High Resolution Satellite DTMs

GeoEye-1 stereo satellite imagery is capable of producing Digital Terrain Models (DTM) with better then 0.5m vertical accuracy. AAMHatch tasked the GeoEye-1 satellite to capture stereo data over a 270sqkm area in Eastern Australia. The application was an engineering study for the energy sector with the client requiring a 0.5m ortho-image with 2m contours.

GeoEye-1's unsurpassed agility and maneuverability assists in rapid stereo capture. This image was cloud-free, and delivered to AAMHatch for processing within 48 hours of capture.

Survey accurate ground control points, distributed evenly across the area, were used in the image processing. These points enabled consistent accuracies to be derived throughout the project area.

In both vertical and horizontal planes, accuracy results of better then 0.5m were achieved. Contours at 2m interval are normally created from a DTM with Z accuracy of 0.6m RMS. The

GeoEye-1 DTM was found to have an accuracy of 0.39m RMS, which is equivalent to a contour interval of around 1.3m. Users should note that in practice anyone can generate contours at any interval desired, however, these products may not be 'fit for purpose'.

https://www.gim-international.com/content/article/high-resolution-satellite-dtms