

Supplementary Information for
"Evening humid-heat maxima near the southern Persian/Arabian Gulf"

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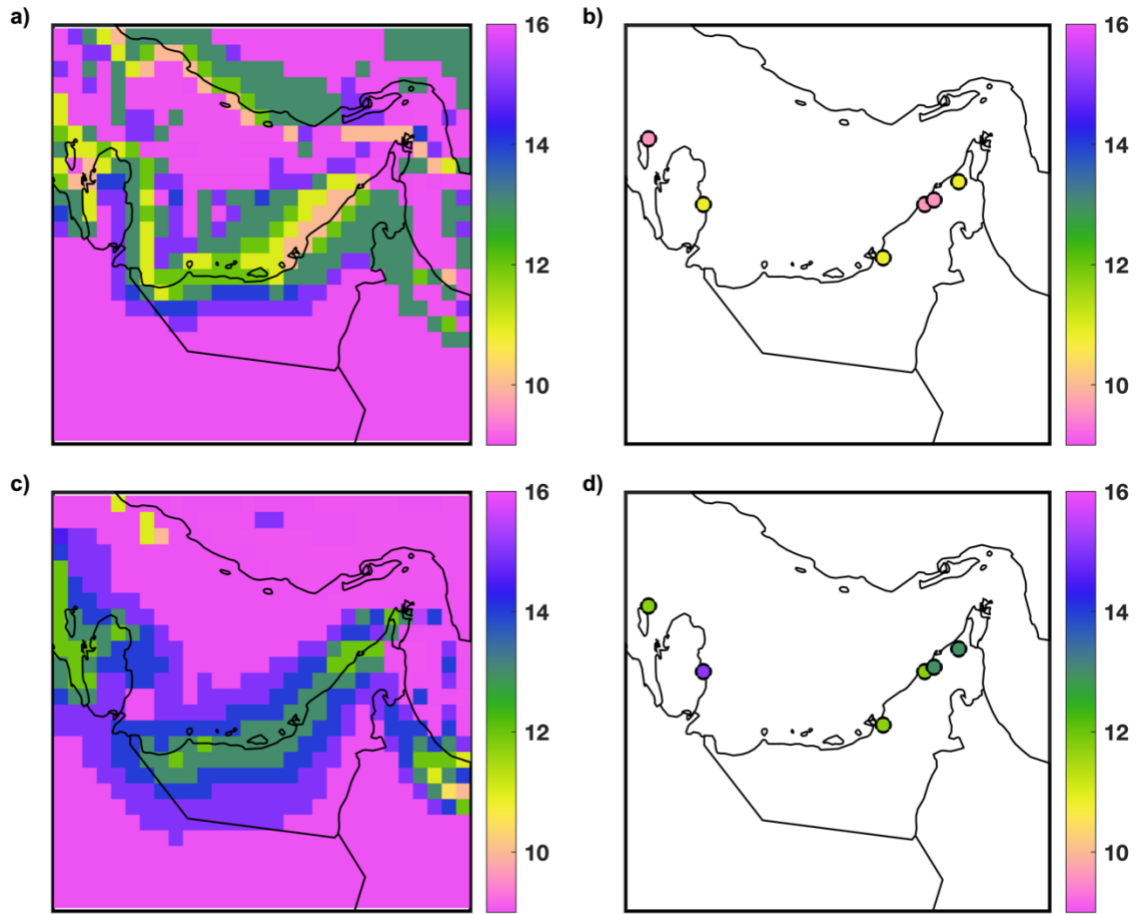
Supplementary Figures 1-5

Station ID	Region	Latitude	Longitude
411500-99999	—	26.27	50.63
411700-99999	—	25.26	51.57
411840-99999	—	25.61	55.94
411940-99999	Coast	25.26	55.36
411960-99999	Coast	25.33	55.52
412170-99999	Coast	24.43	54.65

