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Changes in cloud properties over East Asia deduced from the CLARA-A2 satellite data record

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Studies on cloud properties and processes, and their role in the Earth's changing climate, have advanced during the past decades. A significant part of this advance was enabled by satellite measurements, which offer global and continuous monitoring. Lately, a new satellite-based cloud data record was released: the CM SAF cLoud, Albedo and surface RAdiation dataset from AVHRR data – second edition (CLARA-A2) includes high resolution cloud macro- and micro-physical properties derived from the AVHRR instruments on board NOAA and MetOp polar orbiters. Based on this data record, an analysis of cloud property changes over East Asia during the 12-year period 2004-2015 was performed. Significant changes were found in both optical and geometric cloud properties, including increases in cloud liquid water path and top height. The Cloud Droplet Number Concentration (CDNC) was specifically studied in order to gain further insight into possible connections between aerosol and cloud processes. To this end, aerosol and cloud observations from MODIS, covering the same area and period, were included in the analysis.