

Proposal for Geological Correlation of Key Tectonic Zones in Southwest China and Thailand

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中国地质调查局
CHINA GEOLOGICAL SURVEY

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1. Brief of the Cooperative Project

Project Name:

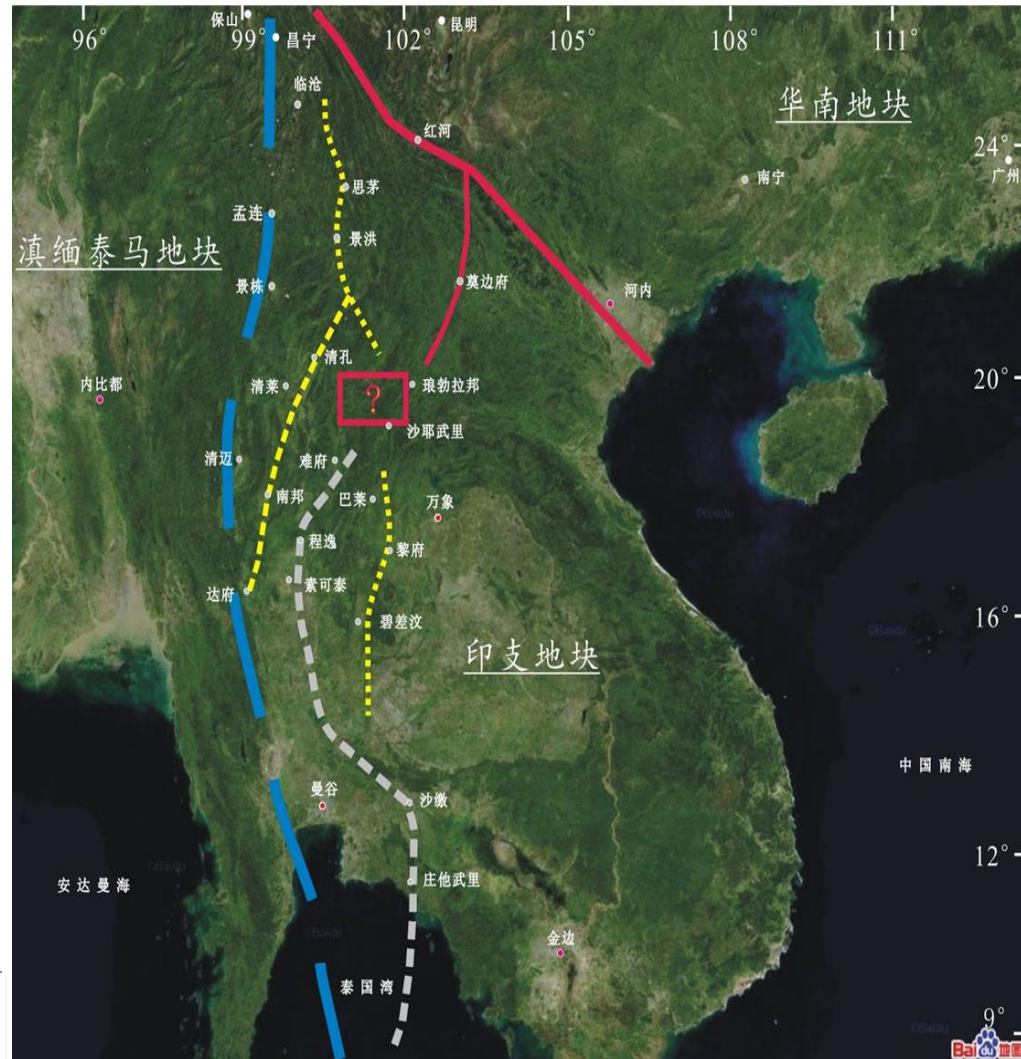
**Geological Correlation of
Key Tectonic Zones in
Southwest China and
Thailand**