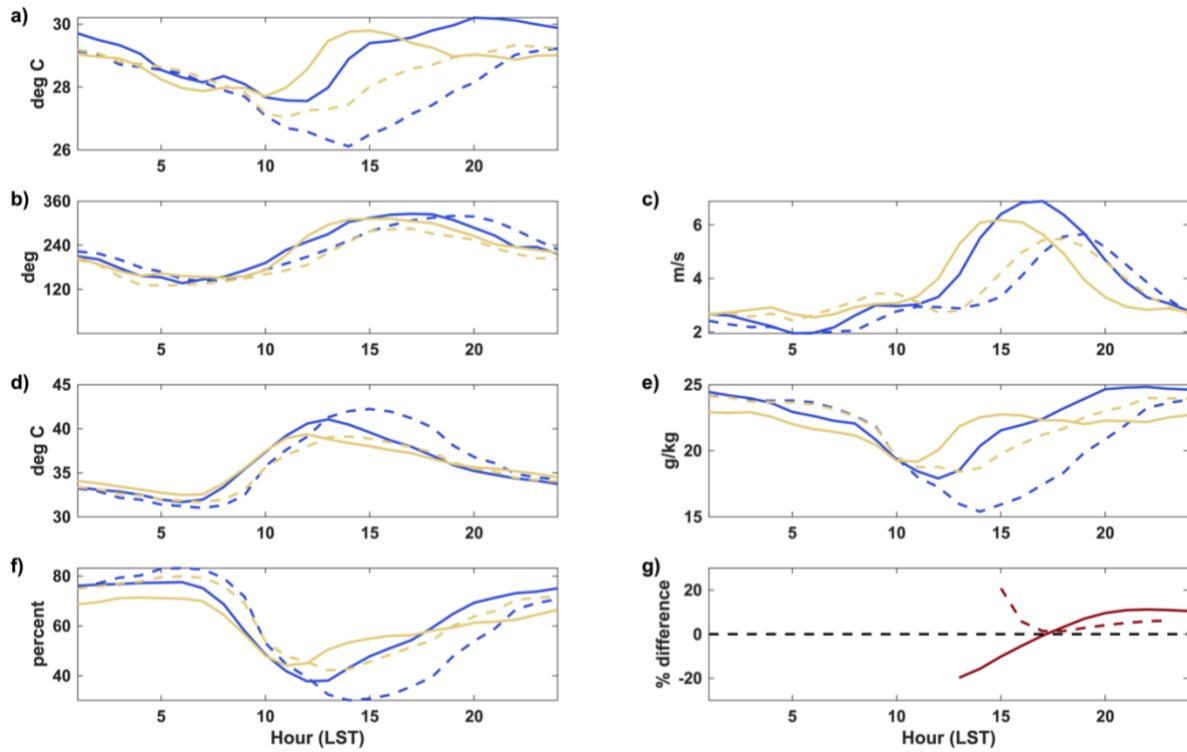
Supplementary Table 1: Included HadISD weather stations.

Station ID	Region	Latitude	Longitude
IABUDH16	Inland Desert	23.16	53.72
IABUDH31	Coast	24.41	54.57
IABUDH37	Coast	24.45	54.33
IABUDH42	—	24.61	55.76
IABUDHAB100	Coast	24.46	54.32
IABUDHAB116	—	24.14	54.97
IABUDHAB141	Coast	24.40	54.51
IALHASA3	—	25.13	49.30
IDUBAI108	Coast	25.22	55.52
IMADIN3	Coast	23.63	53.70
ISUWAY4	—	24.44	55.19
I90581516	Inland Desert	23.10	53.58

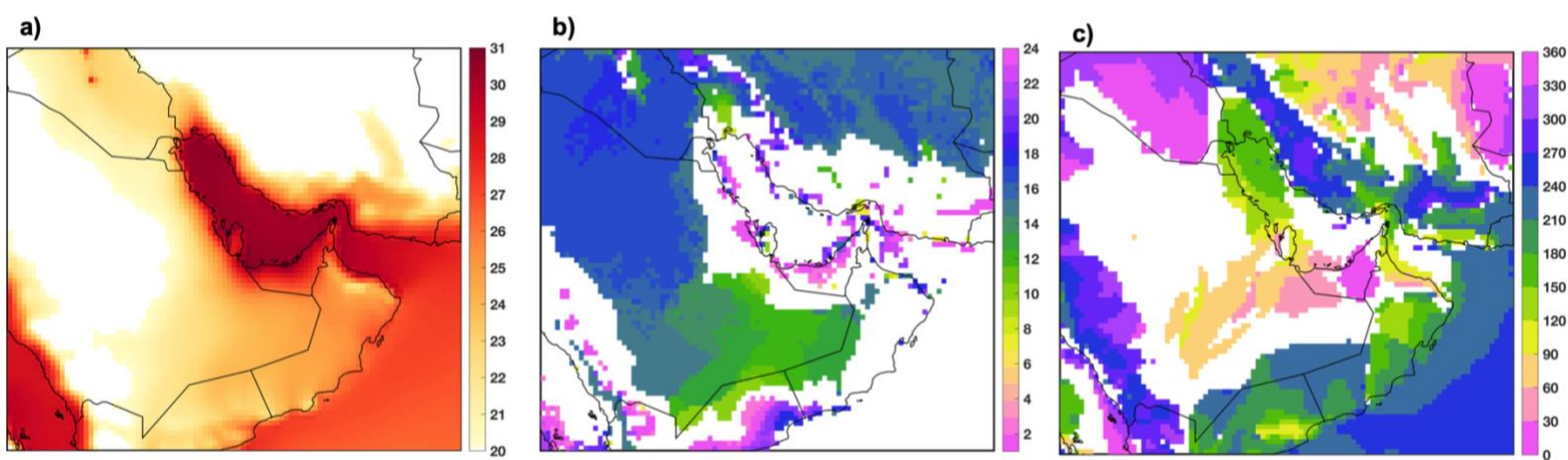
Supplementary Table 2: Included personal weather stations.



