



# PP CITTA' UPDATE

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# Setup of the simulations



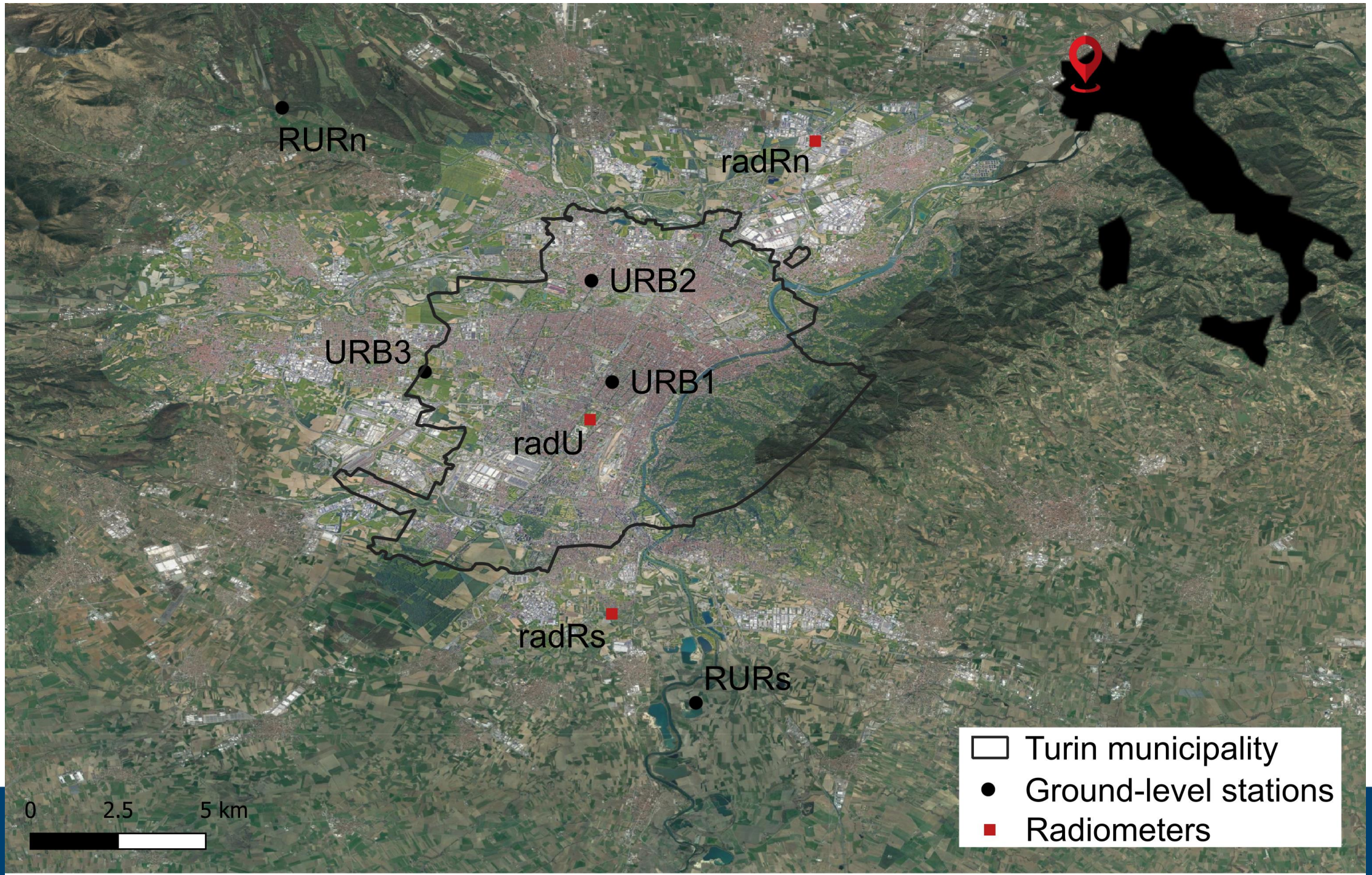
Hindcast simulations:

- 2021081100 – 2021081500 (96h)
- Heat wave over north-west of Italy
- ICON 7km -> ICON 3.5km -> ICON 1.8km -> ICON 900m
- ICON v2.6.5.1 (master branch)

# Setup of the simulations

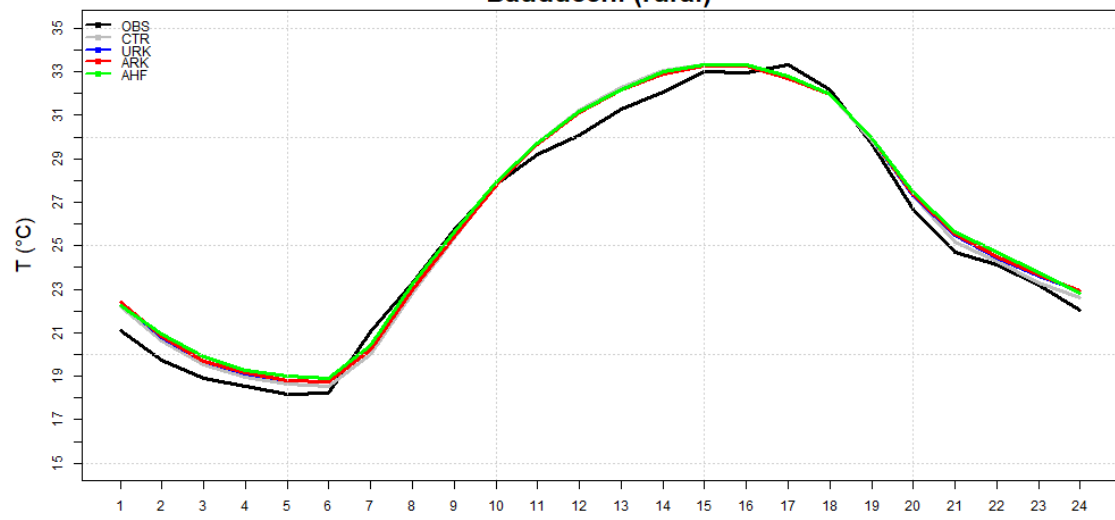
CTR	lterra_urb=F	lurbalb=F	lurbahf=F
URK	lterra_urb=T	lurbalb=F	lurbahf=F
ARK	lterra_urb=T	lurbalb=T	lurbahf=F
AHF	lterra_urb=T	lurbalb=T	lurbahf=T



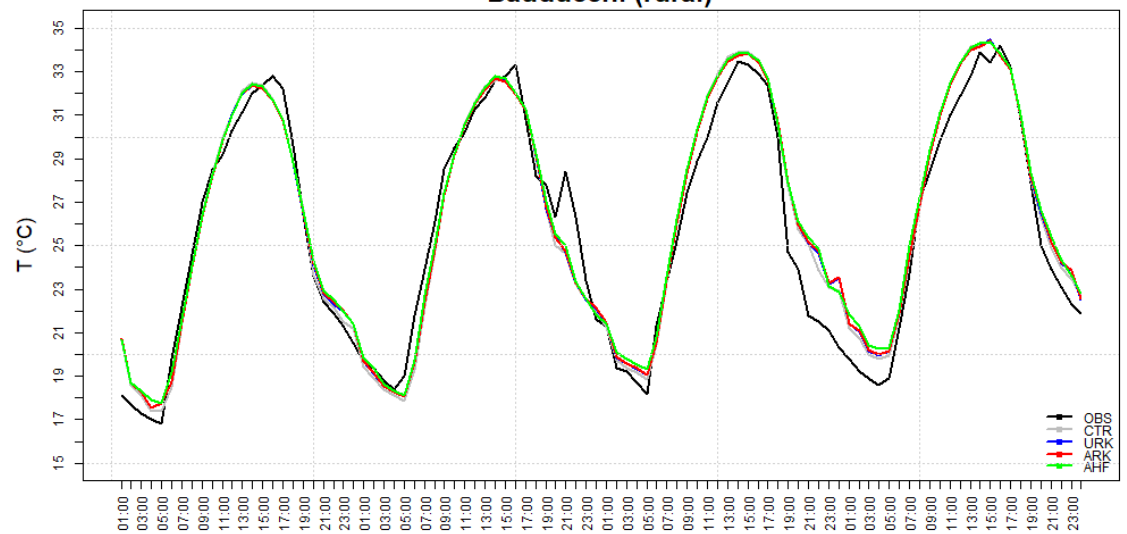




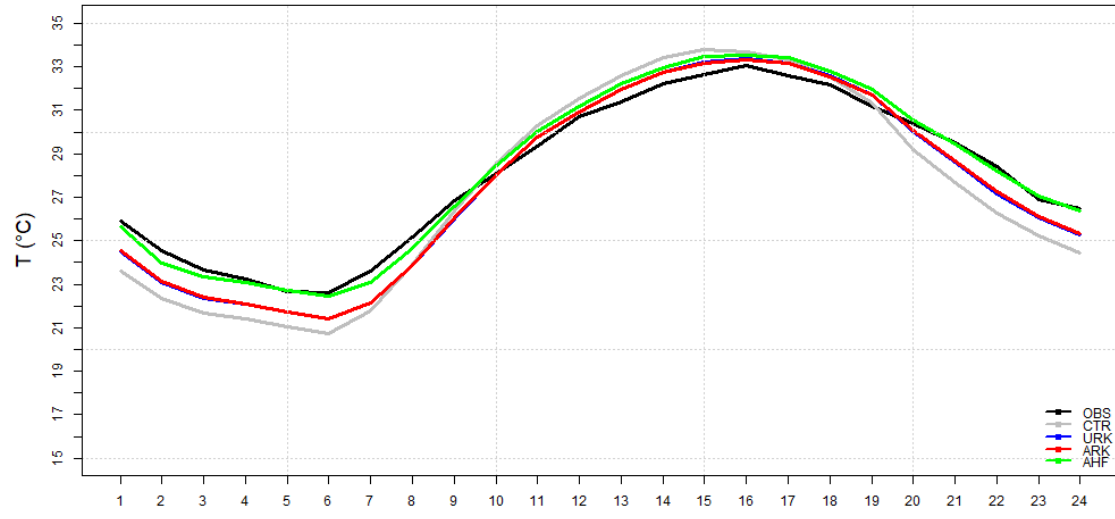
Bauducchi (rural)



