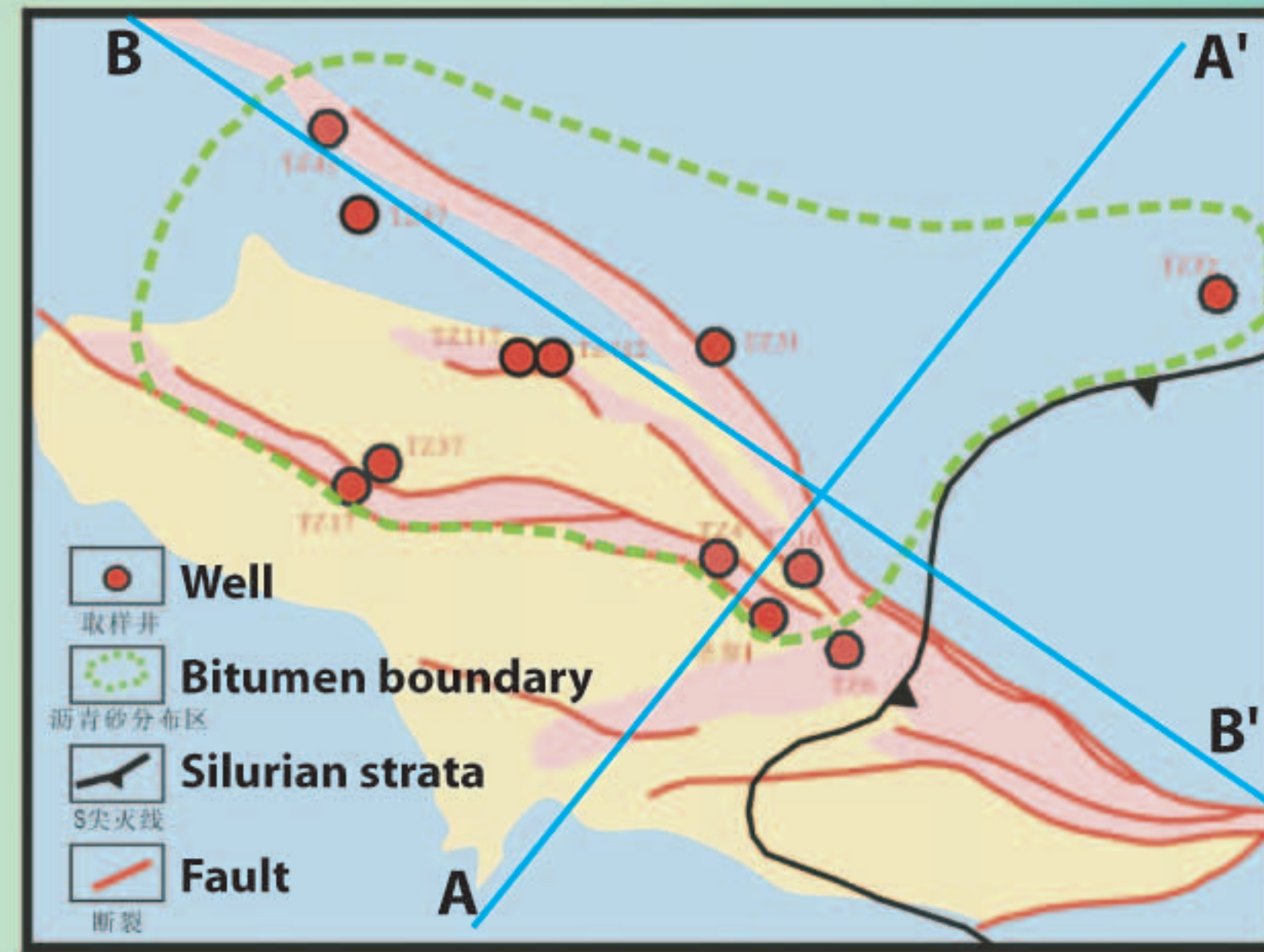
