Journal of Geophysical Research: Atmospheres

Supporting Information for

Vertical Profiles of Ozone Concentrations in the Lower Troposphere Downwind of New York City during LISTOS 2018-2019

Maxim H. Couillard[1], M. J. Schwab[2], James J. Schwab[2], Cheng-Hsuan (Sarah) Lu[2,3], Everette Joseph[4], Brennan Stutsrim[1], Bhupal Shrestha[5], Jie Zhang[2], Travis N. Knepp[6], and Guillaume P. Gronoff[6]

[1]Department of Atmospheric and Environmental Sciences, University at Albany, State University of New York, Albany, NY, USA, [2]University at Albany Atmospheric Sciences Research Center, University at Albany, State University of New York, Albany, NY, USA, [3]Joint Center for Satellite Data Assimilation, Boulder, CO, USA [4]National Center for Atmospheric Research, Boulder, CO, USA, [5]New York State Mesonet, University at Albany, State University of New York, Albany, NY, USA, [6]NASA Langley Research Center, Hampton, VA, USA

Contents of this file

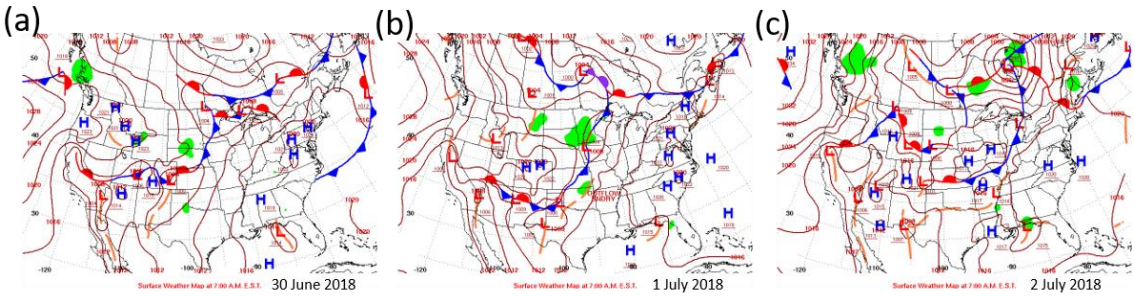

Figure S1. (a) 20 June 2018 surface weather map, (b) 1 July 2018 surface weather map, (c) 2 July 2018 surface weather map.

