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Representation of global inland water heights within the forthcoming ACE2 GDEM

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The SRTM dataset provides the first near-global elevation model of the earth's continental land surface at 3" resolution. This unique dataset is currently used for a range of applications. However, there are a number of known quirks and omissions in these data, for example voids over large inland water extents and errors in height attributed to river locations, for example where surrounding tree canopy has been measured.

Accordingly, an enhanced full global elevation dataset, ACE2, is currently being developed as an ESA initiative, a follow-on to the highly successful ACE GDEM. This development is utilising over 67 million height measurements (derived from multi-mission satellite radar altimetry using an expert system approach) to validate, error correct and augment the SRTM dataset to derive a full global GDEM at 3 arc second resolution. This paper presents results obtained from a global investigation into the representation of inland water heights within current GDEMs, and demonstrates the potential to include not only accurate mean heights for inland water targets, but also to characterise the temporal variation utilising decadal timeseries obtained from multi-mission satellite radar altimetry. The first full release of the ACE2 GDEM is scheduled for later this year.