



EGUsphere, referee comment RC2  
<https://doi.org/10.5194/egusphere-2022-90-RC2>, 2022  
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## **Comment on egusphere-2022-90**

Anonymous Referee #2

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Referee comment on "An algorithm for deriving the topology of belowground urban stormwater networks" by Taher Chegini and Hong-Yi Li, EGU sphere,  
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This article addresses a highly needing yet challenging problem, deriving the topology of urban drainage networks from land surface data. A novel algorithm was developed and when applying to four various urban areas the accuracy (60-75%) is acceptable, especially given the complexity of the problem and uncertainties of the input data.

Specific comments are as follows:

1. The term "Below-ground Urban Stormwater Networks (BUSNs)" seems created by authors? Why not more commonly used term, such as "Urban Drainage Networks"?
2. Although not explicitly said, Figure 1 and line #23 seem indicating that authors focused on separate sewer systems (i.e., not combined sewer systems) and only stormwater drainage networks (i.e., not sewer networks)? Noting there are hundreds of cities in the US that have combined sewer systems, how well would this algorithm apply to those systems?
3. Validation was performed using a metric for coverage as the goal seems to be deriving the "topology". I'm curious if authors considered and compared slope and size of pipes? How would slope and size be implemented in large-scale urban hydrologic modeling?
4. Line 15: "urban population will grow from half to more than two-thirds of the total population by 2050." I'd suggest to delete "from half", or add "from half by 2008".
5. Line 24: "most urban modules in existing hydrological models..." provide references

and/or give examples.

6. Line 159: "60% of a pipe length from the real BUSN is within this buffer zone, the pipe is considered "covered"." Did authors consider other values as the criteria? I'm curious how sensitive this criteria would be.

7. Line 381 vs. line 9: 59-76% vs. 60-75%. Which one is correct?