Case background：

The metallogenic region of the Pacific rim is distributed around the periphery of the Pacific Ocean and spans four continents, namely Asia, Oceania, North America and South America.The metallogenic tectonic setting is mainly phanerozoic orogenic belt and Cenozoic weathering crust.The metallogenic domain of the Pacific rim is characterized by large-scale mineralization of copper, molybdenum, gold, silver, nickel, tungsten, tin, lead and zinc, etc.The Pacific metallogenic region is extremely rich in mineral resources, while the geological survey of the countries along the western Pacific coast of the United States and Canada has been carried out earlier, with a high degree of research and complete data, which are freely available for download to users, providing an ideal research area for metallogenic prediction.In this work, geological, geochemical, geophysical, and ore deposit (point) data were collected from Washington state, Nevada, Alaska, and British Columbia.According to the type of deposit, the metallogenic elements are analyzed and the corresponding geological data are extracted.Through a series of information extraction and integration, a quantitative prediction algorithm is used to predict the mineralization of the corresponding mineral species.

**Data introduction:**

This work selected ALASKA, Wrangellia, Iron Ck, Black Mtn., Beaver Ck, Fox Hills and other areas for large-scale metallogenic prediction display.Download data from the USGS, and predict different genetic types of deposits according to their genetic types;According to the type of deposit, the favorable strata for mineralization are extracted.Geochemical interpolation and aeromagnetic data are carried out according to the average sampling interval of geochemical samples to ensure the diversity and reliability of the data.Wrangellia The area is located in central and southern ALASKA. The area is mainly exposed to Paleozoic - early Mesozoic strata, mostly sedimentary - based volcanic rocks and shallow metamorphic rocks.The study area has extensive magmatic activities. The intrusive bodies are mainly Paleozoic granitoids and cretaceous basic and ultrabasic intrusive bodies.The metamorphic degree in the area is not high, and a small amount of feldspar metamorphic rocks are exposed.The faults in this area are mainly high-angle NE thrust faults.Normal faults are mainly distributed in NW direction.

There are porphyry copper deposits (spots) in this area, which are exposed to the rock mass and near the fault zone, and have high aeromagnetic values.Extensive magmatic activities and fault zones provide favorable geological conditions for mineralization and are ideal prediction areas for porphyry copper deposits.

**The flow chart：**

