GEODIVERSITY OF HONG KONG UNESCO GLOBAL GEOPARK

ALVIN NG

2022.1.26

HONG KONG - A CONCRETE JUNGLE?



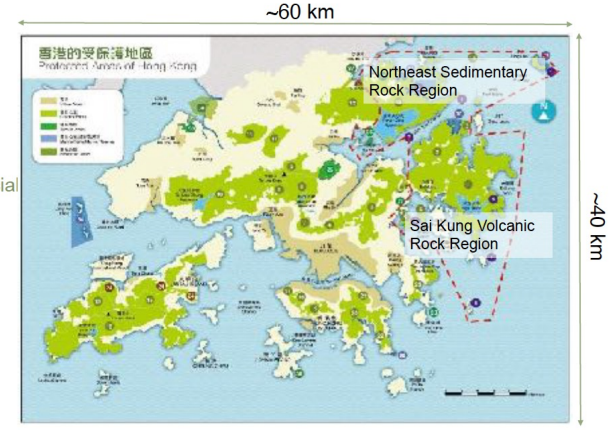
LAND UTILISATION IN HONG KONG

Land area ~1100 km²

- ~25% developed areas

Undeveloped areas
- ~40% protected areas
  - country parks & special areas
  - Hong Kong Geopark
- ~35% rural areas

Hong Kong Geopark
- Land area ~150km2



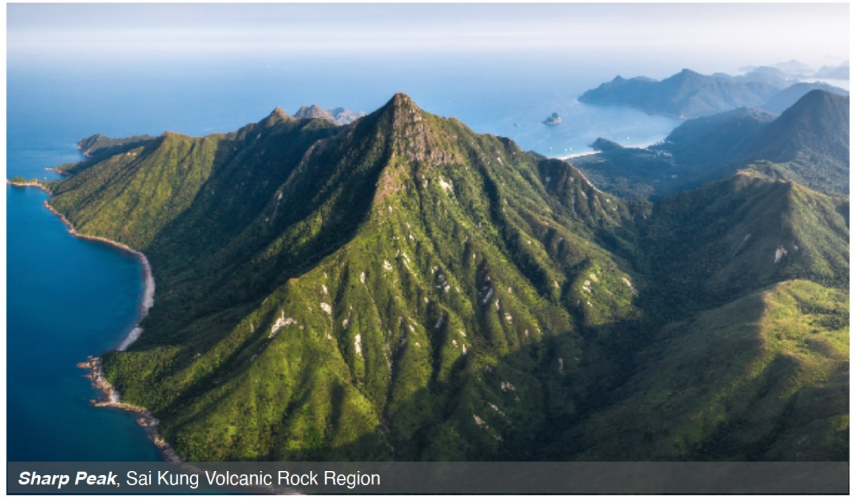
NORTHEAST SEDIMENTARY ROCK REGION



SAI KUNG VOLCANIC ROCK REGION



TOPOGRAPHY



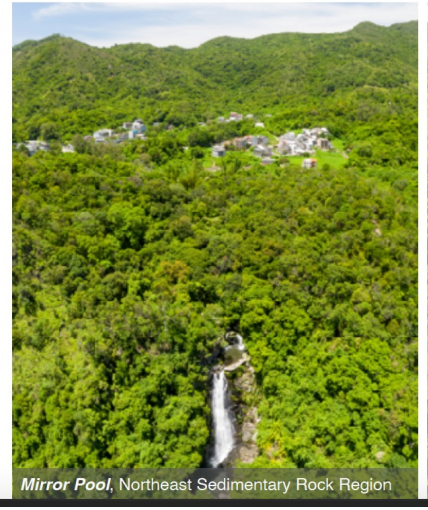
Sharp Peak, Sai Kung Volcanic Rock Region

