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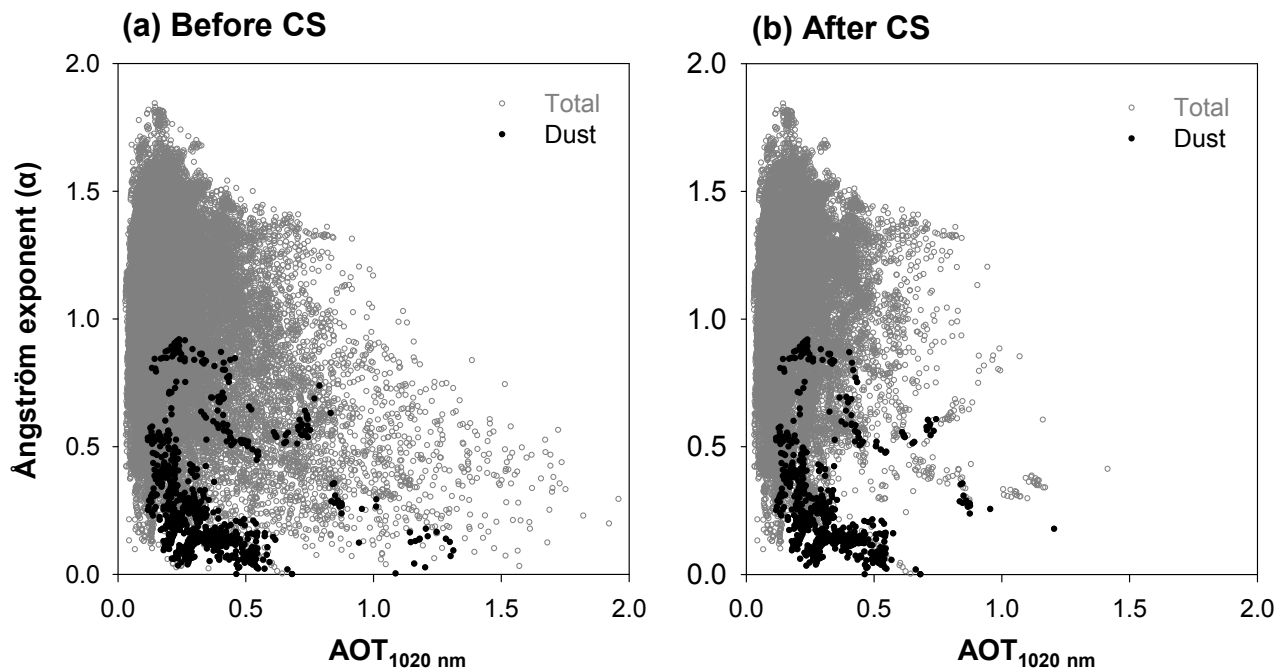


Fig. 1. Scatter plot of aerosol optical thickness (AOT) at 1020 nm and Ångström exponent (a) before and (b) after cloud screening. Dust points are shown by black closed circles.

- A cloud screening method employing two successive procedures of variability test and coarse mode test was developed, aiming at better removal of cloud contaminated data in the sky radiometer retrievals.
- The variability test effectively removes data contaminated by relatively thick low-level clouds, while the coarse mode test eliminates data likely contaminated by thin cirrus-type clouds. In particular, the coarse mode test could effectively alleviate problems related to high single scattering albedo (SSA) due to the thin cirrus contamination. Compared to the current cloud screening algorithm for SKYNET (Khatri and Takamura, 2009), the new method appeared to provide better results, and in particular, reduced the overestimated AOT and SSA without the use of co-located solar flux measurements.
- After applying the new cloud screening method, many of the data points located in the high AOT and low Ångström exponent sector were eliminated, whereas dust points were relatively well preserved (Fig. 1), indicating the improvement of dust detectability by enhancing cloud screening performance.