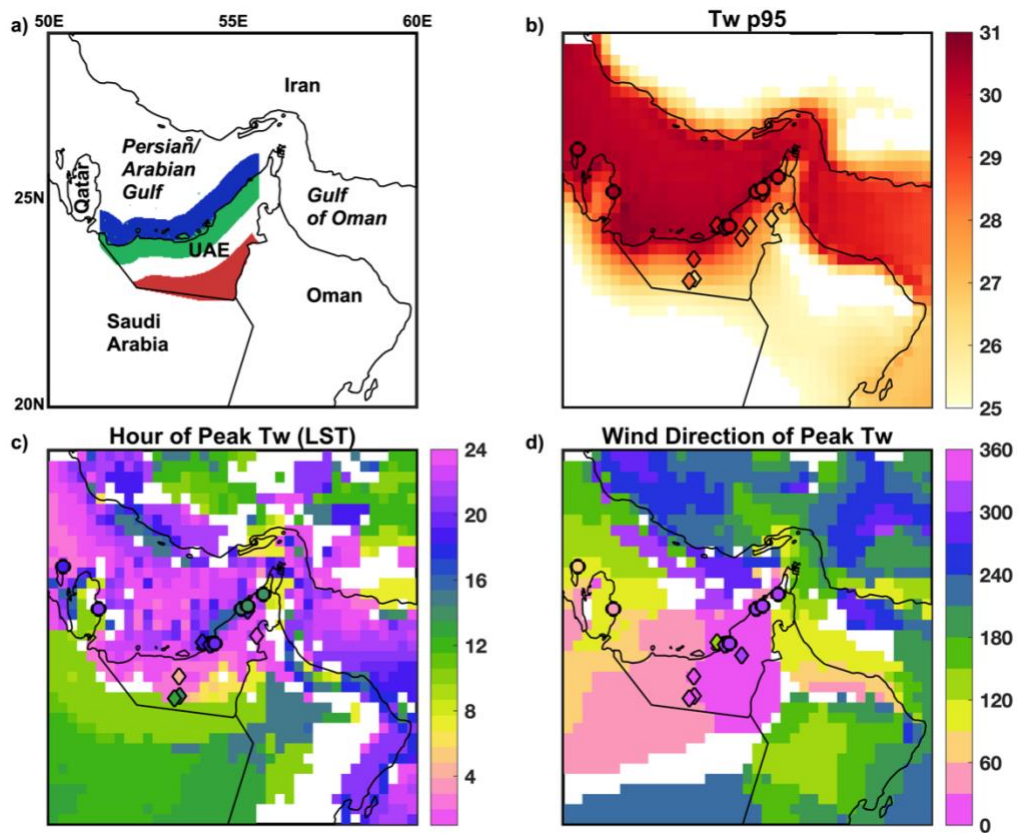
Supplementary Figure 1: Timing of the daytime humidity minimum and of diurnal wind shifts in the southern Persian/Arabian Gulf. (a) Mean time of day (LST) of the specific-humidity minimum on hot-humid days, from ERA5. (b) As in (a) but from weather stations. (c) Mean time of day (LST) of first post-dawn hour with a northerly-component wind (wind direction $>300^\circ$ or $<60^\circ$) on hot-humid days, from ERA5. (d) As in (c) but from weather stations.



