Monthly AOD maps combining strengths of remote sensing products

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The mid-visible aerosol optical depth (AOD) is the most prominent property to quantify aerosol amount the atmospheric column. Almost all aerosol retrievals of satellite sensors provide estimates for this property, however, often with limited success. As sensors differ in capabilities individual retrievals have local and regional strengths and weaknesses. Focusing on individual retrieval strengths a satellite based AOD composite has been constructed. Hereby, every retrieval performance has been assessed in statistical comparisons to ground-based sun-photometry, which provide highly accurate references though only at few globally distributed monitoring sites. Based on these comparisons, which consider bias as well as spatial patterns and seasonality, the regionally best performing satellite AOD products are combined. The resulting remote sensing AOD composite provide a general reference for the spatial and temporal AOD distribution on an (almost) global basis – solely tied to sensor data.