TOPOGRAPHY

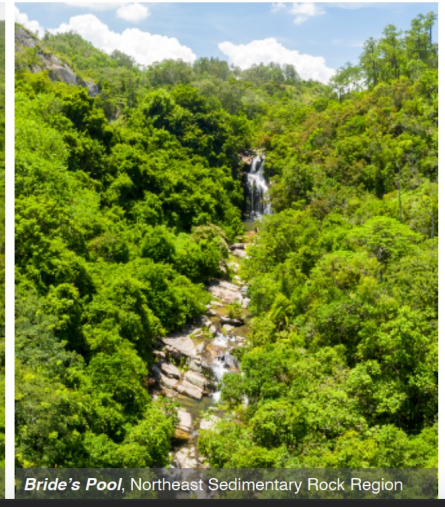


Shuen Wan, Northeast Sedimentary Rock Region

TOPOGRAPHY

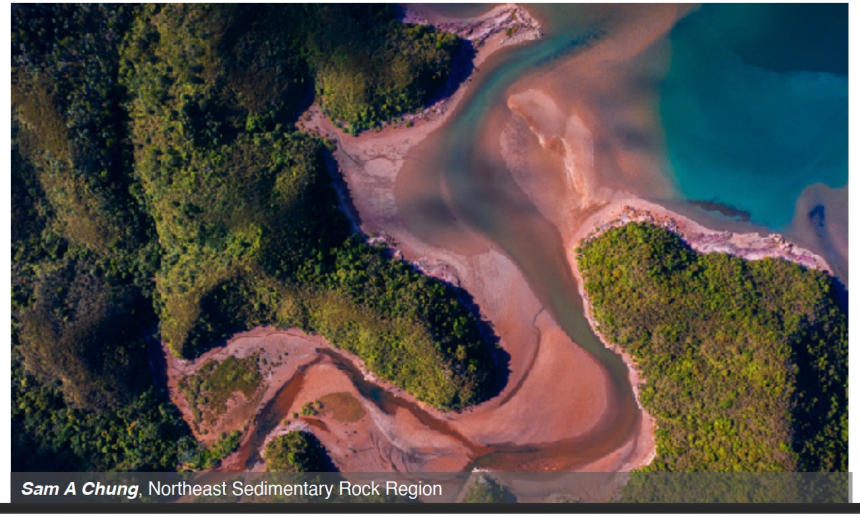


Mirror Pool, Northeast Sedimentary Rock Region



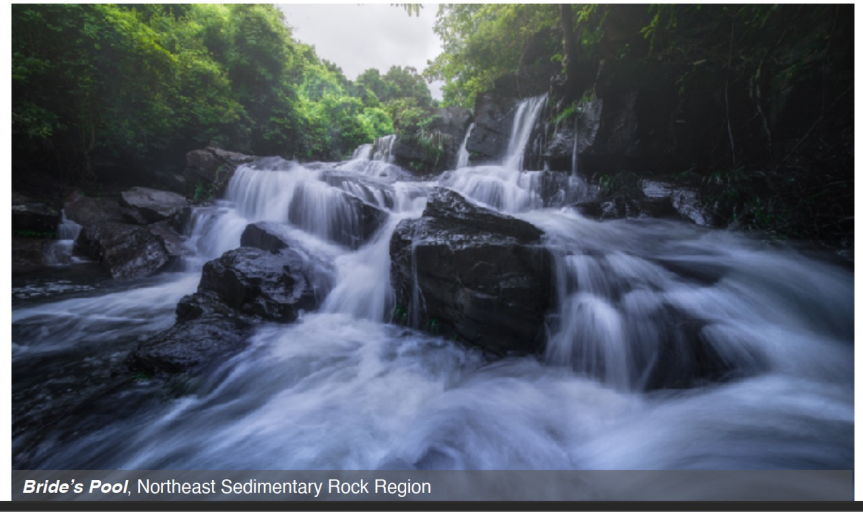
Bride's Pool, Northeast Sedimentary Rock Region

TOPOGRAPHY



Sam A Chung, Northeast Sedimentary Rock Region

TOPOGRAPHY



Bride's Pool, Northeast Sedimentary Rock Region

TOPOGRAPHY



Double Haven, Northeast Sedimentary Rock Region

TOPOGRAPHY



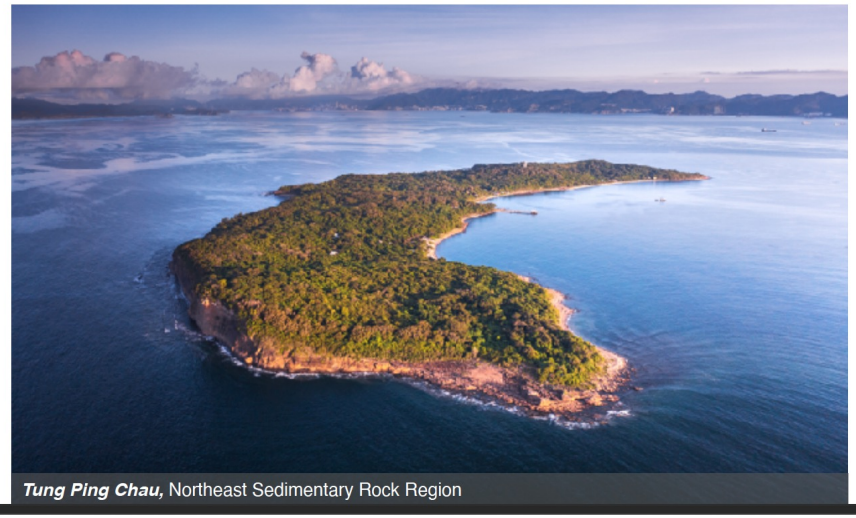
Kat O, Northeast Sedimentary Rock Region