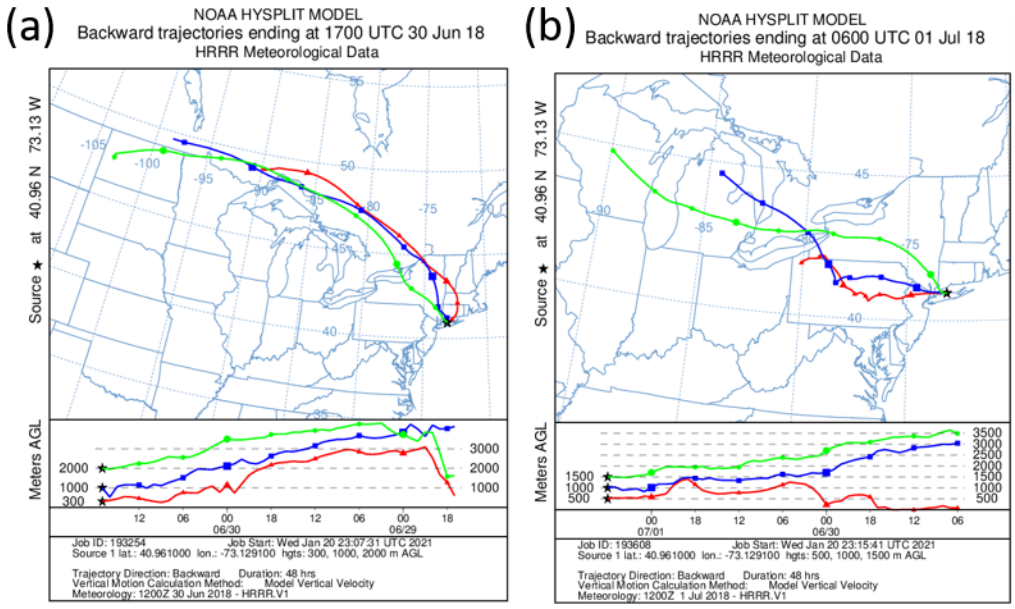

Figure S2. (a) Back trajectories for 48 hour period ending at 17 UTC 30 June 2018. (b) Back trajectories for 48 hour period ending at 06 UTC 1 July 2018.

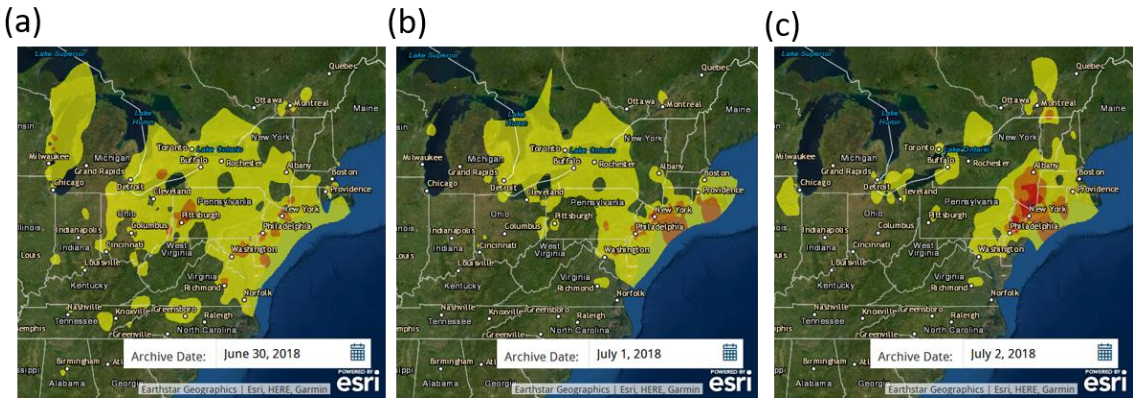

Figure S3. MDA8O_3 AQI contours for (a) 30 June 2018, (b) 1 July 2018, (c) 2 July 2018.

