Segmentation of the Western Taiwan active fault zone inferred from its structural analogy to the Nankai trough region, southwest Japan

Yuichi Sugiyama

Active Fault Research Center,
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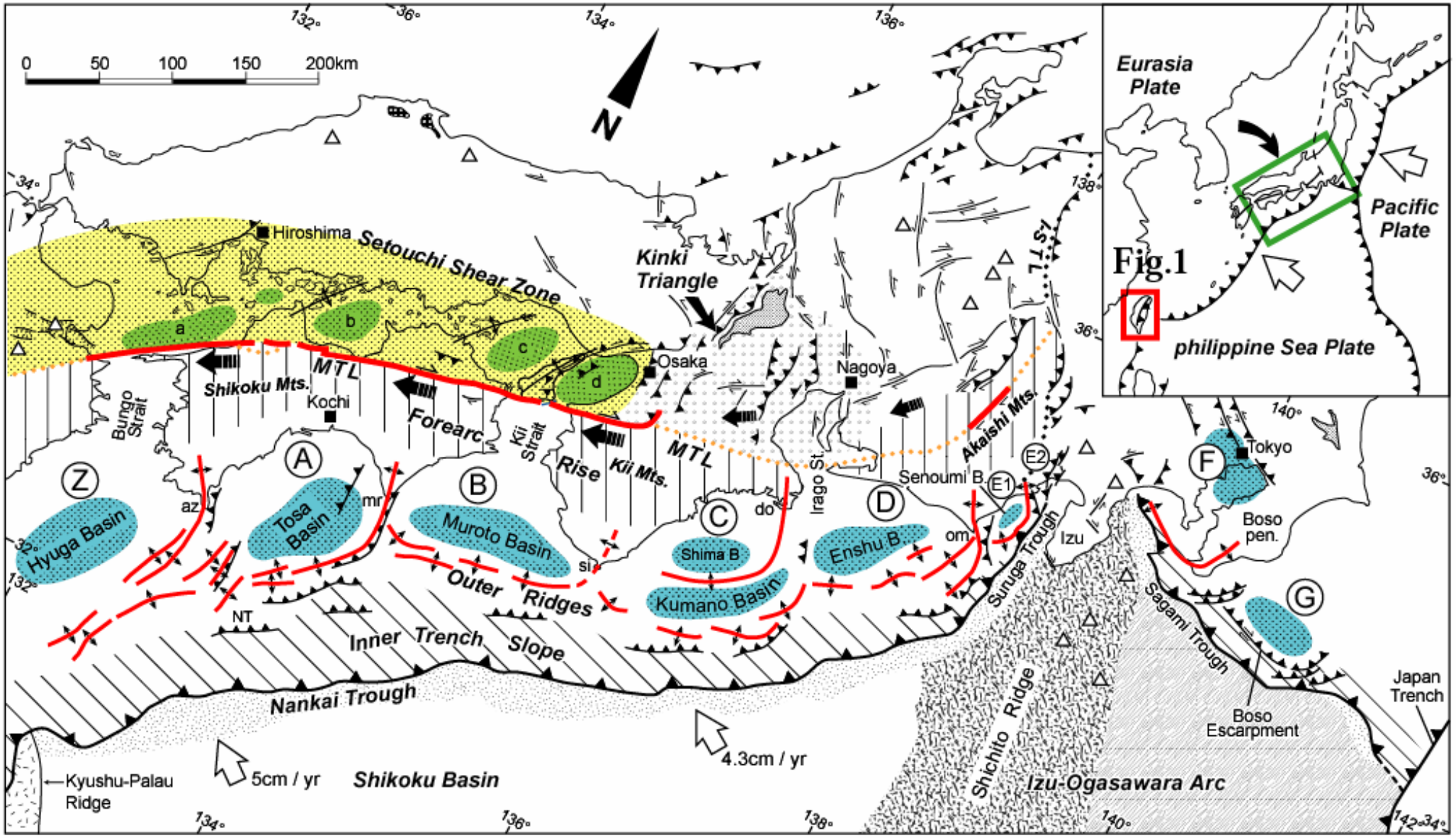
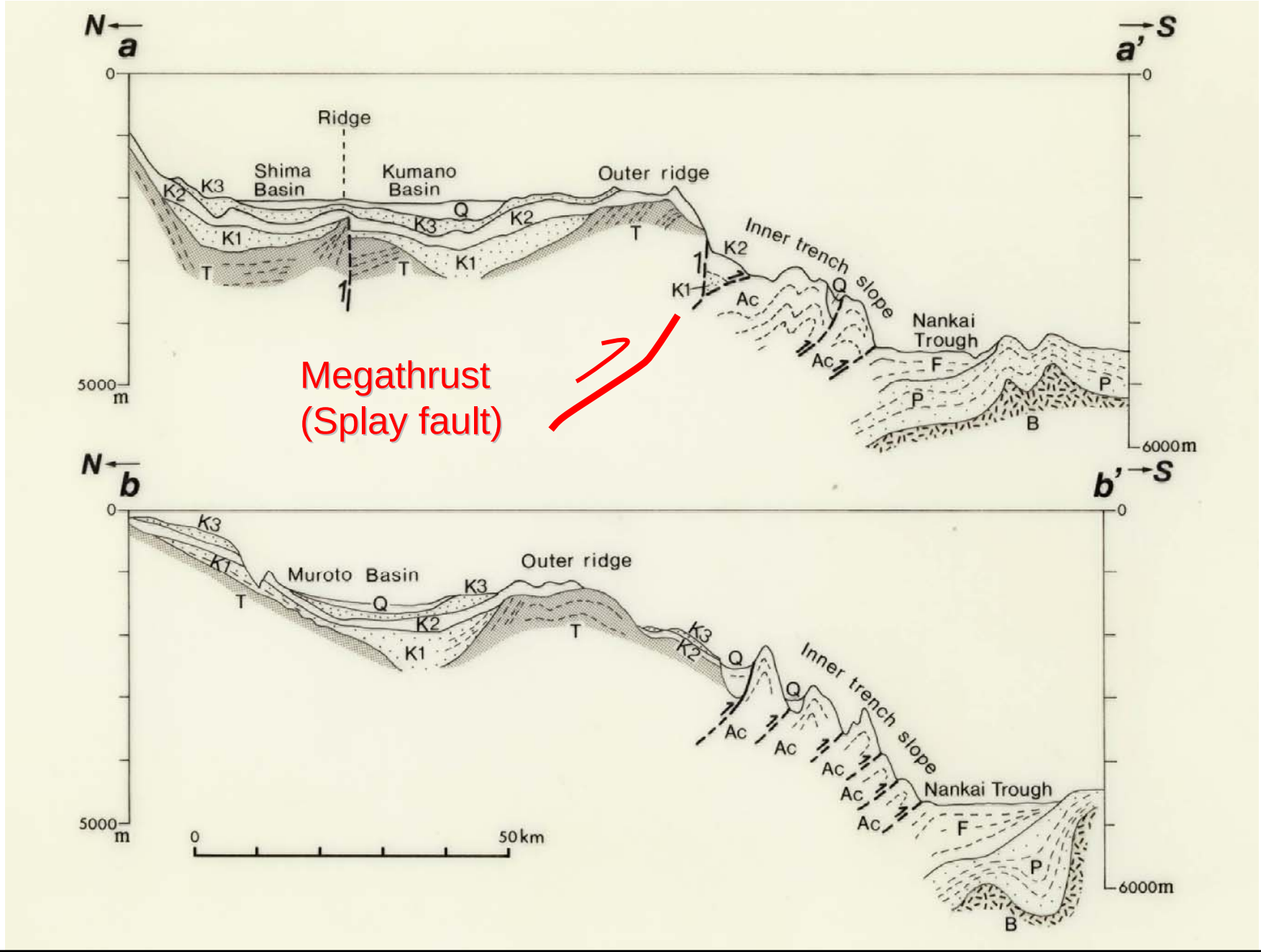
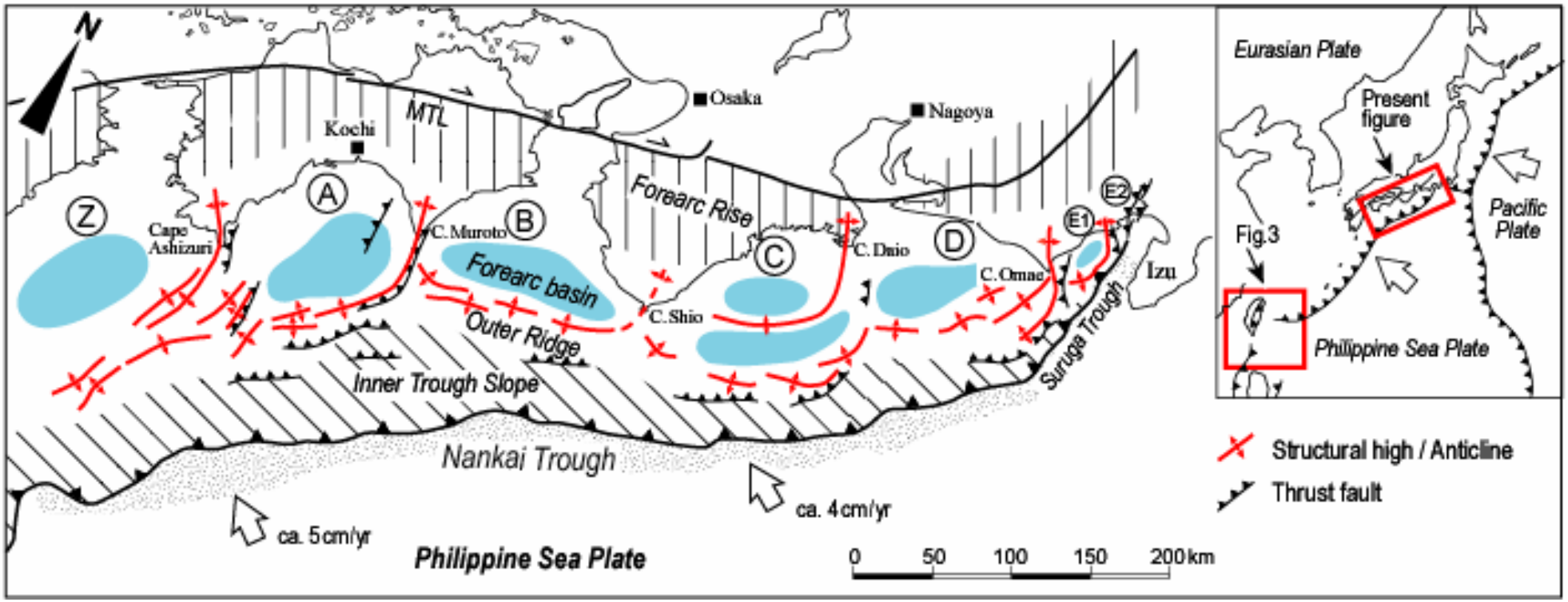
Active tectonic map of SW Japan



