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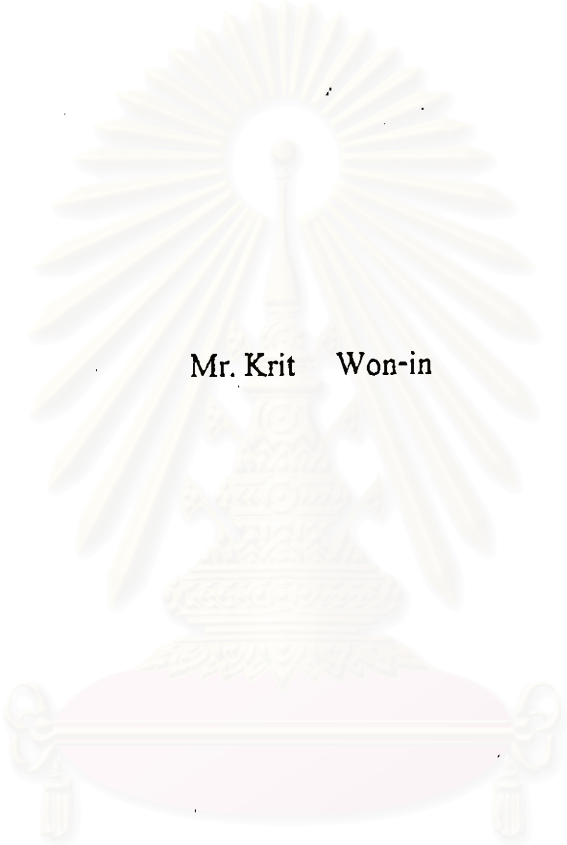
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NEOTECTONIC EVIDENCES ALONG THE THREE PAGODA FAULT ZONE,
CHANGWAT KANCHANBURI



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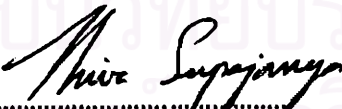
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กฤษณ์ วันอินทร์: หลักฐานทางนีโอเทคโทนิคตามแนวรอยเลื่อนเจดีย์สามองค์ในจังหวัดกาญจนบุรี
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รอยเลื่อนเจดีย์สามองค์ (TPF) อยู่ในเขตจังหวัดกาญจนบุรีตะวันตกของประเทศไทย หลักฐานจากการสำรวจด้วยโทรมัมผัสและภาคสนามชี้ให้เห็นว่า รอยเลื่อนนี้เป็นรอยเลื่อนตามแนวเฉียง ซึ่งมีความยาวประมาณ 222 กม และเป็นรอยเลื่อนที่ต่อเนื่องจากทางตะวันตกเฉียงใต้ของประเทศพม่า เข้ามาในประเทศไทยทางทิศตะวันตกไปสู่ภาคกลางของประเทศ ในการศึกษานี้ได้ใช้วิธีการหลายรูปแบบเพื่อค้นหาหลักฐานของนีโอเทคโทนิคในจังหวัดกาญจนบุรี วิธีการที่สำคัญสำหรับการศึกษาในครั้งนี้ได้แก่ การแปลความหมายจากข้อมูลภาพถ่ายดาวเทียมแลนด์แซททีเอ็ม 5 ดาวเทียมเจโออาร์เอส และรูปถ่ายทางอากาศ โดยผนวกกับข้อมูลการคำนวณอายุโดยวิธีทีแอลและอีเอสอาร์

หลักฐานจากธรณีวิทยา รูปลักษณะทางเรขาคณิต และธรณีสัณฐานวิทยาชี้ชัดว่ารอยเลื่อนเจดีย์สามองค์ประกอบด้วย แนว (รอยเลื่อน) ย่อย 5 แนวด้วยกันซึ่งได้แก่ แนวย่อยสังขละบุรี (ยาว 8 กม), กาญจนบุรี (ยาว 197.5 กม), ทองผาภูมิ (ยาว 65 กม), แม่น้ำน้อย (ยาว 31.5 กม) และแควใหญ่ (ยาว 125 กม) ได้พบหลักฐานทางแปรสัณฐานภูมิลักษณะมากมาย เช่น ถ้ำธารเลื่อนหักมุม, ผาสามเหลี่ยม, ผารอยเลื่อน, สันปัดกัน, สันแนวยาว และถ้ำธารแย่งน้ำ ลักษณะเหล่านี้แสดงถึงการเลื่อนตัวของรอยเลื่อนที่มีอายุอ่อน จากการศึกษามพบว่ารอยเลื่อนและแนวเส้นโครงสร้างปรากฏอยู่ในทิศหลักๆ 4 ทิศคือ แนวเหนือ, ตะวันตกเฉียงเหนือ, ตะวันออกเฉียงเหนือ และตะวันออก แต่ที่เด่นที่สุดและดูเหมือนจะอ่อนกว่าแนวอื่นๆได้แก่ แนวในทิศตะวันตกเฉียงเหนือ สำหรับแนวย่อยแม่น้ำน้อยจัดว่าเป็นแนวที่มีอายุอ่อนกว่าแนวย่อยอื่นๆ ในทิศทางเดียวกัน