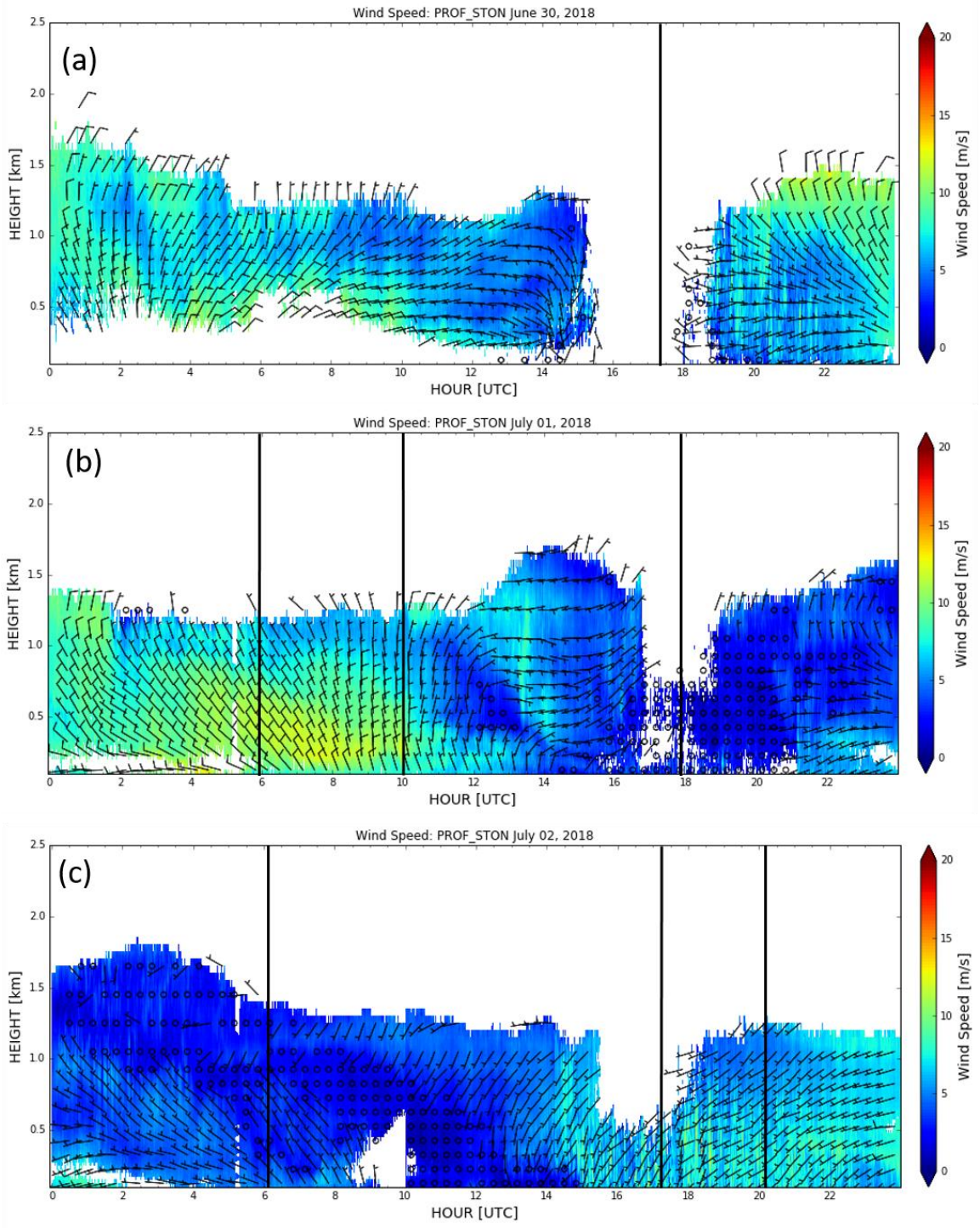

Figure S4. Vertical profiles of horizontal wind speed and direction measured by NYS Mesonet LiDAR at Stony Brook. Black lines indicate O_3sonde launch times. (a) 30 June 2018, (b) 1 July 2018, (c) 2 July 2018.