Project Duration

2018-2021

Cooperative Parties

DMR and CC-CGS



1. Brief of the Cooperative Project

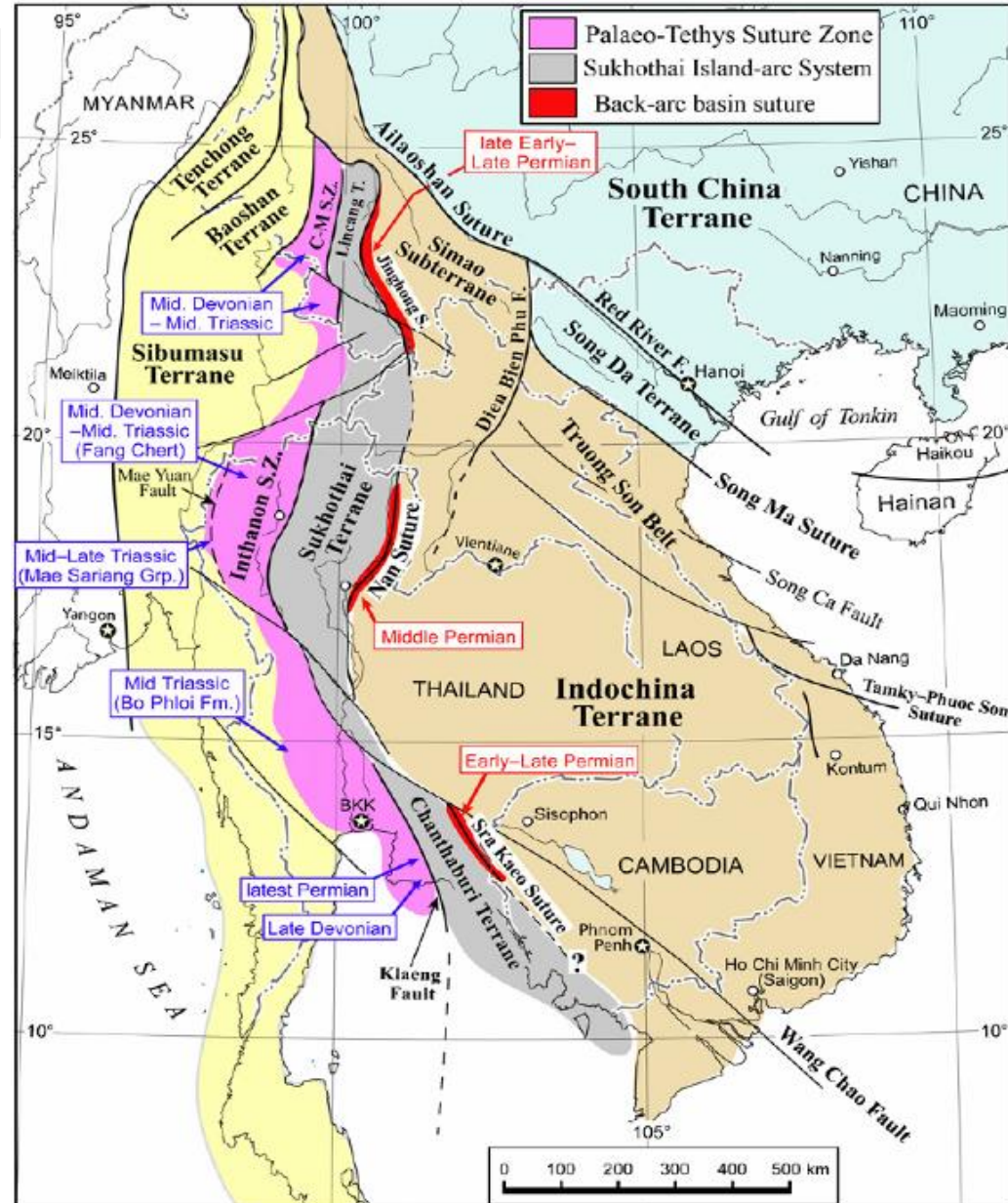
Research Region:

Southwest China:

Changning-Menglian suture, Lancangjiang volcanic belt, Jinghong suture, Tengchong W-Sn metallogenic belt.

Thailand:

Chiang Mai suture, Chiang Rai volcanic belt, Nan suture, Loei volcanic belt, Tanasserim-Phuket W-Sn metallogenic belt.



2. Cooperation Contents

Purposes of Cooperation

- (1) To get a thorough understanding of the regional geology and the tectonic evolution of Tethys.
- (2) To jointly research and settle common concerned key issues on geology and mineral resources of the cooperative research region;
- (3) Foster the exchange and cooperation of geologists between China and Thailand, and enhance the capacity for geological research of both sides.



2. Cooperation Contents

Cooperation Contents

- (1) Capacity Building. Dispatch staff to participate in related work and jointly organize regular work meetings so as to strengthen staff's communication between the Parties; meanwhile, carry out joint trainings on relevant techniques to enhance related technical level.
- (2) Conduct field investigation, to jointly study on the key issues regarding regional economic sustainable development concerning with geology and mineral resources.
- (3) To compile a serial maps and reports on geology, and jointly outreach the cooperative research results through dissemination seminar, workshop, training and publication.



