Improving the Arctic Gravity Project grid and making a gravity anomaly map for the State of Alaska

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Incremental improvements to the Arctic Gravity Project (AGP) grid have accumulated through the steady acquisition of marine gravity anomaly data in the Arctic Ocean and, largely, due to the addition of airborne surveys over land. The explosion of data collected to establish the Extended Continental Shelves of the Arctic coastal states has quite substantially increased the available data in and around the Arctic Ocean.

A consistent issue with the AGP grid has been a very irregular distribution of gravity anomaly data in Alaska. While parts of the state have been well-surveyed (e.g. the North Slope) much of this remote region has not. Access is difficult. Control points for gravity ties are non-existent. As a result, the anomalous field for Alaska has not been well determined.

This may be changing due to the extensive airborne survey conducted by the US National Geodetic Survey as a part of their effort to redetermine the geoid for all US Territory. Nearly all of Alaska has been flown at ~6 km elevation with a 10 km line spacing as a part of the GRAV-D project. These data have been collected by a single group, using consistent procedures and the same equipment. As a result, these data form the basis for a new gravity anomaly map for the State of Alaska.

Using the new data, both at sea and collected through the GRAV-D project will substantially improve knowledge of the gravity field. All of the new data will be included in the updated AGP grid, which should be available in a year, updating the last release from 2008.