

FULL SPECTRUM GRAVITY – HIGH QUALITY GRAVITY DATA FOR ALL APPLICATIONS

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Over the last two years, CGG has introduced the Full Spectrum Gravity initiative. This merges the short to medium wavelength data from the Falcon Airborne Gravity Gradiometer (AGG) system and the medium to long wavelength data from the sGrav strap-down gravimeter. These complementary technologies allow for the delivery of sub-milliGal gravity data at resolutions from hundreds of meters up to hundreds of kilometers.

In this work, we demonstrate the acquisition and processing methods involved in Full Spectrum Gravity and the accuracy of the final data product. The long wavelength data is required first. The sGrav is used to create a free air anomaly gravity product. The accuracy of the data at various filter lengths (15-30km) is evaluated to determine the optimal merging spatial wavelength for the sGrav and Falcon datasets. Using the sGrav data, free air anomaly differential curvature components are created.

Using the optimal wavelength as the cut-off frequency, a low-pass filter is designed to be applied to the sGrav curvature gradients and a high-pass filter is designed to be applied to the Falcon AGG curvature gradients. By combining these together, we create the Full Spectrum Gravity dataset.

In conclusion, we demonstrate the acquisition technologies and the processing methods to create the Full Spectrum Gravity data and demonstrate that it achieves sub-milliGal accuracy across the largest bandwidth of the gravity spectrum.