TOPOGRAPHY



Ninepin Island, Sai Kung Volcanic Rock Region

TOPOGRAPHY



Tung Ping Chau, Northeast Sedimentary Rock Region

GEOLOGICAL HISTORY

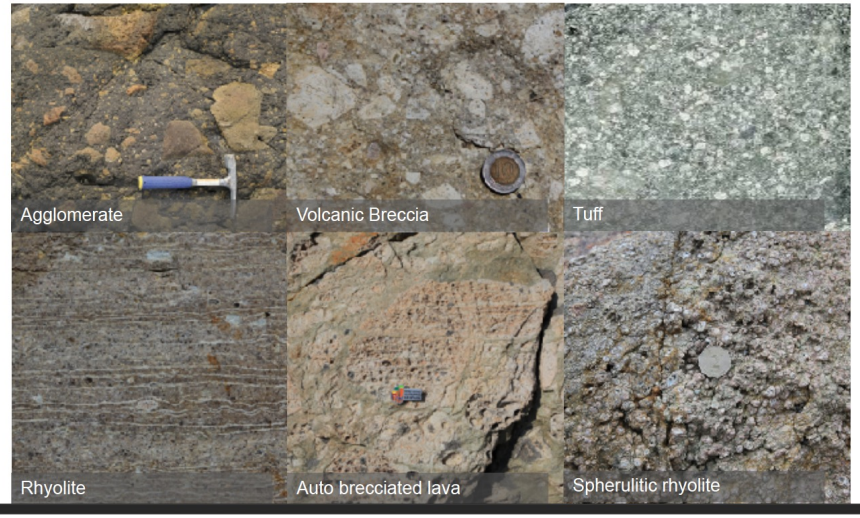
400-million-year geological history



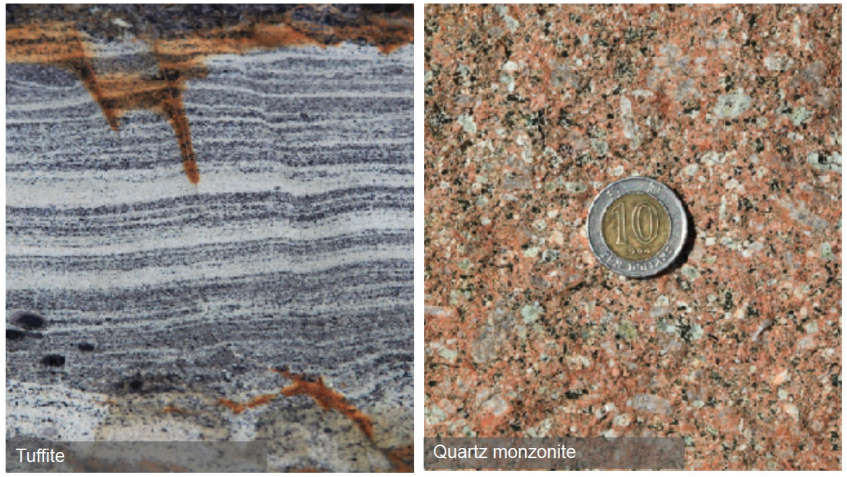
SEDIMENTARY ROCKS



VOLCANIC ROCKS



VOLCANIC SEDIMENTARY ROCKS & INTRUSIVE ROCKS



NORTHEAST SEDIMENTARY ROCK REGION
BLUFF HEAD

The oldest rock outcrops of Devonian period in Hong Kong



NORTHEAST SEDIMENTARY ROCK REGION
BLUFF HEAD

Reddish purple siltstone, quartz sandstone, quartz-pebble conglomerate and quartzite



