Introduction

The Ngururrpa area is located approximately 250 km south of Port Hedland in the eastern Pilbara region, Western Australia. It is an exploration area for gold, iron, and nickel. The area is known for its rich geological history and contains various mineral deposits.

Regional geology

The region is characterized by a mix of sedimentary, volcanic, and granitic rocks. The Pilbara Craton, which is part of the Western Australian Craton, underlies the area. The crust is up to 5 km thick and is divided into three main geological provinces: the South Pilbara Block, the North Pilbara Block, and the Kimberley Block. The area contains a variety of mineral deposits, including gold, iron, and nickel.

Sampling and analysis of regolith

Regolith was sampled at a maximum of 60 cm depth using a power auger (Fig. 26). At each site, 10 samples were taken using a core barrel sampler and a hand auger. The samples were dried, sieved, and analyzed for metal concentrations by XRF. A total of 90 samples were analyzed for metal concentrations.

Gold

The data for the 10 samples showed no significant variation in gold content. The highest gold content was 0.1 ppm, and the lowest was 0.01 ppm. The average gold content was 0.05 ppm.

Iron

The data for iron showed a range from 0.1 to 0.3% Fe₂O₃. The highest iron content was 0.3%, and the lowest was 0.1%. The average iron content was 0.2% Fe₂O₃.

Strontium

The data for strontium showed a range from 0.01 to 0.02 ppm Sr. The highest strontium content was 0.02 ppm, and the lowest was 0.01 ppm. The average strontium content was 0.015 ppm.

How is mineral exploration affected by GSWA’s regolith geochemistry?

1. Gold

2. Iron

3. Strontium

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