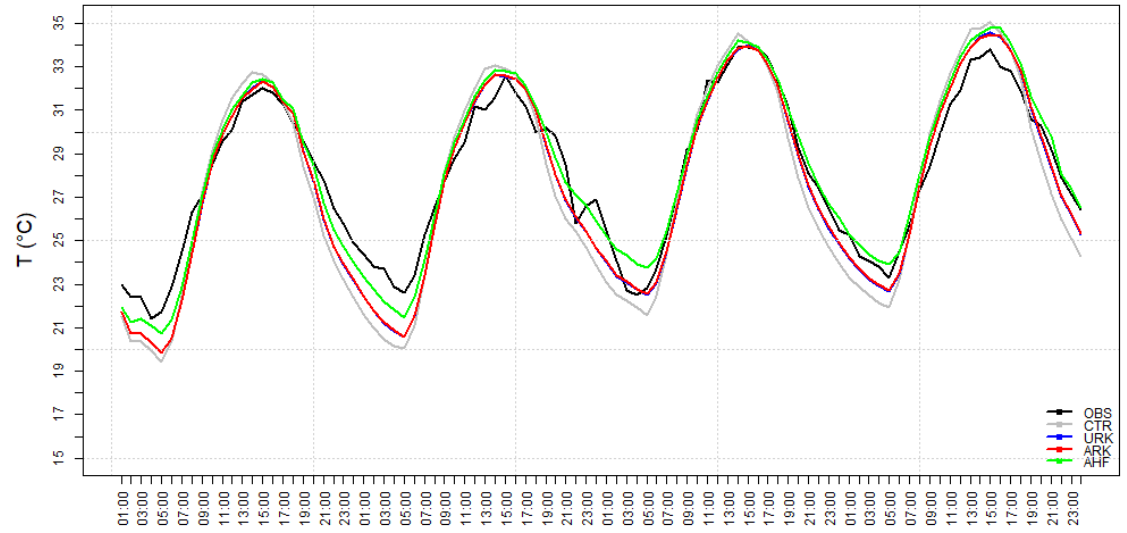
Bauducchi (rural)



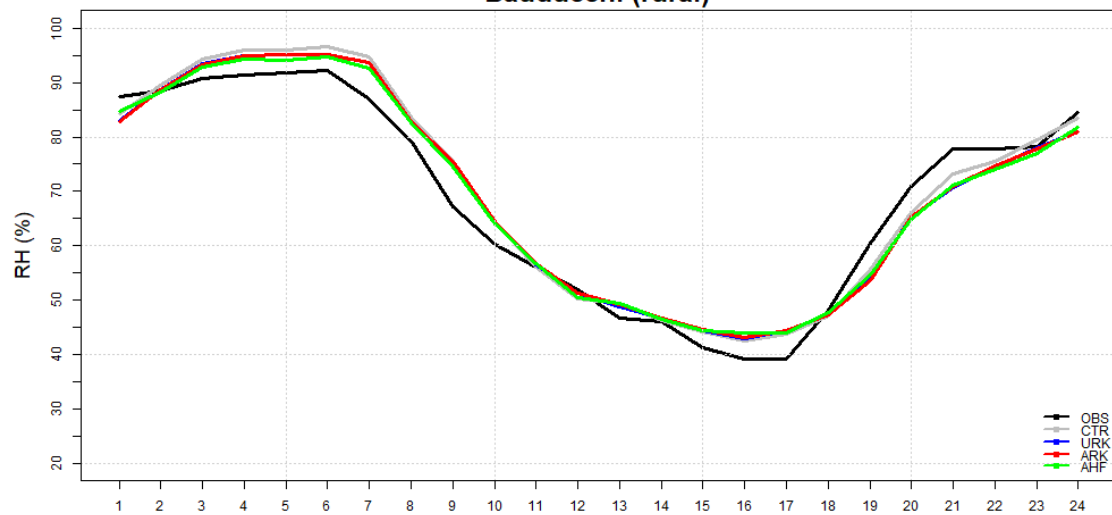
Torino Consolata



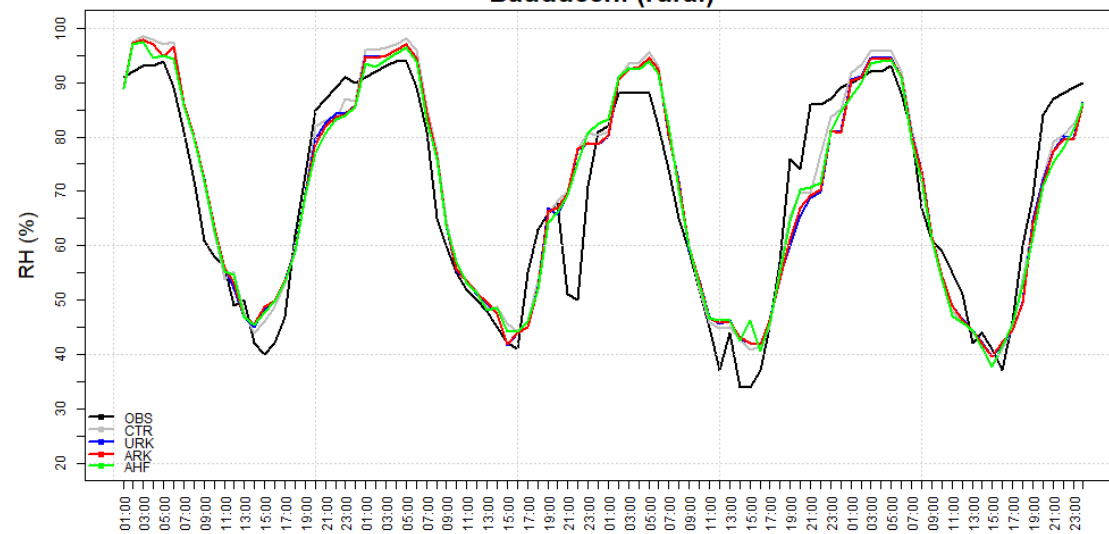
Torino Consolata



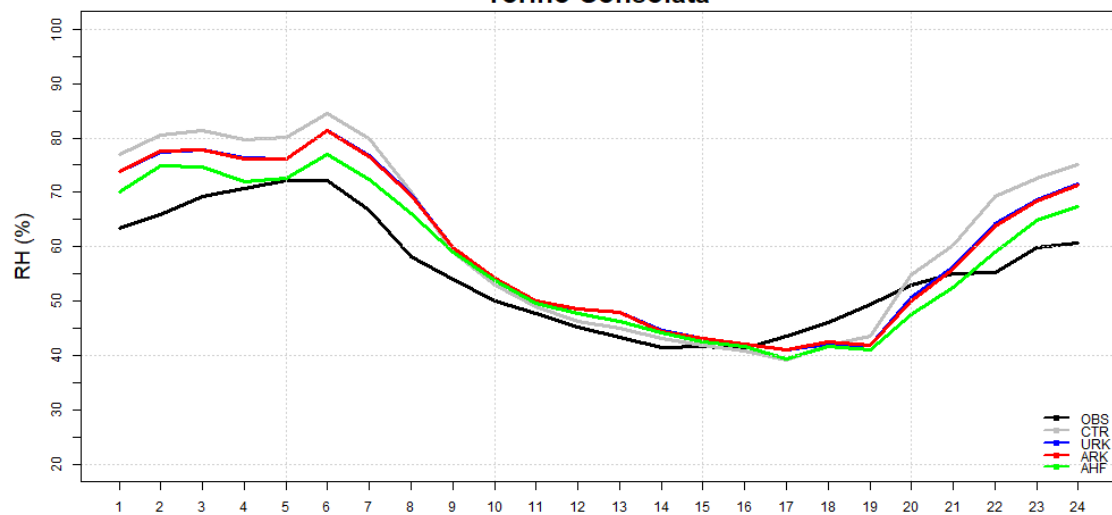
Bauducchi (rural)



