

"Monthly climatologies of zonal-mean and tidal winds in the thermosphere as observed by ICON/MIGHTI during April 2020–March 2022"

Y. Yamazaki¹, B. J. Harding², L. Qiu^{1,3}, C. Stolle¹, T. A. Siddiqui¹, Y. Miyoshi⁴, C. R. Englert⁵, and S. L. England⁶

¹Leibniz Institute of Atmospheric Physics at the University of Rostock, Kühlungsborn, Germany

²Space Sciences Laboratory, University of California, Berkeley, CA, USA

³Geophysics and Geomatics, China University of Geosciences, Wuhan, China

⁴Department of Earth and Planetary Sciences, Kyushu University, Fukuoka, Japan

⁵Space Science Division, U.S. Naval Research Laboratory, Washington, DC, USA

⁶Virginia Polytechnic Institute and State University, Blacksburg, VA, USA

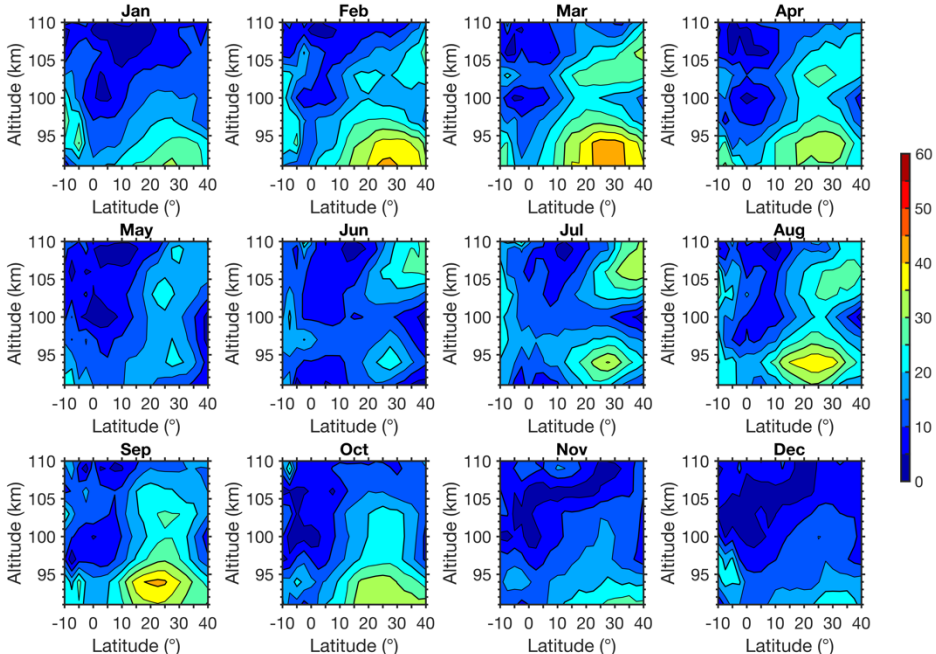
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Introduction

This document presents latitude and height structures of atmospheric tides as derived using version 5 of the thermospheric wind data from the Michelson Interferometer for Global High-resolution Thermospheric Imaging (MIGHTI) onboard NASA's Ionospheric Connection Explorer (ICON) mission. The data used are those observed during April 2020–March 2022. The procedures for retrieving tidal amplitude and phase are described in the main text.

ICON/MIGHTI (green-line, **DW1**, zonal wind amplitude, m/s)



ICON/MIGHTI (green-line, **DW1**, zonal wind phase, deg.)