3. Project Arrangement and Anticipated Achievements

Project Arrangement

Plan (2018)

- Collect related data and materials
- Compile the project implementation design

Implementation (2019-2020)

- Field investigation in Southwest China
- Field investigation in Thailand
- Indoor research

Conclusion (2021)

- Generate the maps and reports



3. Project Arrangement and Anticipated Achievements

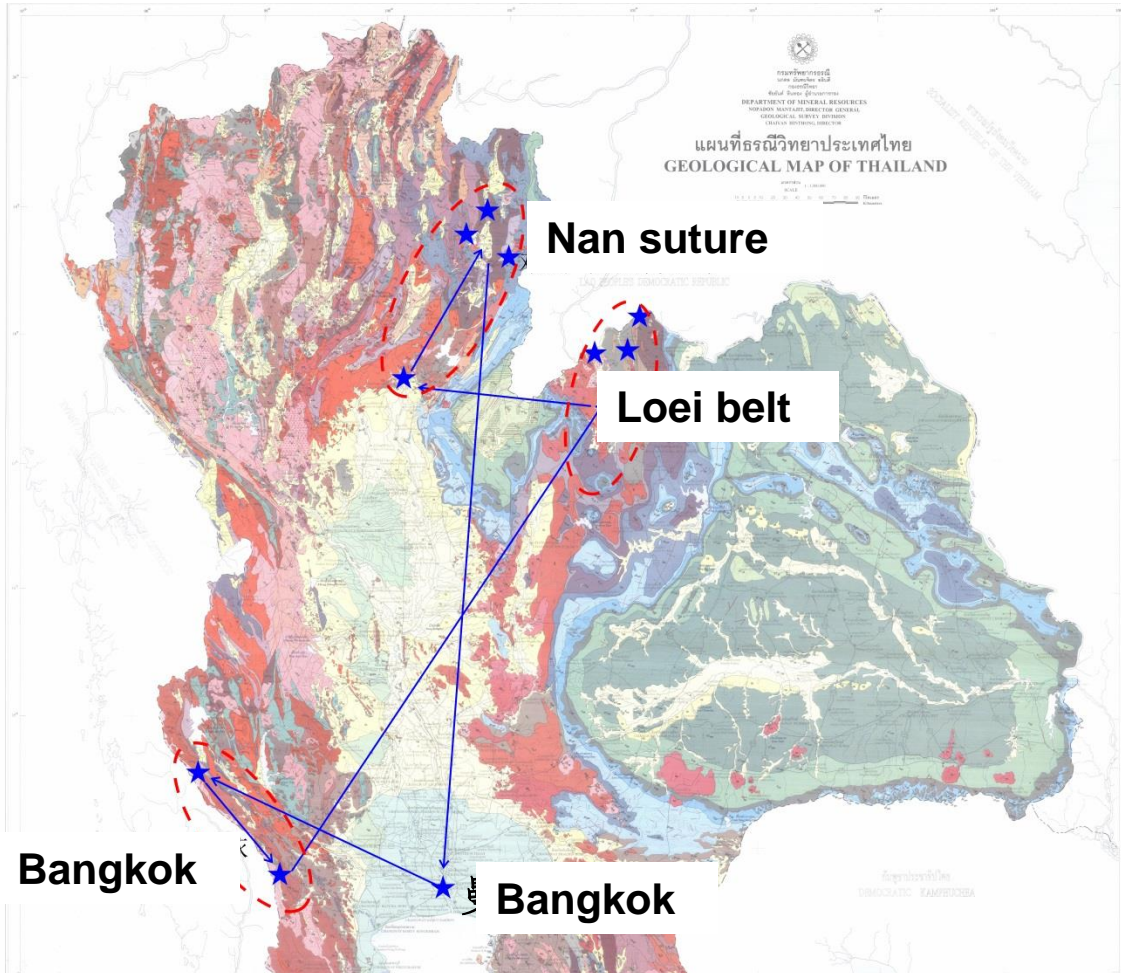
Anticipated Achievements

- To complete the project report
- To jointly publish the papers about the research region.
- To update the geological and mineral resources map of the research region.
- Organize workshops (seminars) every year to demonstrate the progress of the project and dissemination conference in Thailand and China.
- Provide summarizations of the activities.



4. Achievements of the joint field study in 2017

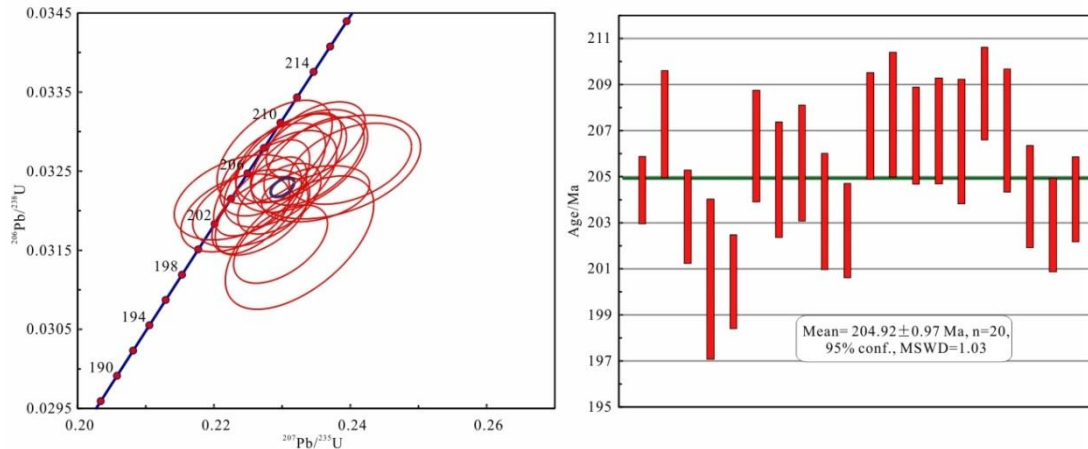
2017.6.5-6.19, China-Thailand Joint field study in Thailand



