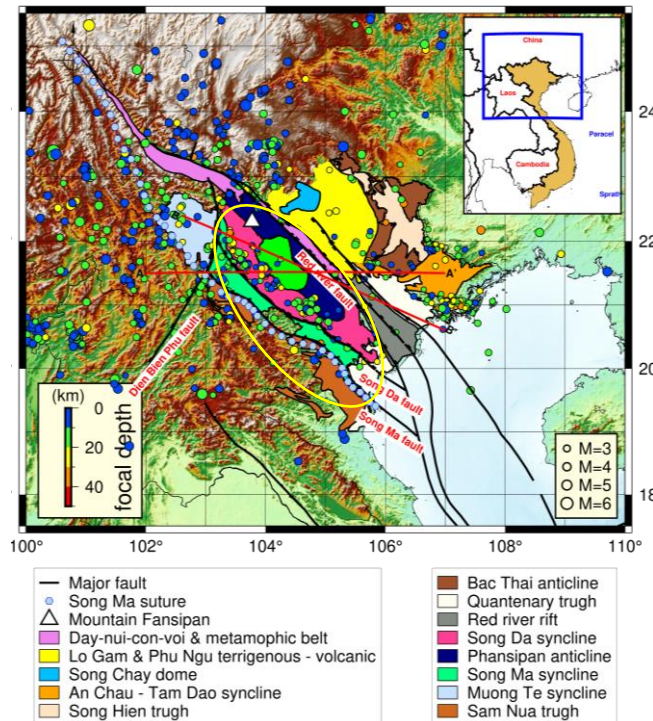


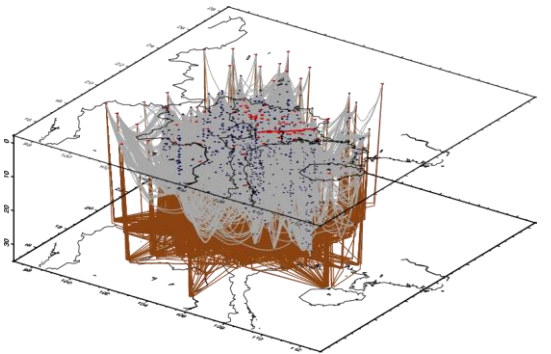


# CRUSTAL SEISMIC STRUCTURE OF RED-RIVER SHEAR ZONE AND SURROUNDING AREA

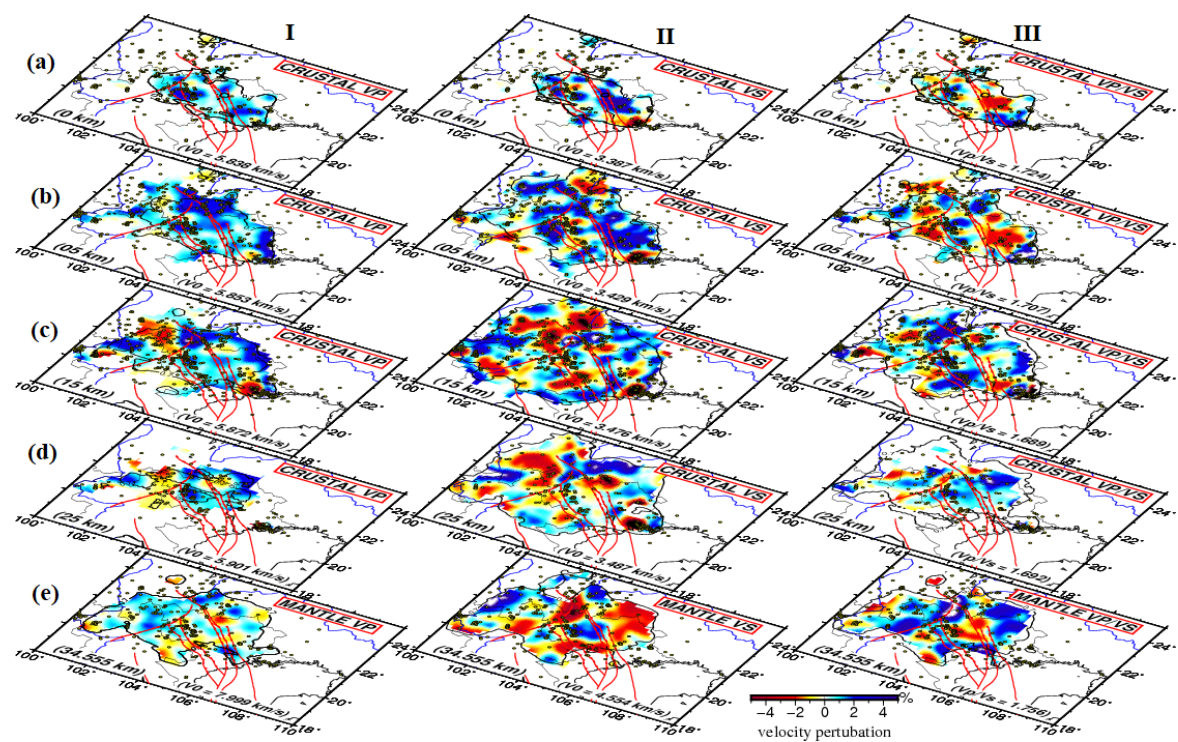
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[The EGU21 vPICO session SM5.1-2001](#)



