Supplementary Material for:

The Fires, Asian, and Stratospheric Transport-Las Vegas Ozone Study (*FAST*-LVOS)

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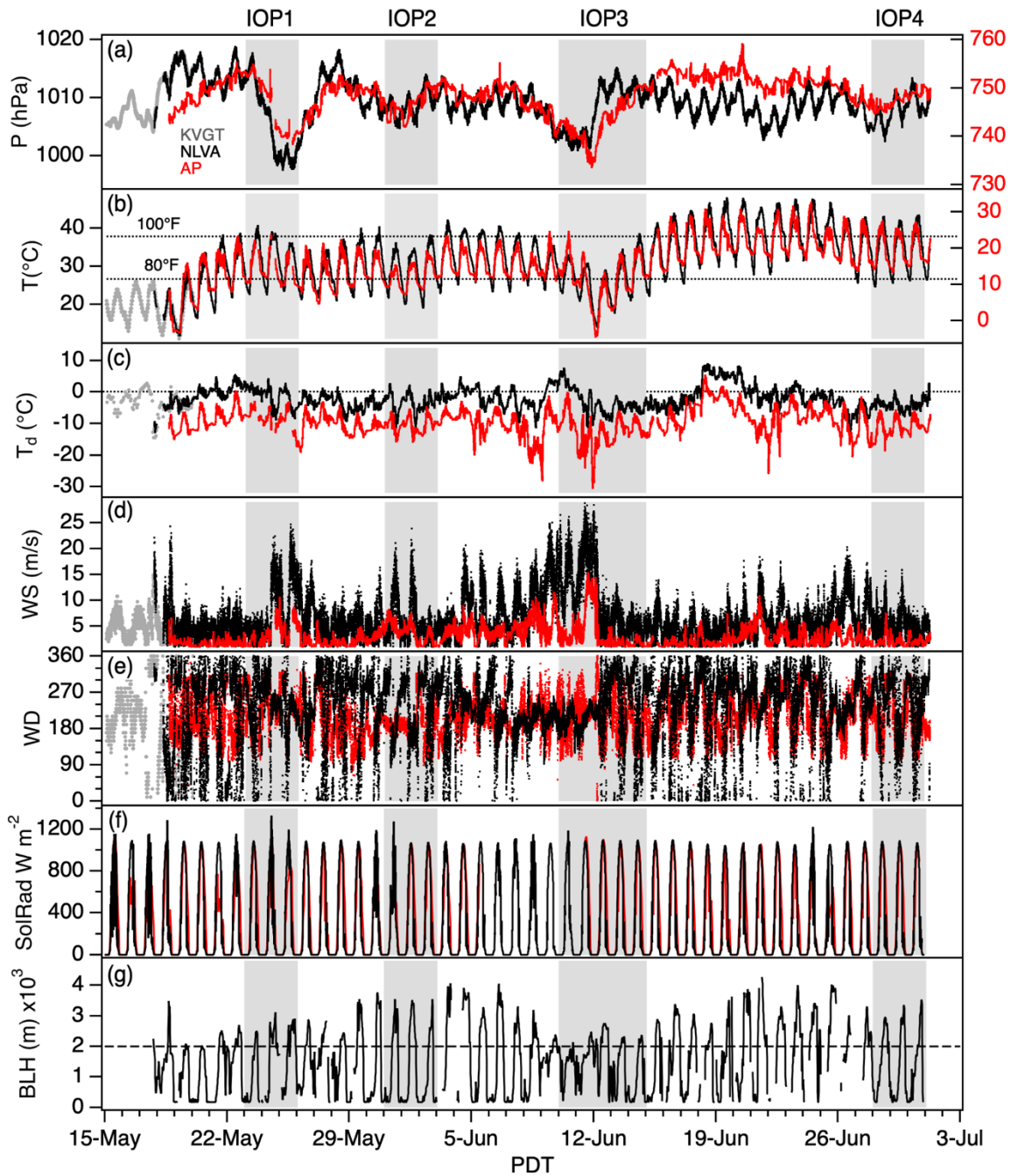
Figure S1. (a) Time series of the 1-min (a) pressure, (b) temperature, (c) dewpoint, (d) wind speed, and (e) wind direction measurements from the weather stations in the TOPAZ truck (black) and mobile laboratory (red). The red axes on the right in (a) and (b) show the pressure and temperature measurements from the mobile laboratory. The gray points at the beginnings of the plots are from the KVGT tower. (f) Solar radiation from the Henderson F0069 station (black) and the SMYC (red). (g) Boundary layer heights from the micro-Doppler lidar at the NLVA; the dashed line shows the elevation of Angel Peak. The gray bands show the four *FAST*-LVOS IOPs. There was no measurable rainfall during the 6-week campaign.

