

Airborne Gravity Test

January 2019



Dynamic Gravity Systems AT1M Airborne Gravity Meter



h Getech Ground Gravity Data



Equipment

Aircraft: Cessna 180

Gravity Meter: Dynamic Gravity Systems AT1M-6

Survey Navigation: LiNav System Utilizing Pre-planned Drape Guidance



The AT1M Gravity Meter, which was installed in the rear cabin of the aircraft, incorporates an advanced GPS-guided platform control system and inertial navigation corrections that allow for the acquisition of high-resolution data using light aircraft following a pre-planned drape surface.





A test area in northern Colorado was chosen where a high density of ground gravity stations were present. A total of 82 public domain stations and 1,385 Getech stations were used for ground gravity comparison.

A total of 2,000 line km of data were acquired over the 20 km by 66 km area in 10 flights in the fall of 2018.

The data were acquired using a preplanned drape surface at 2,000 ft above terrain. Terrain elevation increased by 2,000 ft from the south to the north within the survey area.

Left:

Dots: Getech Gravity Stations Triangles: Public Gravity Stations

Right: Airborne Gravity Flight lines



Data Comparisons

The figures at right compare the combined Getech and public gravity data.

The first map shows the Free-air gravity measured at ground level.

The second map shows the combined Getech and public data upward continued to 2,000 ft. to match the airborne survey acquisition height.

The third map is the Airborne Free-Air gravity, showing the correlation with the ground and upward continued data.

The Airborne Free-air data reflects a spatial resolution of approximately 7 km.



Getech and Public Ground Free-air



Getech and Public Upward Continued Free-air



EDCON-PRJ Airborne Free-air





This figure illustrates the performance of the AT1M Meter during draped flight operations. When acquiring data along flight line A-A', the aircraft followed a pre-planned drape surface that contoured over topography as it increased by 500 meters (1,640 ft.). During the drape maneuver, no deviation from the upward continued ground data was observed.

EDCON-PRJ wishes to thank Getech USA for the use of their ground gravity data in this project.