

## **Typical Projects Performed by Bain Geophysical Services**

Our services primarily involve the integrated interpretation of gravity, magnetics and seismic data. We also offer quality control and survey design for gravity/magnetics/FTG, as well as QC of data processing projects.

I am including below a short description of methods we have been using to enhance our client's exploration efforts. If you see something here that is of interest, I would be happy to provide more information, or perhaps arrange to do a "lunch and learn" talk via video conference. It would be a pleasure if we could meet one day to explore ways that we may be able to assist your team.

We are experts in 3-D modeling around salt, carbonates, etc., using both gravity and FTG/Falcon data sets, oftentimes tightly integrated with seismic velocities. Roughly 1/3 to 1/2 of my time is focused on salt issues - using both LCT software (which I had a large role in modifying for use in and around salt), Geosoft, and software that I have developed. My own software tools include incorporation of a thermal gravity correction (Kuszniir, et al), which can be used effectively in areas of young, thinned crust. Our software has extended Kuszniir's work to incorporate the use of multiple Moho tie points during gravity inversion for crustal thickness, along with multi-layered crust models.

One key to the magnetics is computing the correct depth to basement - particularly if your seismic imaging of basement is challenging. We have developed a new depth to magnetic basement tool – MagDepth™, which has numerous methods built in for computing magnetic depth to source, with a key emphasis on properly computing depth with the thickness of the magnetic crust as a built-in constraint. This is especially critical for thin-crust environments.

We have also implemented methods in MagDepth™ to work directly (and correctly) on non-reduced-to-pole (RTP) data. This has been a major step forward in the quality of the depth to magnetic basement interpretations I am conducting, particularly in low magnetic latitude regions. Too many methods (including standard tilt-depth, most slope methods, etc.) rely solely on RTP data; a process that inherently distorts the gradients that are so important for correct depth computation. If you are interested, I can send you an article in First Break on these magnetic depth-to-source method improvements, co-written by Guy Flanagan, formerly of ConocoPhillips (link: <http://earthdoc.eage.org/publication/publicationdetails/?publication=72251>).

We also design and provide quality control for airborne, marine and land gravity/magnetic surveys – primarily for programs that we will ultimately interpret, so that we have the best data possible for our interpretation work. Our QC is primarily done remotely from the field, where we perform rigorous quality control assessments on the data (daily, weekly, as data drops allow). This allows us to review the data as acquired, and confer with the field and data processing personnel to ensure the highest quality survey results, "argue" over re-flights, determine chargeable km, etc. Our QC role continues during the data processing phase, oftentimes with a visit to the data processing center to perform final QC, discuss deliverables, etc.

I look forward to discussing ways in which we may be of assistance to your exploration program.