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(a) 00UT 18 May

(b) 12UT 25 May

(c) 06UT 02 June

(d) 12UT 12 June

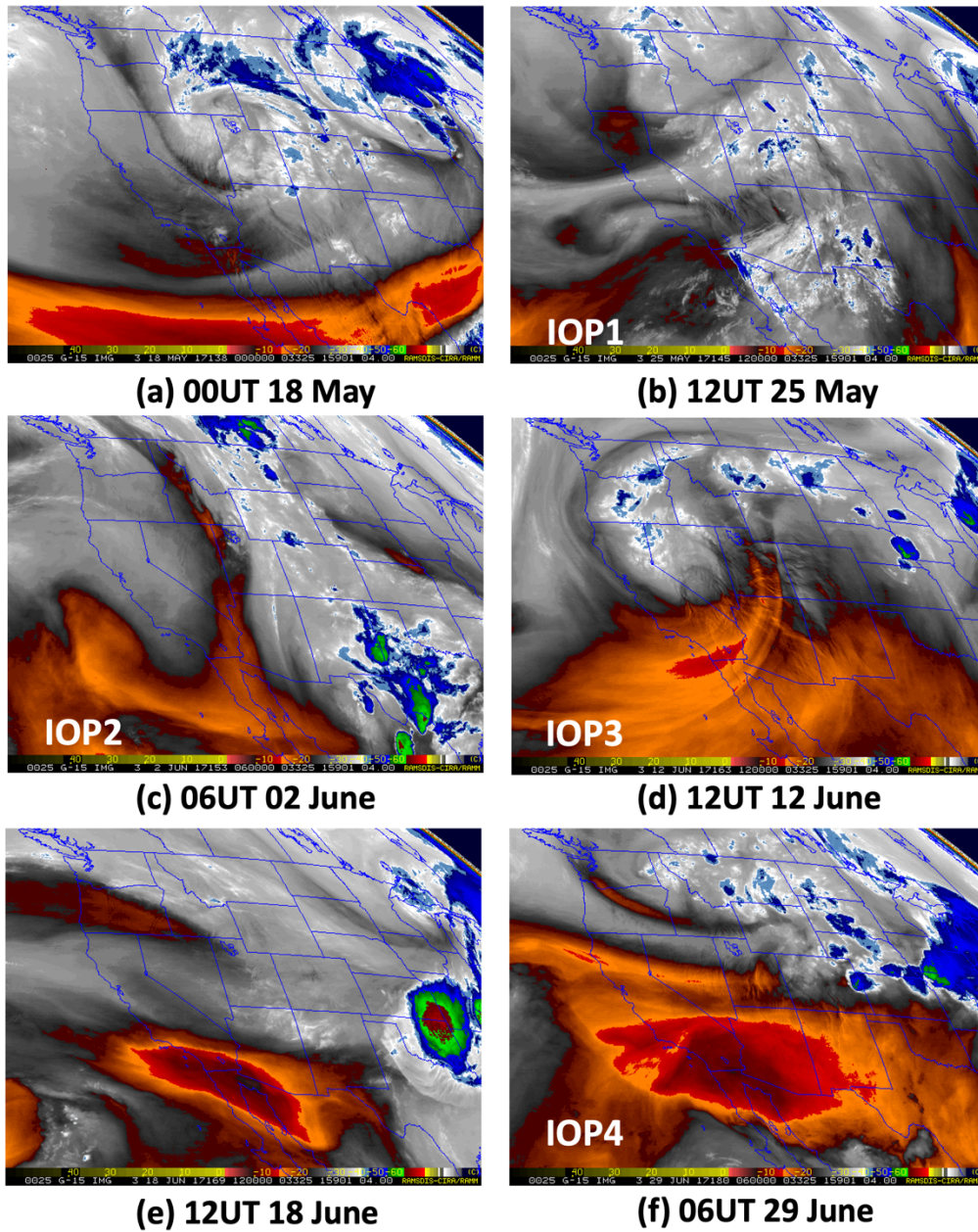
(e) 12UT 18 June

(f) 06UT 29 June

Figure S2. GOES-13 4-km 6.9 µm (mid-tropospheric) water vapor imagery for (a) 00UT 18 May, (b) 12UT 25 May, (c)
50   **06UT 02 June, (d) 12UT 12 June, (e) 12UT 18 June, and (f) 06UT 29 June. Cooler colors show lower temperatures and high**
cloud tops. Warmer colors correspond to higher temperatures. During winter and spring this corresponds to deeper levels
of the atmosphere which is an indication of drier air aloft. The deep red areas in the lower panels show warmer tropical air
associated with the subtropical ridge. Images courtesy of D. Watson (NOAA/NESDIS/STAR/RAMMB CIRA/Colorado
State University).