Route of China-Thailand joint field study in 2017

1. Study of typical deposits

➤ Monzonitic granite (wall rocks), Ore-related aplite granite

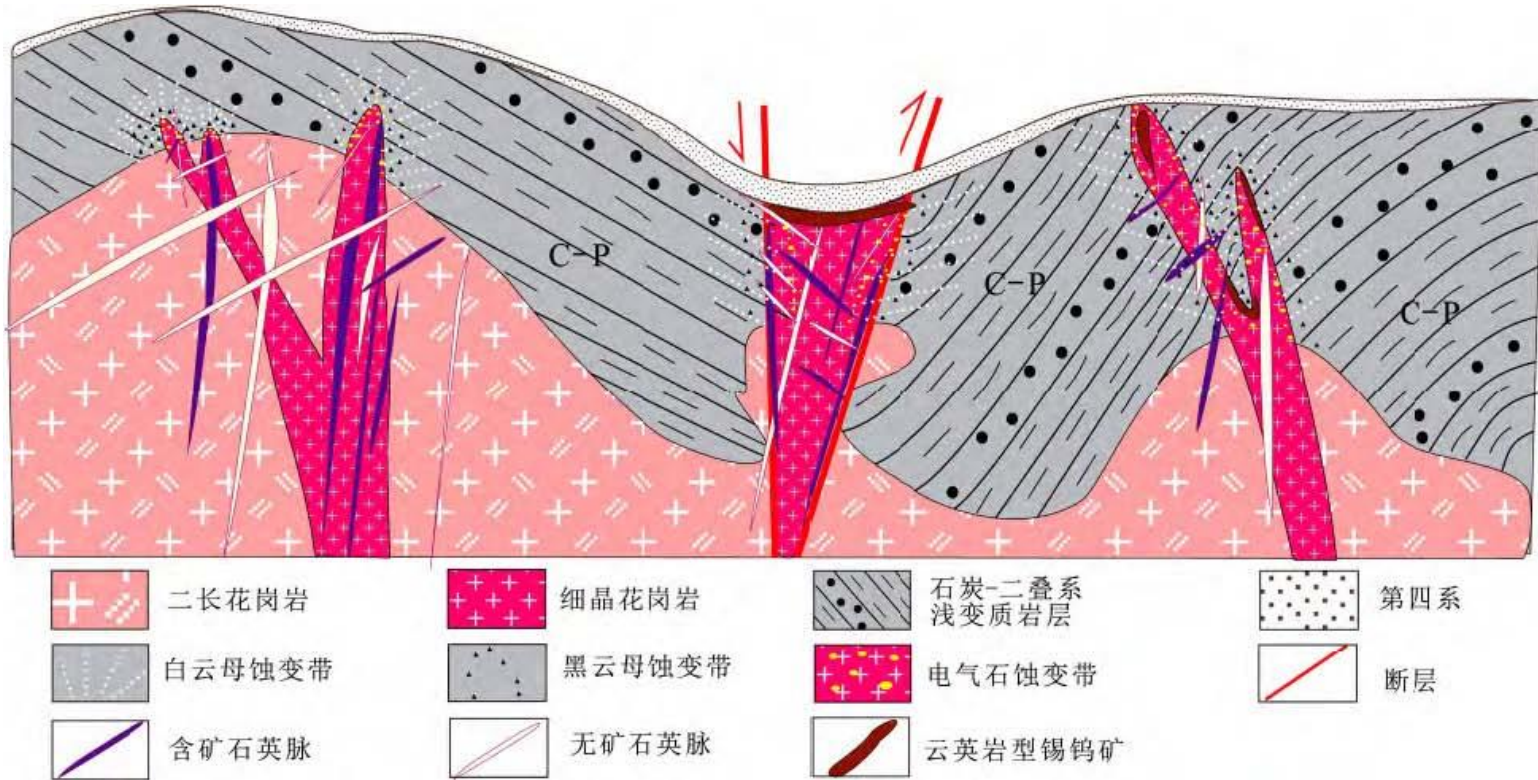


- Monzonitic granite zircon U-Pb age: $204.92 \pm 0.97\text{Ma}$
- Formed by the subduction of Mogok ocean?

