



EGUsphere, community comment CC2  
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## **Comment on egusphere-2022-589**

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Community comment on "Monitoring Urban Heat Island Intensity with Ground-based GNSS Observations and Space-based Radio Occultation and Radiosonde Historical Data" by Pengfei Xia et al., EGU Sphere, <https://doi.org/10.5194/egusphere-2022-589-CC2>, 2022

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It is interesting to know from this paper that GNSS tomography could also has the potency on monitoring the Urban Heat Island Intensity (UHII). Since the advent of GNSS meteorology, it has been applied in many meteorological application, like extreme weather monitoring, weather nowcasting and forecasting and so on. As a PhD student working on GNSS meteorology, this paper inspires me that there may be more possibilities when considering data fusion from different data sources, like in this paper, combining ground-based GNSS, Radio Occultation and radiosonde techniques.

Now turn back to the paper itself, one of the key point of this paper is that how to retrieve the temperature based on all these techniques. The authors chose to retrieve the temperature from the wet refractivity field over the region in Hong Kong reconstructed by GNSS tomography. To do so, additional conditions are introduced, like the temperature decreases with height linearly and the pressure decreases with height exponentially. Since both conditions are normally adopted in many researches, is there any other way to retrieve the temperature, either more precise or simpler? And for monitoring UHII, with this validated method, if it is possible to be implemented in a real-time mode? or is it necessary to monitor UHII in real-time?