ตัวอย่างที่เลือกสรรแล้วจำนวน 9 ตัวอย่าง จากผงรอยเลื่อนและตะกอนพัคพาที่เกี่ยวข้องกับรอยเลื่อนในบริเวณแนวย่อยสังขละบุรีและแนวย่อยกาญจนบุรีได้ถูกนำมาหาอายุ ผลการคำนวณ หาอายุพบว่ามีการเลื่อนตัวทั้งหมดอย่างน้อย 5 ครั้ง ได้แก่ช่วงเวลาประมาณ 1) 1,575,000-920,000 ปี 2) 465,000-580,000 ปี 3) 180,000 ปี 4) 140,000-145,000 ปี และ 5) 20,000-22,000 ปี ผลจากการหาอายุและหลักฐานทางโทรมัมผัสสนับสนุนการเลื่อนตัวของรอยเลื่อนเจดีย์สามองค์ในช่วงยุคควอเทอร์นารี

ลักษณะการเลื่อนแบบขวาเข้าและการวางตัวของรอยเลื่อนในแนวตะวันออกเฉียงเหนือ ช่วยให้การสร้างภาพอิลิปซอยแรงเค้น และอธิบายลักษณะแรงเครียดที่น่าจะเข้ามากระทำในทิศเหนือ-ใต้ หลังจากการชนกันของแผ่นทวีปอินเดียกับเอเชียเมื่อ 40-45 ล้านปีมาแล้ว นอกจากนี้หลักฐานสนับสนุนอื่นๆเช่น การกระจายตัวของจุดเกิดแผ่นดินไหว, ตำแหน่งน้ำพุร้อนและข้อมูลกระแสไหลความร้อนยังแสดงให้เห็นว่ารอยเลื่อนเจดีย์สามองค์ยังคงมีการเลื่อนอยู่ในปัจจุบัน อย่างไรก็ตามเพื่อให้รู้ตำแหน่งแน่ชัดของแนวรอยเลื่อนมีพลัง จำเป็นต้องอาศัยการสำรวจทางธรณีวิทยาอย่างละเอียด โดยเฉพาะจากข้อมูลการหาอายุ

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สาขาวิชาธรณีวิทยา.....
ปีการศึกษา2542.....

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ลายมือชื่ออาจารย์ที่ปรึกษาร่วม

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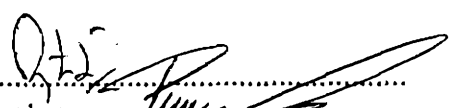
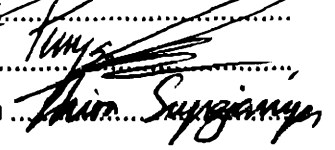
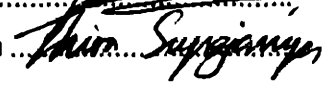
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Three - Pagoda Fault (TPF) is located in Kanchanaburi province, western Thailand. Evidences from remote-sensing and field investigations indicate that the TPF is the NW-trending oblique-slip fault with the total length of about 222 km. It can be traced from southeastern Myanmar to western and central Thailand. Several approaches have been applied to figure out neotectonic evidences in the Kanchanaburi area. LANDSAT TM5, JERS -SAR, and aerial photographic interpretation as well as TL and ESR dating synthesis form the major task for this study.

Evidences from geology, geometry, and geomorphology indicate that the TPF is delineated into 5 segments, that is Sangkhla Buri (8 km), Kanchanaburi (197.5 km), Thong Phaphum (69 km), Mae Nam Noi (31.5 km), and Khwae Yai (125 km) Segments. Offset streams, triangular facets, fault scarps, shutter ridges, linear ridges, and beheaded streams, regarded as essential morphotectonic evidences, are frequently observed along the TPF. All these features point to the youthfulness of the TPF activity. Four directions of faults and lineaments can be detected, i.e., NE, NW, N and E trends. Among these, the roughly NW-trending fault traces are observed to be the most prominent, and seem to post - date the other directions. The WNW-trending Mae Nam Noi segment is inferred to represent the youngest fault trace for this trend.

Nine representative samples from fault gouges and fault - related sediments along the Sangkhla Buri and Kanchanaburi segments have been selected for dating. The geochronological results indicate 5 faulting events along these two fault segments, namely 1) 1,575-920 Ka , 2) 465-580 Ka , 3) 180 Ka , 4) 140-145 Ka , and 5) 20-22 Ka . These results and remote-sensing data advocate the activeness of the TPF within Quaternary period.

The main right - lateral sense of movement and NW-trending of the TPF lead to the delineation of strain ellipsoid orientation, strongly suggesting the major stress axis in the N-S direction after Indian - Asian continental collision (40-45 Ma). It is also confirmed from other supporting evidences that the TPF may be active till present, as recognized from epicentral distribution, hot-spring location, and heat-flow data. However, more detailed geological investigations, particularly dating information, are required to specify the precise active - fault location.

ภาควิชา	ธรณีวิทยา.....	ลายมือชื่อนิสิต	
สาขาวิชา	ธรณีวิทยา.....	ลายมือชื่ออาจารย์ที่ปรึกษา	
ปีการศึกษา	2542.....	ลายมืออาจารย์ที่ปรึกษาร่วม	

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