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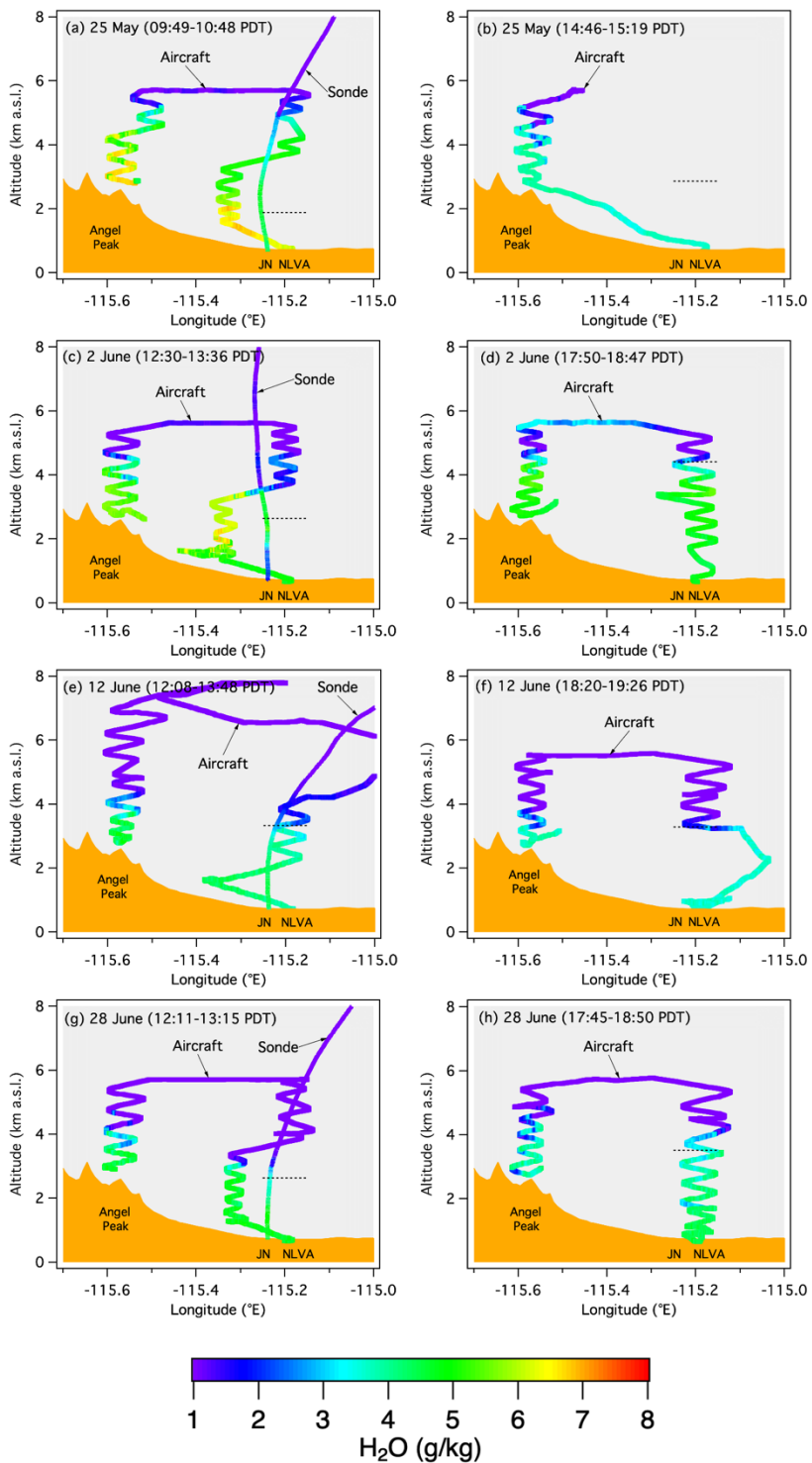
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Figure S3. Water vapor mixing ratios measured by the ozonesonde and aircraft during the outgoing (left) and returning (right) flights on: (a), (b) 25 May, (c), (d) 2 June, (e), (f) 12 June, and (g), (h) 28 June. The horizontal dashed lines show the boundary layer height inferred from the NLVA Doppler lidar measurements.