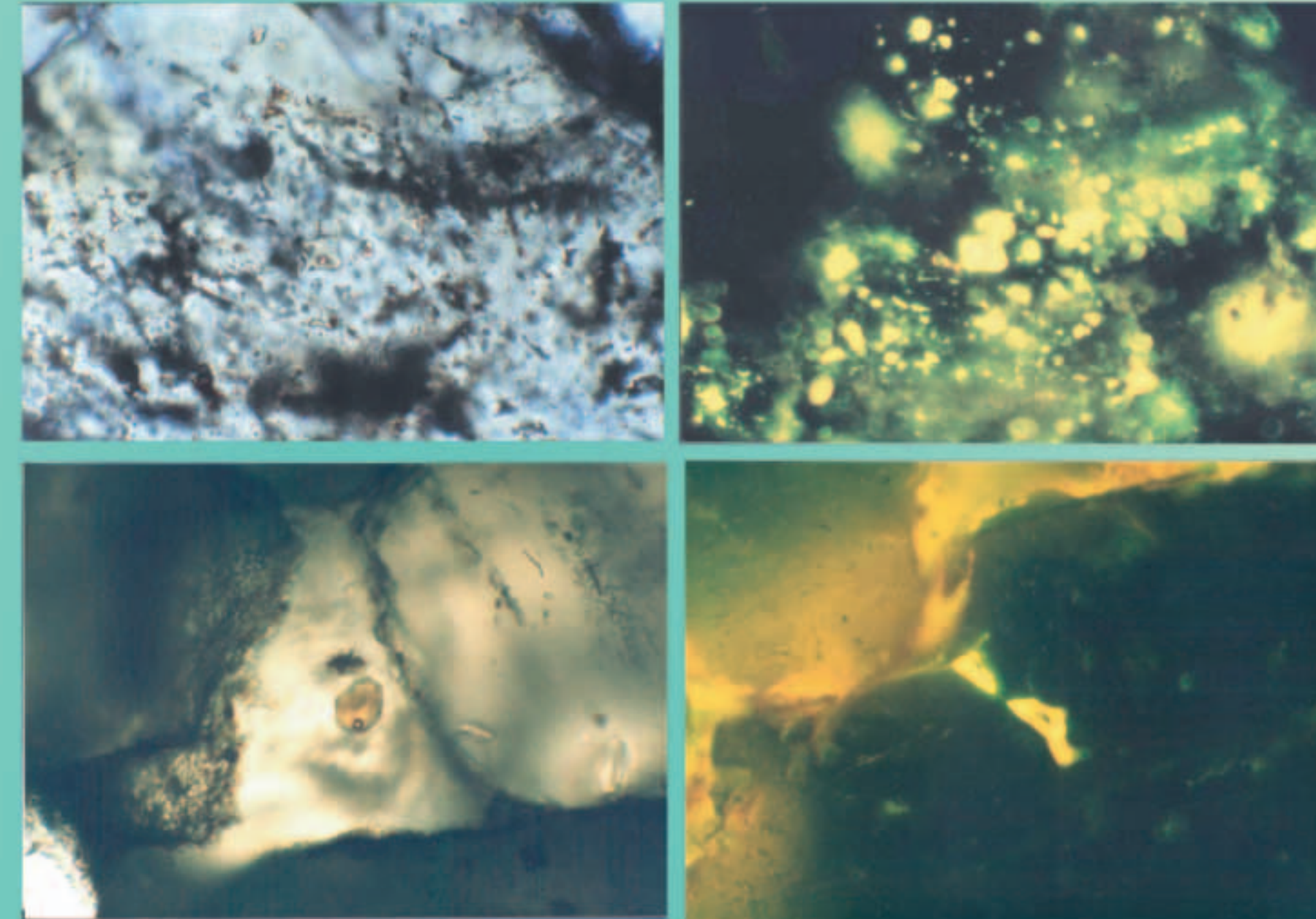