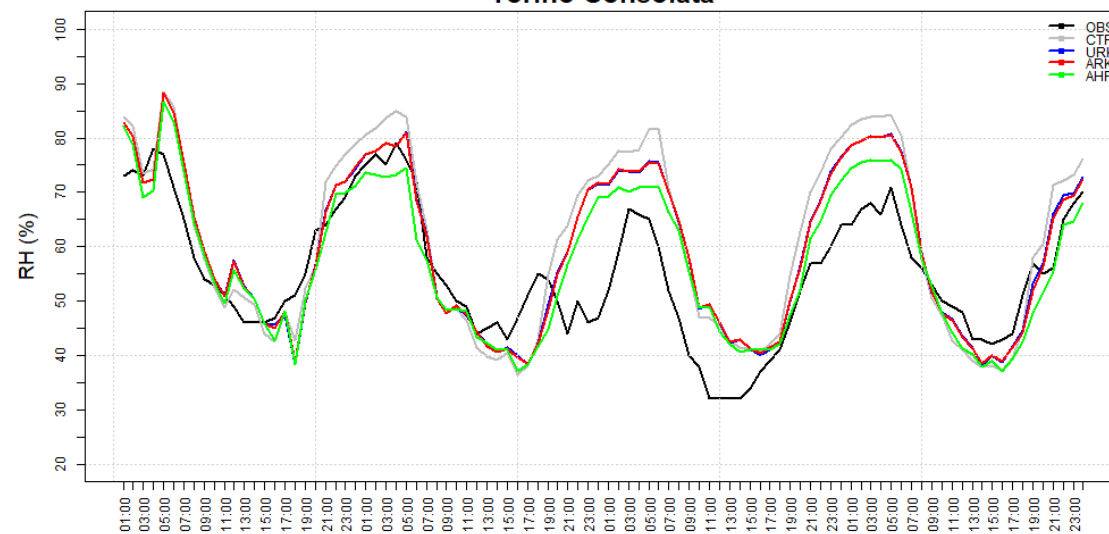
Bauducchi (rural)

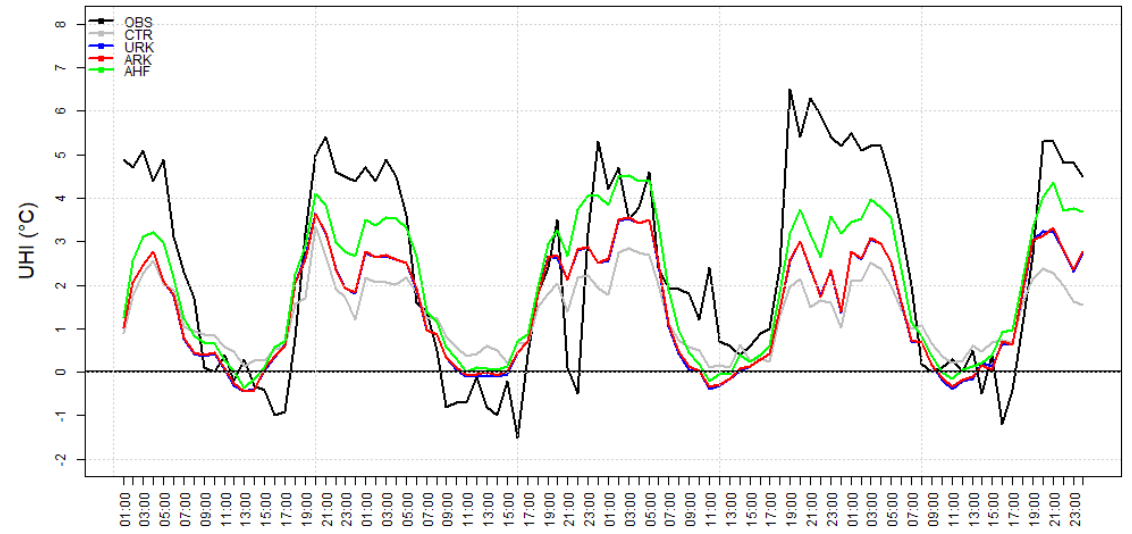
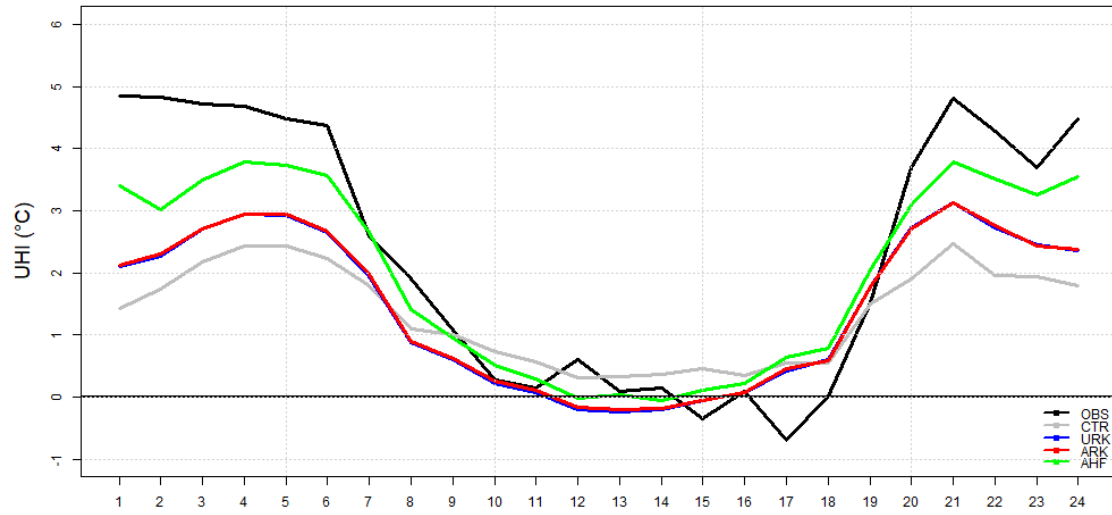


Torino Consolata

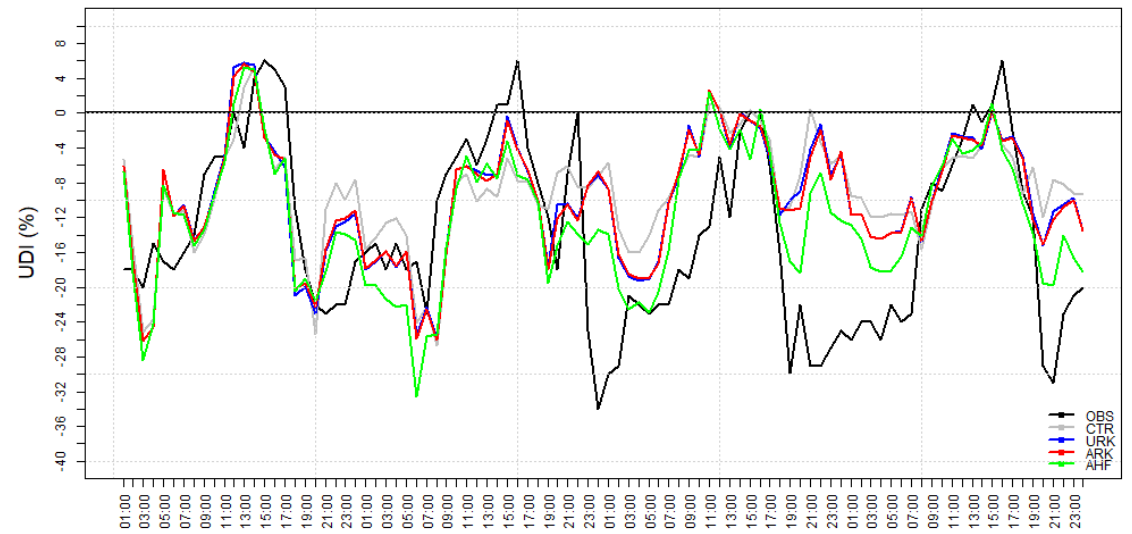
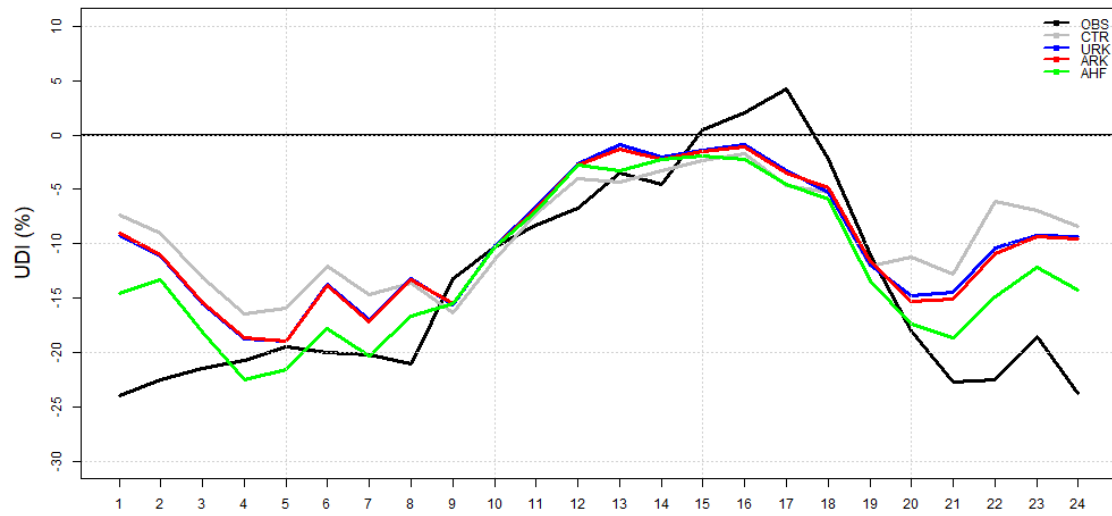