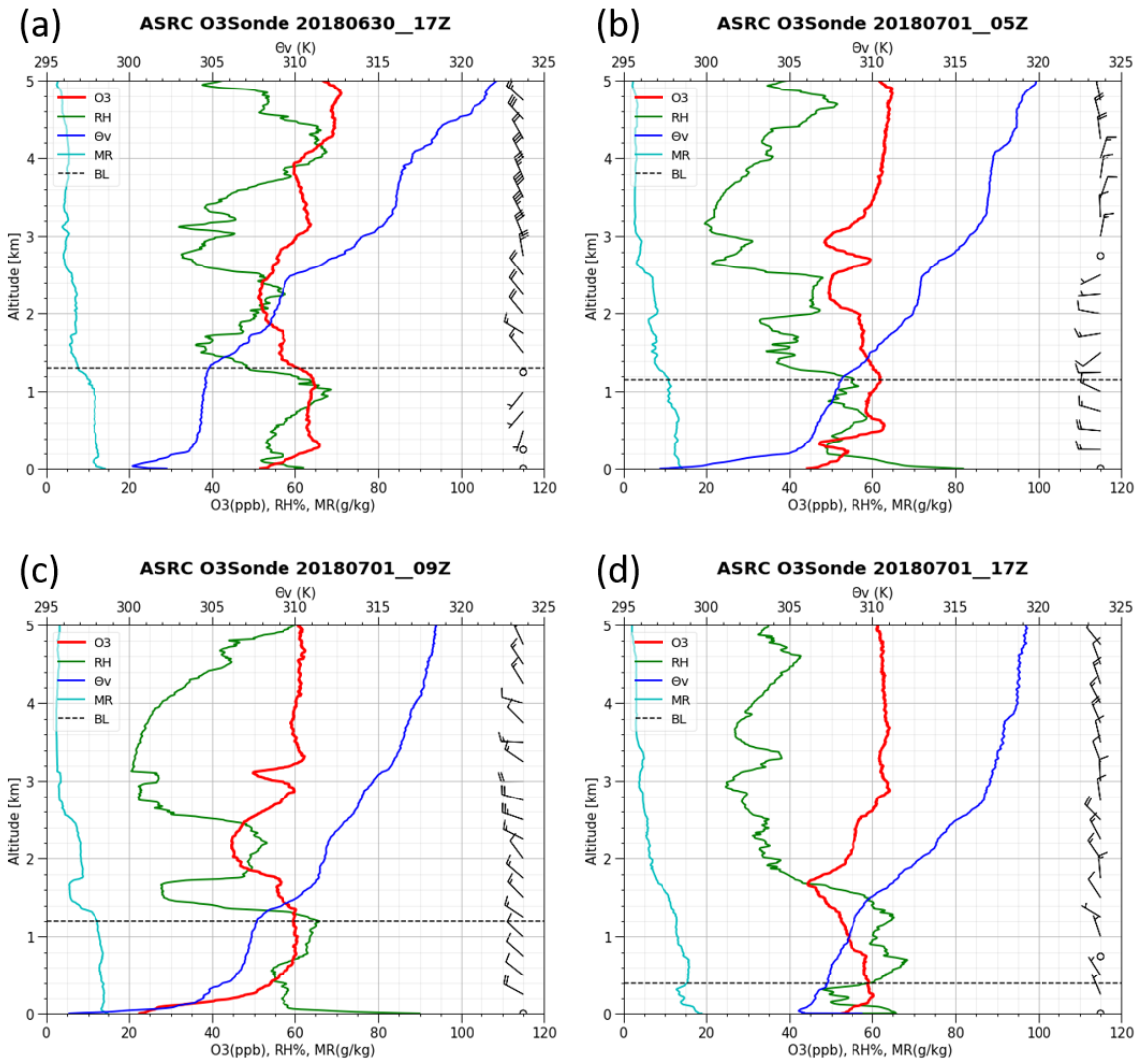

Figure S5. Ozonesonde vertical profiles for 30 June to 2 July 2018. Red - ozone (O_3 ppb), green - relative humidity (RH %), blue - virtual potential temperature (Θ_v °K), black - boundary layer height (BL). Wind barbs indicate wind direction and speed in knots. (a) 17Z 30 June 2018, (b) 5Z 1 July 2018, (c) 9Z 1 July 2018, (d) 17Z 1 July 2018.