Distribution and attributes of palaeo oil

Wells investigated in the Tazhong area.

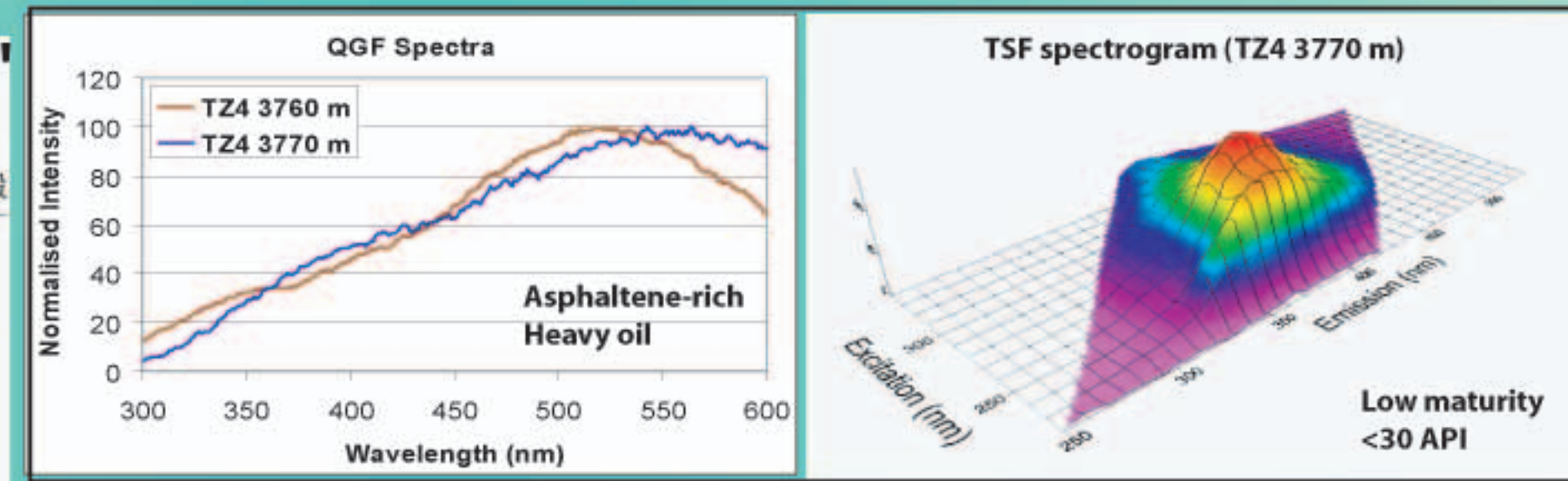
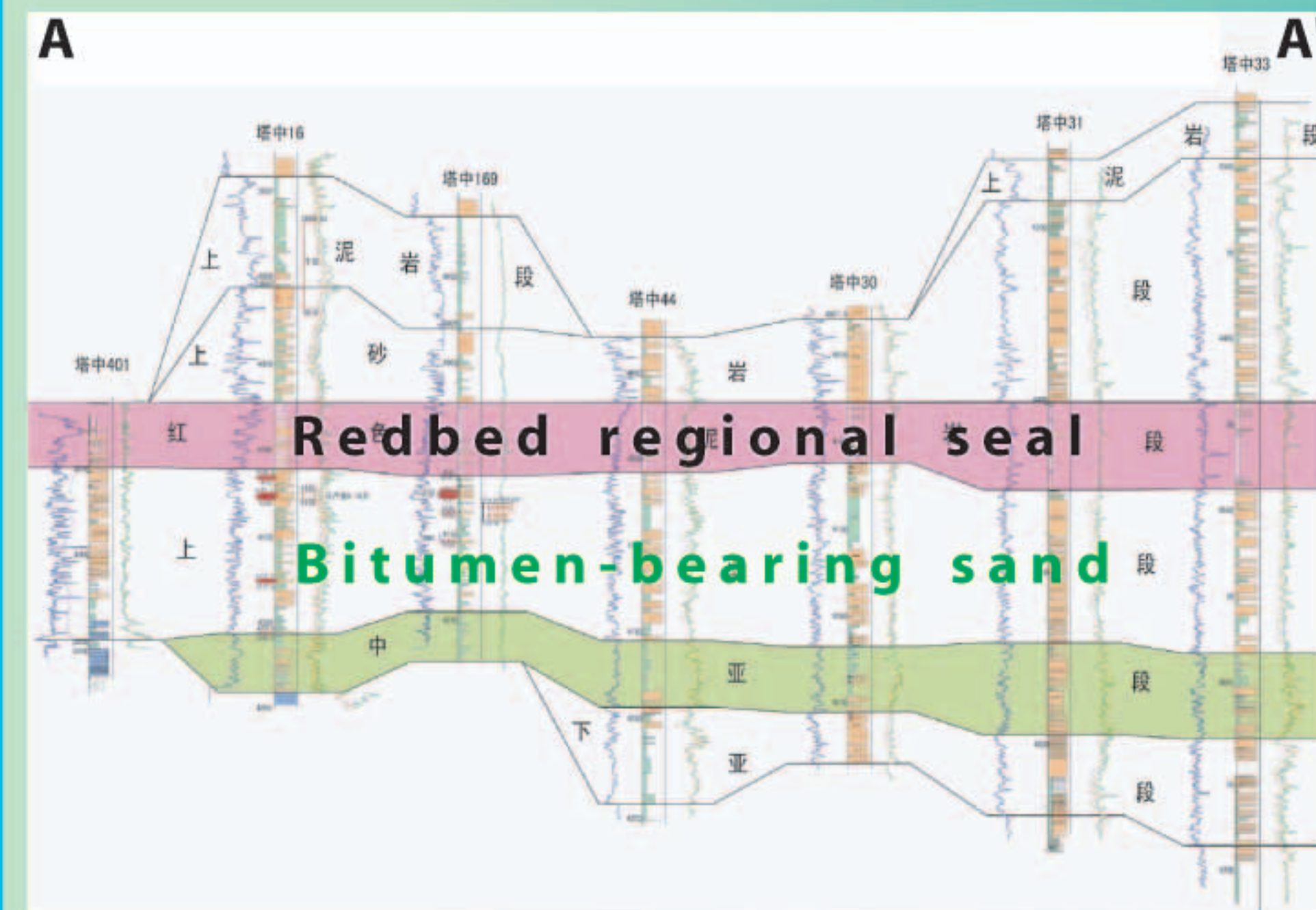
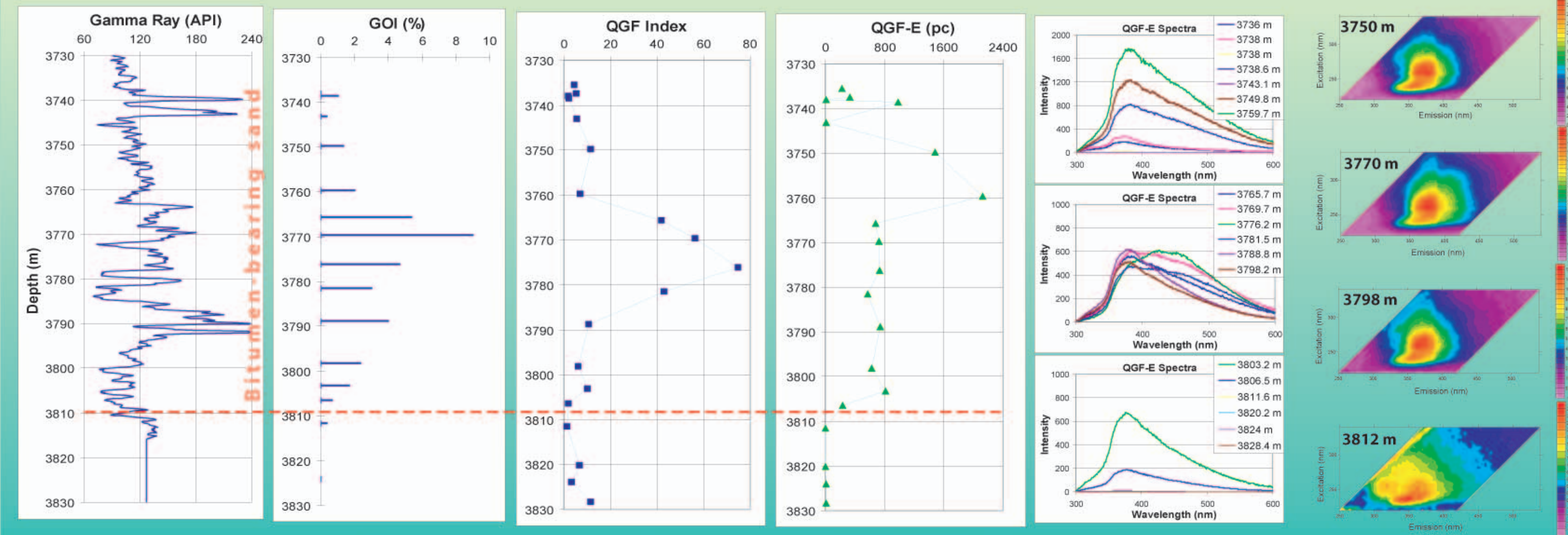