Torino Consolata

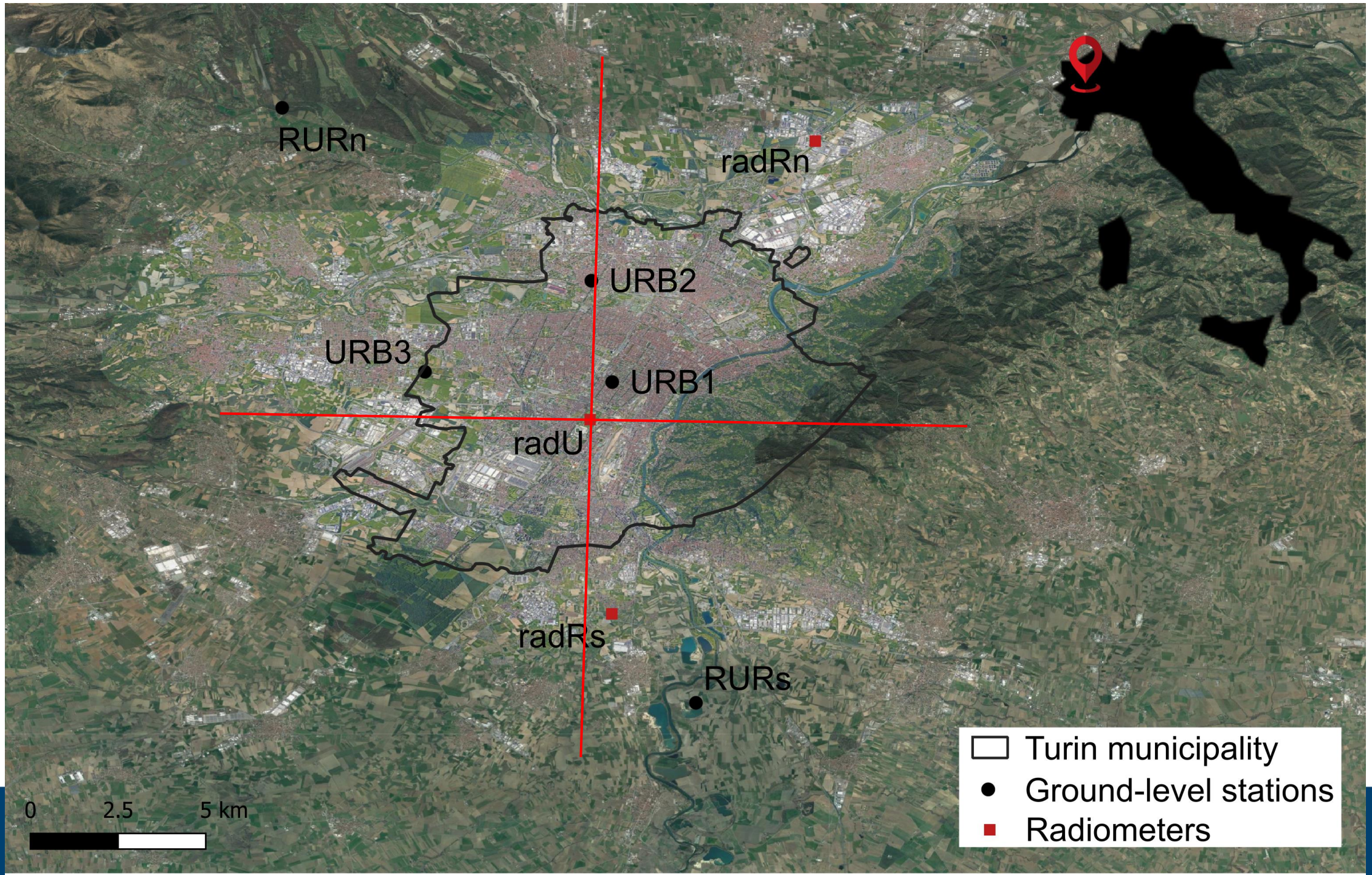




UHI ->  $t2m\_urb - t2m\_rur$  ; UDI ->  $rh2m\_urb - rh2m\_rur$







RURn

radRn

URB2

URB3

URB1

radU

radRs

RURs

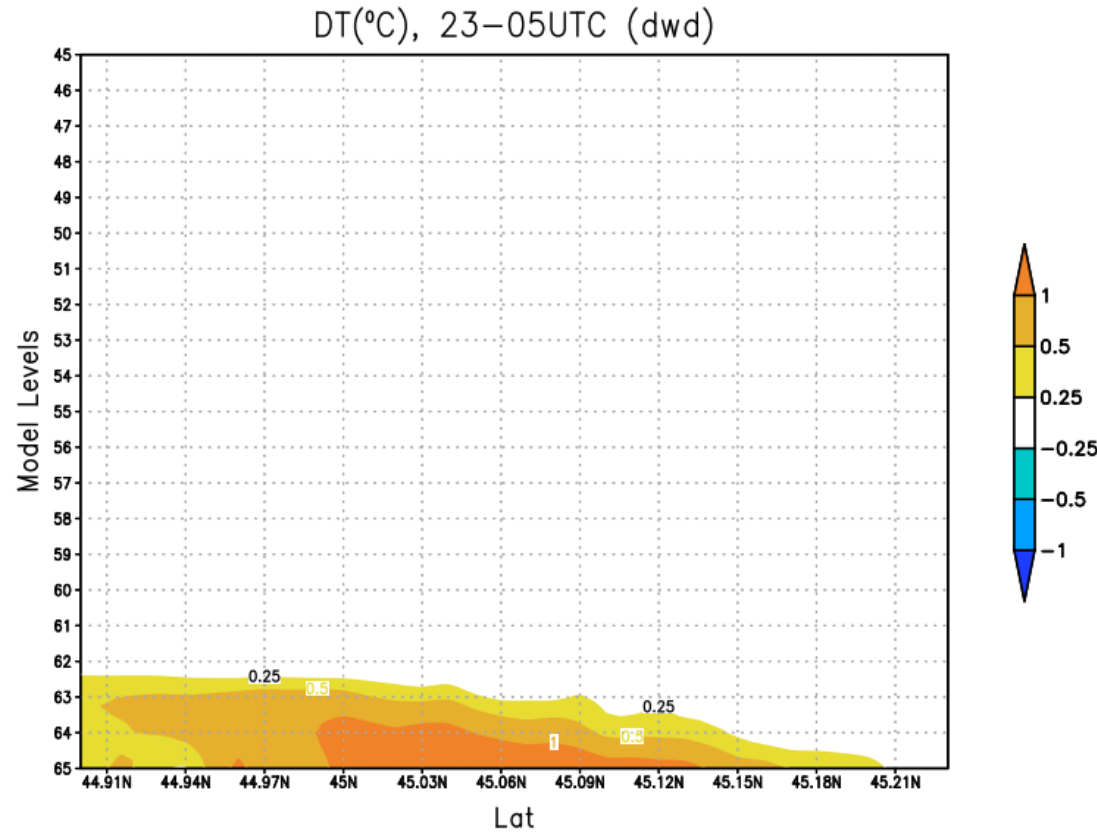
0 2.5 5 km

- Turin municipality
- Ground-level stations
- Radiometers

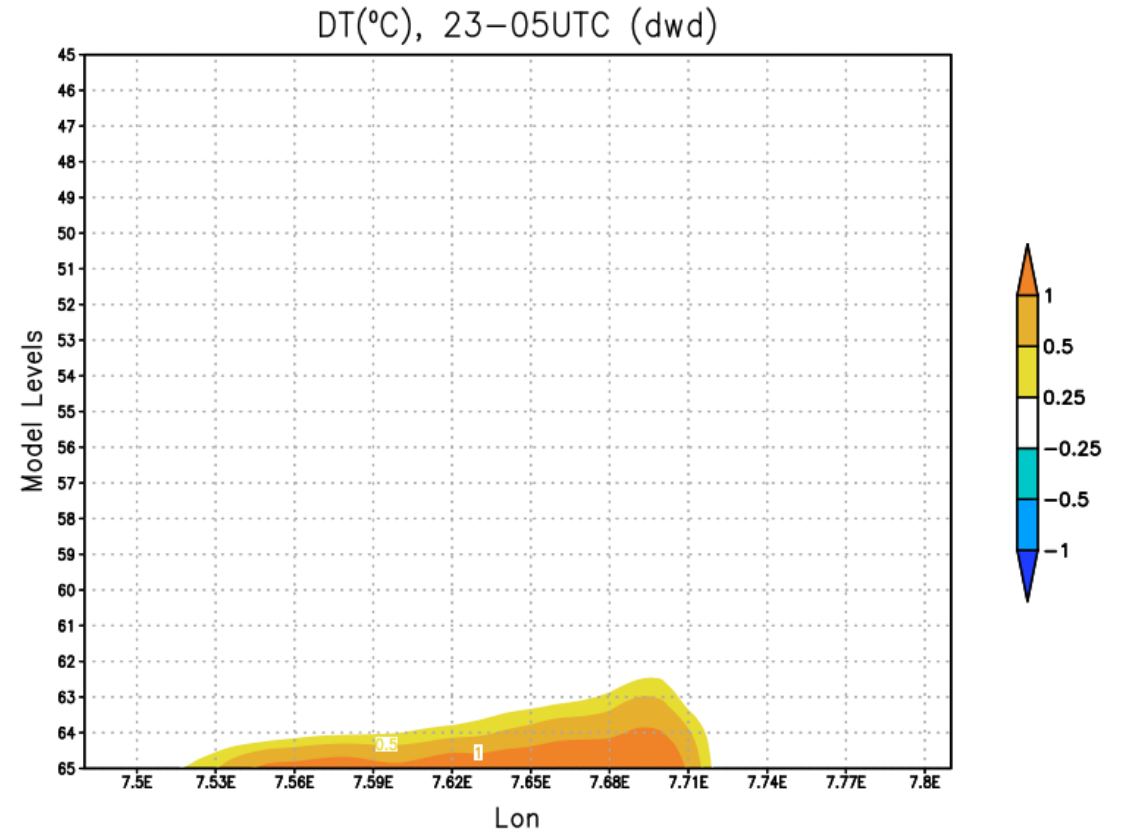


Temperature nocturnal average (23UTC-05UCT) over the period: AHFrun-CTRrun

Heating over urban areas up to 150-200 m a.g.l.