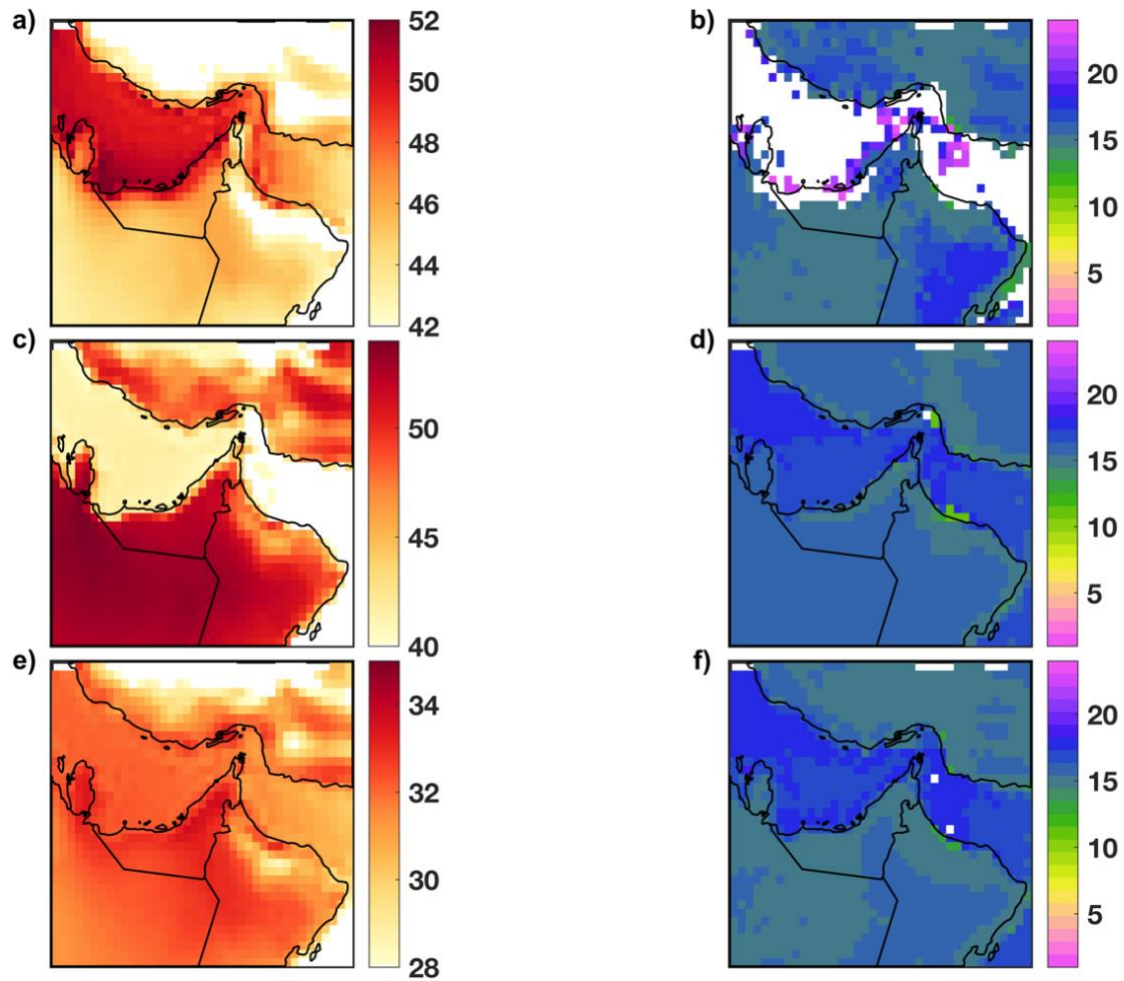
Supplementary Figure 2: (a) T_w composite on hot-humid days in Abu Dhabi (blue) and Dubai (tan), from airport weather stations (solid) and the closest ERA5 gridcells (dashed). (b-f) As in (a) but for wind direction, wind speed, temperature, specific humidity, and relative humidity. (g) Percent difference between accumulated onshore wind at Abu Dhabi versus Dubai, computed as an integral over wind speed for hours with northerly wind (i.e. a sea breeze), beginning from the midday sea-breeze onset (see Fig S1c,d). Positive values mean greater total daily transport of marine air at Abu Dhabi up to that time.



Supplementary Figure 3: As in Figure 1 but with a larger geographic domain.



Supplementary Figure 4: As in Figure 1 but with the minimum window fraction (see Methods) set to 40% instead of 50%.



Supplementary Figure 5: Key characteristics of humid heat as measured by various metrics. (a) 95th percentile of heat index ($^{\circ}\text{C}$) across all June-July-August days, 2000-2020, at each ERA5 gridcell (shading). (b) Hours (LST) for which a 6-hour surrounding window encompasses the largest number of ≥ 95 th-percentile daily-maximum heat-index values, with a minimum of 50%. Blank areas are those where no hour meets this criterion. (c,d) As in (a,b) but for the UTCI. (e,f) As in (a,b) but for WBGT.