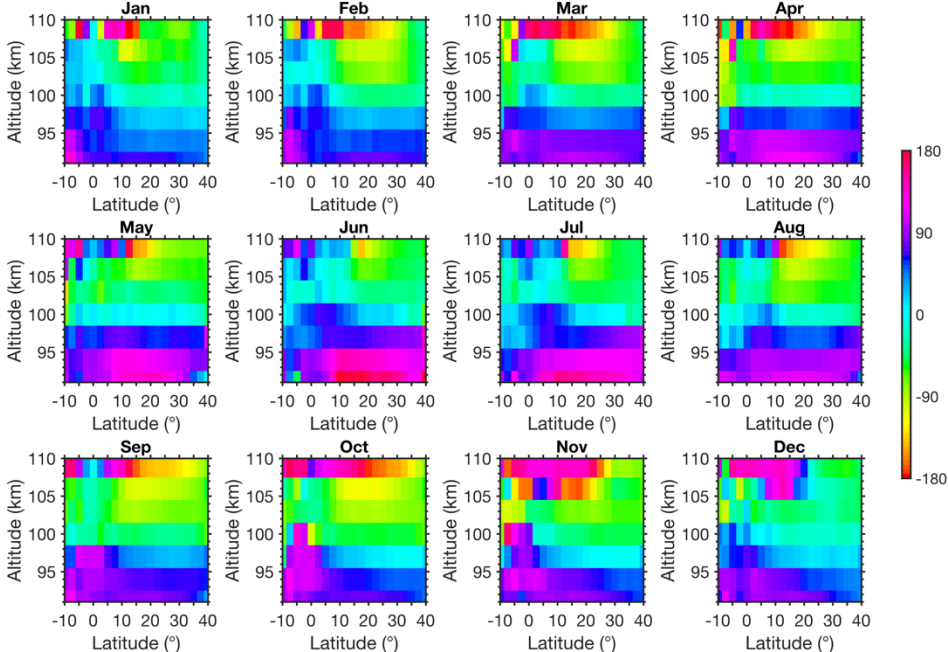
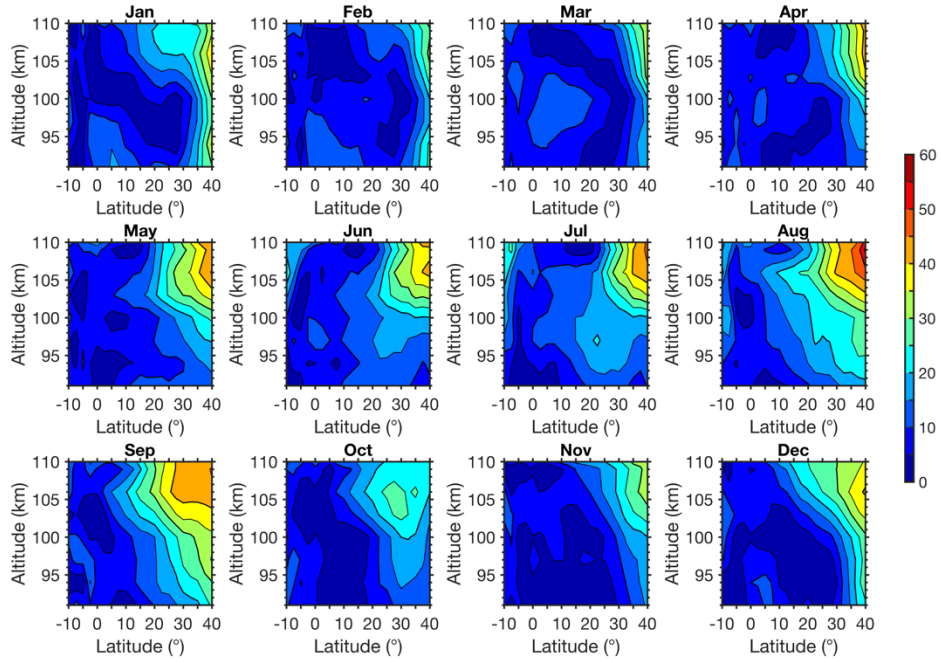


Figure S1. Amplitude (top 12 panels) and phase (bottom 12 panels) of the migrating diurnal tide (DW1) in the zonal wind in the lower thermosphere as derived from the v05 ICON/MIGHTI green-line data.

ICON/MIGHTI (green-line, **SW2**, zonal wind amplitude, m/s)



ICON/MIGHTI (green-line, **SW2**, zonal wind phase, deg.)

