inferred to be lag deposits eroded by waves from glacial till.

Qbs Beach deposits consisting chiefly of sand. Distinction from Qbc is based mainly on aerial reconnaissance.

Qd Delta deposits. Inferred to be mainly stream sediments which have been deposited by, or are periodically influenced by, waves and littoral currents.

Qtf Tidal flat deposits. Inferred to consist mainly of materials of silt and sand size which have been transported by littoral currents. Distinguished from beach deposits by relatively lower surface gradient of Qtf deposits, and from delta deposits by absence of nearby streams.

(The various units of unconsolidated deposits are all tentatively assigned a Quaternary age. The units as given above are not meant to be in stratigraphic order.)

Bedrock

Tg Coarsely crystalline rocks of granitic affinity (of Oligocene age).

Tm Metasedimentary and metavolcanic rocks (Orca Group, of early Tertiary age); intensely deformed.

pKv Metasedimentary and metavolcanic rocks (Valdez Group, of Late Mesozoic age); mildly metamorphosed.

Ages and descriptions of bedrock are taken from H. F. Beikman (compiler), 1974, U.S. Geol. Survey Map MF-612 (scale 1:1,000,000). Contacts of bedrock units shown here are modified slightly from Beikman and from F. H. Moffit, 1954, U.S. Geol. Survey Bull. 989-E (geologic map scale 1:250,000). The modification is tentative and is based on photointerpretation: unit Tg is relatively more massive and lighter toned, and unit Tm locally appears to be more finely and uniformly foliated or bedded than unit pKm.

Approximate average trend of bedrock striations, presumably of glacial origin.

Photogeologic contact, dashed where location is approximate. Unit symbols are queried where photointerpretive identification is uncertain.

Selected photogeologic lineaments. Only lineaments with fairly sharp topographic expression (such as low abrupt scarps), or, rarely, which appear to have expression in surficial deposits, are shown here. Lineaments shown here are largely unevaluated; identification will require detailed field investigations including sampling of surficial deposits. For a more complete map of photogeologic lineaments, see W. H. Condon, 1965, U.S. Geol. Survey Map I-453 (scale 1:125,000).

Low scarps which occur mainly at seaward margins of gently sloping terraces. Tentatively identified as emergent seacliffs, based primarily on relatively consistent elevations within about 50 m of mean sea level. A bedrock surface seaward of one such scarp on the south side of Bligh Island, however, is striated; thus, if the surface is a wavecut platform, then it apparently has been glaciated after its formation. (See U.S. Grant and D. F. Higgins, 1910, U.S. Geol. Survey Bull. 443, p. 17.)

Descriptions of surficial deposits observed at various field stations. Abbreviations are as follows: c = clay or silt, s = sand, st = silt, g = gravel, b = boulders, d = diamicton. Where hyphenated, the first letter is an adjective; thus, s-g = sandy gravel. Most of such deposits shown here are thin and/or occur beneath muskeg and are exposed in banks; lack of geomorphic expression precludes mapping of the deposits as other than muskeg. No fossils were observed in any of the stratified deposits.

Photogeologic data are from interpretation of the following vertical aerial photos: west of the Rude River plain, Series EEV (black-white, scale 1:15,840, taken 1953); from the Rude River east, U.S. Forest Service color series (scale about 1:16,200, taken 1974). Consequently, the distribution of units shown on this map to the west of the Rude River does not include possible changes resulting from the 1964 earthquake and associated landlevel changes.

Areas prone to snow avalanching

Areas prone to snow avalanching (teeth on avalanche-prone side of line). Defined by scars in high-standing vegetation, and by areas below or on moderate to steep slopes which are generally free of high-standing vegetation. Preliminary identification of areas prone to avalanching as shown on this map is based solely on aerial photo interpretation and is subject to revision. In particular, large and infrequent avalanches may extend beyond the limits of the avalanche-prone areas shown here.

Base maps are Cordova C-5, C-6, C-7, C-8, D-6, D-7, and D-8 (1951, with minor revisions after 1964).

ACKNOWLEDGMENTS

Field assistance was performed during May 26-31, 1977, by Dave Charkroff. All aerial photos used for photointerpretation were kindly loaned by the U.S. Forest Service, Anchorage, AK. The Alaska Dept. of Transportation and Public Facilities, Div. of Aviation, made available reports on subsurface investigations in the vicinity of the Tatitlek airport runway; their data are summarized as a single field station observation in Section 32, T11S R8W, of this map.

This is a preliminary publication of the Alaska Division of Geological and Geophysical Surveys and as such has not received final editing and review. The author will appreciate candid comments on the accuracy of the data, and welcomes suggestions that will improve the report.

(Geologic units shown here are from a preliminary photointerpretation map of surficial geology by J.R. Riehle, Alaska Open-File Report 115, 1978. Areas prone to snow avalanching based on photointerpretation by J.R. Riehle, 1978.)

PHOTOINTERPRETATION MAP OF COASTAL SURFICIAL GEOLOGY
RUDE RIVER TO VALDEZ ARM, ALASKA

BY J.R. RIEHLE

MARCH 1978

PLATE 7b