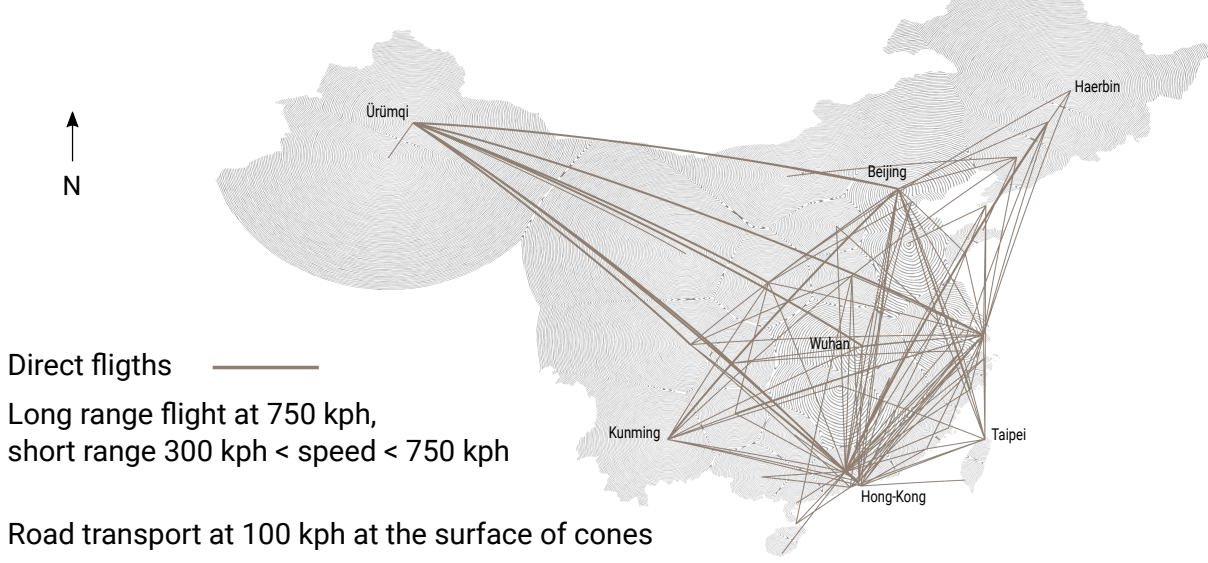


The Chinese Geographical Time-Space by air and road in 2014

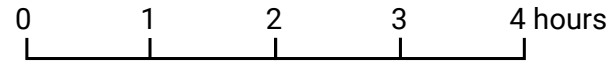
a. View from above



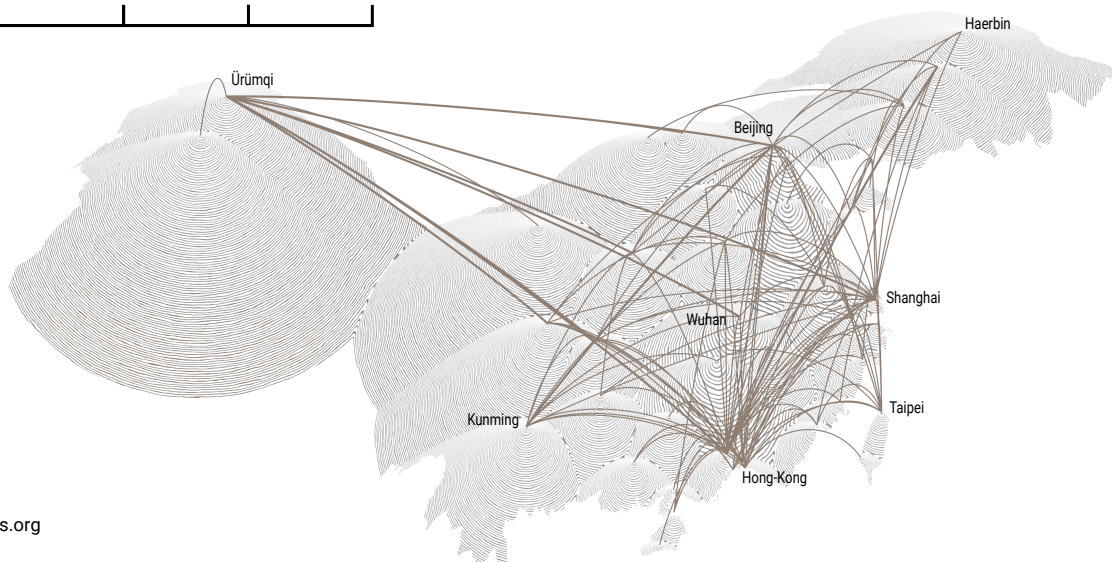
Direct flights ————
 Long range flight at 750 kph,
 short range 300 kph < speed < 750 kph