- The $^{40}\text{Ar}/^{39}\text{Ar}$ age of the ore-related aplite granite are: 72-76.5 Ma (Charusiri, 1989)
- The mineralization formed in **Late Cretaceous**.



1. Study of typical deposits

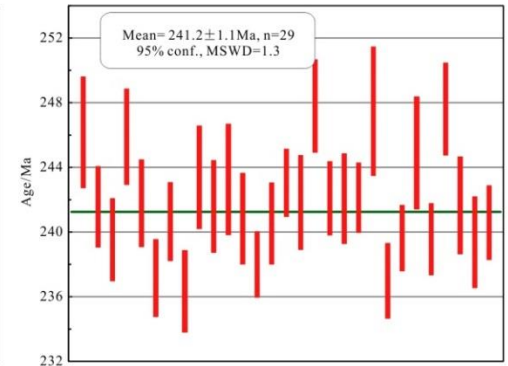
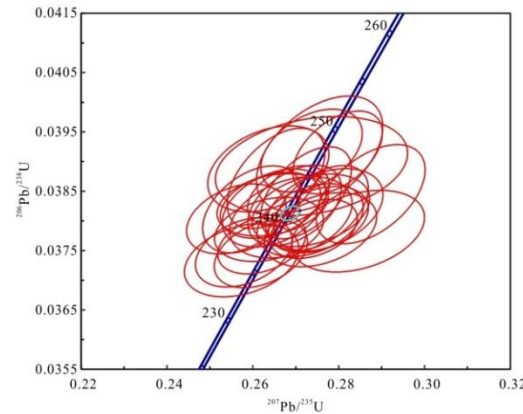
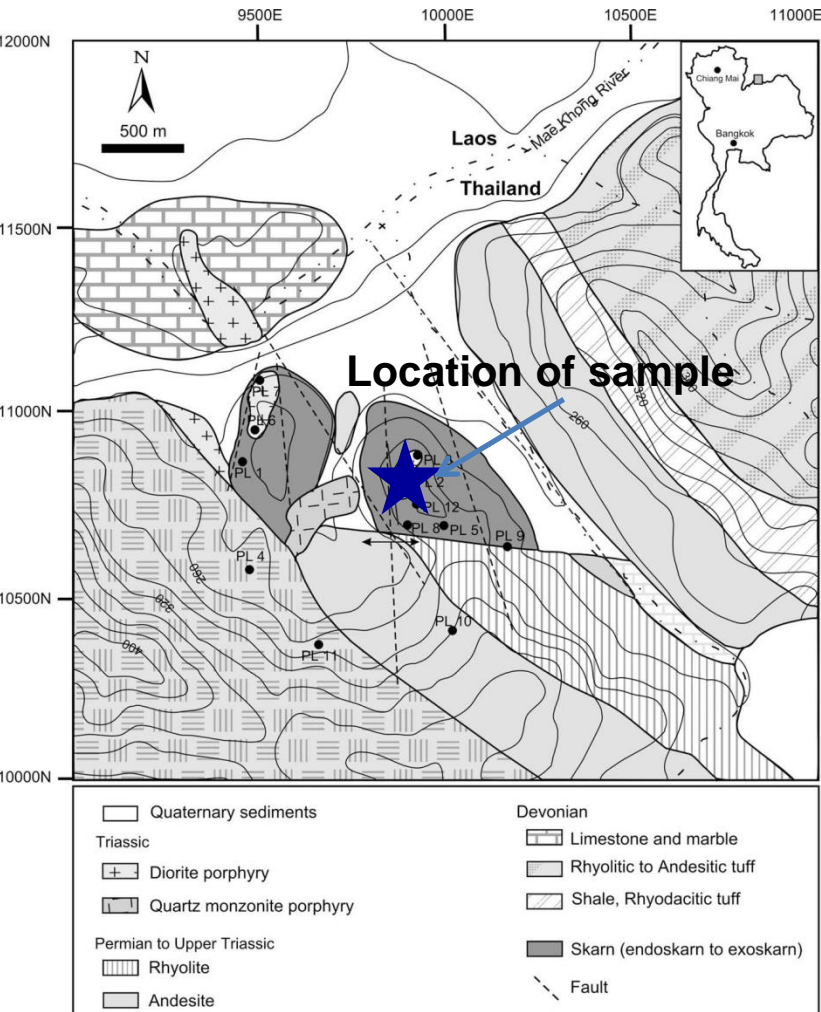


The model of the Pilok deposit (Shi et al., 2016)



1. Study of typical deposits

(2) Phu Long Cu deposit



- The zircon U-Pb age of the ore-related Quartz monzonite porphyry: 241.2 ± 1.1 Ma
- Formed by the subduction of Nan back-arc basin, beneath the Indochina block.

