The Shear Sense of the Chegualin Fault 車瓜林斷層的剪切行為

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Chegualin Fault

- Chegualin fault is a thrust fault with strike-slip component, striking NE-SW and dipping to the east.
- Most of the fault are in the Gutingkeng formation which is mainly composed of massive mudstone.



- Massive mudstone in Gutingkeng Formation.
- The dark broad band is clearly observable.
- A fault zone composed of several dark broad bands.



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- Black band
 - The dark broad band is composed of many black bands.

Research Problem

- The length of arrow represents the magnitude of velocity.
- Divided into three groups from north to south along Chegualin fault.
- Near Zhongliao tunnel region indicate relative left-lateral shearing.
- South of Chegualin fault all indicate relative right-lateral shearing.



- \implies The velocity of fault-perpendicular component
 - → The velocity of fault-parallel component
 - \Rightarrow Mean velocity

Image correlation

- Compare the displacement on both sides of the fault.
- Section 2, shows relative left-lateral movement.





• Section 3~5 all shows relative right-lateral movement.

Methodology

- Outcrop observation
- Microstructral analysis





Strike-perpendicular

Strike-parallel

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Thin section of the strike-perpendicular sample



Previous work

崩積物

灰色泥岩

低

KTL01-

黄棕

破碎泥岩

破碎程度

KTL01-8

浅灰色泥岩

- The sample located at northeast of freeway No.3.
- The thin section shows left lateral shear direction.

SW

黑色 破碎泥岩 **KTL01-**

局带邊界

薄砂層面

定向 無定向

本採集處

100µm

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KTL01-6

S-C fabric

- S-surface (schistosity) are formed by the alignment of mineral grains in the rock.
- C-surface (cisaillement) are parallel to the shear zone.
- The S-surfaces rotate toward the right side of the shear zone, forming right-lateral shear structures.



Future work





Terrace deposit Kz Kaitzuliao shale Takangshan limestone Wu Wushan Fm. Tg Upper member of Ciu AL Ailiaochiao Fm. Chiting Fm. Cilon Chiting Fm. Lower member of Yenshuikeng shale Ys Gutingkeng Fm. Tn-Tangenshan sandstone alt: sandstone and mudstone in alternations Changchihkeng Fm. Cc Gte: Chinanshan lentile Gtl: Lungchuan lentile Syncline Gtd: Dabutingshan lentile Fault Gtb: Bantianliao lentile (dached where inferred Lingkou conglomerate Lo The boundaries from two River • Ts Tashe Fm. Road 🔆 Thin section from Chen-Chia Jhuang e sample collected by myself geodetic data are different. 22°54' • The shear direction transition zone must locate at this region. 22°48' 22°42'



- The location of the shear direction transition zone
- The mechanism influencing the different shear directions.

Thank you for your listening