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Climatological assessment of desert targets over East Asia - Austalian region for the solar channel calibration

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Desert targets for solar channel calibration of satellites in the East Asia – Australian region were selected and their qualities were assessed with aid of Moderate Resolution Imaging Spectroradiometer (MODIS) data. The white-sky albedo, which was derived from Collection 5 MODIS Terra and Aqua bidirectional reflectance distribution functions parameters and their associated quality flags, was used to examine the variation caused by changes in surface conditions. Cloud fraction and aerosol optical thickness from MODIS are also used for checking quality of selected targets over 2002-2008 period. Selecting calibration targets, we examined the magnitude, spatial uniformity, temporal stability, and yielding ratio of the white-sky albedo over the East Asia - Australian desert targets. The surface brightness (i.e. the magnitude of white-sky albedo) was used to determine bright targets. Spatial uniformity of white-sky albedo was checked to reduce influence of possible navigation errors in the calibration. Temporal stability of white-sky albedo was also considered to find less seasonal trended targets. Results indicate that all desert targets in consideration (i.e. Chinese Jilin, Indian, and central Australian deserts) did not show satisfactory behaviors required for solar channel calibration. Nevertheless Australian desert targets are considered to be best when surface brightness, temporal stability, and data yielding ration are counted.