Typical oil fluid inclusions and QGF and TSF spectra from the Tazhong area.

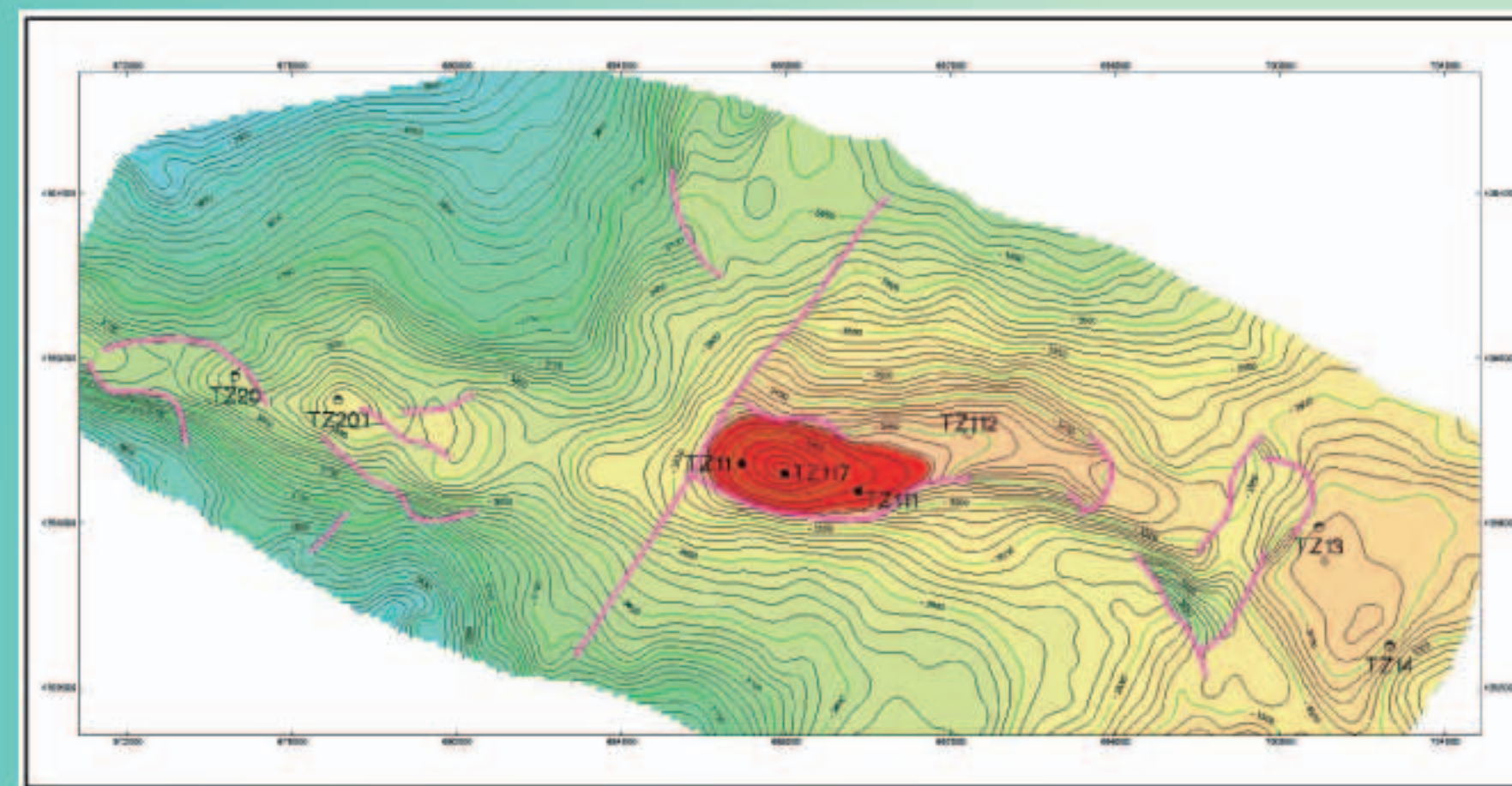


Palaeo-oil Height Estimation