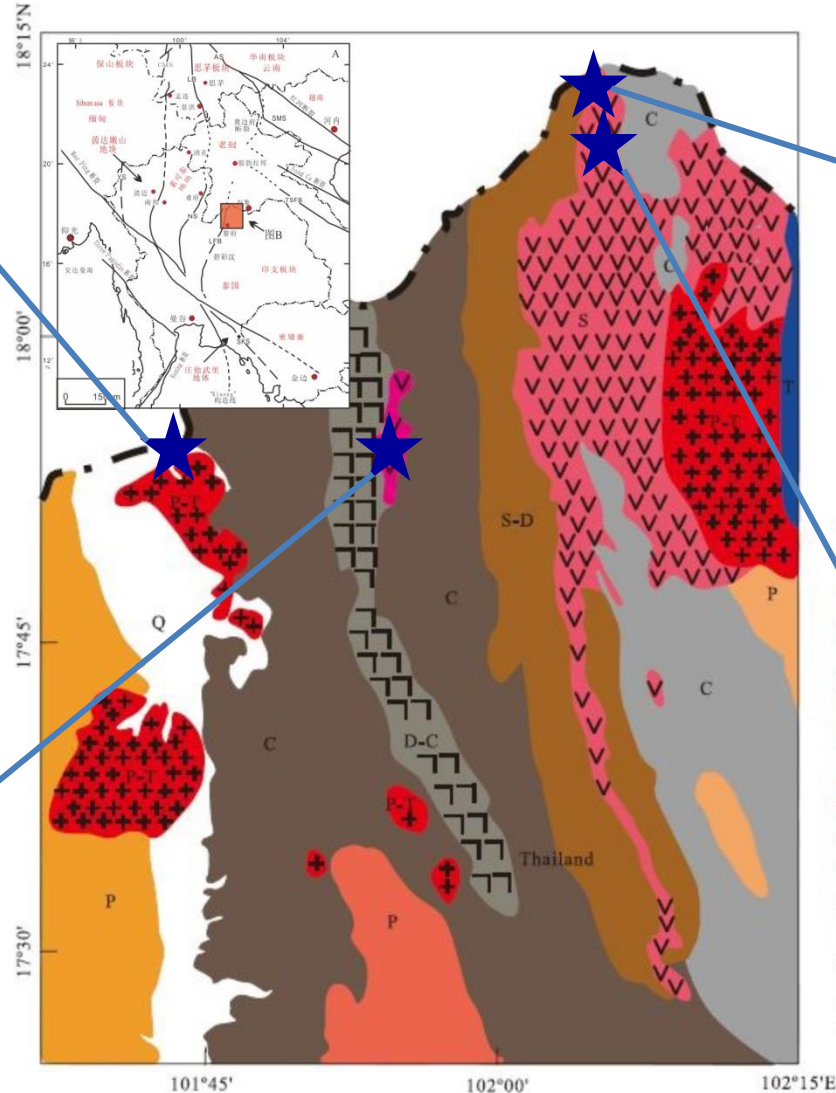
2. Two pluses of magmatic activities in Loei belt



Granodiorite



Diabase-prophyrite

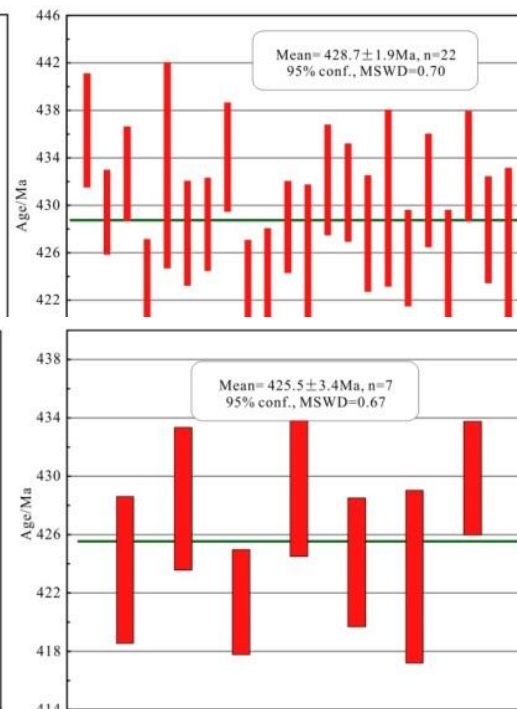
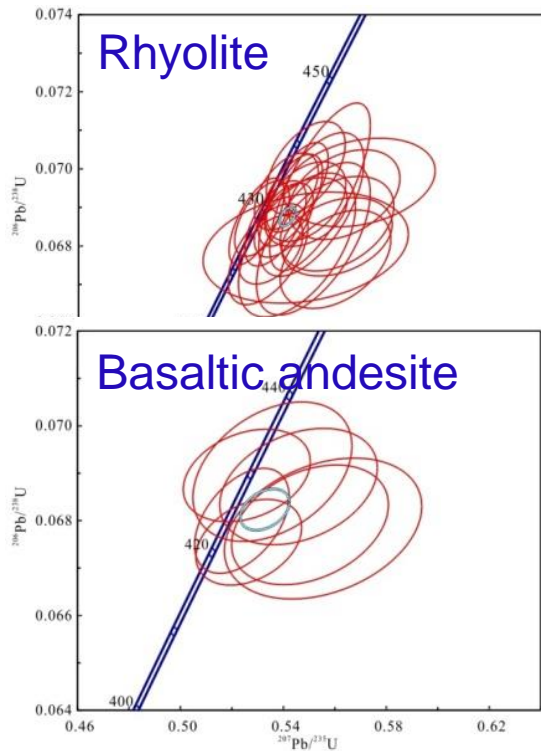


