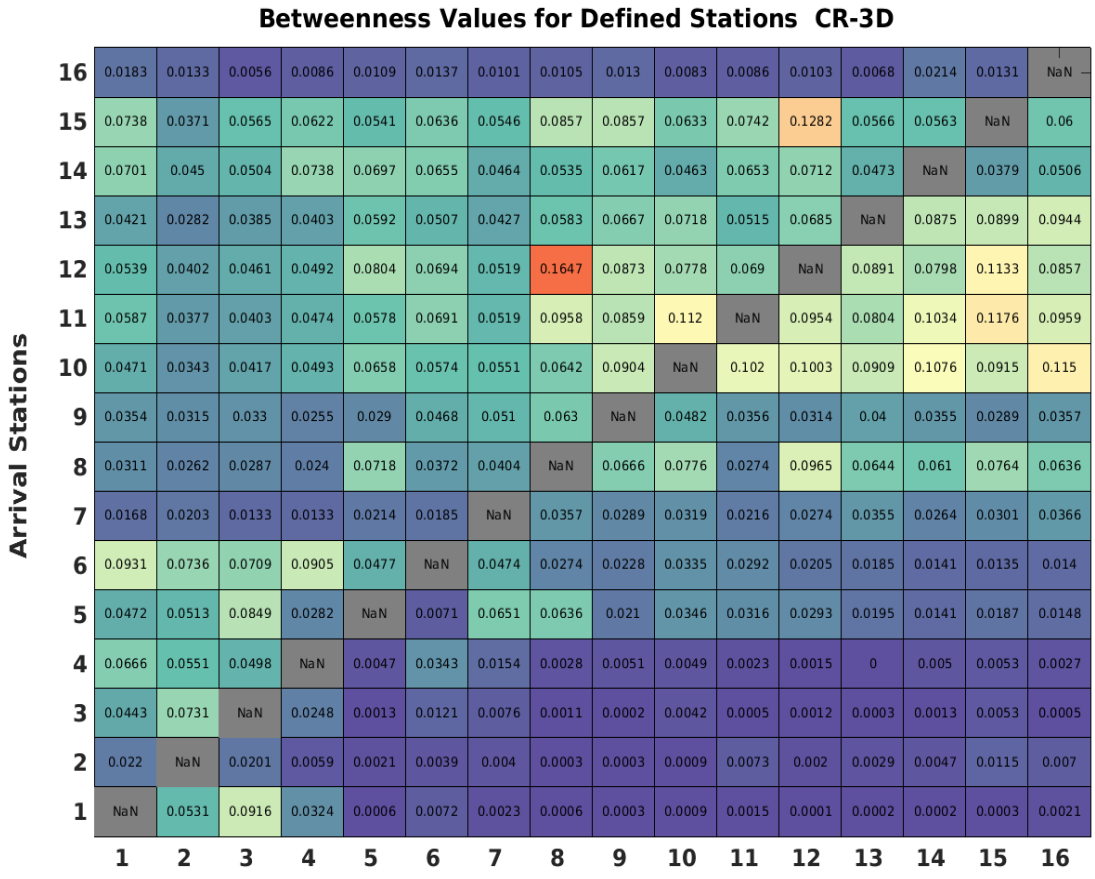
a)



b)

