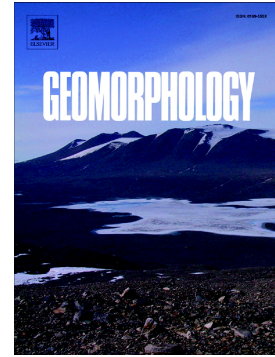


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Determining the Lake Agassiz Moorhead Phase lowstand elevation from compaction ridges and newly identified strandlines in the Red River Valley, USA

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Abstract

A variety of low-relief and subtle landforms mapped from high-resolution, hill-shaded DEMs are used to assign a lower limit to the poorly constrained lowstand elevation of the Moorhead Phase of glacial Lake Agassiz. Downstream ends of compaction ridges (low-relief ridges that trace former stream channels) and weakly developed scarps on either side of the valley at ~247 m are used to provide a best estimate for a lowstand elevation based on geomorphology. Compaction ridges are often sinuous, oriented congruent with modern hydrology, cross-cut younger strandlines, sometimes end at deltas, and formed as a result of delayed greater subsidence of finer-grained sediment than coarser-grained sediment. Previously unmapped, abandoned stream channels of similar scale to compaction ridges are restricted to zones south of Fargo and in places transition downstream into compaction ridges. Many abandoned channels are linear and not occupied by modern streams. Further north, iceberg scours increase in density in lowland areas adjacent to the Red River of the

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