Cross sections of the Nankai trough region

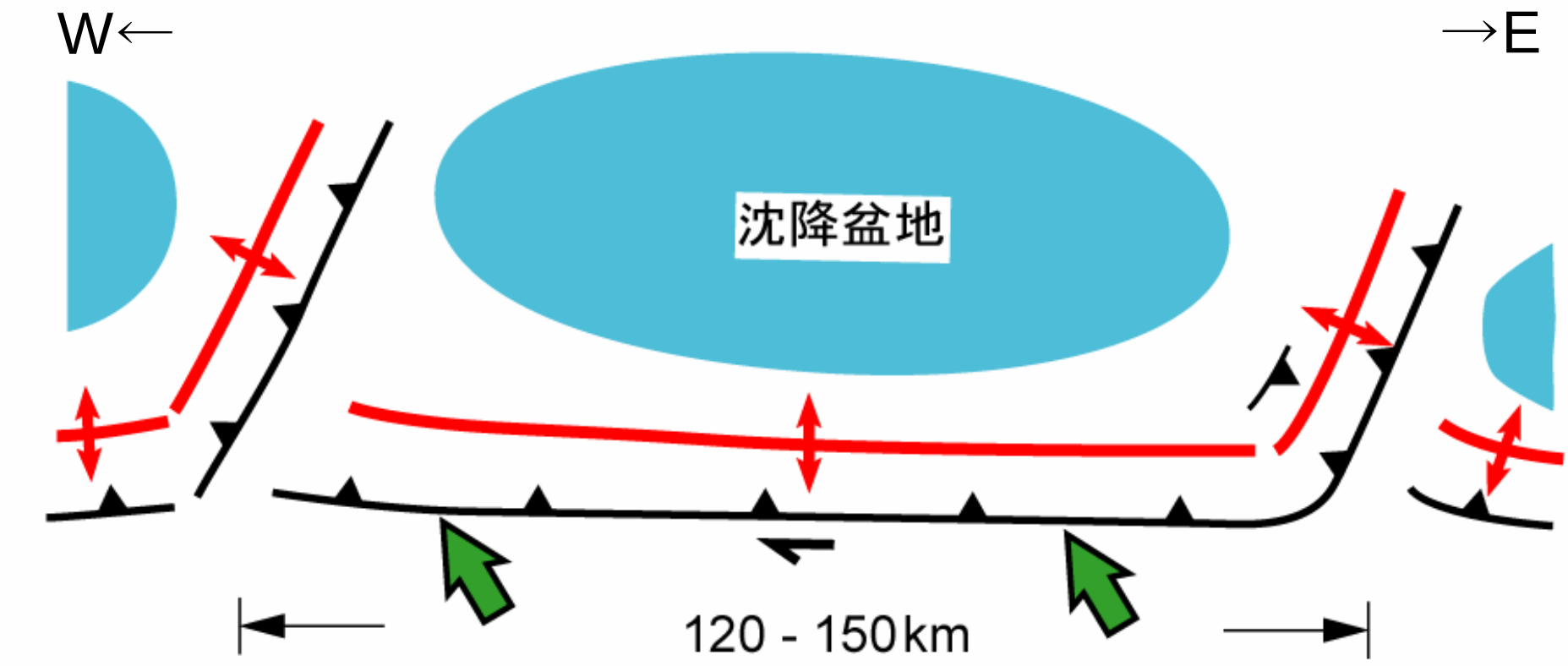


Simplified tectonic map of SW Japan

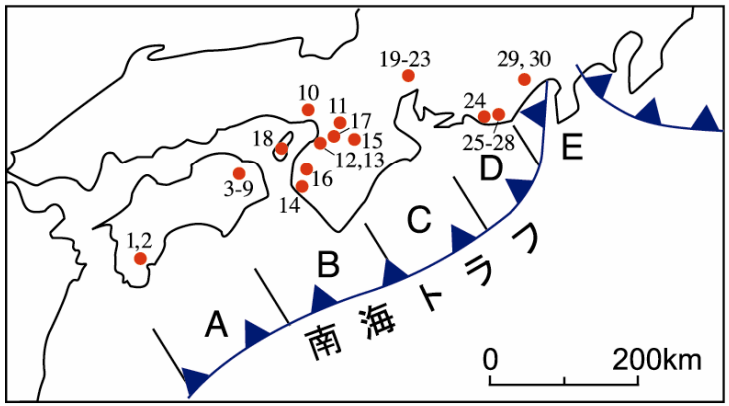


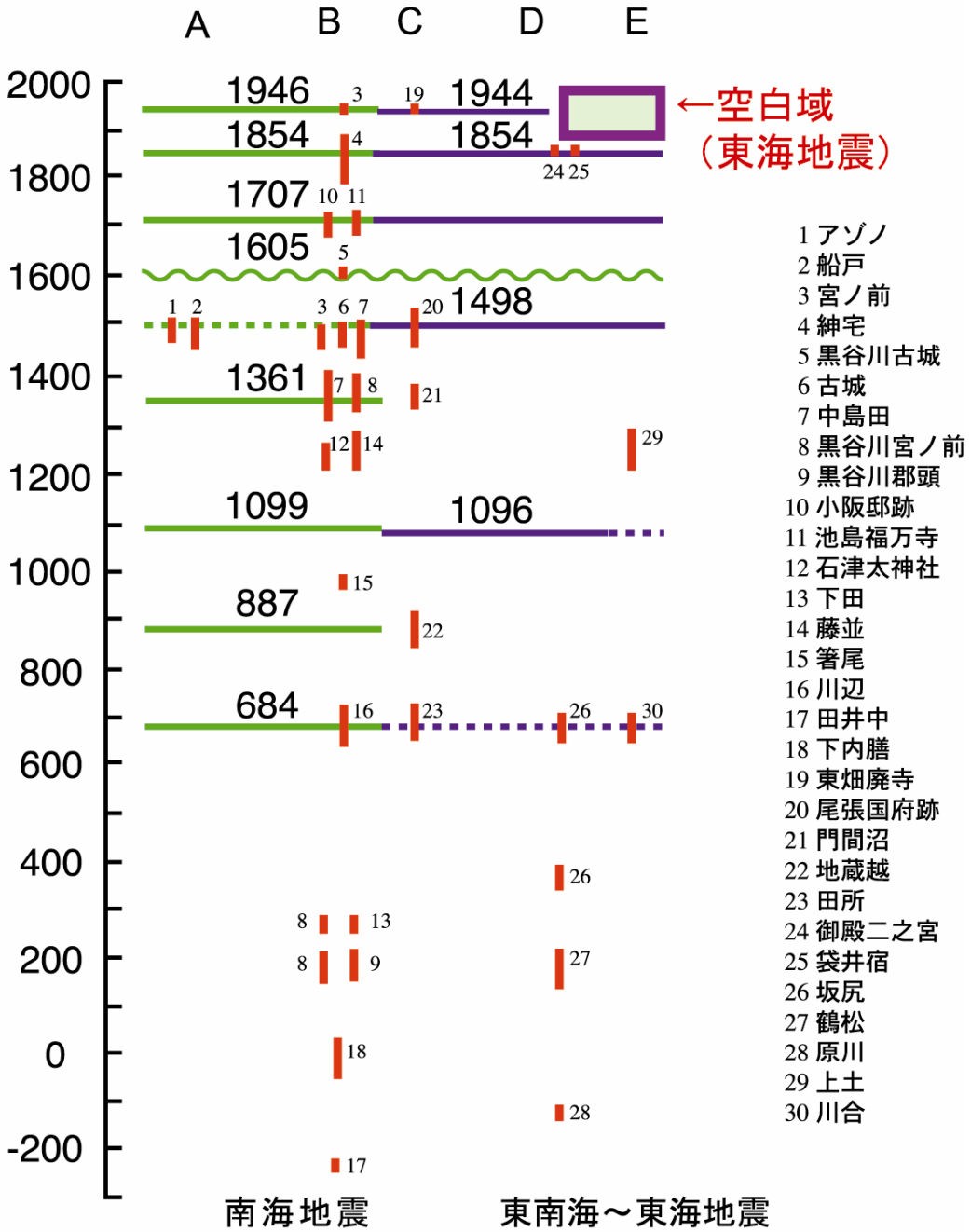
Simplified structure of the rupture segments along the Nankai trough, SW Japan