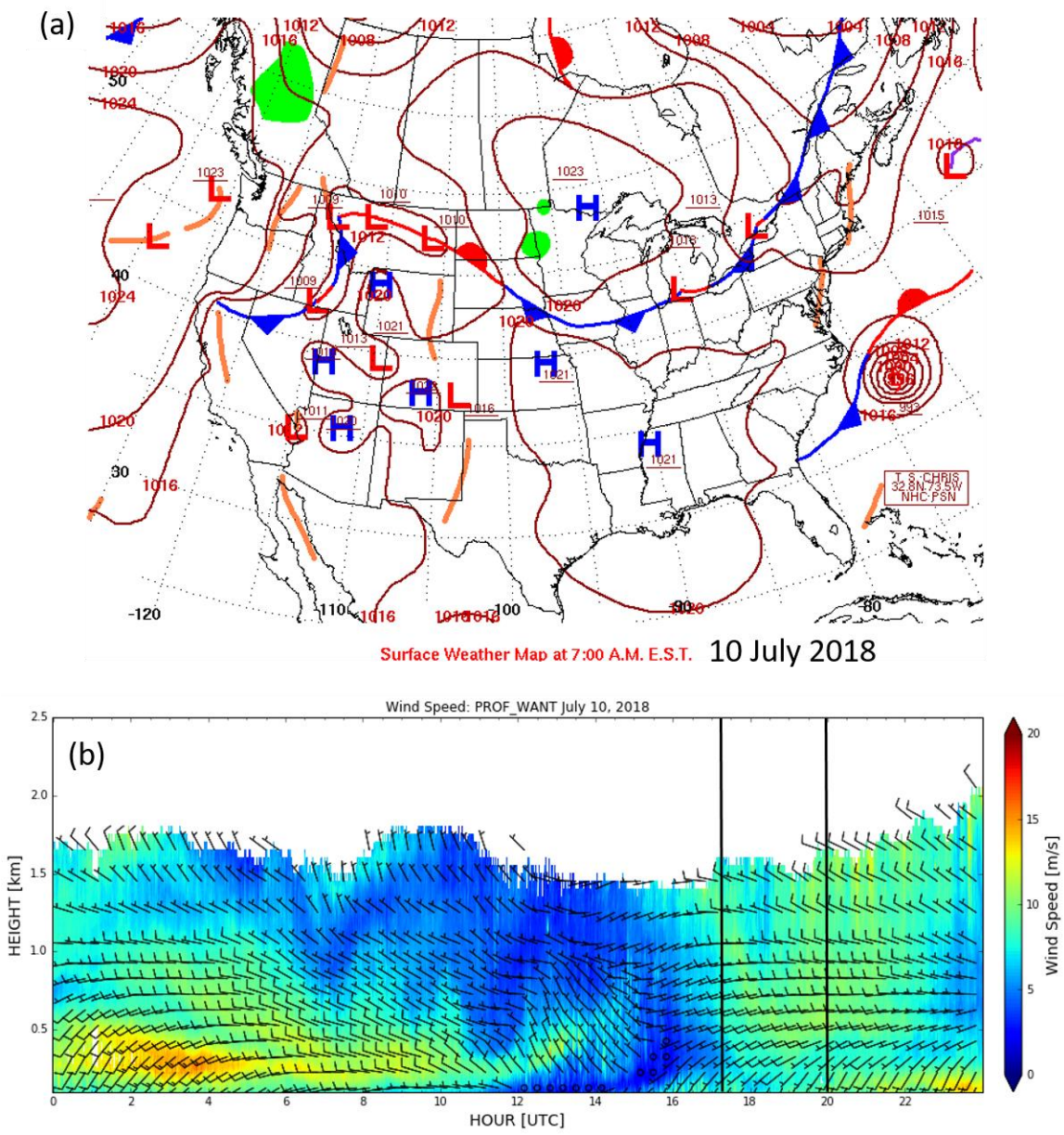

Figure S6. (a) Surface weather map 10 July 2018. Trough over LI indicated by orange lines between tropical storm Chris to the south, and a front to the north. (b) Vertical profiles of horizontal wind speed and direction measured by NYS Mesonet LiDAR at Wantagh on 10 July 2018. Black lines indicate launch times.

