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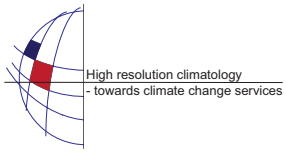

Improving the surface humidity record for climate research

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Surface humidity is an essential climate variable. Observations have shown significant increases in specific humidity in recent times. Relative humidity over land and ocean was near constant until 2000 when a decline became apparent over land (Simmons et al 2010). However, all global land and marine analyses to date are now out of date and either do not account for inhomogeneity or do so in a subjective and non-reproducible way. A climate-quality surface humidity record which is updated in near-real time, has some useful estimate of uncertainty, and resolves the issue of a pre-1982 bias in marine humidity, is long overdue. This paper describes recent work to build HadCRUH2 as a near-real-time monitoring product and identifies potential uses of the dataset.