南海トラフ沿いのセグメント



南海地震と東南海～東海地震の発生時期

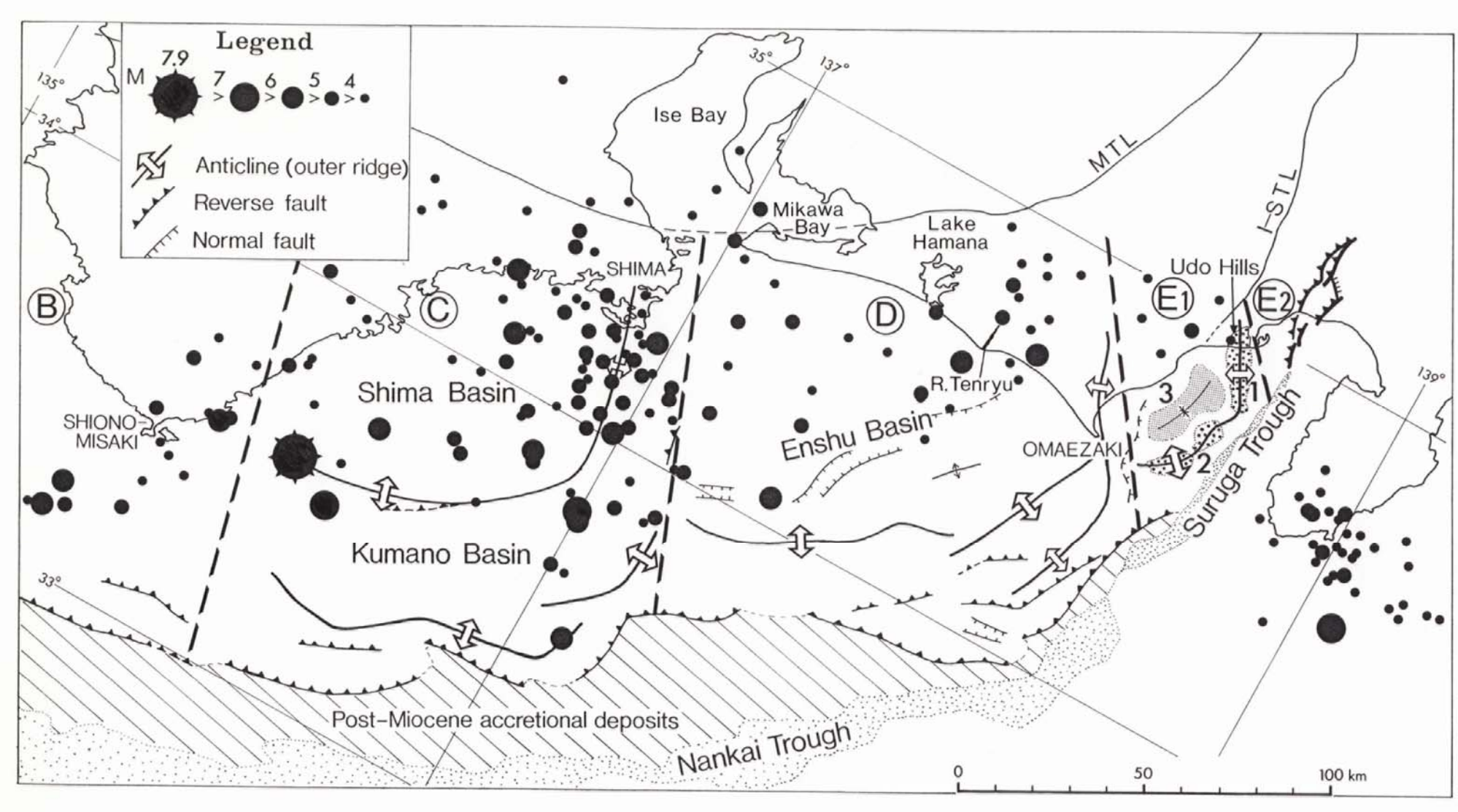




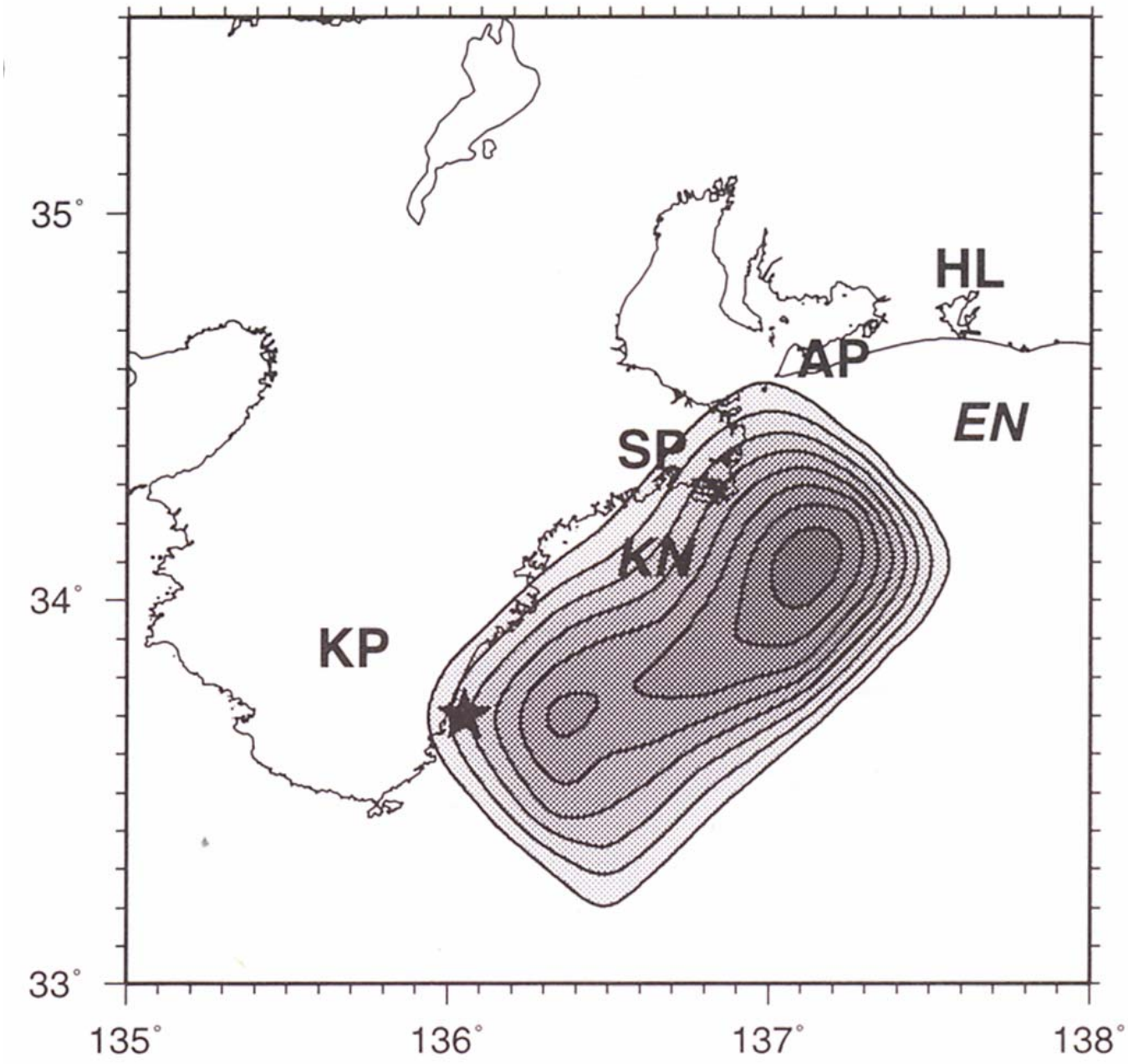
南海地震と東南海～東海地震の発生時期．寒川（2001）

縦線は遺跡で検出された地震跡の年代幅をしめす．

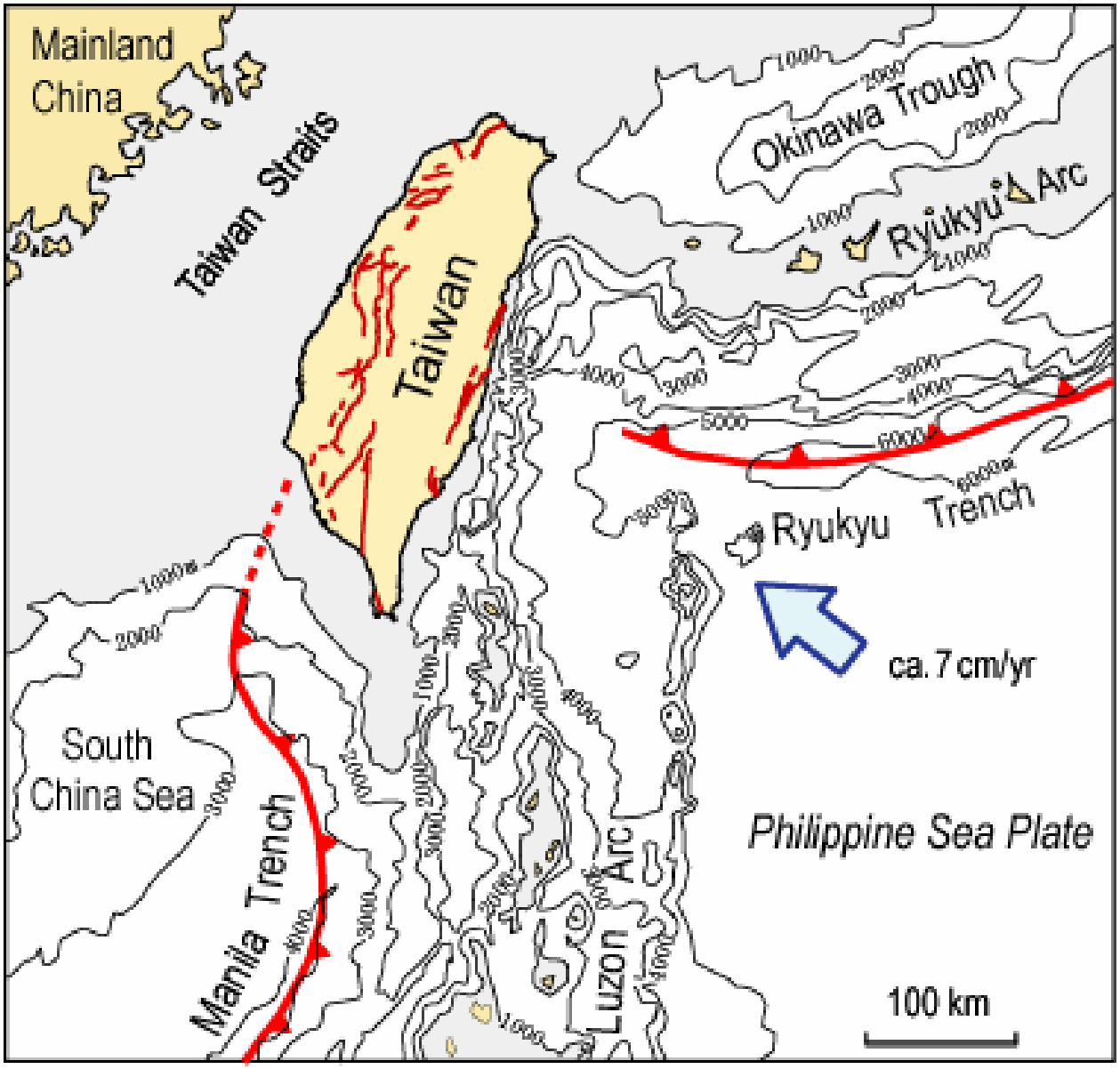
Structural unit division of the off-Tokai region and epicentral distribution of earthquakes within 30 days after the 1944 Tonankai earthquake



