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SHADOZ (Southern Hemisphere Additional Ozonesondes): A tropospheric and lower stratospheric profile climatology and comparisons to OMI total ozone

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We present a regional and seasonal climatology of SHADOZ ozone profiles in the troposphere and lower stratosphere (LS) based on measurements taken during the Aura era, 2005-2009, when several new stations joined the network (Hanoi, Hilo, Hawaii; Alajuela/Heredia, Costa Rica; Cotonou, Benin). Fifteen stations operated during that time. Gravity wave signatures in the TTL are also reported, based on the Laminar Identification technique, as in Thompson et al. (2011). A progression of decreasing convective influence and increasing pollution distinguishes tropospheric ozone among three regions: western Pacific/eastern Indian Ocean; equatorial Americas (San CristÛbal, Alajuela, Paramaribo); the Atlantic and Africa. As such, each station has unique value for evaluating satellite algorithms and model simulations of ozone. Possible station biases in the stratospheric segment of the ozone measurement and noted in the first 7 years of SHADOZ ozone profiles (Thompson et al., 2003; 2007; cf Smit et al., 2007) are re-examined. Comparisons in total ozone column from soundings, the OMI satellite and ground-based instrumentation are presented.