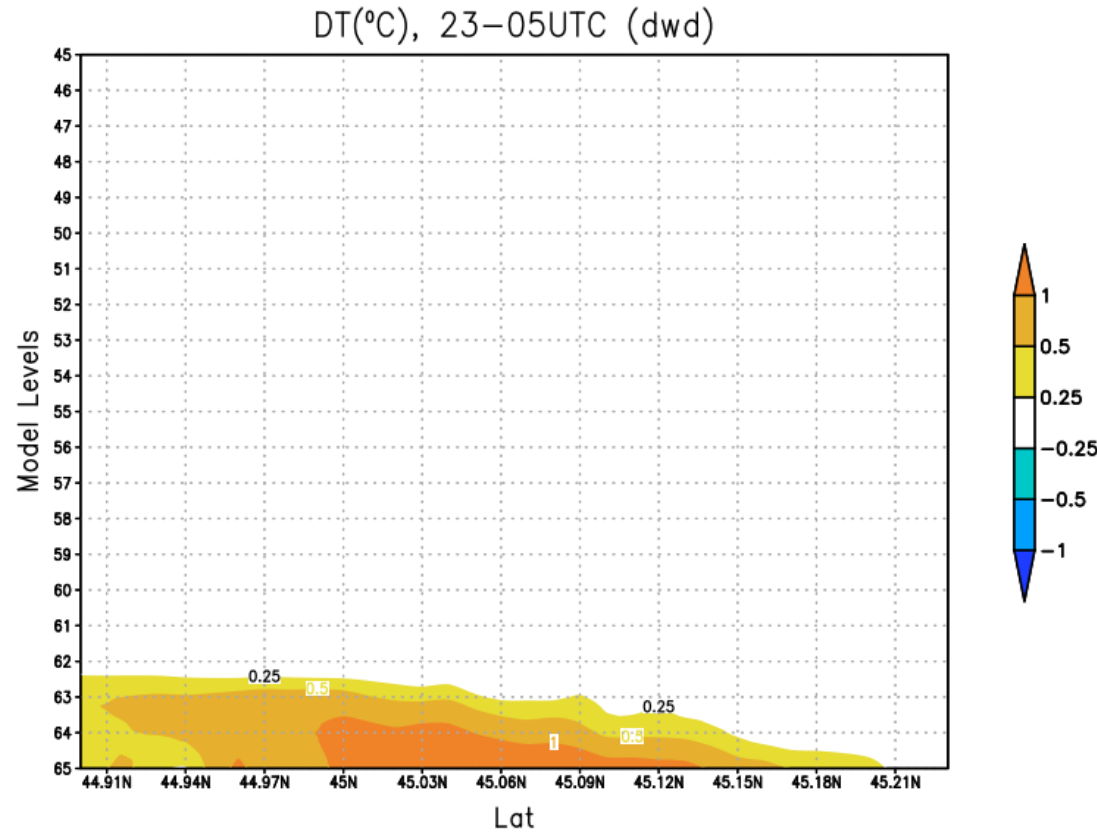
S-N section



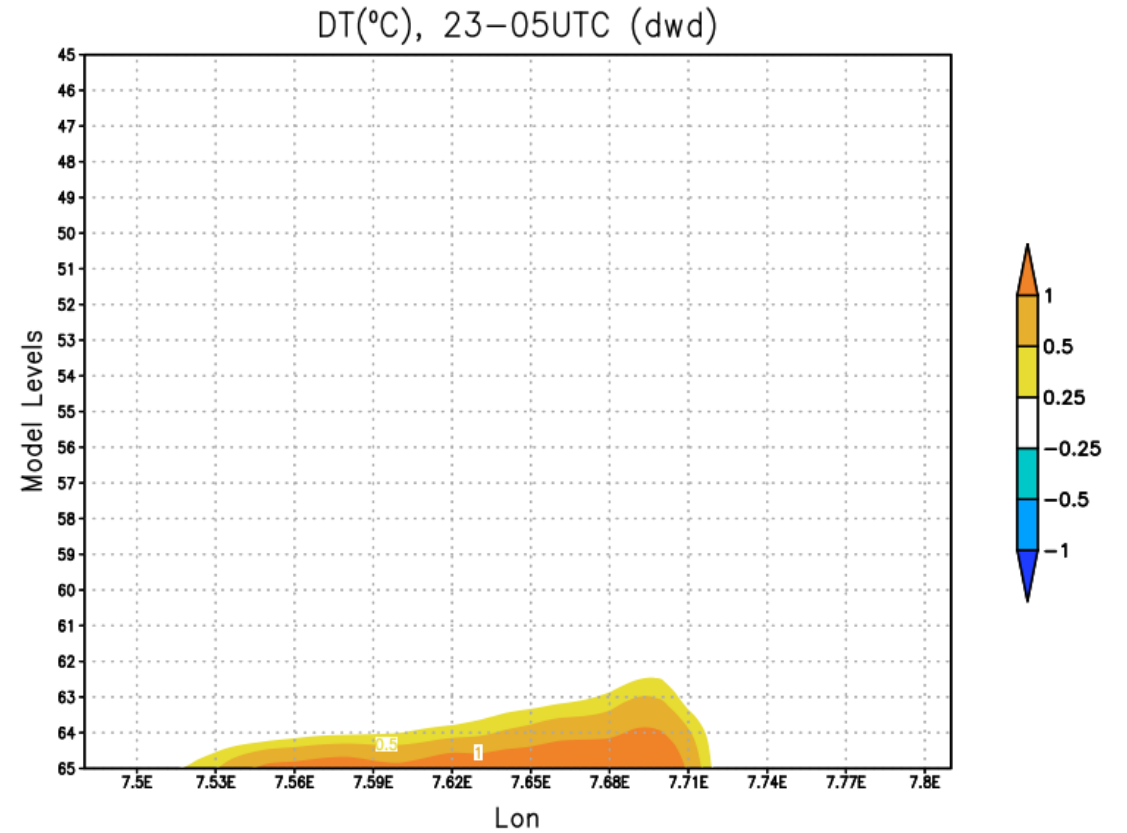
W-E section

Temperature nocturnal average (23UTC-05UCT) over the period: AHFrun-CTRrun

Heating over urban areas up to 150-200 m a.g.l.