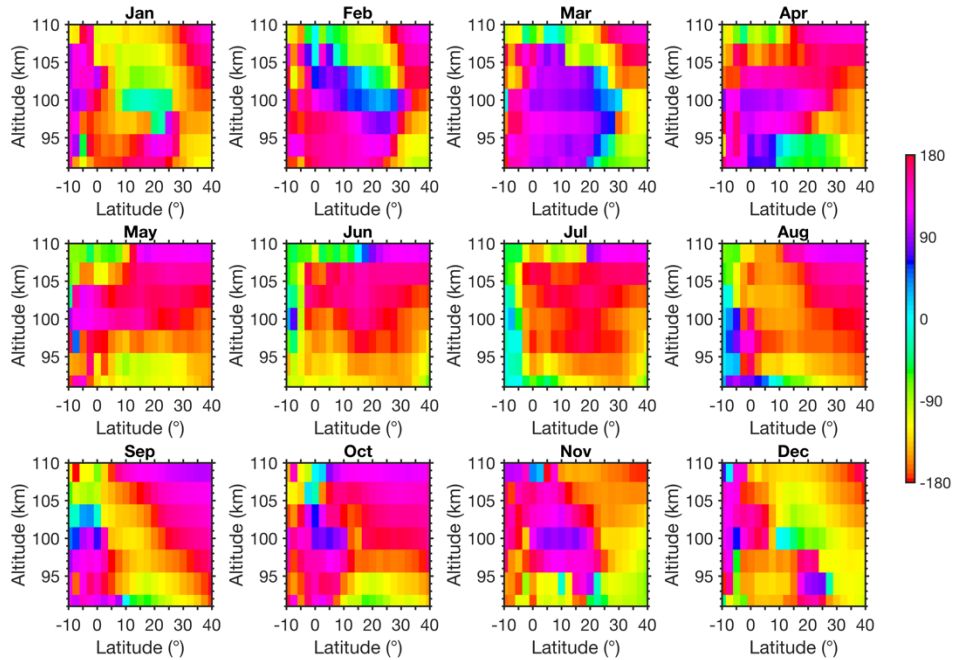


Figure S2. Amplitude (top 12 panels) and phase (bottom 12 panels) of the migrating semidiurnal tide (SW2) in the zonal wind in the lower thermosphere as derived from the v05 ICON/MIGHTI green-line data.

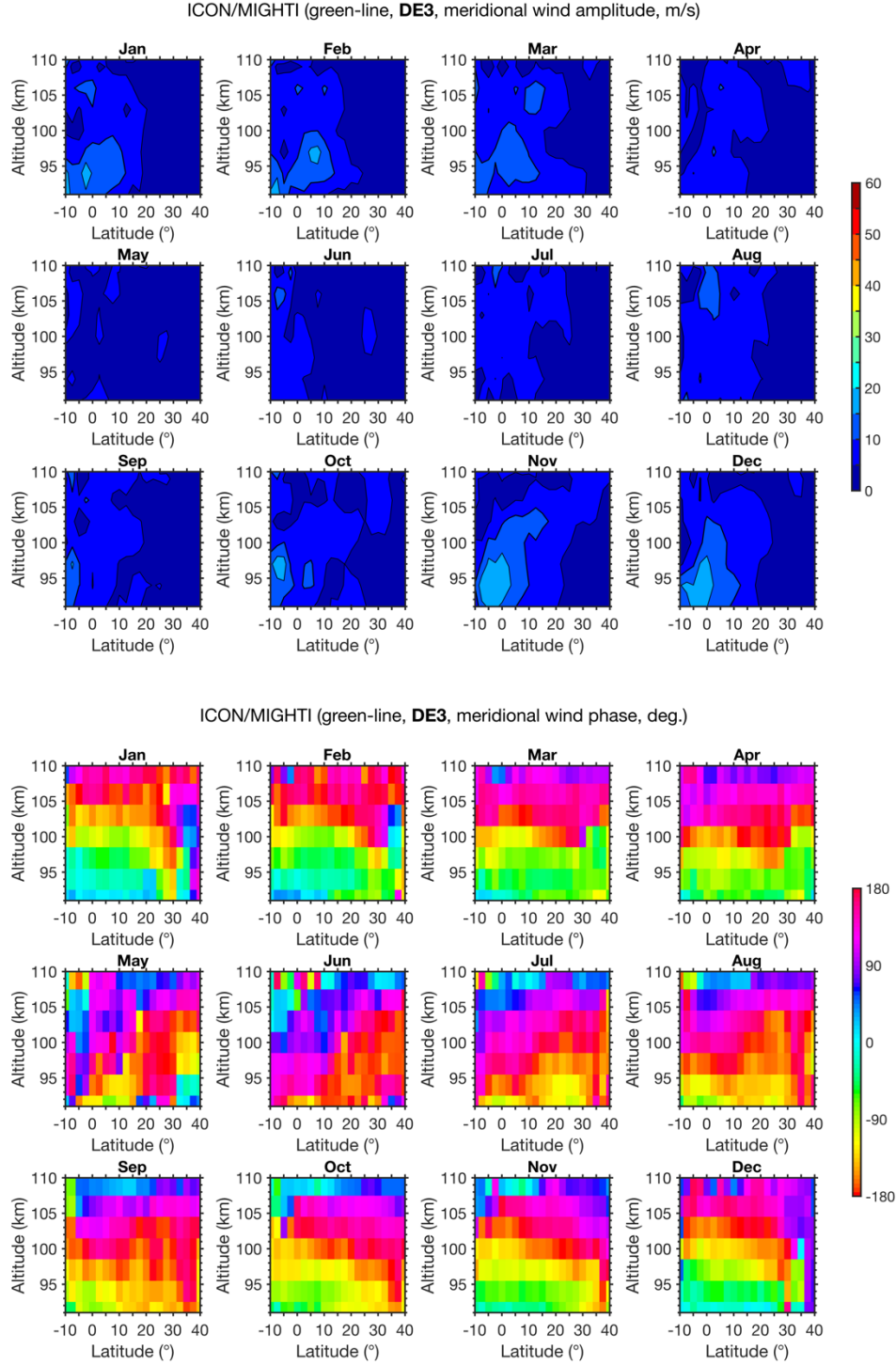
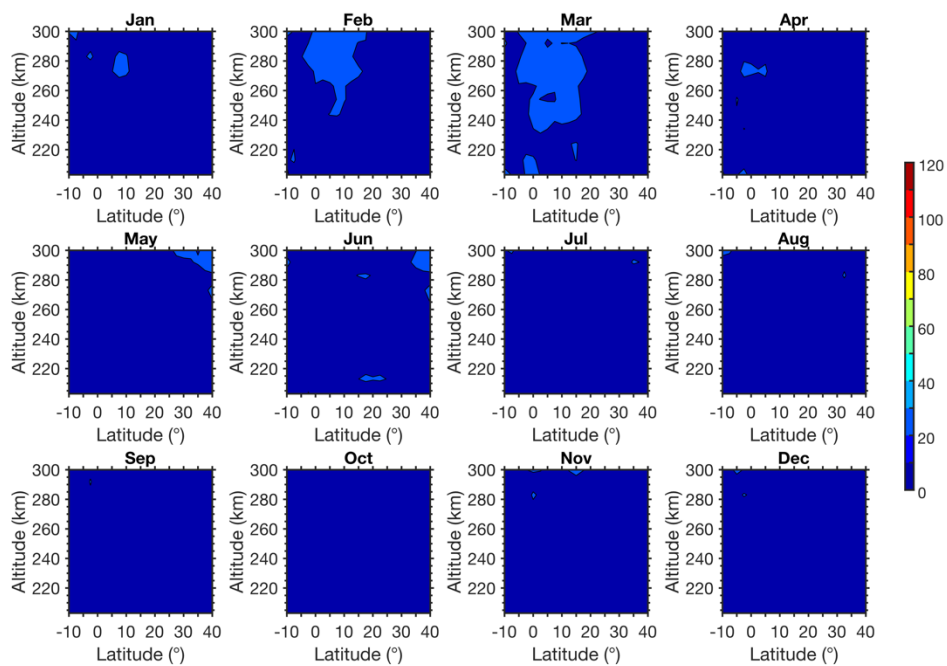