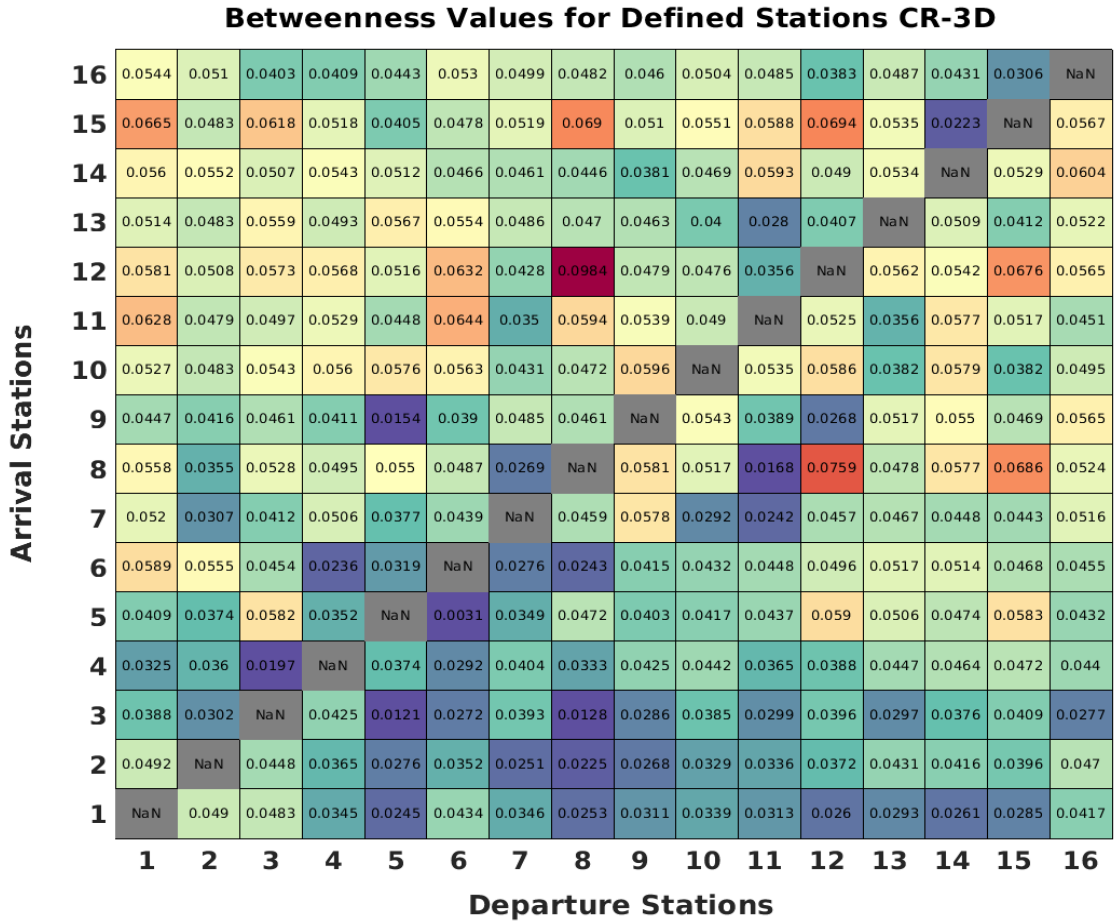
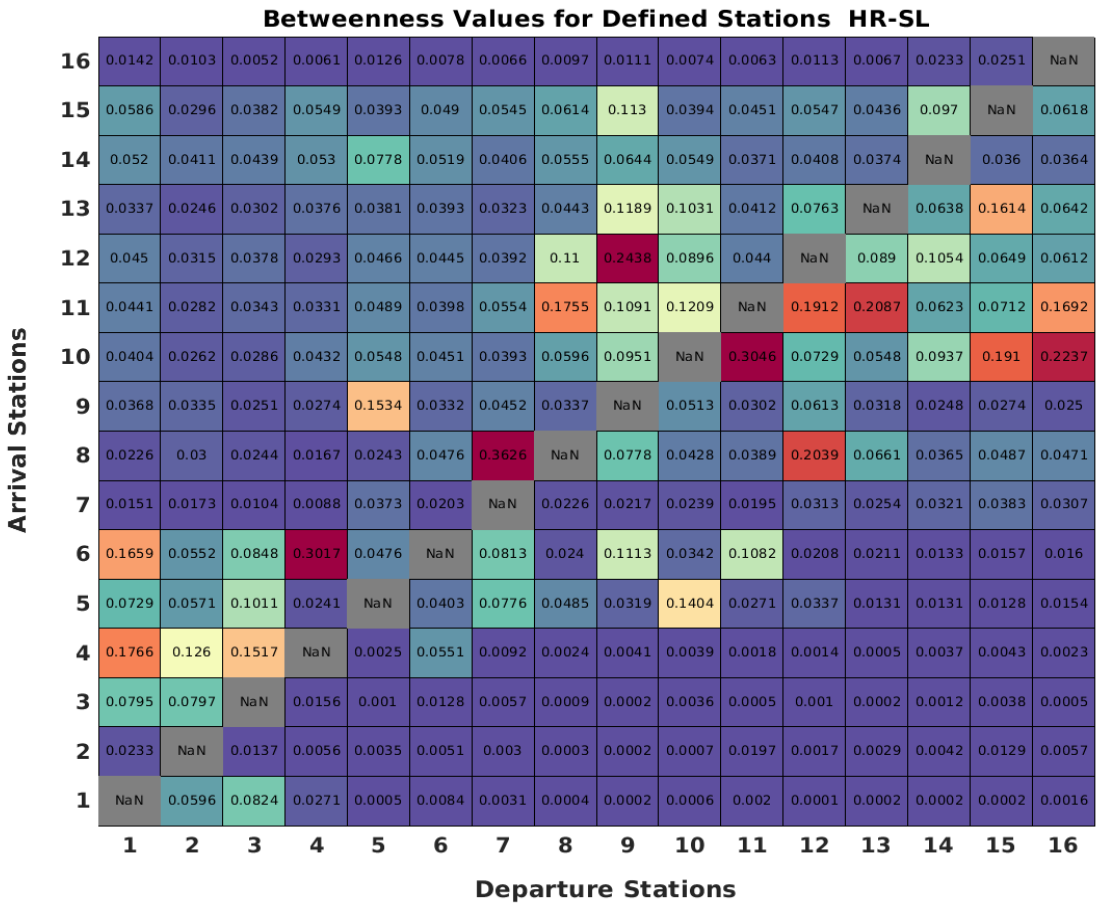