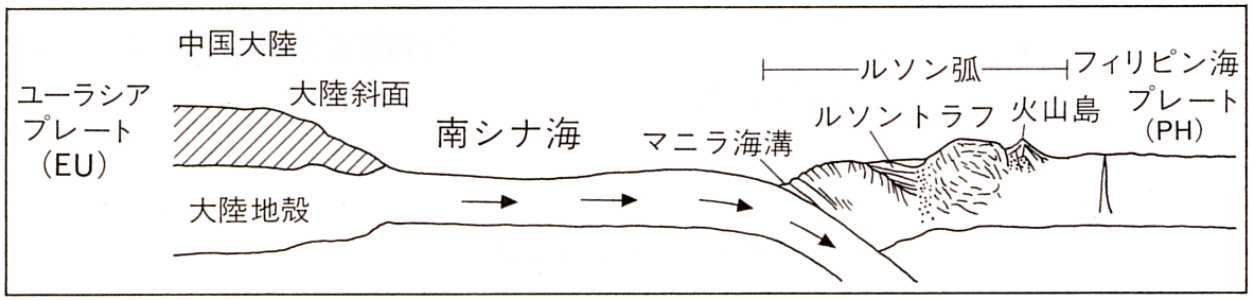
Map view of slip distribution on the source fault of the 1944 Tonankai earthquake After Kikuchi et al. (2003)



Tectonic setting of Taiwan (Suppe, 1981) (瀬野, 2000)