Figure S3. Amplitude (top 12 panels) and phase (bottom 12 panels) of the eastward-propagating diurnal tide with zonal wavenumber 3 (DE3) in the meridional wind in the lower thermosphere as derived from the v05 ICON/MIGHTI green-line data.

ICON/MIGHTI (red-line, **SW2**, zonal wind amplitude, m/s)



ICON/MIGHTI (red-line, **SW2**, zonal wind phase, deg.)

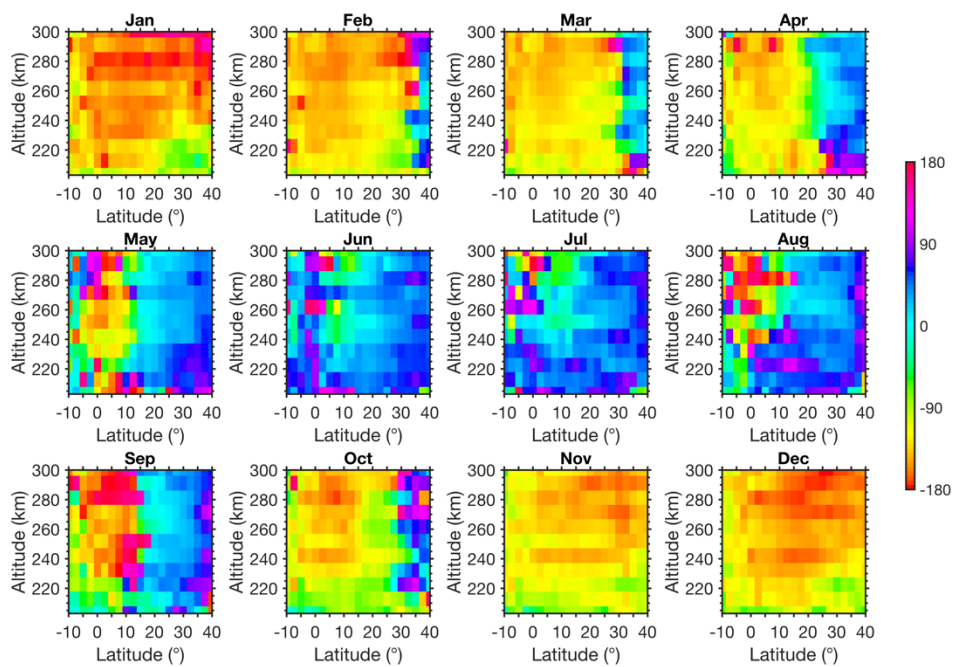


Figure S4. Amplitude (top 12 panels) and phase (bottom 12 panels) of the migrating semidiurnal tide (SW2) in the zonal wind in the middle thermosphere as derived from the v05 ICON/MIGHTI red-line data.

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