S-N section

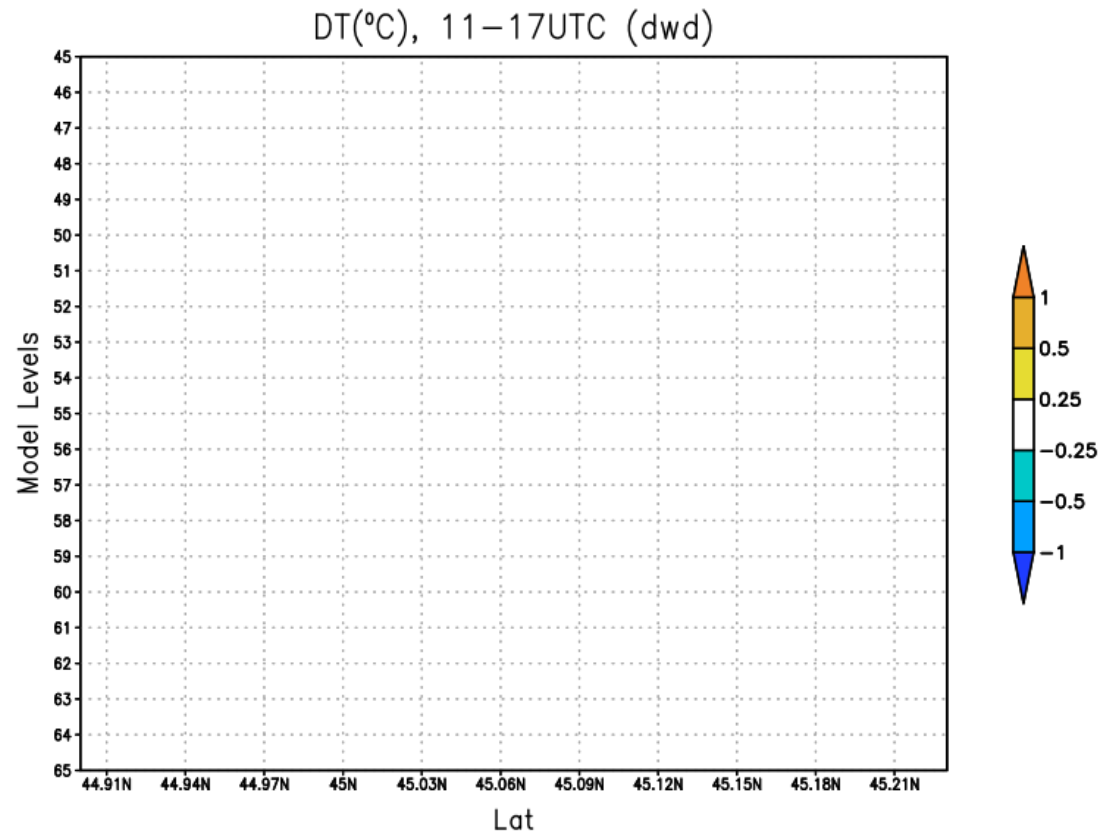


W-E section

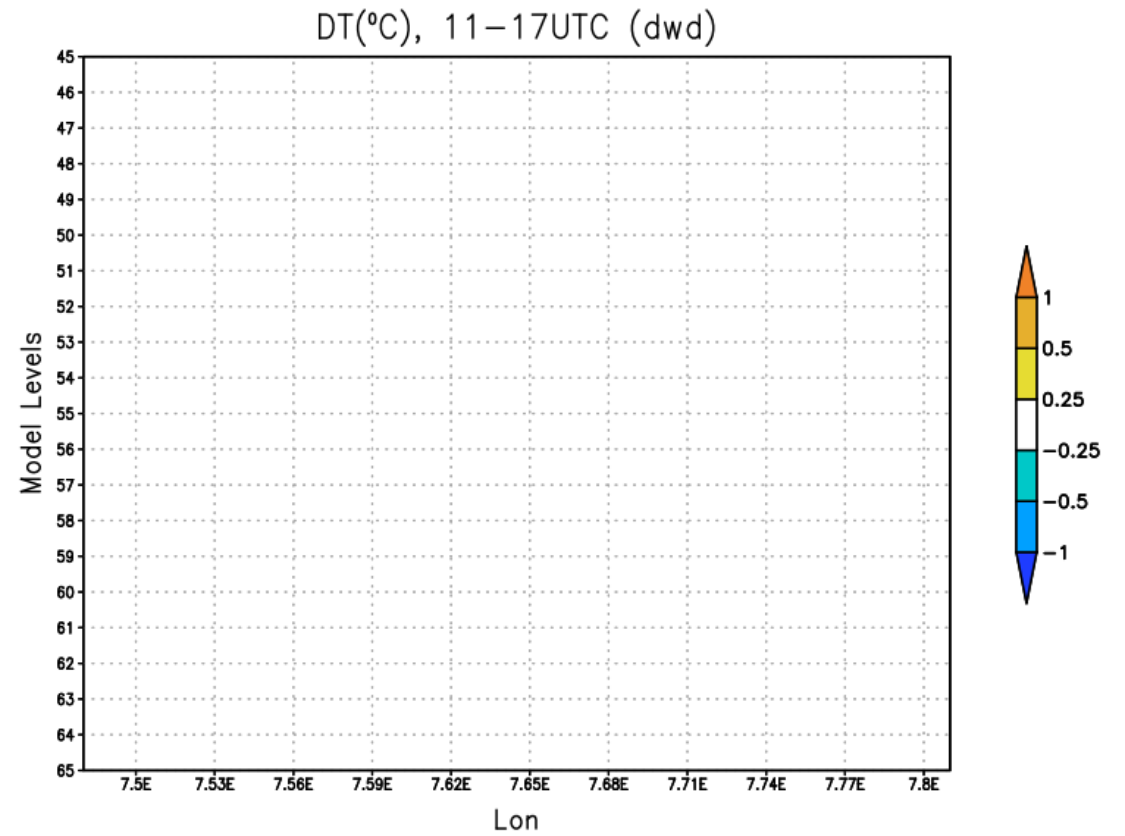


# Temperature diurnal average (11UTC-17UCT) over the period: AHFrun-CTRrun

No extra heating over urban areas



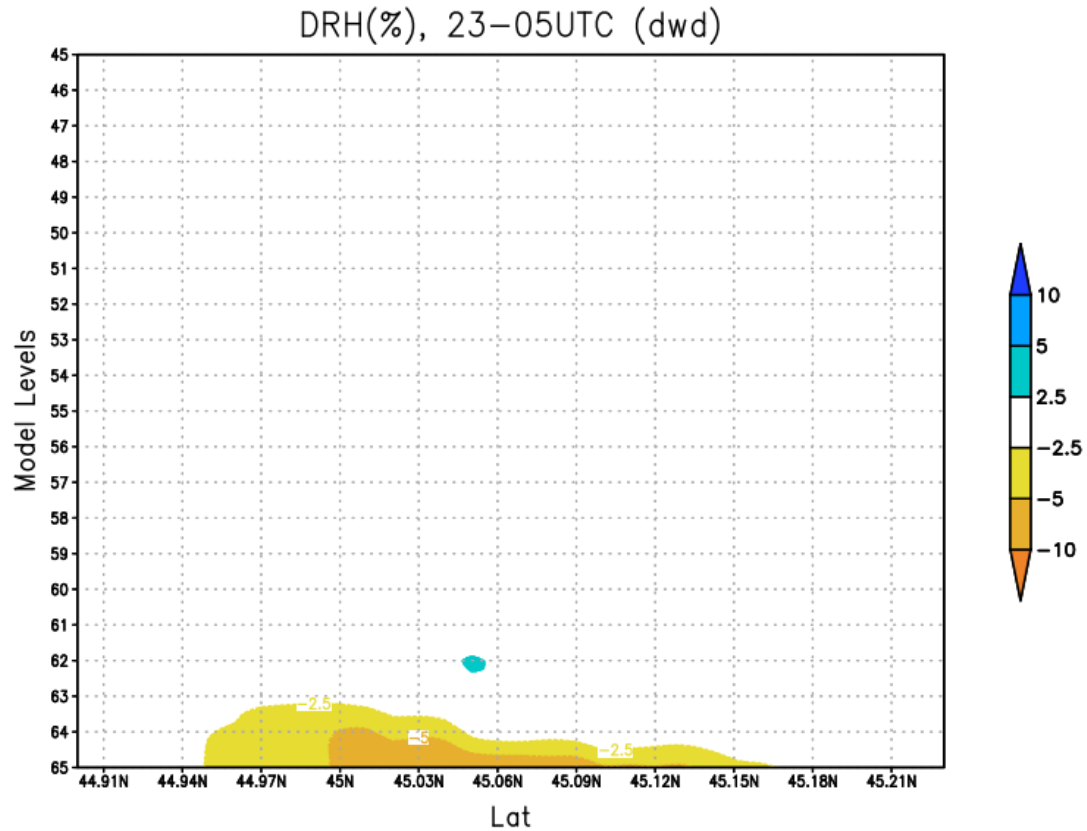
S-N section



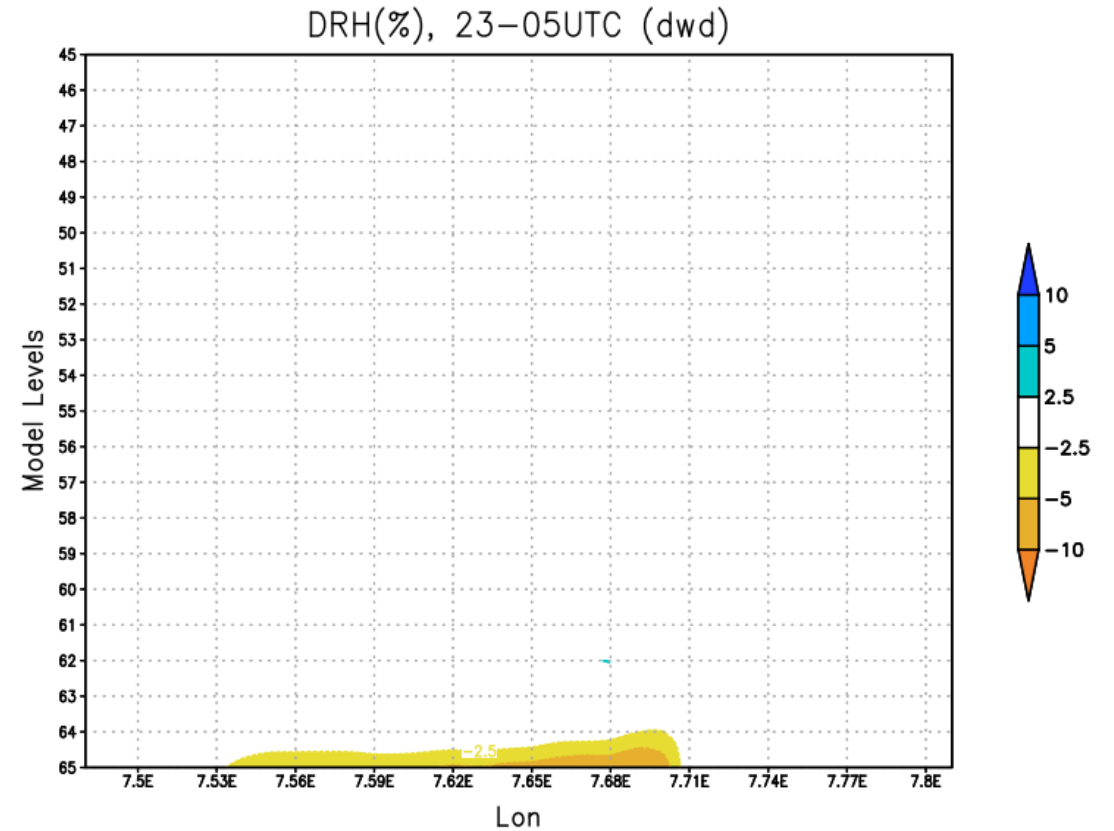
W-E section

# Relative Humidity nocturnal average (23UTC-05UCT) over the period: AHFrun-CTRrun

Drying over urban areas up to 150-200 m a.g.l.