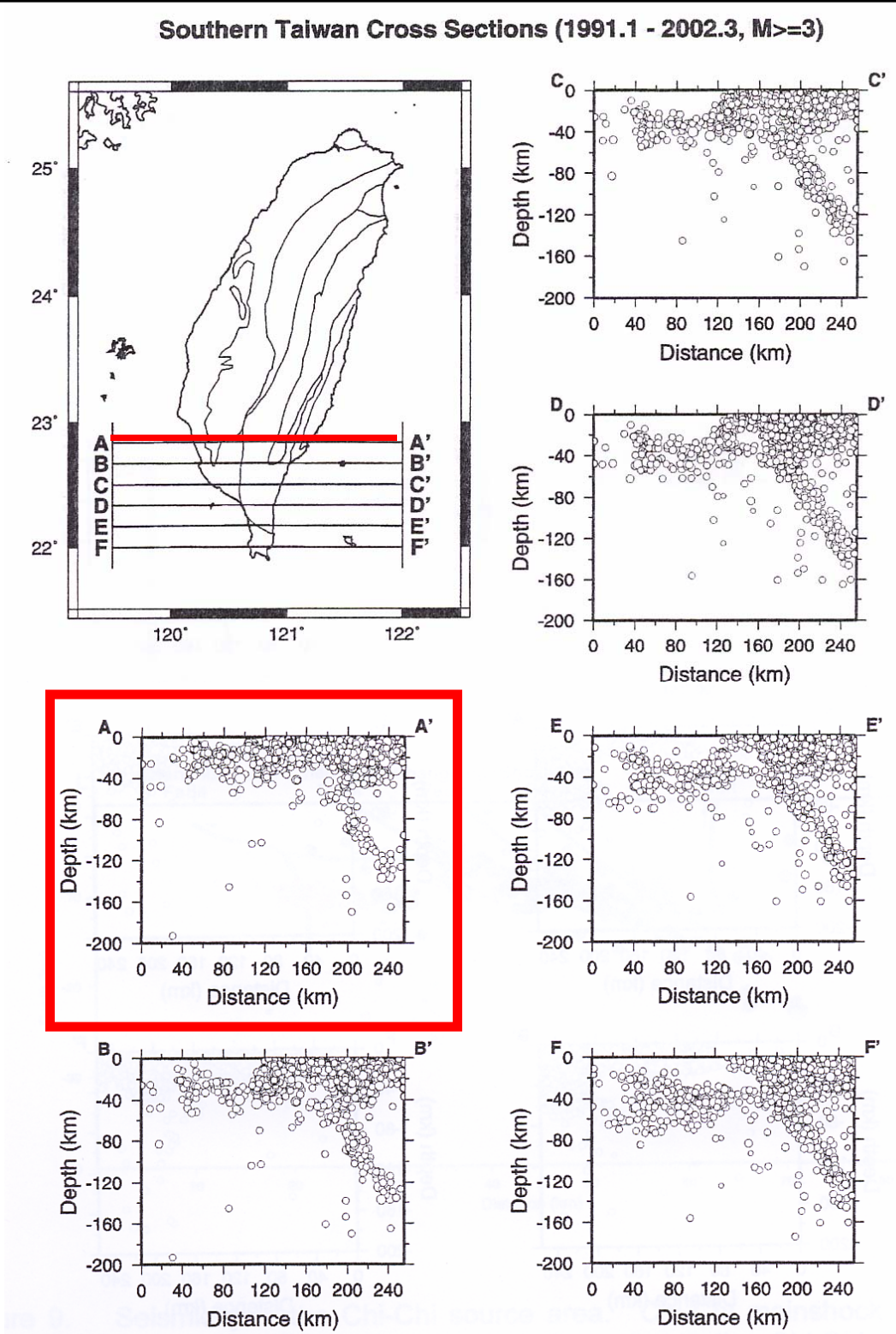


(b) 南シナ海における沈み込みの模式断面



台湾南部の seismicity 東西断面

成功大　Prof. Rau R.-J.
（饒　瑞鈞教授）資料



台湾中部の seismicity 東西断面

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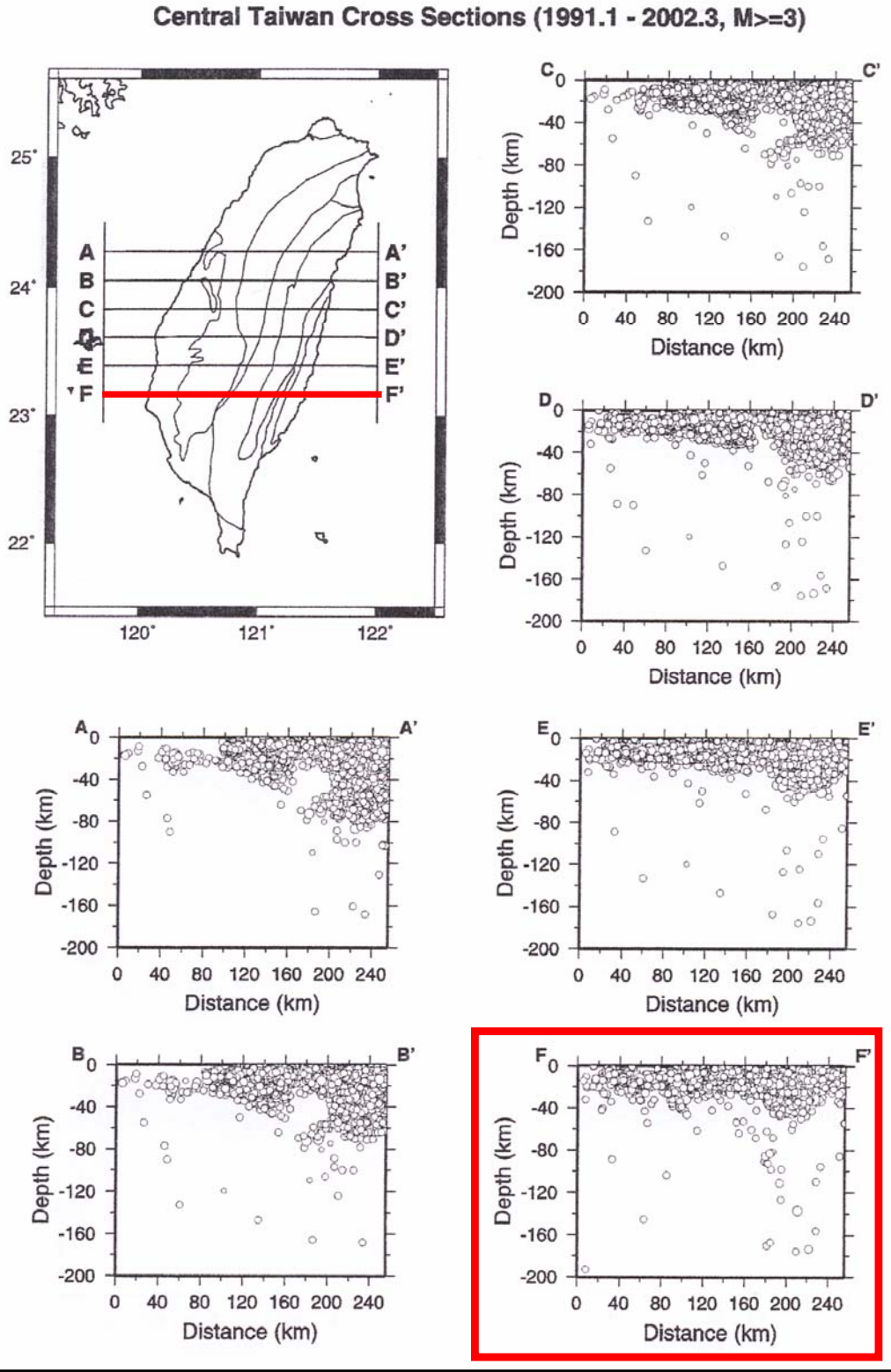
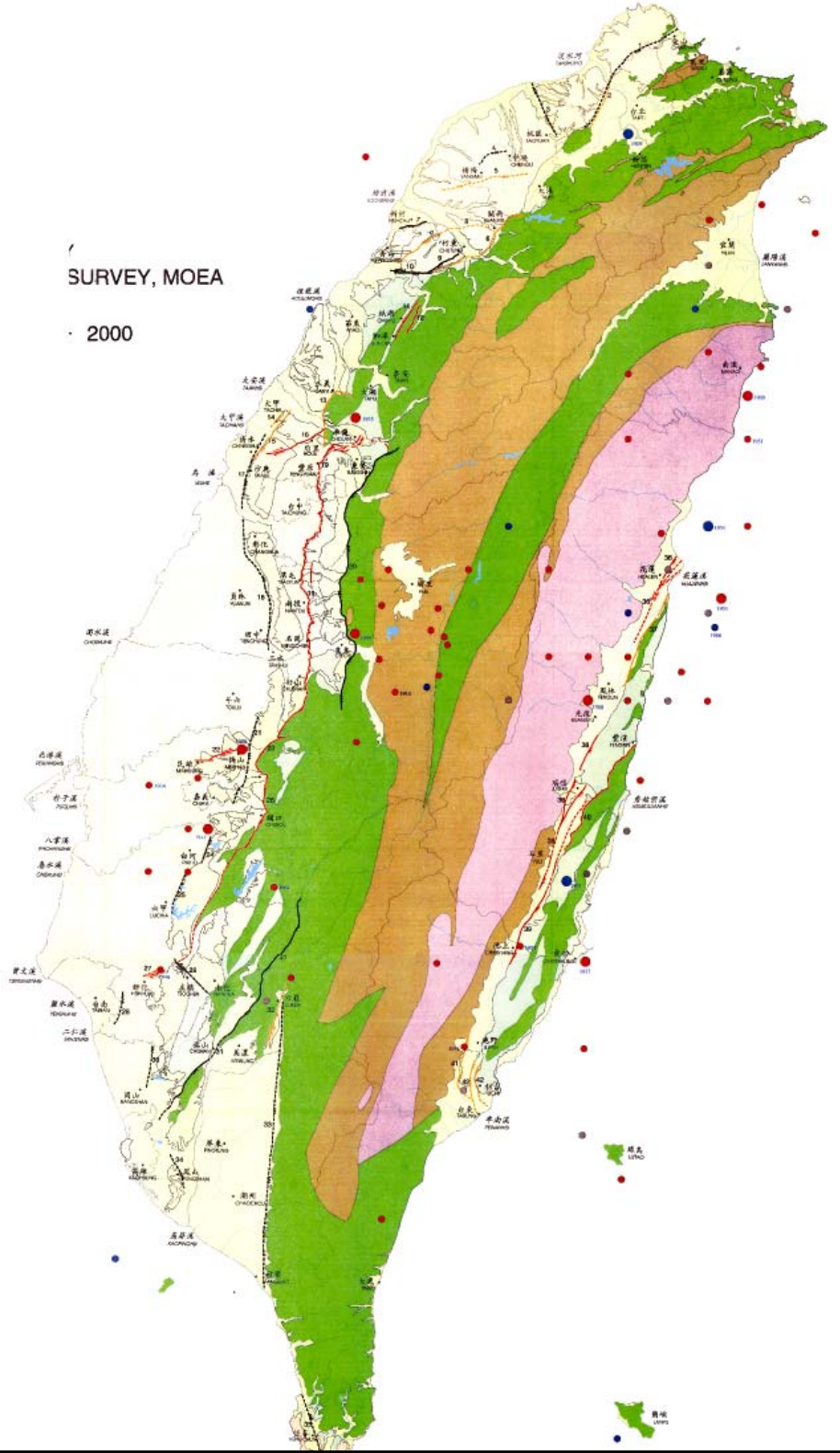
（饒　瑞鈞教授）資料