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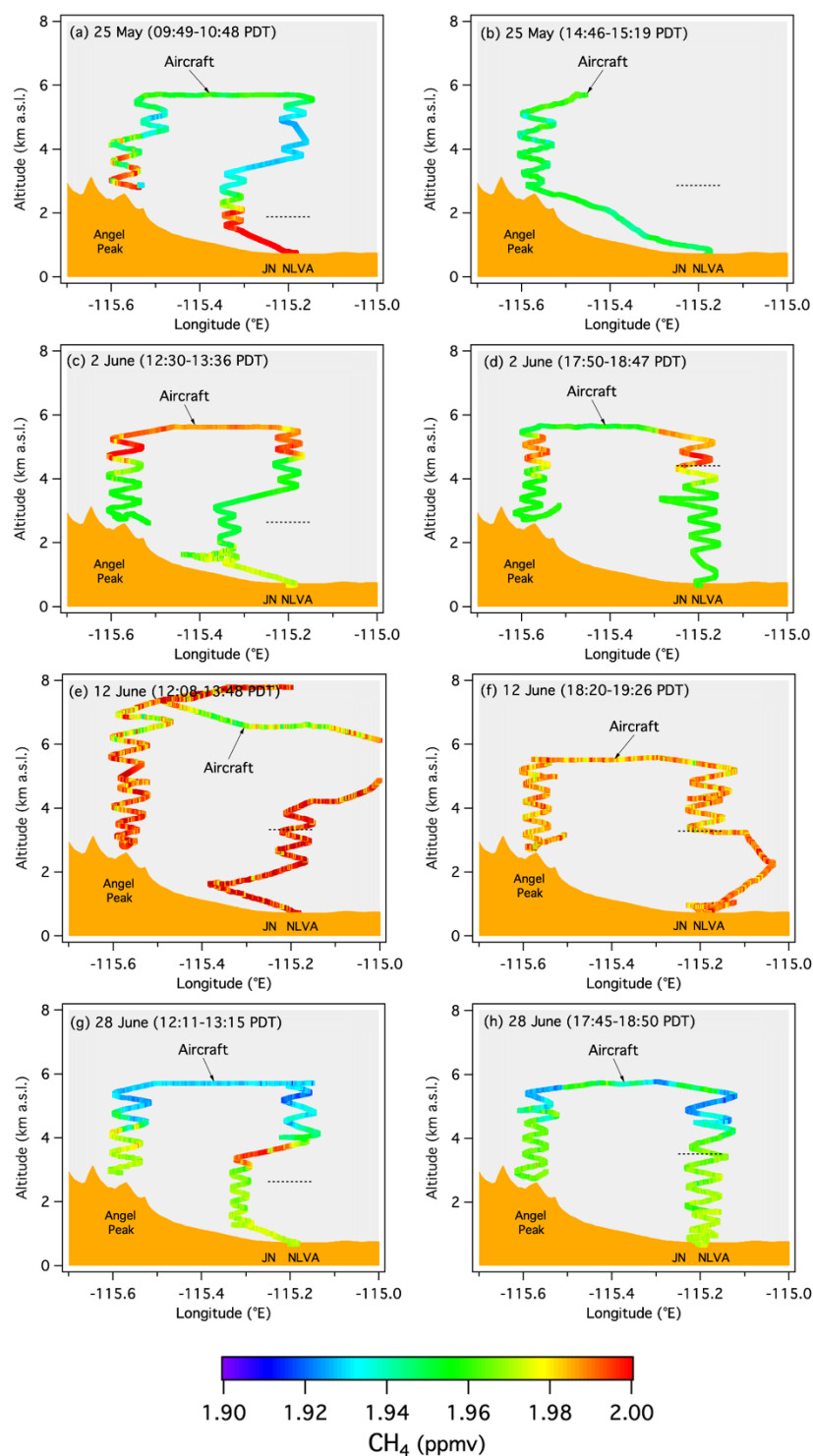
Figure S4. Methane mixing ratios measured by Scientific Aviation aircraft during the outgoing (left) and returning (right) flights on: (a), (b) 25 May, (c), (d) 2 June, (e), (f) 12 June, and (g), (h) 28 June. The horizontal dashed lines show the boundary layer height inferred from the NLVA Doppler lidar measurements.

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