S-N section

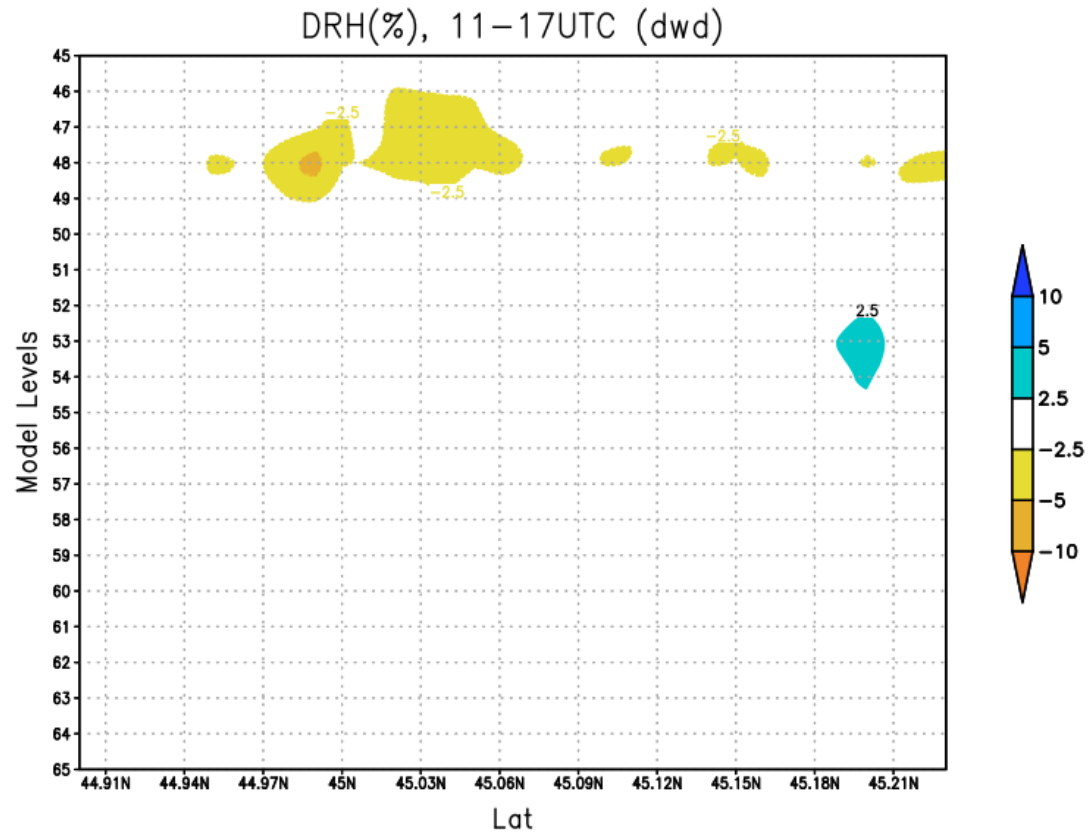


W-E section

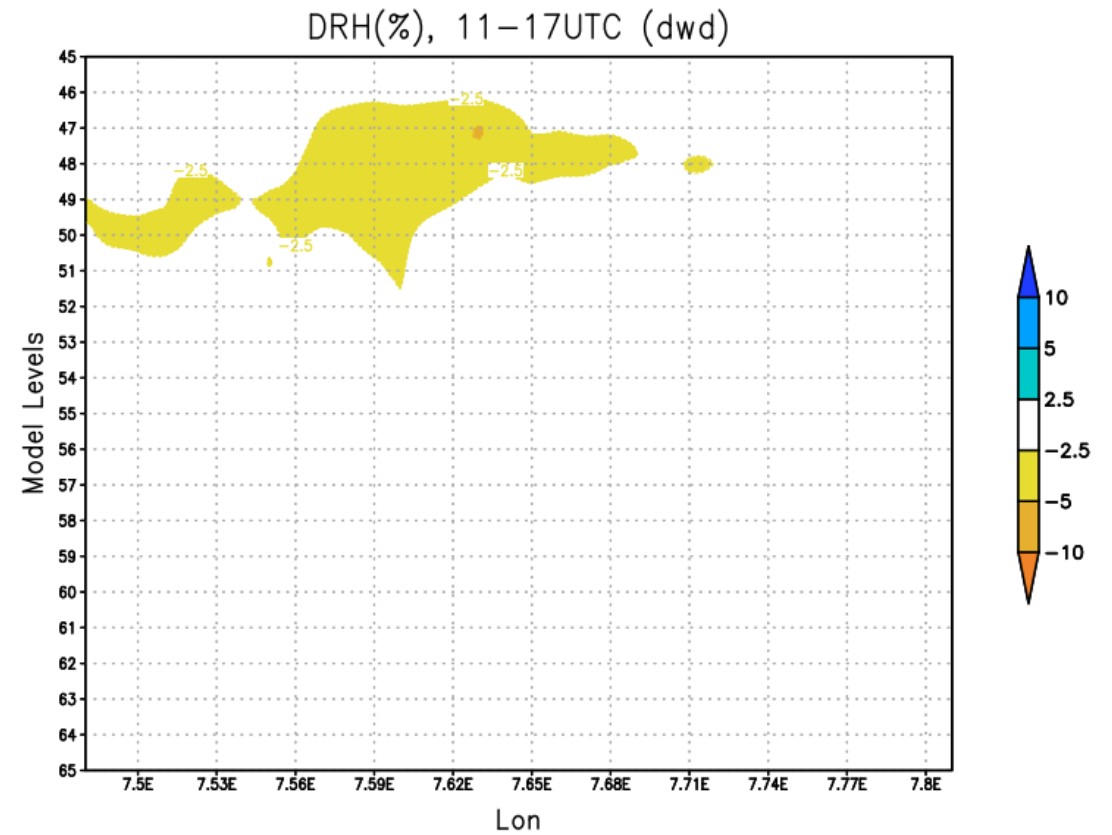


# Relative Humidity diurnal average (11UTC-17UCT) over the period: AHFrun-CTRrun

No large effects over urban areas

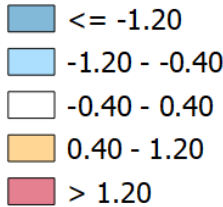


S-N section



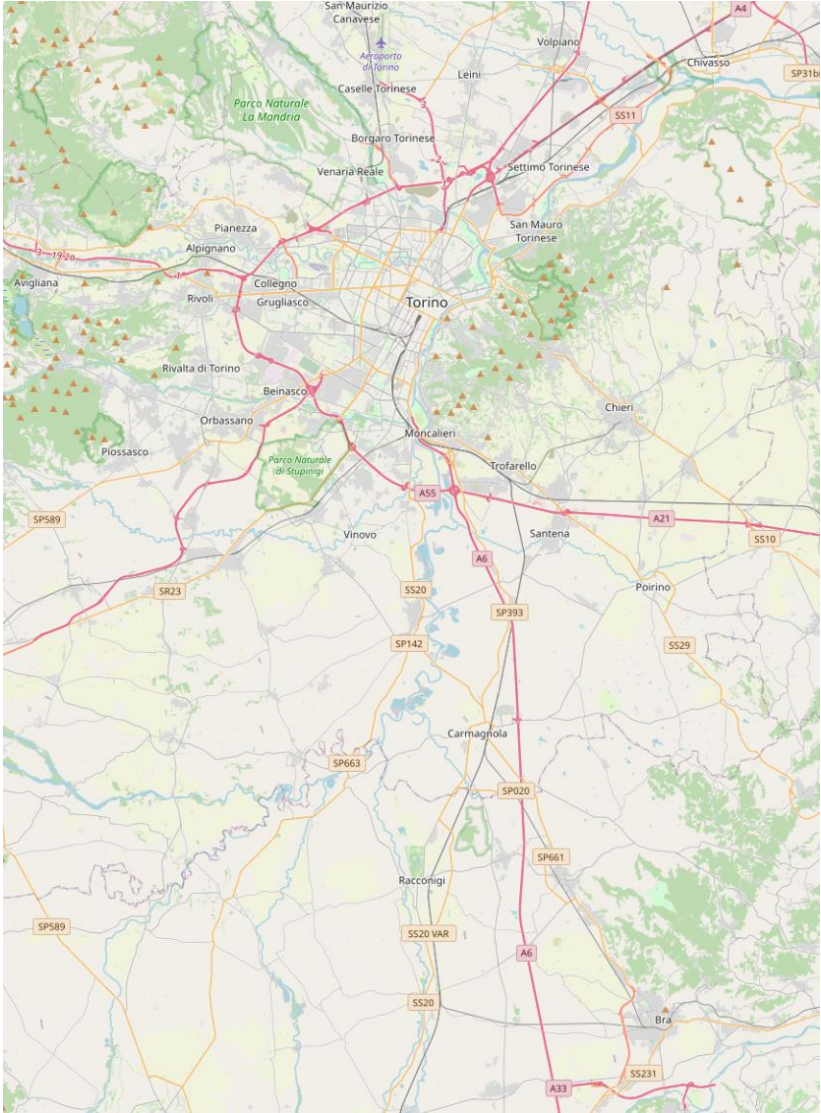
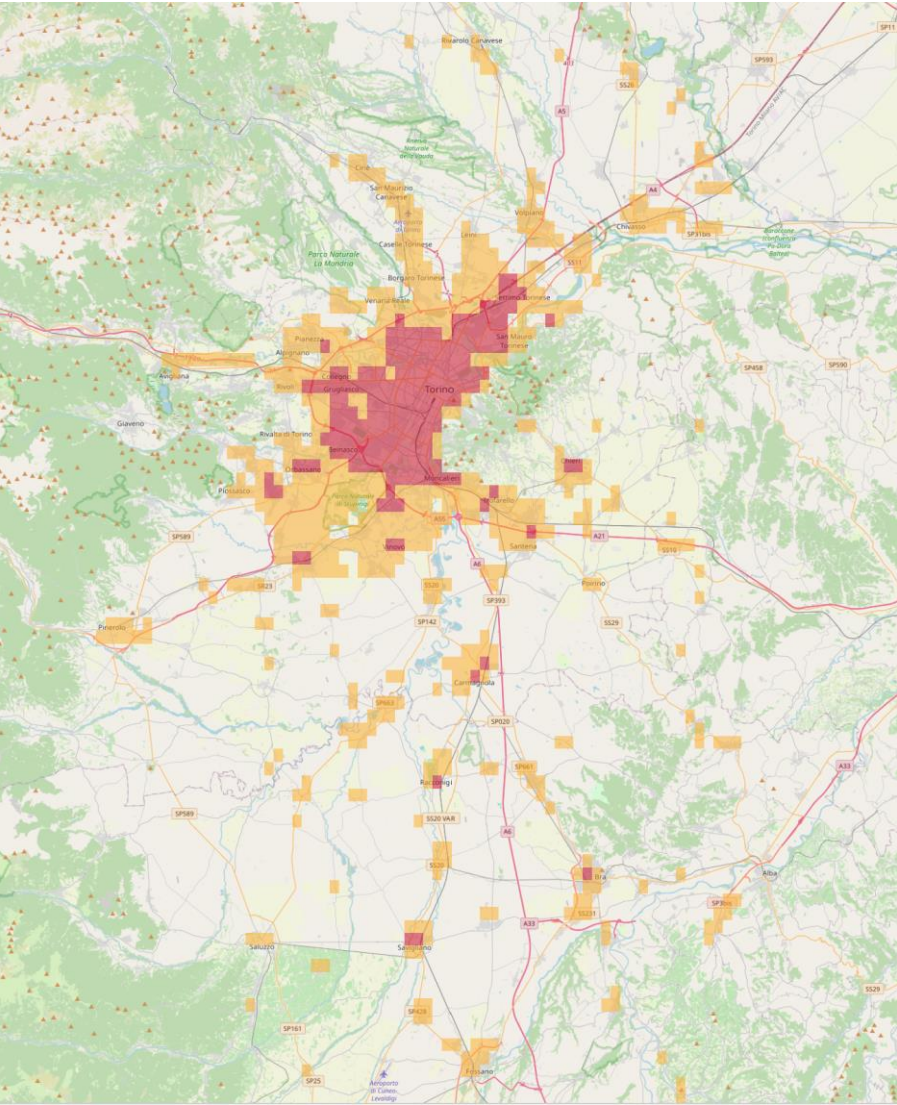
W-E section