台湾の地質概略

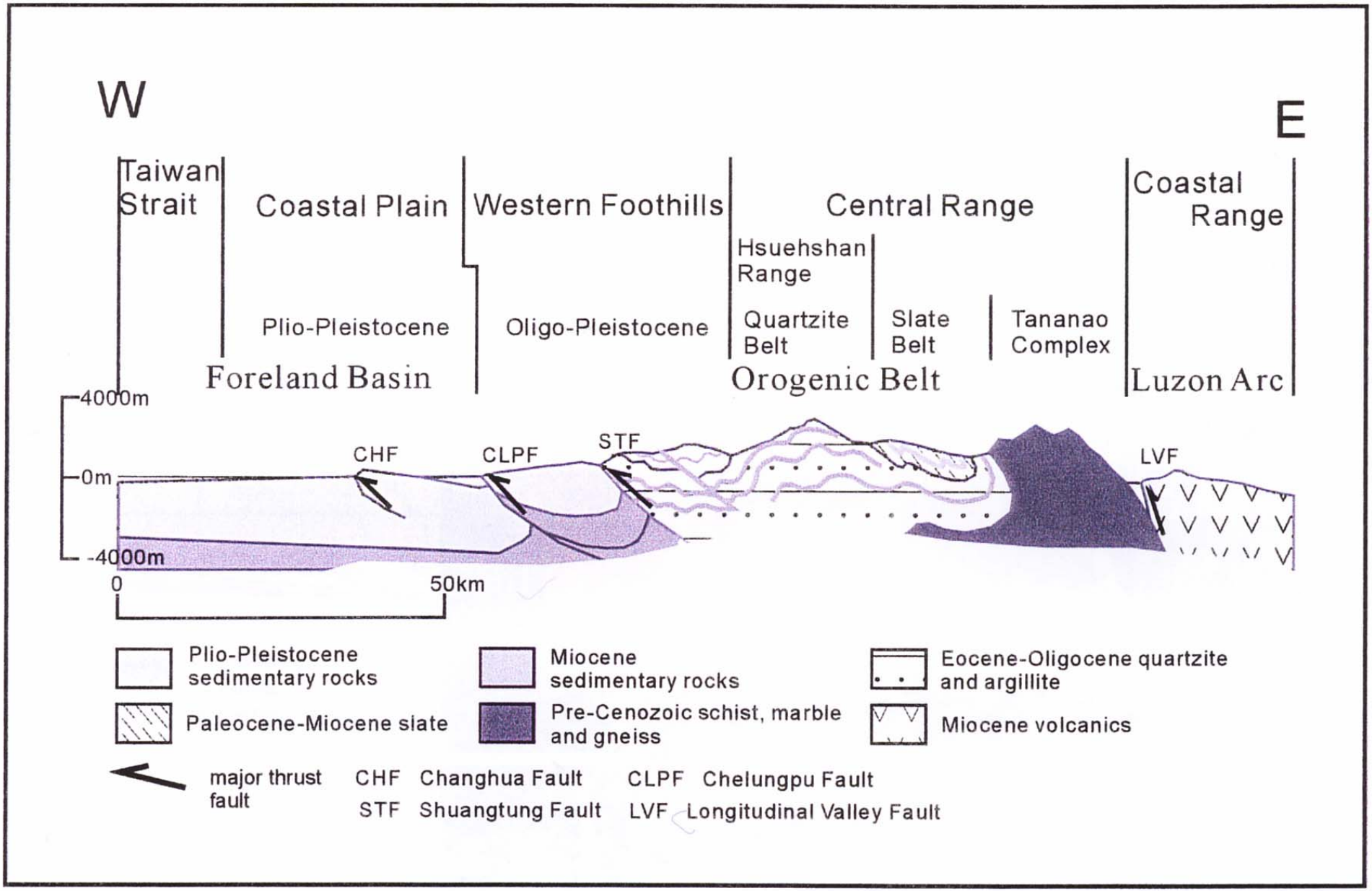
林啓文・他（2000）中央地質調査所



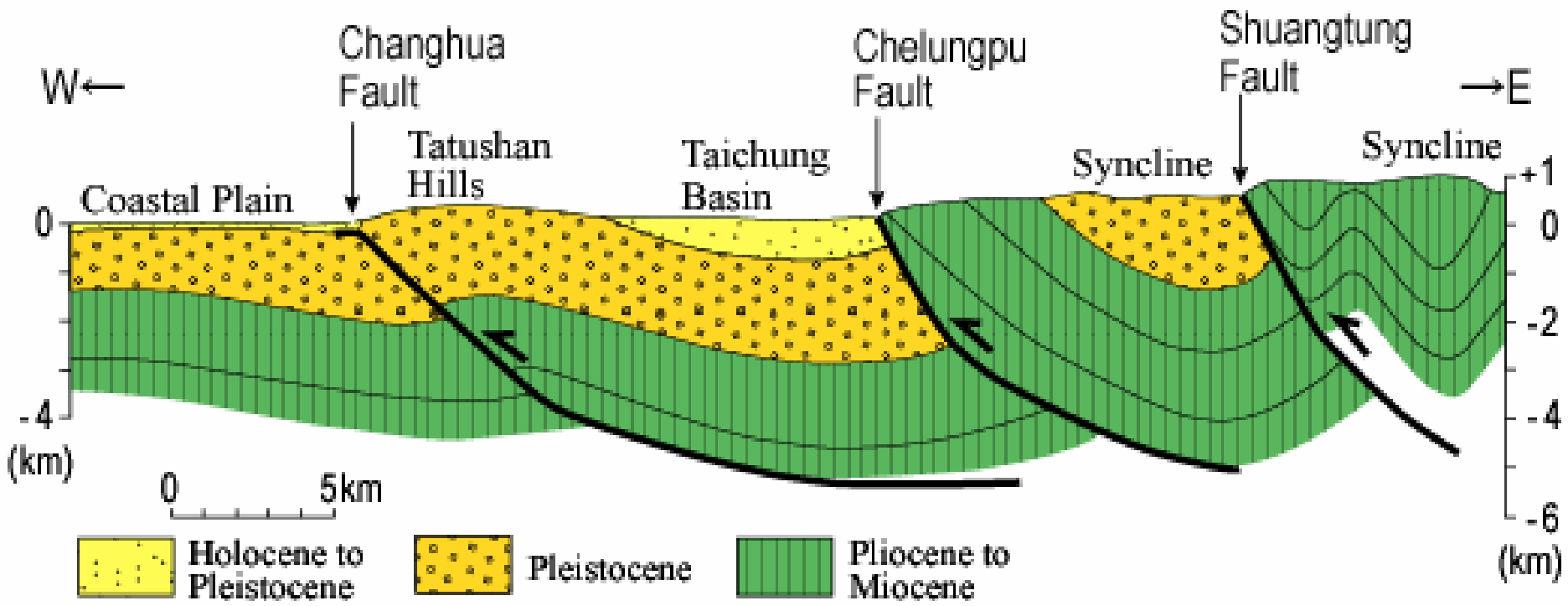
Active faults in Taiwan

After C.-W. Lin et al . (2000), Central Geological Survey of Taiwan

台湾の東西断面　陳 于高（2002）

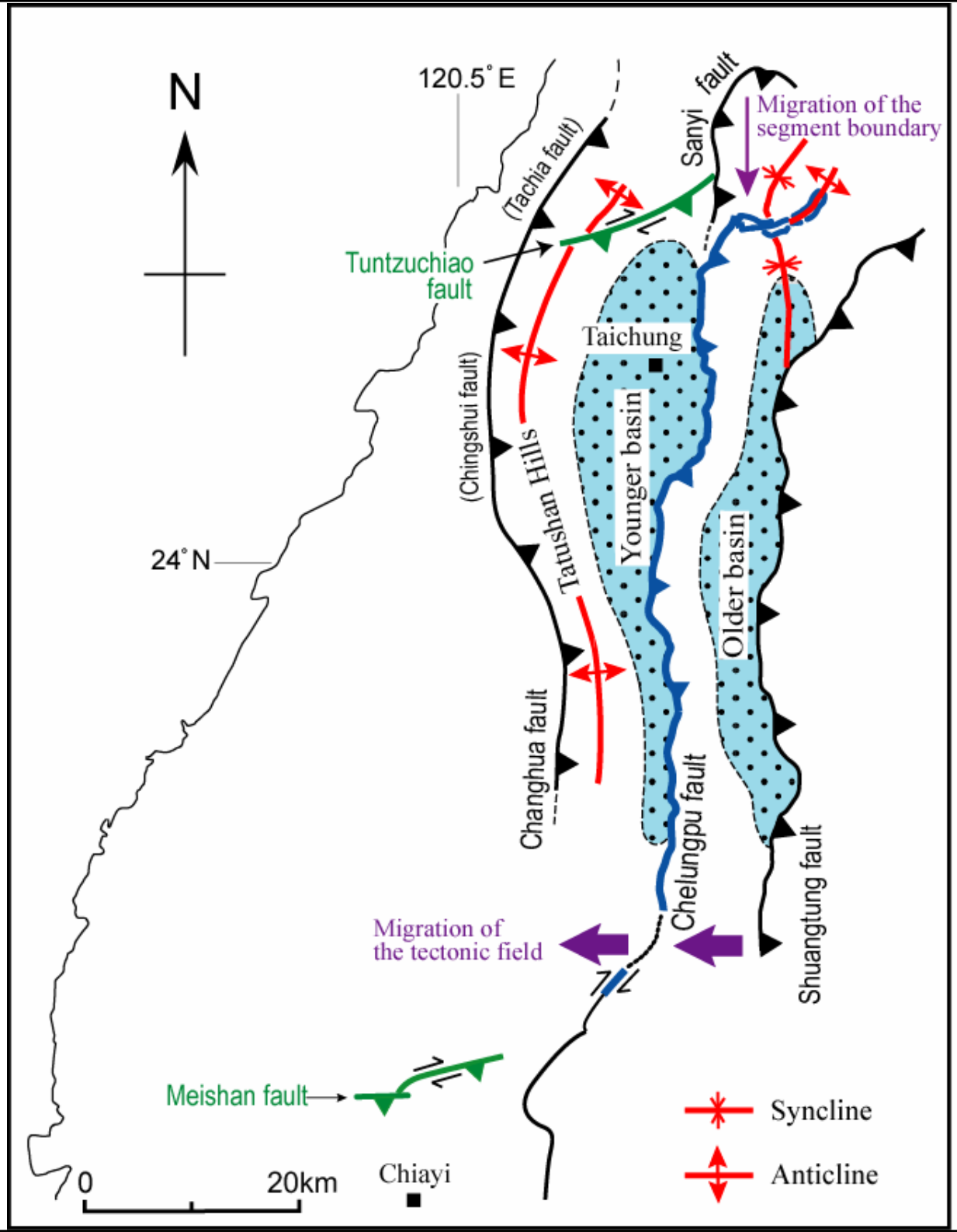


Simplified E-W cross section of the Taichung area

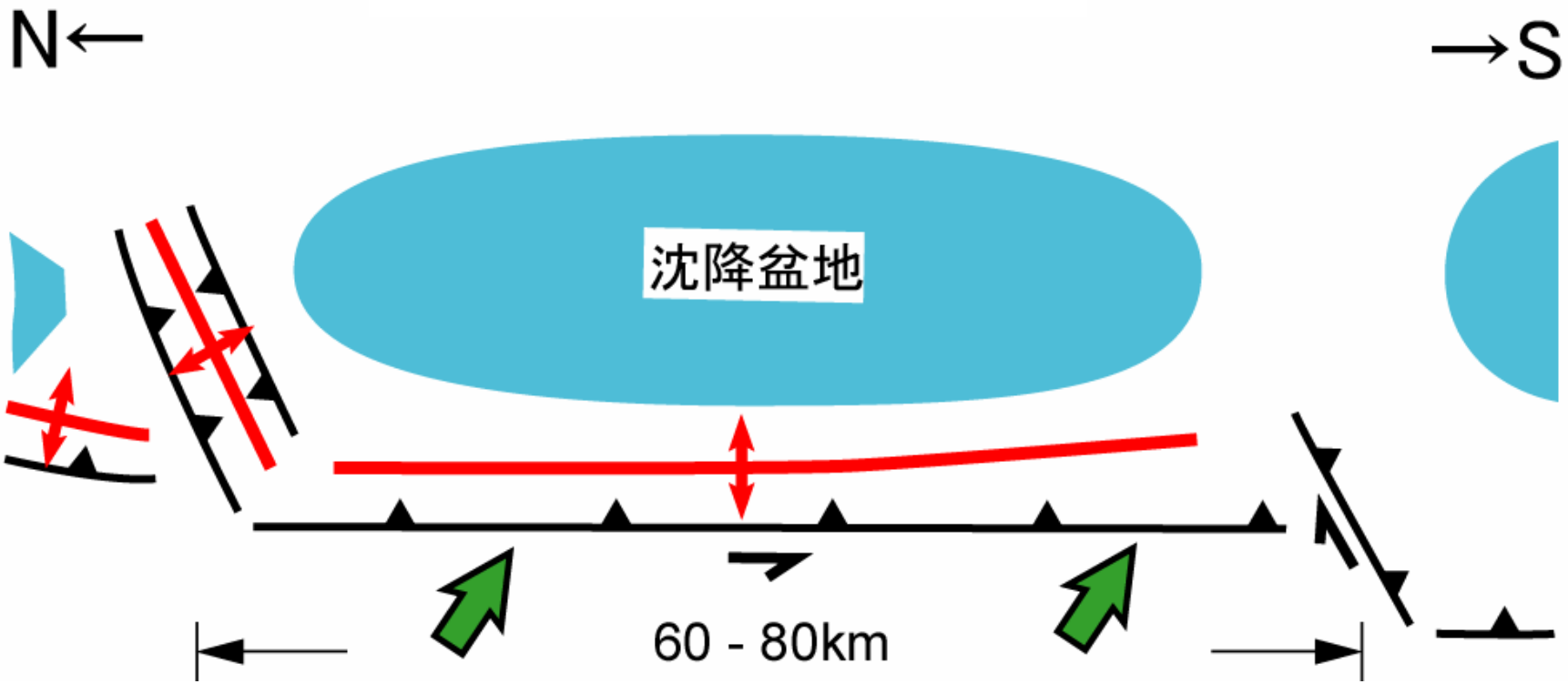


Modified from Ho(1988) : An Introduction to the Geology of Taiwan

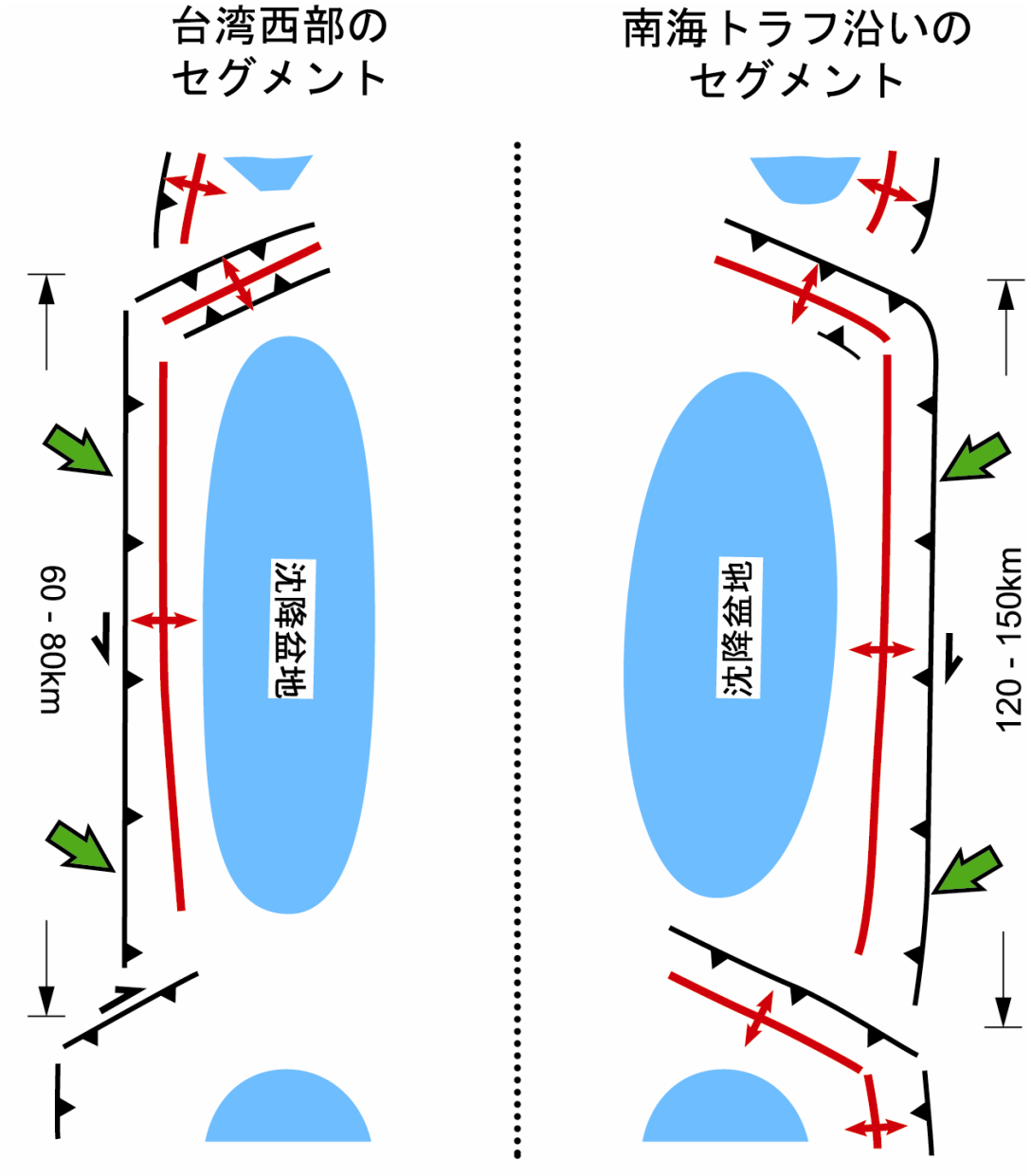
台中付近之地質構造