Figure S1: Betweenness values calculated for CR-3D and HR-2D based on (a, c) Dijkstra's solution and (b, d) improved method by Costa et al. (2017).

c)



d)

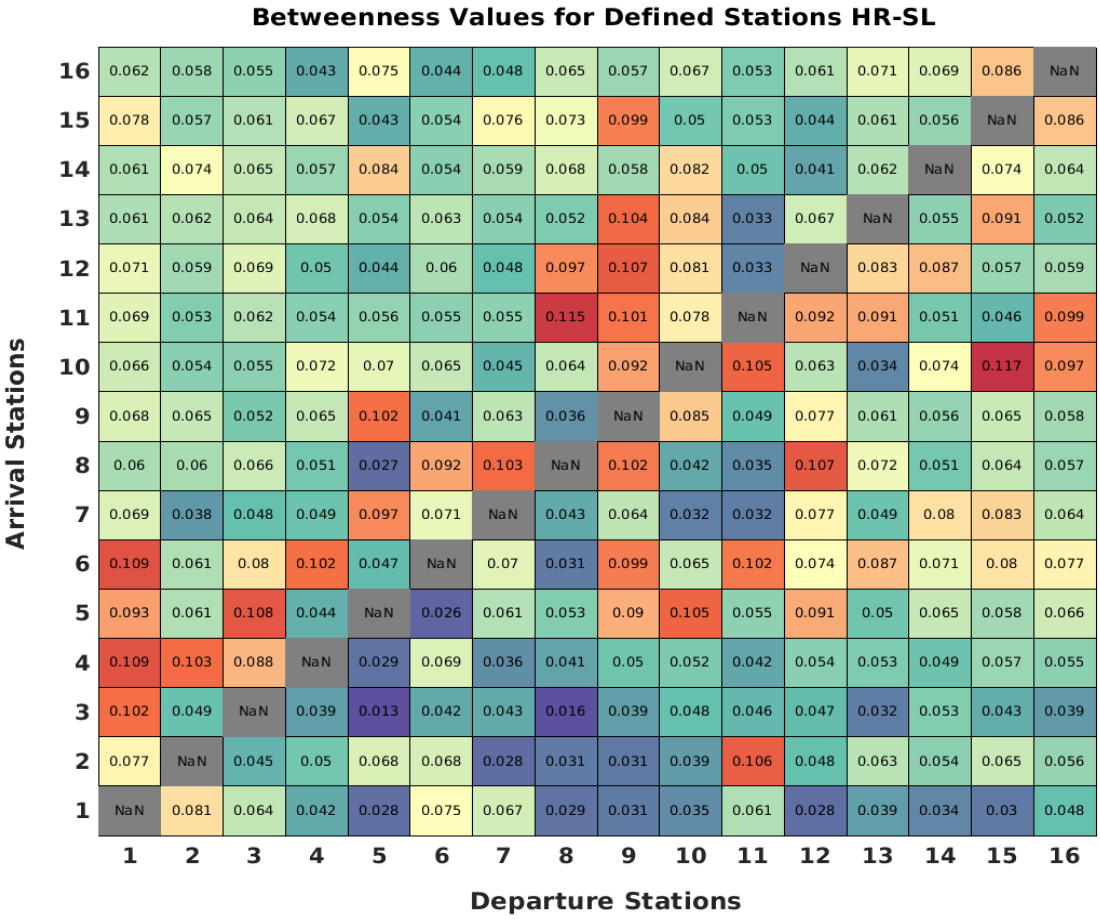


Figure S1, continued: Betweenness values calculated for CR-3D and HR-2D based on (a, c) Dijkstra's solution and (b, d) improved method by Costa et al. (2017).