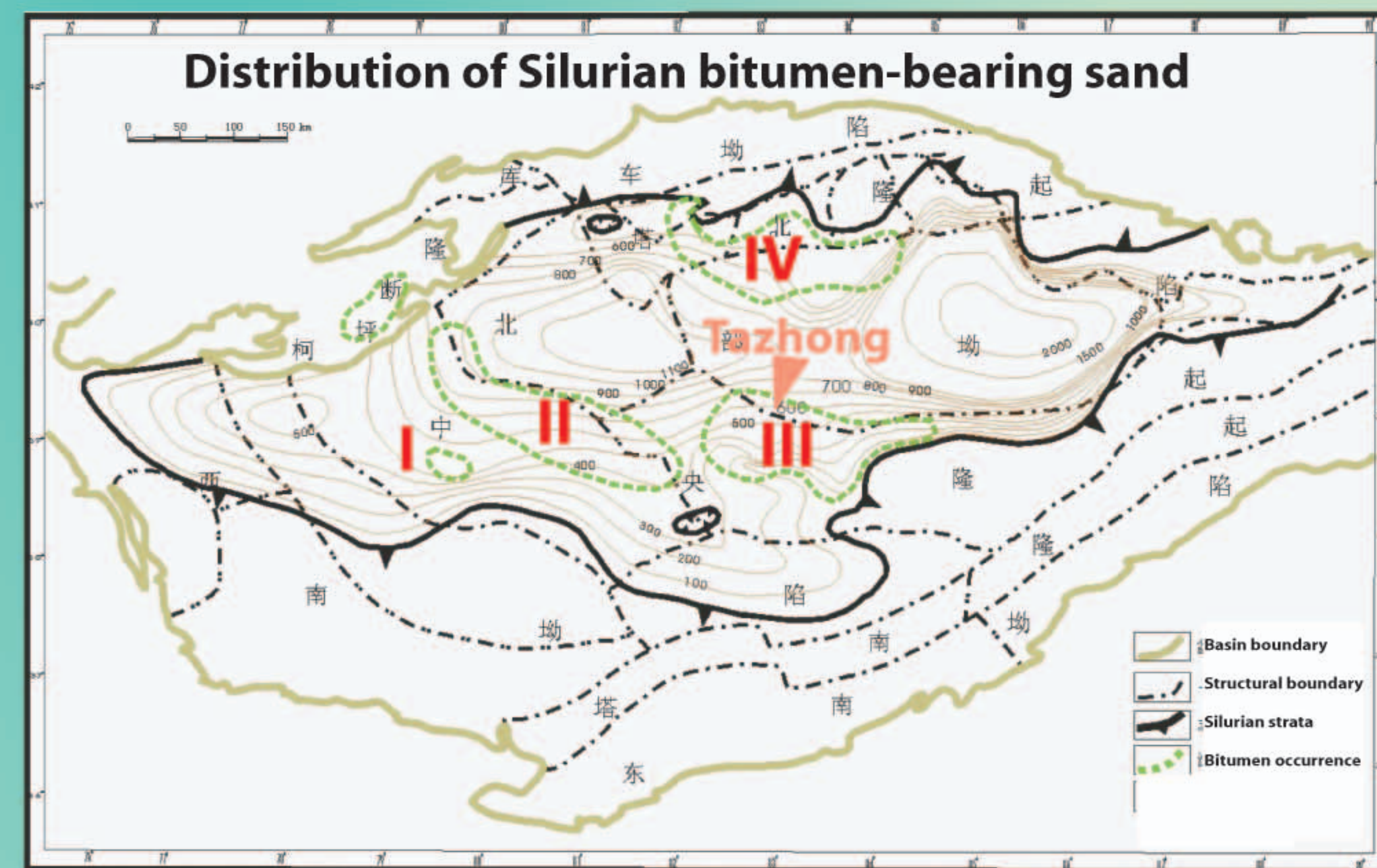
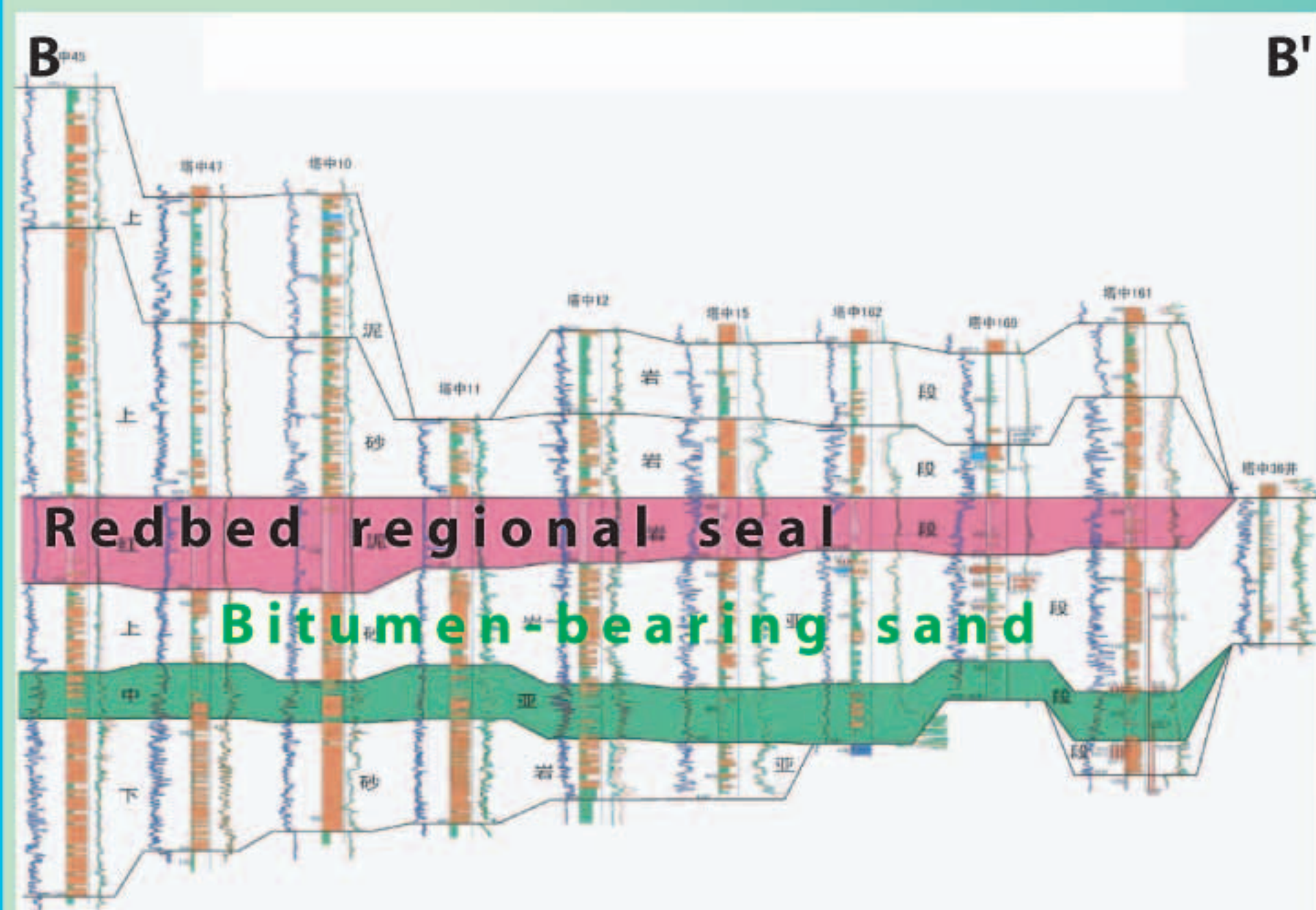
Delineation of palaeo-hydrocarbon columns using fluid inclusion and quantitative fluorescence techniques, an example from TZ-4, Tazhong area (III), where >70 m of palaeo oil column is delineated.



