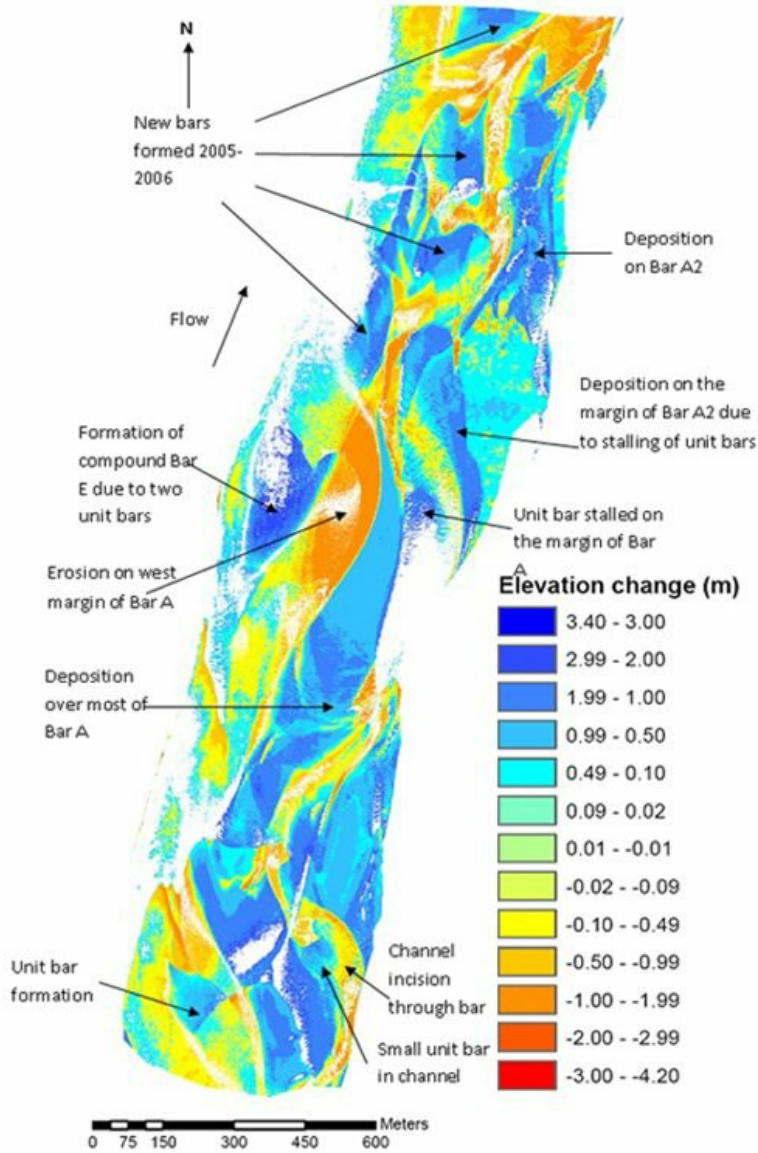


Digital elevation models

DEMs were produced for the South Saskatchewan River from photogrammetric scans (7 micron resolution) of specially-commissioned aerial photographs. The superb resolution of the below water topography is due to the shallow depths and low turbidity of the South Saskatchewan.

The DEM generation required a new technique to be developed (see Lane et al reference in publication list). In brief, the DEMs were generated by coupling two media digital photogrammetry to digital image processing methods. The photogrammetry generates topography for exposed areas and for a small number of submerged points. The latter were used to calibrate a semi-theoretical relationship between light penetration and depth to provide information for the full extent of the submerged area. This opens up the possibility of acquiring DEMs of any river using historical or specially flown imagery without the need for specially-collected calibration data. To date DEMs have been generated for imagery from 2003-2007, these have been used to generate DEMs of difference between epochs to allow quantification of channel evolution to link with the radar surveys of sedimentology.



DEM of difference 2005 - 2006. Resolution is 1 m. Positive elevation change is deposition, negative elevation change is erosion.