# AHFrun-CTRrun

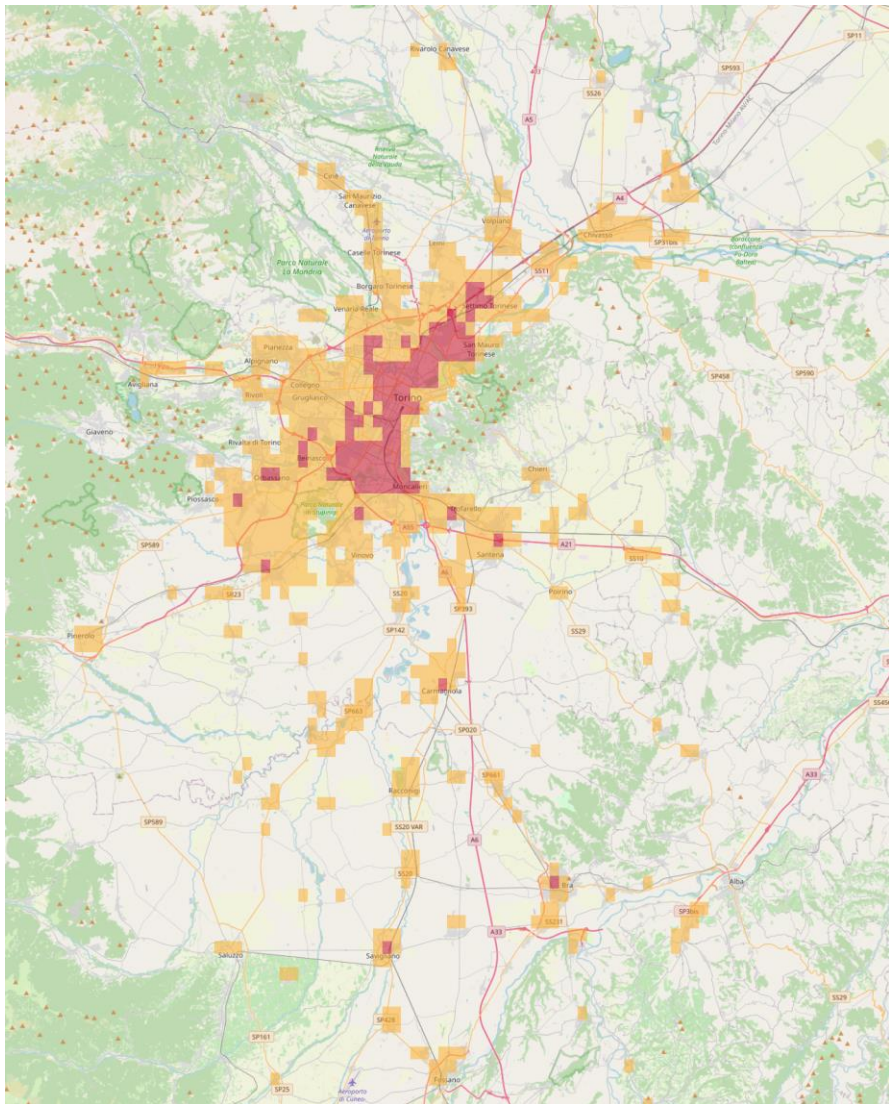


T2m  
average  
between  
23-05UTC

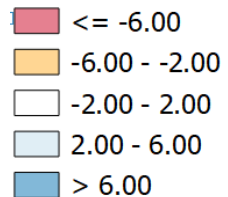
T2m average  
between 11-17UTC



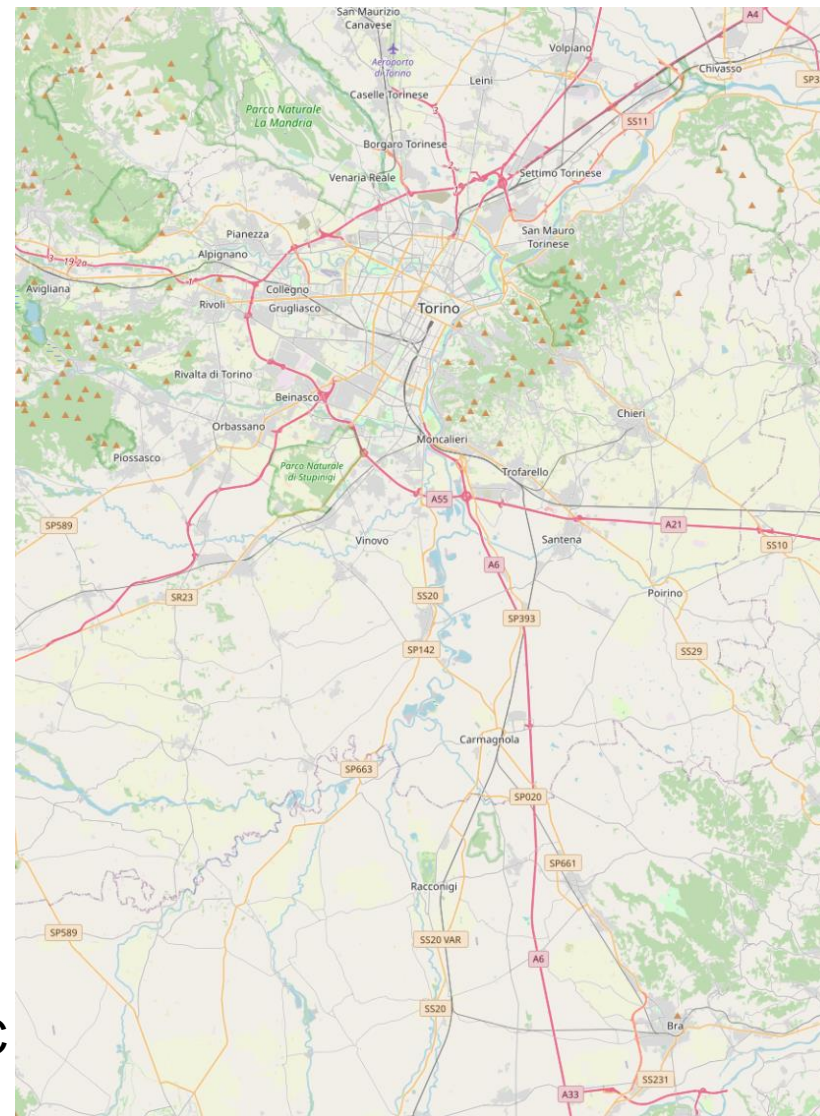




## AHFrun-CTRrun



RH2m  
average  
between  
23-05UTC



RH2m average  
between 11-17UTC

- Verification against ground stations shows improvement of the results
- The vertical sections show a heating/drying of the URB run above the urban areas up to 150-200 m during the night and neutral effects during the day
- The T2m spatial distribution shows night heating over urban areas and neutral effects during the day
- The RH2m spatial distribution shows that urban areas are drier in the night and neutral during the day
- Overall, the URB runs perform as we expect
- Looking at UHI and UDI, it is evident that something is still missing, but it seems we are on track





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