

# **A four-year climatology of SABER gravity wave activity**

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Infrared limb sounding of non-saturated CO<sub>2</sub> emissions is sensitive to gravity waves (GWs) with horizontal wavelengths longer than 100km and vertical wavelengths longer than 3-5km, the latter depending on the instrument. Temperature measurements of the SABER limb-scanning radiometer on board TIMED in the altitude range from 15 to 100km were analyzed for GWs. Close to continuous data coverage is obtained for the time span between February 2002 and September 2005 providing for a first time a multi-year series of this measurement type. The annual cycle, as well as interannual variations, are discussed. For instance, we find for all four years a well pronounced semi-annual oscillation in the tropical wave activity which is in good agreement with radar observations from Hawaii. Several sources including mountainous regions and convection over regions of high SST are identified. For the year 2003 the measurements are compared to global modeling with the Warner and McIntyre parameterization scheme and the GROGRAT ray-tracer.