**Figure 1:** The Ailaoshan - Red-river shear zone (ASRR) and surrounding major geologic features. The seismicity background is represented by the colored circles (after Chung, 1997 & Dinh, 2010).



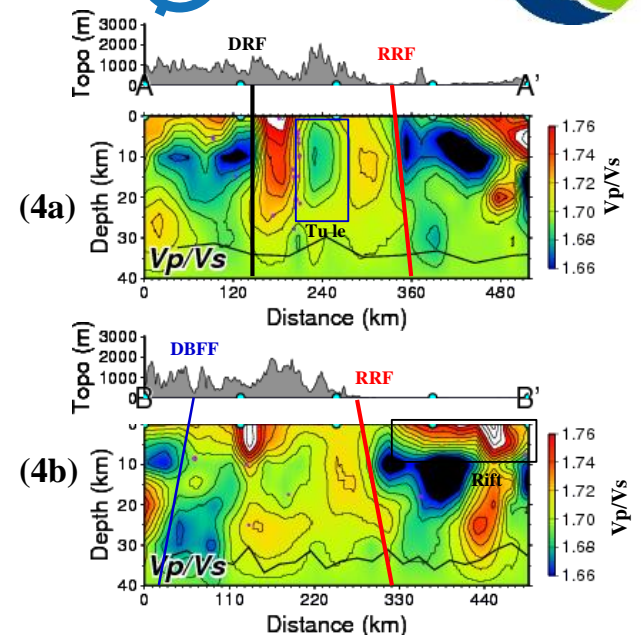
**Figure 2:** The 3D representation of ray tracing for 15532 direct (gray) and 4978 refracted (brown) in crustal scale.



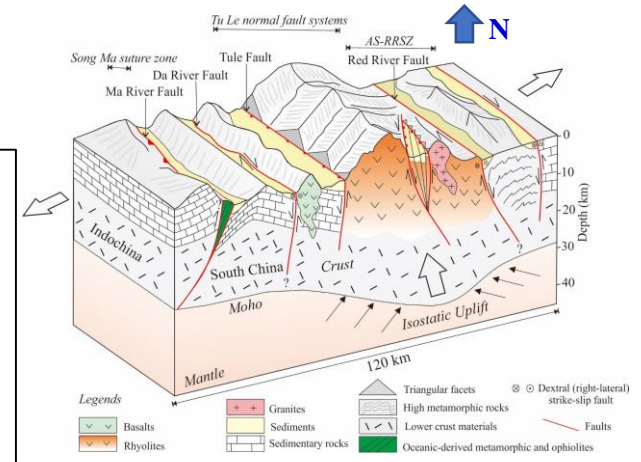
**Figure 3:** The velocity anomaly of the crustal and moho layer of the study area. The anomaly is denoted by the color scale, the black-cover-line shown the high resolution region based on checkerboard test. While red-bold line denote the major fault.

### Discussion and conclusion:

1. The Tu Le basin (lower Vp/Vs) was extended to around 20 km, is covered by the high Vp/Vs region of Fansipan and Song Da structures (AA'). This can be related to the Permian – Triassic plume activity,
2. The evidence of buried DNCV (the extension part of ASRR) by Red-river basin with the thickness of 5 to 7 km are shown (BB'). Furthermore, the faint trace of the Red-river fault may be extended further beyond the Moho depth,
3. Several questions raised: Is Song Ma suture or Red-river fault was the South China – Indochina boundary? Or Song Ma - RRSZ created the transition area of the boundary? The Red-river fault may be extended further beyond the Moho depth?



**Figure 4:** The Vp/Vs of the profiles in (figure 1). The solid-black line represent the estimated moho variation. **DRF:** Song Da fault; **RRF:** Red-river fault; **DBFF:** Dien Bien Phu fault. **The black box:** Song Hong rift, **the blue box:** Tu Le structure.



**Figure 5:** The crustal geologic structure along Red-river shear zone (transition area) - Dinh, 2021 (under review)