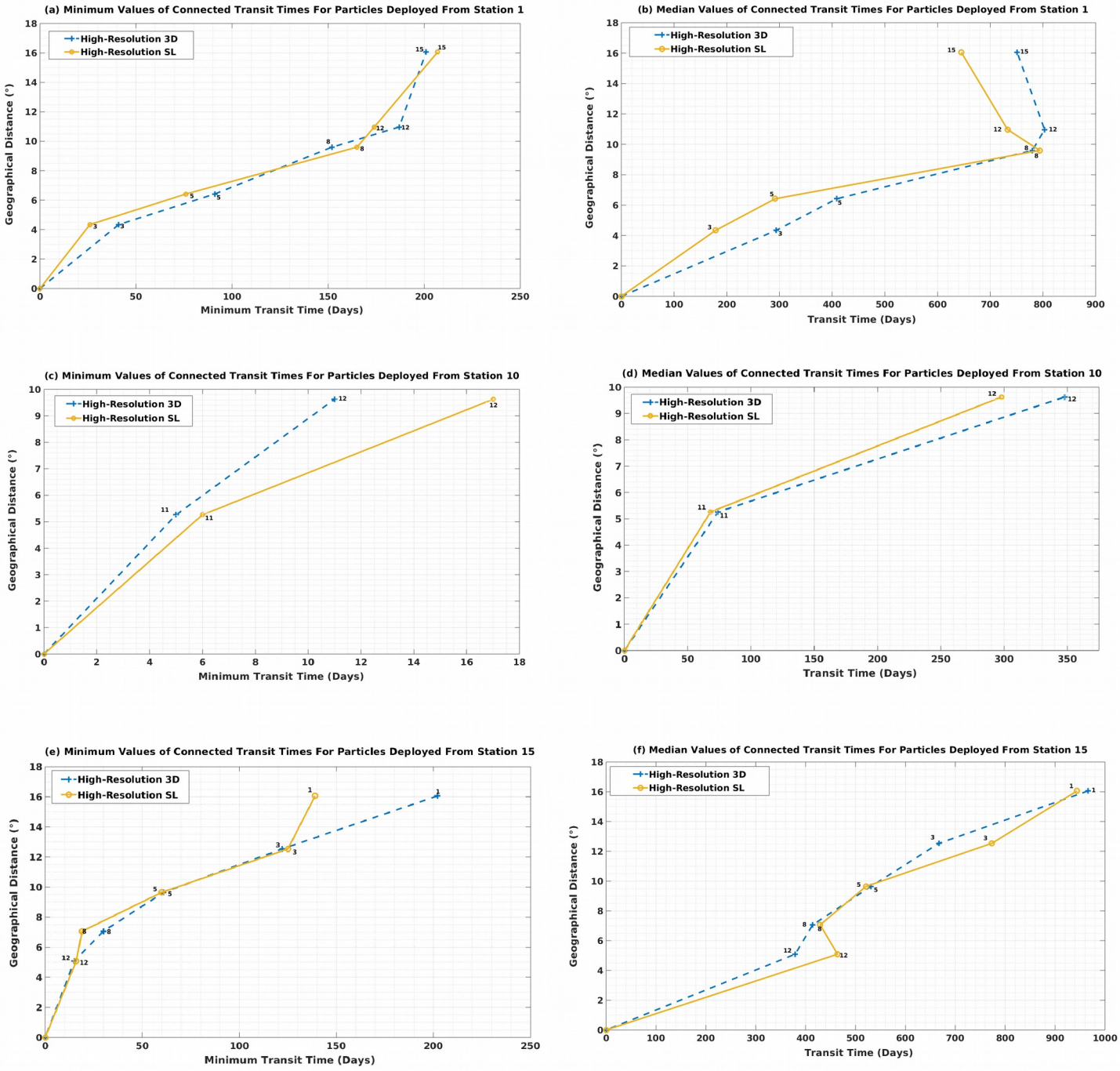


Figure S2: Comparison of HR-3D and HR-SL minimum and median transit time, (a, b) Along diagonal direction for particles deployed initially from station 1. (c,d) Along front for particles deployed initially from station 10. (e,f) Along diagonal direction for particles deployed initially from station 15.