N
120.5° E
24° N
(Tachia fault)
Sanyi fault
Migration of the segment boundary
Tuntzuchiao fault
Taichung
(Chingshui fault)
Tatushan Hills
Younger basin
Older basin
Changhua fault
Chelungpu fault
Shuangtung fault
Migration of the tectonic field
Meishan fault
Syncline
Anticline
0
20km
Chiayi

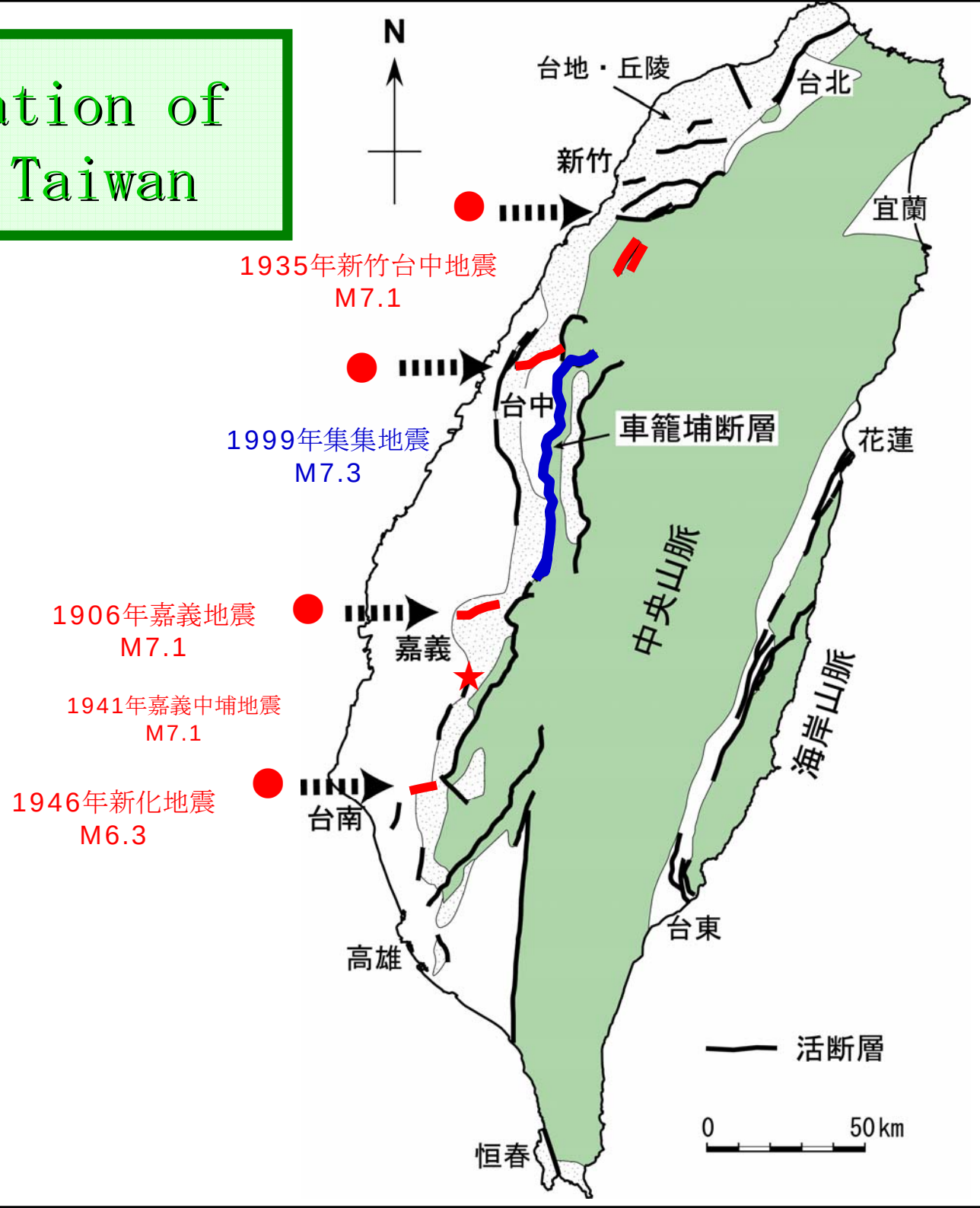
Simplified structure of thrust sheets in the Taichung area



Mirror-image structural relationship of west Taiwan with the Nankai trough region