Rhyolite



Basaltic andesite

2. Two pluses of magmatic activities in Loei belt

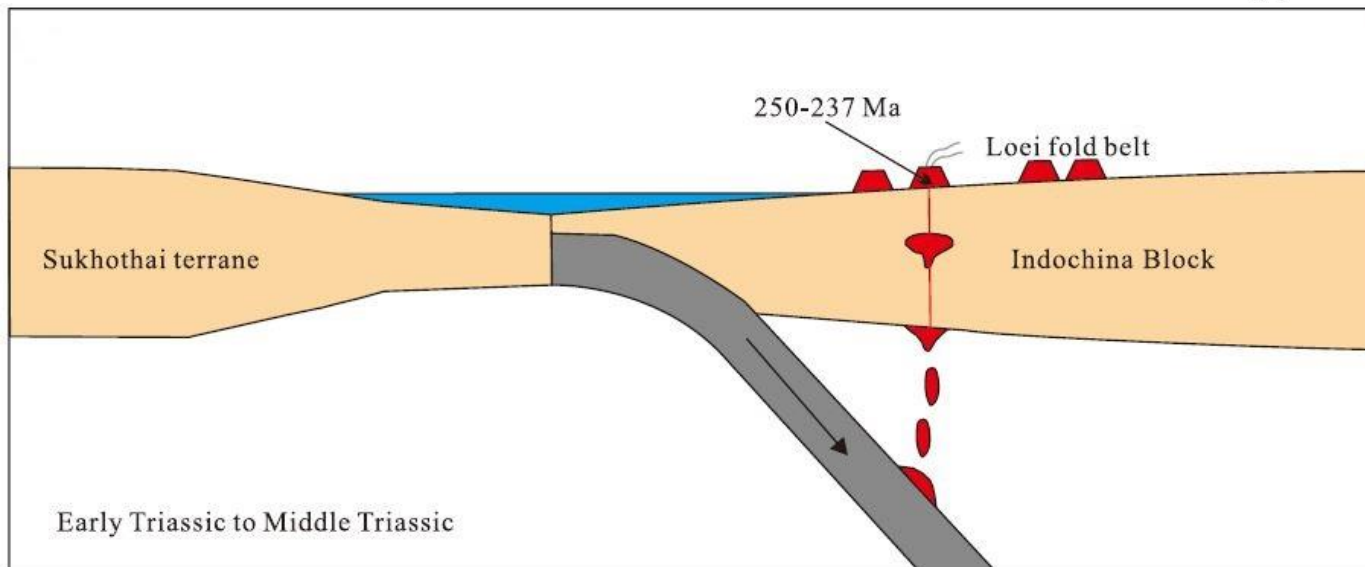
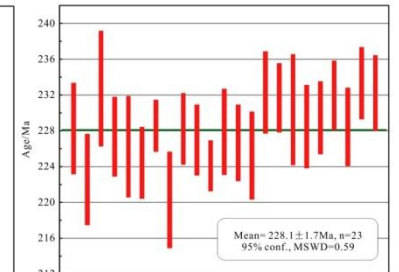
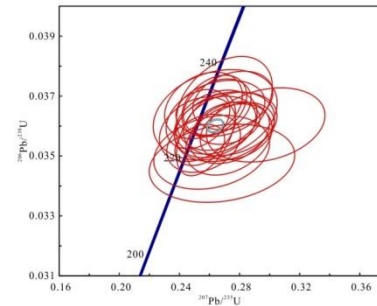
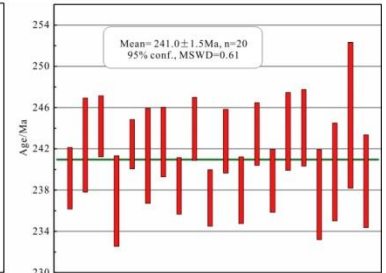
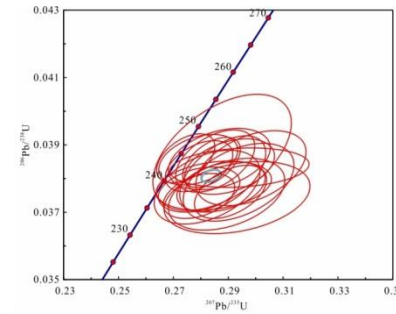