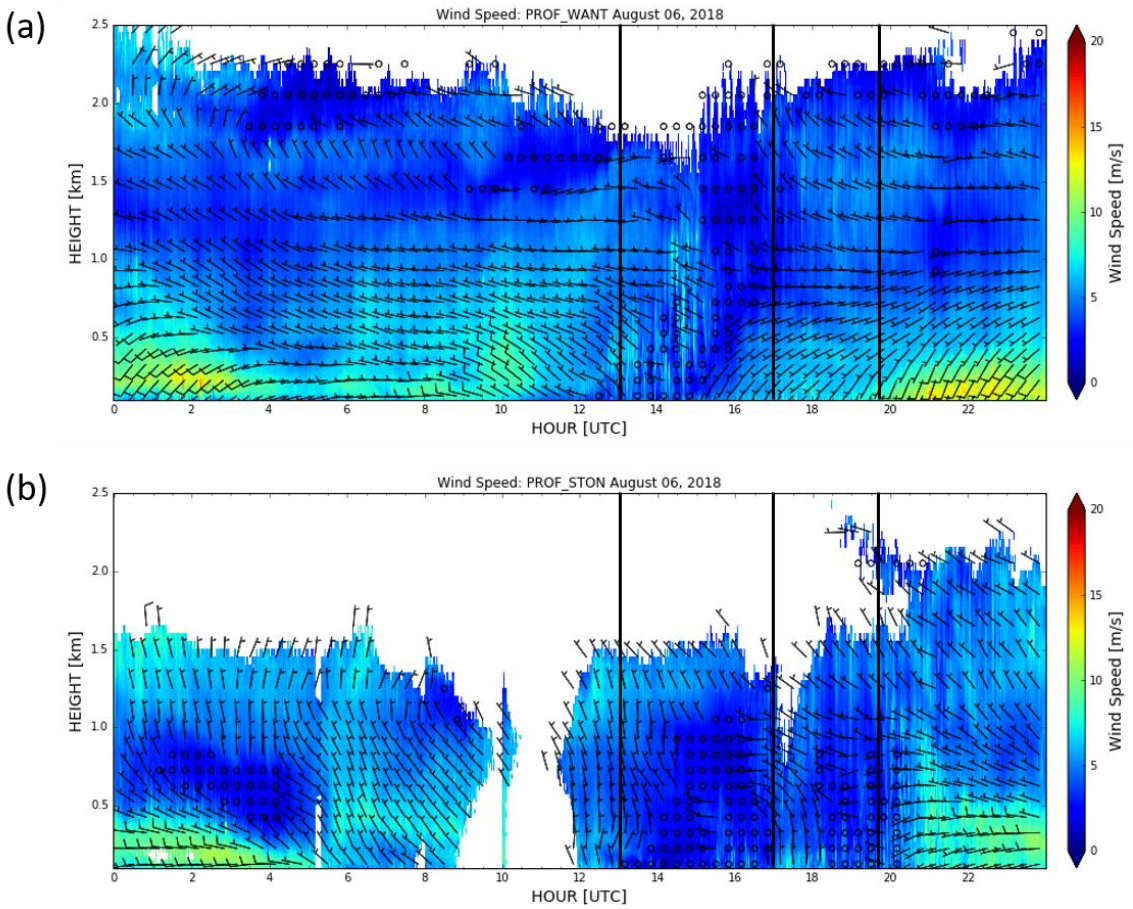

Figure S7. Vertical profiles of horizontal wind speed and direction measured by NYS Mesonet LiDAR on 6 August 2018 at (a) Wantagh and (b) Stony Brook. Black lines indicate launch times.

