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11
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A Dusty Atmospheric River Brings Floods to the Middle East

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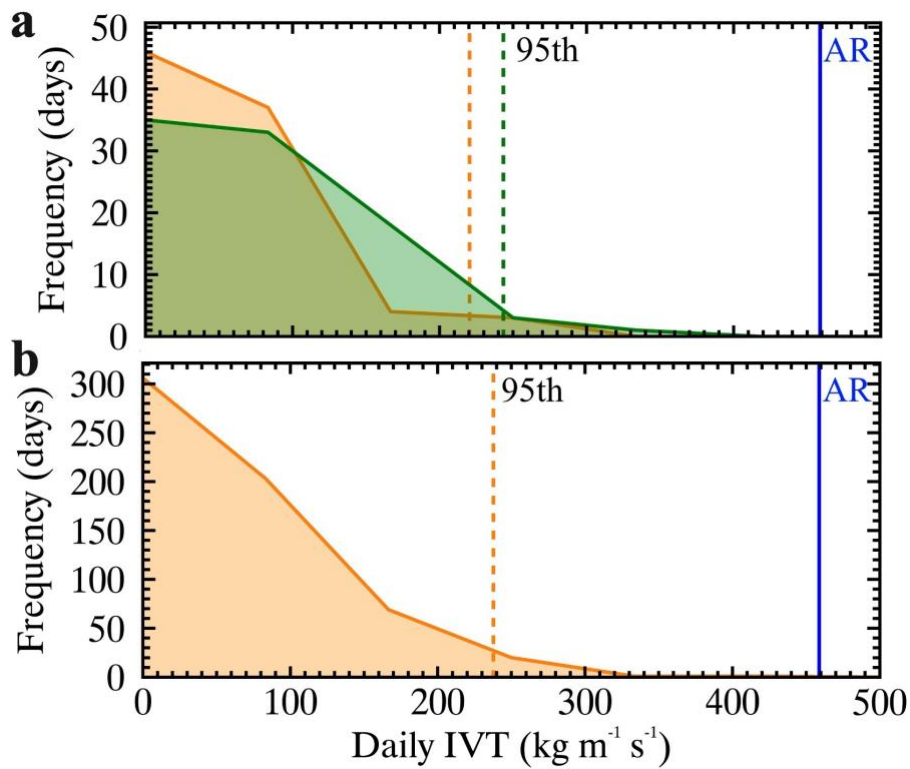
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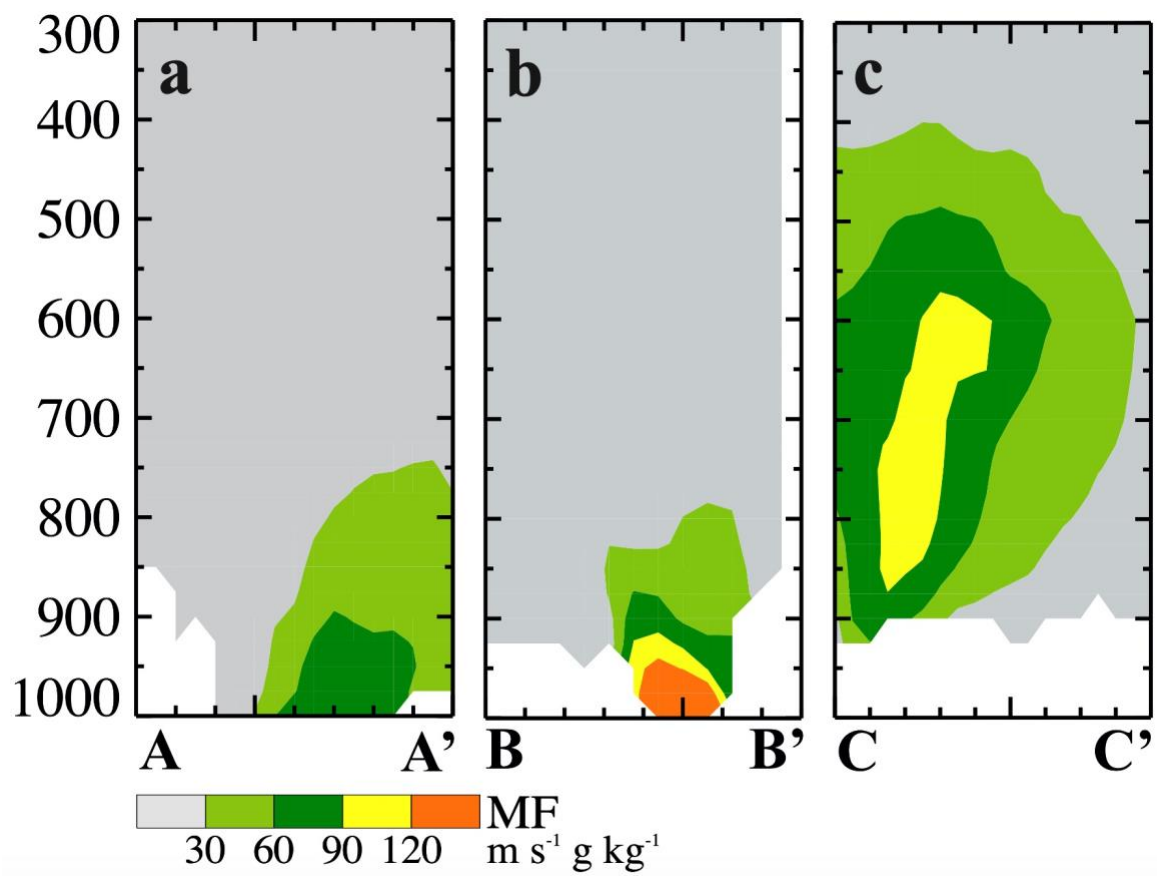
Contents:

Figures S1 to S4



18
19
20
21
22
23
24
25

Figure S1. Histogram of daily IVT, averaged over northwestern Iran (a) for the three wettest (2002, 2007, and 2011—green) and three driest (2008, 2014, and 2015—orange) years, and (b) for all years over 2001-2020. This period is chosen to be consistent with precipitation analysis in Figure 2. The dashed lines represent the IVT values corresponding to the 95th percentile, and the blue line shows the regional mean IVT on April 14, 2017. The difference between means of the wettest and driest years is statistically significance with a p-value of 0.0008, using a two-tailed t-test.



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Figure S2. The same as Figure 4b-d, but for April 13, 2017.

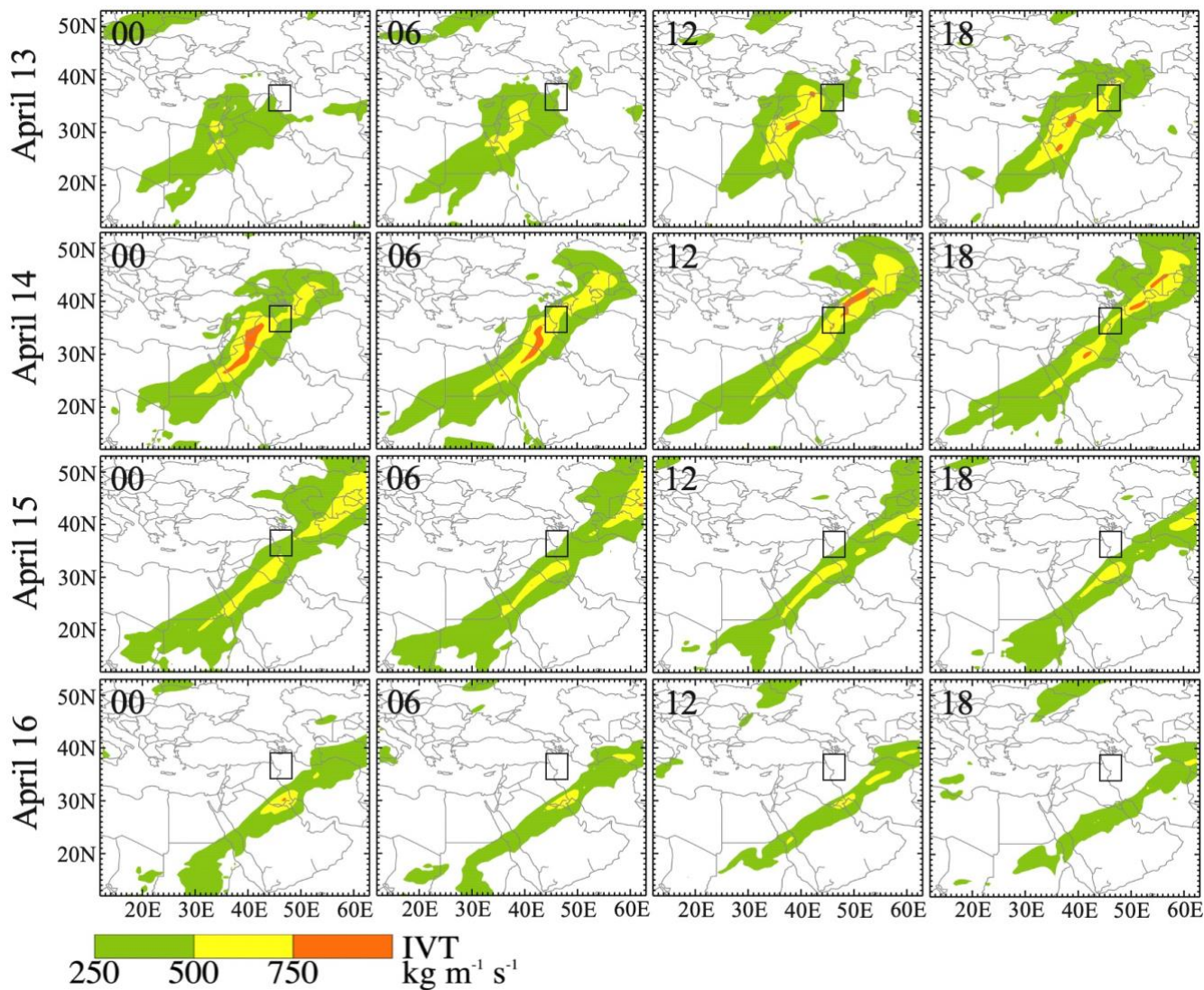
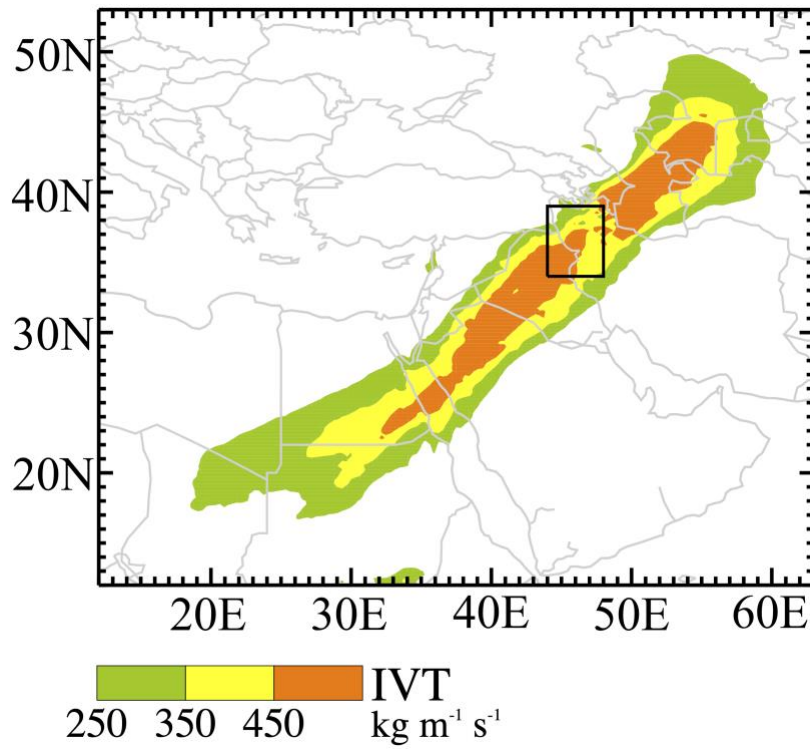


Figure S3. Horizontal pattern of the vertically integrated water vapor transport (IVT) at 6-hour intervals before, during and after the rainfall event. Note that for better presentation purpose, the IVT is plotted at larger intervals than the daily-mean plots (i.e., Figures 2c, 5a-d, and S4).



32
33 **Figure S4.** Horizontal pattern of the vertically integrated water vapor transport (IVT) during April 14,
34 2017, using Reanalysis from version 5.16 of the Goddard Earth Observing System (GEOS) model.