- **Rhyolite: $428.7 \pm 1.9\text{Ma}$**
- **Basaltic andesite : $425.5 \pm 3.4\text{Ma}$**

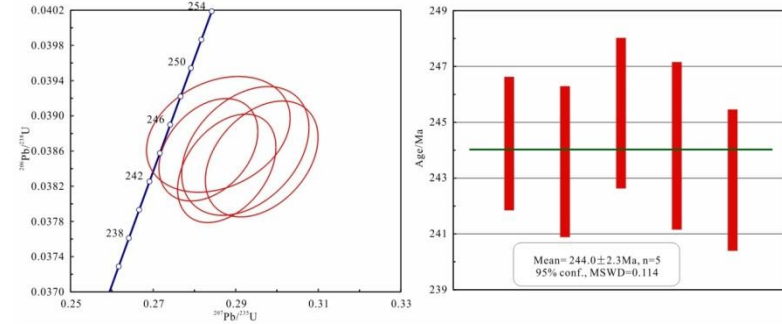
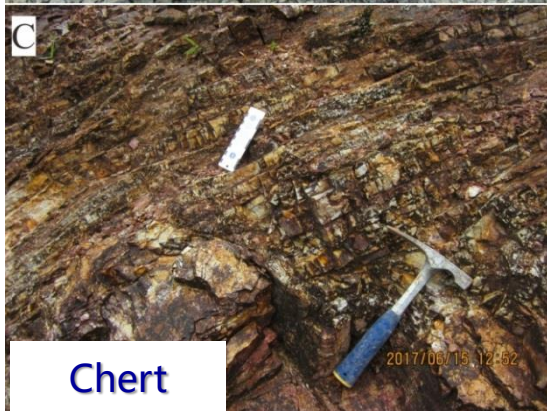
- Formed in the subduction-related active continental margin, related to the evolution of the Proto-Tethys Ocean.

2. Two pluses of magmatic activities in Loei belt

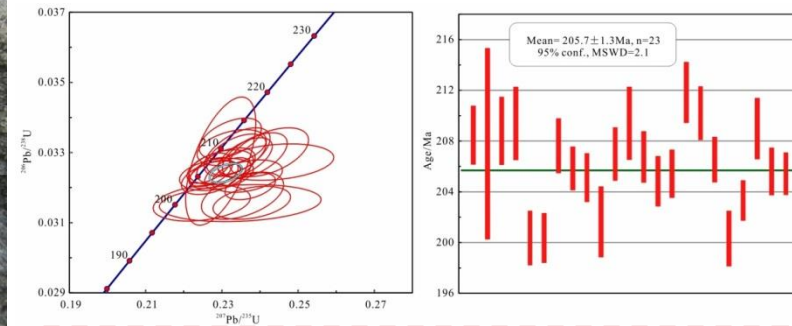
- Diabase-prophyrite: $241.0 \pm 1.5\text{Ma}$
- Granodiorite: $228.1 \pm 1.7\text{Ma}$
- Formed by the subduction of Nan back-arc basin in the Early Triassic.



3. Nan Suture



- Gabbro in Uttaradit:
 $244.0 \pm 2.3\text{Ma}$



- Gabbro in Nan:
 $205.7 \pm 1.3\text{Ma}$

5. Work plan of joint field study in Thailand in 2018

Delegates from CC-CGS

No.	Name	Sex	Position
1	Yang Yongfei	Male	Senior geologist
2	Zhang Hong	Female	Geologist
3	Liang Huimin	Female	Geologist

We hope DMR to arrange 2 geologists accompany us to do the field works.



5. Work plan of joint field study in Thailand in 2018

No.	Date	Programs
1	Day 1 (6.24)	The delegation arrives in Bangkok
2	Day 2	Delegation visits the DMR, discuss work plan.
3	Day 3	From Bangkok to Chiang Mai
4	Day 4-7	Field study of Chiang Mai suture, to carry out the geological study of the stratum, ophiolite, intrusions, volcanic rocks and collect samples
5	Day 8	From Chiang Mai to Bangkok.
6	Day 9	Meeting with DMR and report the progress of work.
7	Day 10 (7.3)	Departure from Bangkok



Thank You!



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