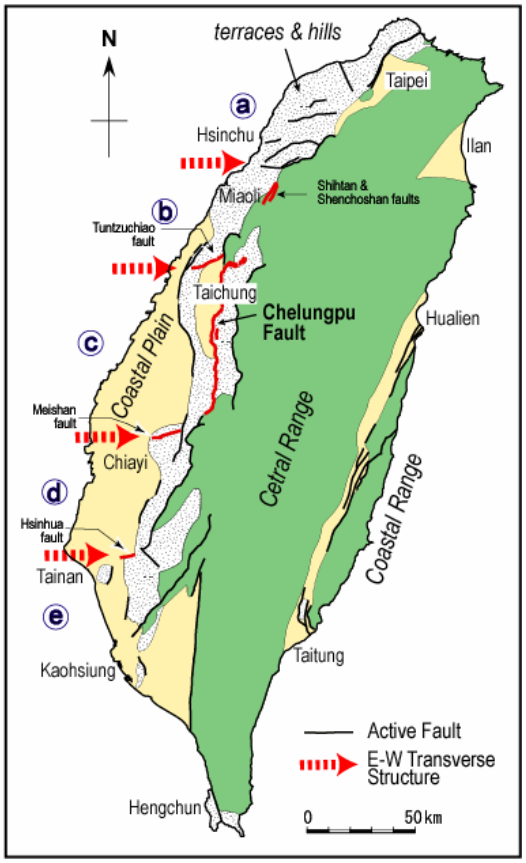
Segmentation of western Taiwan

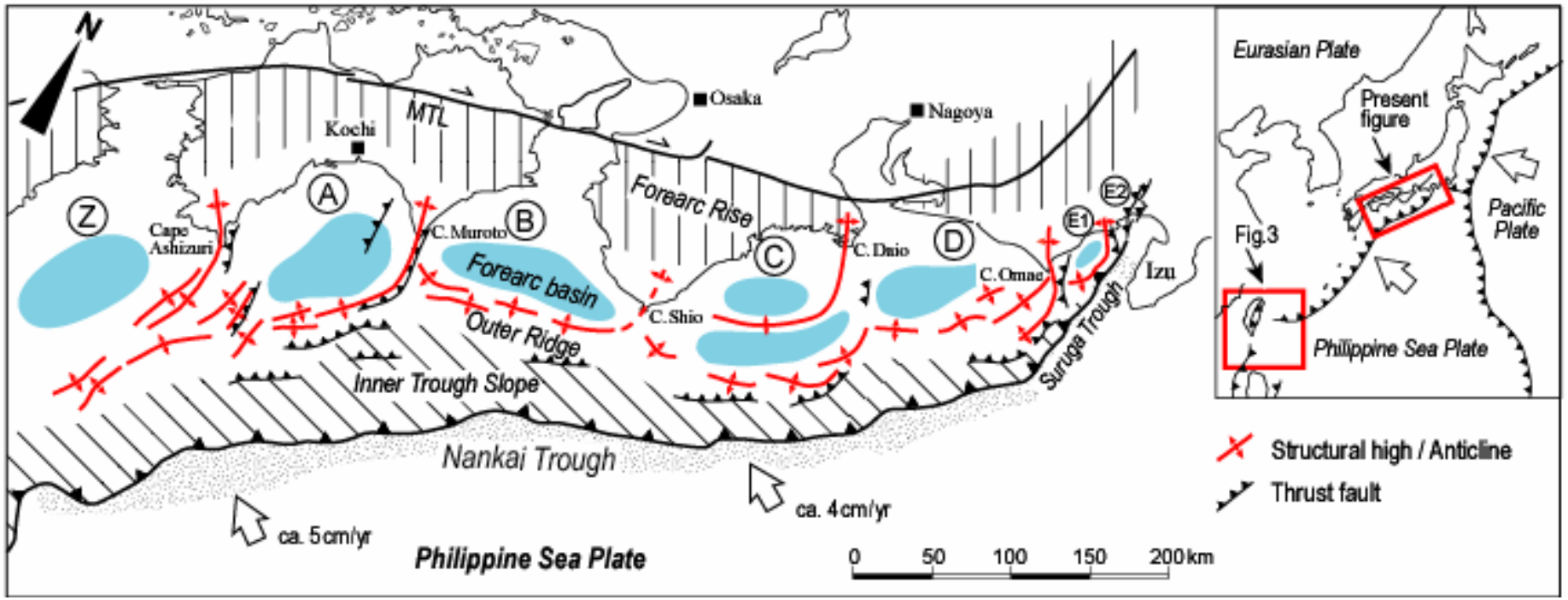


Perspective and problem on future large earthquakes in western Taiwan

- Size of single segment: 60 to 80 km
  about a half of the 120 to150-km-long segments along the Nankai trough
- Possibility of multi-segment rupture
  which is common in the Nankai trough region
- Behavior of transverse faults at Segment boundaries
  independently of or simultaneously with megathrusts?

Comparison of rupture segments in Western Taiwan and in the forearc region of SW Japan





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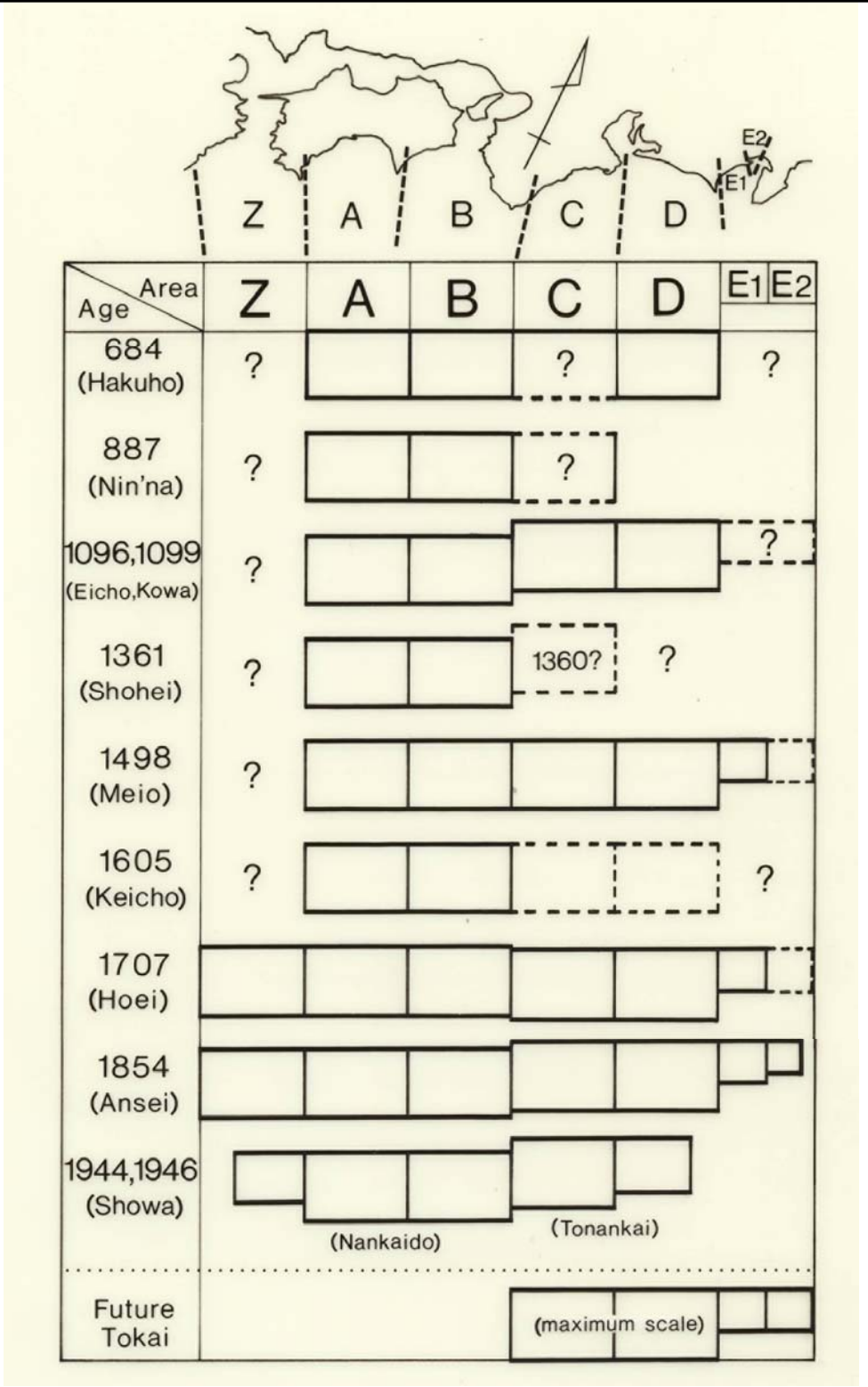
Source areas of the successive plate boundary earthquakes along the Nankai trough



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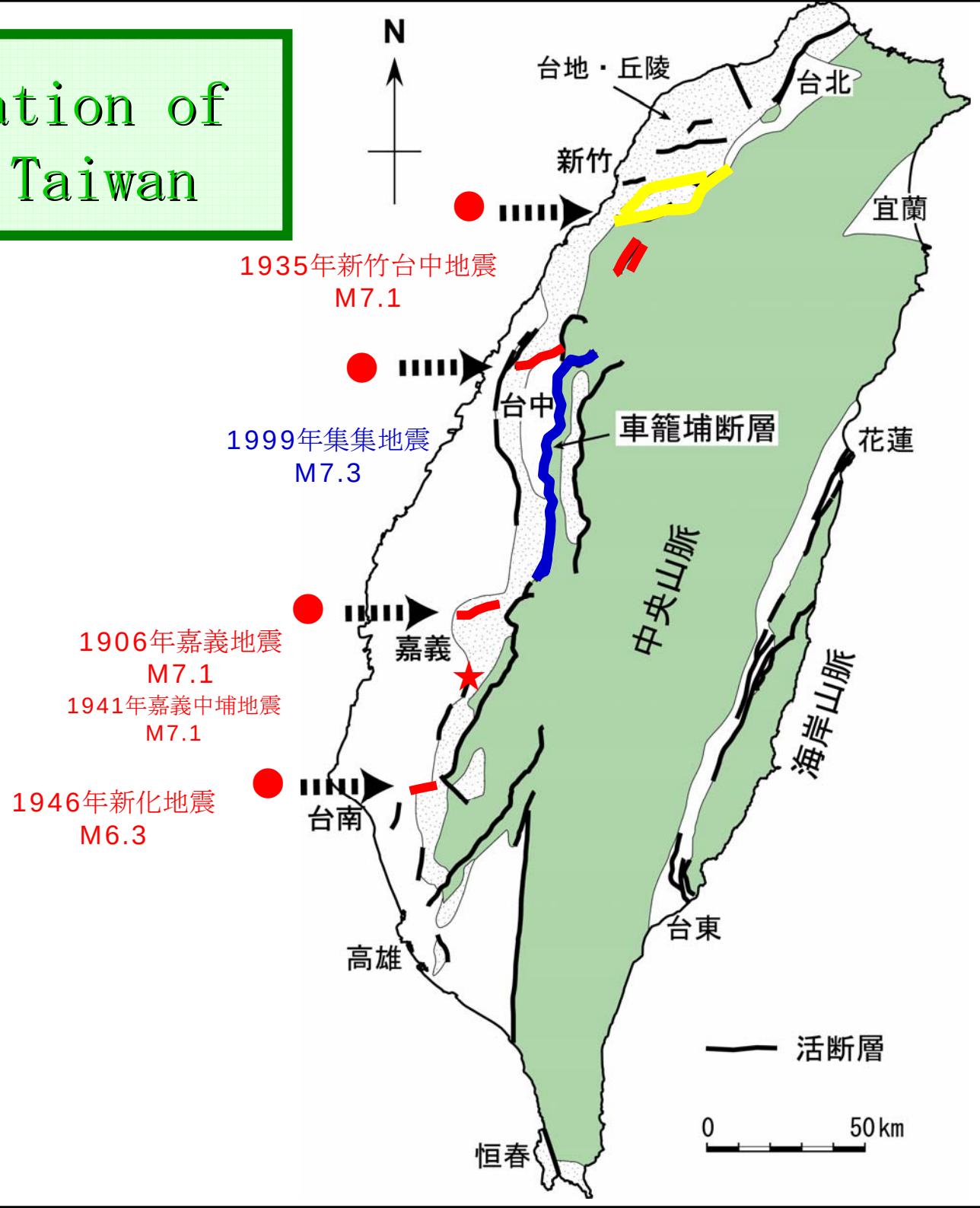
Segmentation of western Taiwan



The End

Thank you very much!