Road transport at 100 kph at the surface of cones

Time-space scale:



b. View at 20°

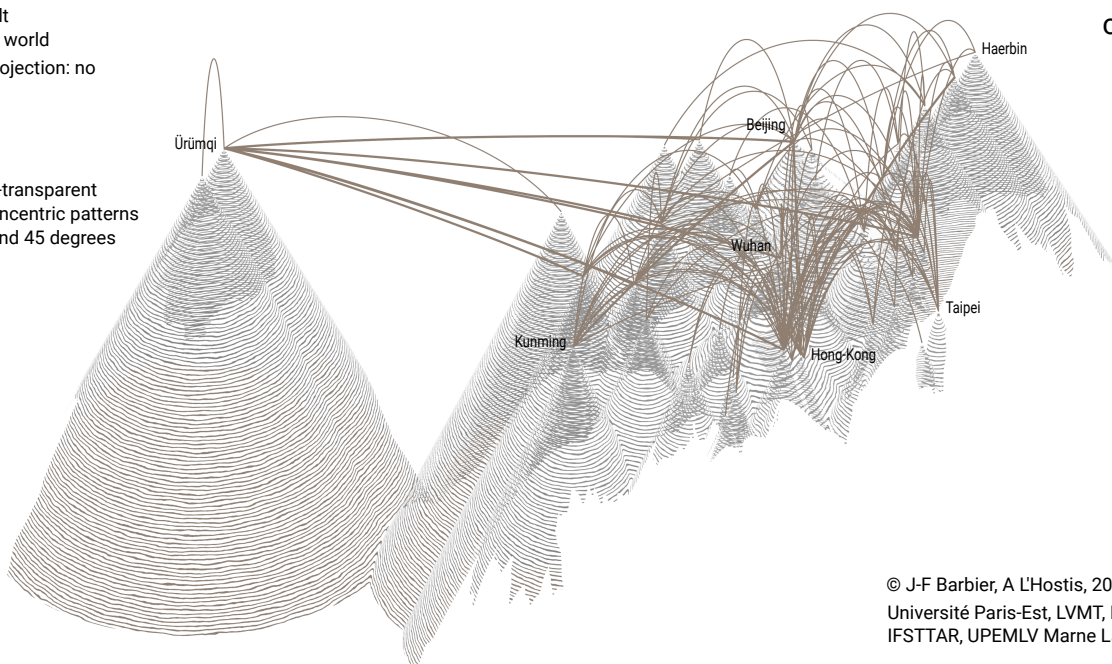


Data:
 - Cities: UN WUP
 - Arcs: openflights.org

Modeling:
 - 3d structure built with: Shriveling world
 - Geographical projection: no

Rendering:
 - Blender
 - Cones are semi-transparent with circular concentric patterns
 - Views at 0, 20 and 45 degrees

c. View at 45°



Closer Cities and Distant Space: The Chinese Geographical Time-space by Air and Road

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We propose a representation of the Chinese geographical time-space by air and road in 2014. In order to produce this representation (L’Hostis 2009; L’Hostis and Barbier 2021) with two very different transport systems operating at their respective speed, we use the third dimension that allows to lengthen the slower connections. The fastest connections by air at 750 kph follow the geodesic curve, while slower short range flight¹ are drawn as long curves above the earth surface. The geographical surface where road operates at 100 kph – 7.5 times slower – turns into a series of spiky cones centred on cities connected by fast air connection. The slope of cones is determined by the ratio between long range air and road speed.

We show three different angles of view that allow to better understand the three dimensional nature of the representation. The time scale can be used to estimate trip duration by measuring curves lengths and *visual length* (L’Hostis 2009) of routes on the surfaces of cones.

Chinese geographical time-space exhibit a very efficient air transport system connecting major cities, contrasting with the non metropolitan space experiencing much lower road speed. Spaces devoid of cities, in the Western part of the country, appear rejected in very deep time-space valleys. The air transport systems is comparatively

¹From Guangzhou (CAN) to Zhanjiang (ZHA), 387 km in 1h15, the commercial speed is 309 kph.

much slower at short range than on long routes; the lengthen curves show the underperforming connections and the very contrasted situation inside the same transport mode – air – with respect to geographical time-space.

References

- [1] Alain L’Hostis. “The Shrivelled USA: Representing Time-Space in the Context of Metropolitanization and the Development of High-Speed Transport”. In: *Journal of Transport Geography* 17.6 (2009), pp. 433–439. ISSN: 0966-6923. DOI: [10/dv69r3](https://doi.org/10/dv69r3).
- [2] Alain L’Hostis and Jean-François Barbier. “Villes Qui Se Rapprochent, Espace Qui s’éloigne: Outils Visuels Pour Représenter Le Paradoxe de l’espace-Temps Géographique”. In: *Talweg* 6 (2021), pp. 60–66. ISSN: 2273-7960.