Structural map of the Tazhong area used for volumetric calculation. TZ117 is a current producing well.



S-N well log cross section showing the spatial variation of the bitumen-bearing sandstone and its relationship with the "Redbed" regional seal



Volumetric Calculation [4]

Area	Estimated Q_s
I	0.05×10^9 t
II	1.81×10^9 t
III	4.70×10^9 t
IV	6.76×10^9 t
Total	13.2×10^9 t

$$Q_s = 10^{-6} * S_b * h_b * \rho_b * B * R_b$$

Q_s = Destroyed hydrocarbons (10^9 t)

S_b = Area of bitumen sandstone occurrence (m^2)

h_b = Average thickness of bitumen sandstone (m)

ρ_b = Density of Bitumen-bearing sandstone (t/m^3)

B = Bitumen concentration (kg/t)

R_b = Recovery coefficient

References

- Liu, K. and Eadington, P., 2005. Quantitative fluorescence techniques for detecting residual oils and reconstructing hydrocarbon charge history. *Organic Geochemistry*, 35, 1489-1511.
- Liu, K., George, S.C., Li, S., Pang, X., Fenton, S., Volk, H. and Ahmed, M., 2005. TSF as an effective screening tool for delineating oil families. 22nd IMOOG, Seville, Spain, Part II, p. 1128-1129.
- Lisk, M., O'Brien, G.W. and Eadinton, P.J., 2002. Quantitative evaluation of the oil-leg potential in the Oliver gas field, Timor Sea, Australia. *AAPG Bulletin*, 86, 1531-1542.
- Zhang, J., Pang, X., Liu, L., Jiang, Z. and Liu, Y., 2004. Distribution characteristics and petroleum geological significance of the Silurian asphaltic sandstones in Tarim Basin. *Science in China, Series D*, Vol. 47 supp. II, p. 199-208.

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