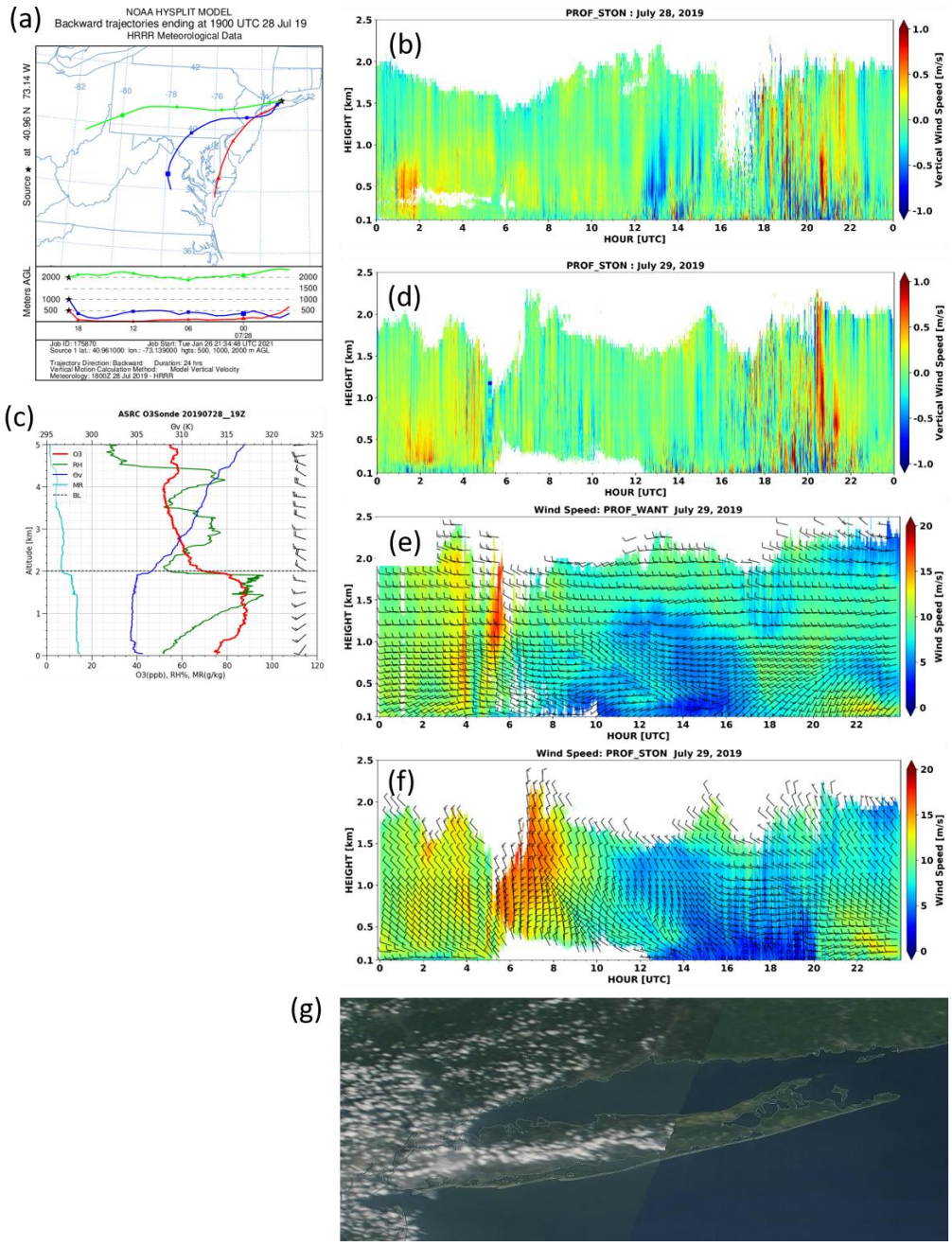

Figure S8. (a) Back trajectories ending at 19 UTC 28 July 2019. (b) Vertical profile of vertical wind speed measured by NYS Mesonet LiDAR at Stony Brook on 28 July 2019. Black lines indicate launch times. (c) Ozonesonde vertical profile for 19:54Z on 28 July 2019. (d) Vertical profile of vertical wind speed measured by NYS Mesonet LiDAR at Stony Brook on 29 July 2019. (e-f) Vertical profiles of horizontal wind speed and direction measured by NYS Mesonet LiDAR on 29 July 2019 at (e) Wantagh and (f) Stony Brook. Black lines indicate launch times. (g) NASA EOSDIS Worldview visible satellite image for Long Island on 29 July 2019 (https://worldview.earthdata.nasa.gov).