Geological mapping of Sabah, Malaysia, using airborne gravity survey

Abstract

Airborne gravimetry is an effective tool for mapping local gravity fields using a combination of airborne sensors, aircraft and positioning systems. It is suitable for gravity surveys over difficult terrains and areas mixed with land and ocean. This paper describes the geological mapping of Sabah using airborne gravity surveys. Airborne gravity data over land areas of Sabah has been combined with the marine airborne gravity data to provide a seamless land-to-sea gravity field coverage in order to produce the geological mapping. Free-air and Bouguer anomaly maps (density 2.67 g/cm 3) have been derived from the airborne data both as simple ad-hoc plots (at aircraft altitude), and as final plots from the downward continued airborne data, processed as part of the geoids determination. Data are gridded at 0.025 degree spacing which is about 2.7 km and the data resolution of the filtered airborne gravity data were 5-6 km. The airborne gravity survey database for land and marine areas has been compiled using ArcGIS geodatabase format in order to produce the update geological map of Sabah.