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Near-infrared thermal emissivity from ground based atmospheric dust measurements at ORM

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We present an analysis of the atmospheric content of aerosols measured at Observatorio del Roque de los Muchachos (ORM; Canary Islands). Using a laser diode particle counter located at the Telescopio Nazionale Galileo (TNG) we have detected particles of 0.3, 0.5, 1.0, 3.0, 5.0 and 10.0 um size. The seasonal behavior of the dust content in the atmosphere is calculated. The Spring has been found to be dustier than the Summer, but dusty conditions may also occur in Winter. A method to estimate the contribution of the aerosols emissivity to the sky brightness in the near-infrared (NIR) is presented. The contribution of dust emission to the sky background in the NIR has been found to be negligible comparable to the airglow, with a maximum contribution of about 8-10% in the Ks band in the dusty days.

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