

- IV. Alaska State Leasing System and Federal Government Leasing System in Future Concurrent Operation
1. Acreage quota provisions.
 2. State lease forms and provisions.
- V. Wildlife Withdrawal Problem
1. In general.
 2. As to presently existing lease offers.

(21) REGIONAL GEOLOGIC INTERPRETATIONS OF AEROMAGNETIC PROFILES OF SELECTED AREAS IN ALASKA

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Aeromagnetic traverses over some of the sedimentary basins in Alaska have been flown by the U. S. Geological Survey in order to obtain a better understanding of the regional geology and an estimate of the thickness of sedimentary rocks in these areas. The magnetic data are presented in the form of profiles.

The basin areas under investigation are Yukon Flats and the adjacent Kandik Segment, the Middle Tanana and the Susitna Lowlands north of Cook Inlet. In the Susitna area, the magnetic data delineate the contact between the rocks of the Talkeetna geanticline and the Alaska Range geosyncline on the northwest, and indicate that the north end of the Cook Inlet Tertiary basin is shallow. North-south profiles near the eastern edge of the Yukon Flats basin south of the Arctic Circle indicate the probable presence of near-surface volcanic rocks.

A long profile from Anchorage to Nome, across many of the major tectonic elements in Alaska, is also presented. Examination of this profile yields the following: (1) the west and east edges of the Talkeetna geanticline may be delineated; (2) the Alaska Range geosyncline, the Tanana geanticline, and most of the Kuskokwim geosyncline are magnetically featureless, indicating that the sedimentary section is thick or that the basement rocks are nonmagnetic; (3) there is no great thickness of sedimentary rocks under Norton Sound.

(22) SUMMARY OF JURASSIC STRATIGRAPHY OF ALASKA

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Jurassic rocks are fairly wide-spread in Alaska and occur in southeastern, southcentral, and southwestern Alaska. They are also extensively exposed on the Alaska Peninsula and in northern Alaska.

The Lower Jurassic deposits consist predominantly of a volcanic sequence of submarine volcanic flows, agglomerates, and tuffs with associated interbedded clastic sediments and some impure limestones and marls. The Middle Jurassic deposits are characterized by siltstones and, to less extent, sandstones with some conglomerates. The Upper Jurassic deposits consist of siltstones, sandstones, and conglomerates.

Most of the Jurassic deposits contain molluscan fossils, particularly ammonites. The ammonite faunas contain genera and, in some instances, species which are identical with forms from the classic type sections of Europe. Correlation of the Alaska faunas with those of the European type sections indicates the presence in Alaska of all the European stages with the exception of the Bathonian. Within parts of the Middle Jurassic, it has been possible to recognize a number of the European zones.

The later Upper Jurassic contains few diagnostic ammonites. The chronology of this part of the section has been worked out by means of a study of the ubiquitous pelecypod, *Aucella* (= *Buchia*).

(23) GEOPHYSICAL EXPLORATION IN NORTHERN ALASKA

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Nine seasons of geophysical work by United in Northern Alaska have resulted in considerable knowledge of how to work in this remote area. Geophysical operations in Northern Alaska are best conducted between February and late July. This is a result of weather and terrain conditions and the necessity of supporting isolated field camps. Gravity work in the area can be useful as an indication of pre-Cretaceous structure. Two examples of structure in the Cretaceous, Gubik (a known gas-producing area) and Kuparuk, a potential structure along strike with Gubik are illustrated. Some of the structural complexity of the foothills province is shown in the far west at Driftwood and the far east at Shaviovik.

A tentative reason for the extraneous waves resulting from shooting in ground ice is discussed. These waves are in nearly every case non-repetitive.