NORTHEAST SEDIMENTARY ROCK REGION
BLUFF HEAD



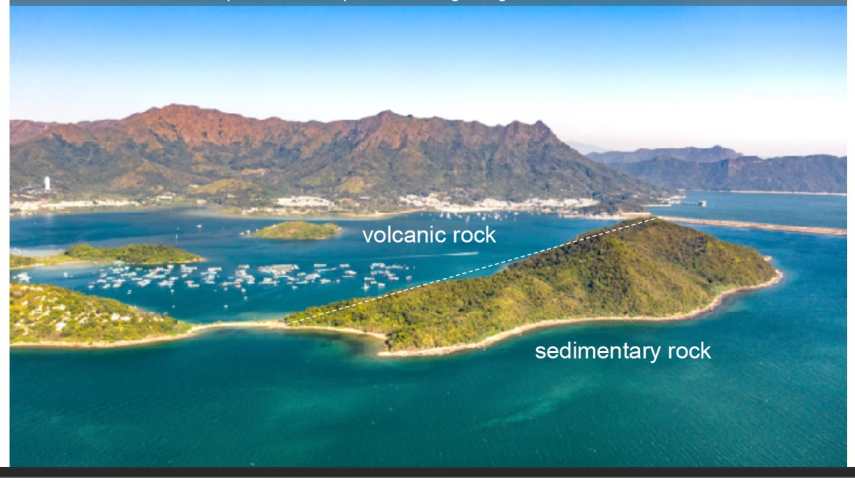
Syncline



Anticline

NORTHEAST SEDIMENTARY ROCK REGION
MA SHI CHAU

The 2nd oldest rock outcrops of Permian period in Hong Kong



NORTHEAST SEDIMENTARY ROCK REGION
MA SHI CHAU

Colourful mudstone, siltstone and sandstone and conglomerate



SEDIMENTARY ROCK REGION
MA SHI CHAU



NORTHEAST SEDIMENTARY ROCK REGION
MA SHI CHAU (FOSSILS)



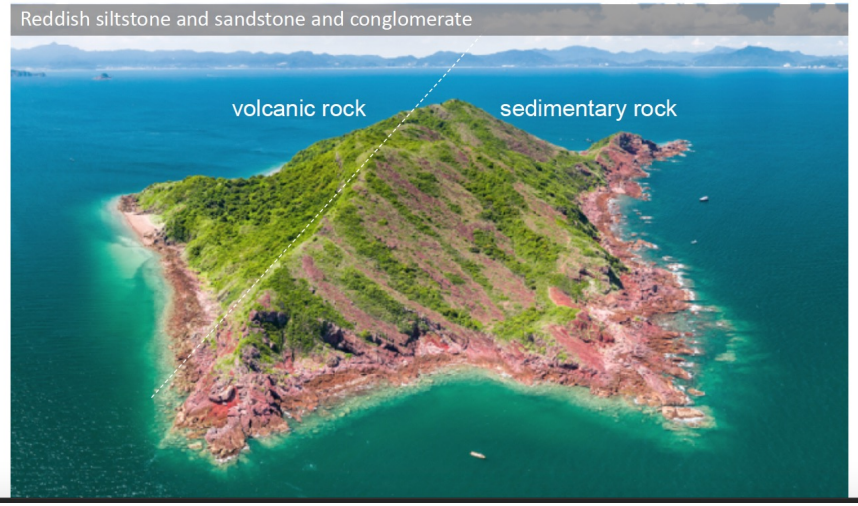
NORTHEAST SEDIMENTARY ROCK REGION
CENTRE ISLAND



NORTHEAST SEDIMENTARY ROCK REGION
CENTRE ISLAND



NORTHEAST SEDIMENTARY ROCK REGION
PORT ISLAND



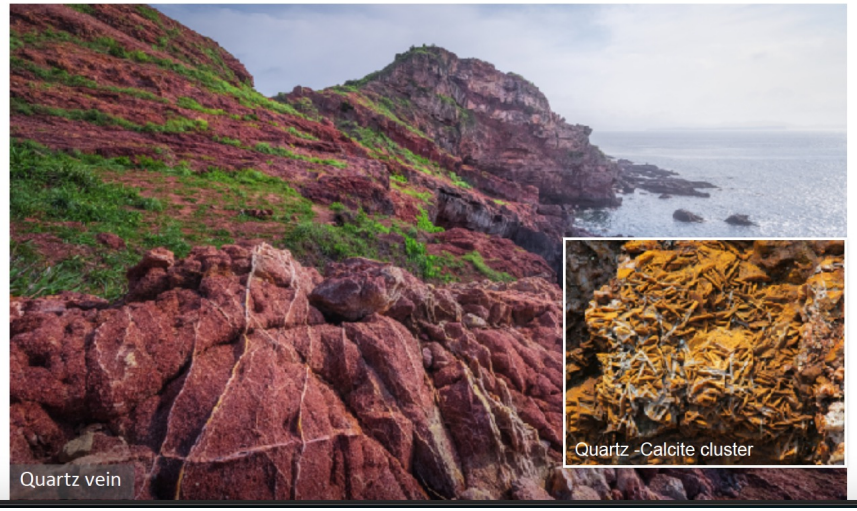
NORTHEAST SEDIMENTARY ROCK REGION
PORT ISLAND



NORTHEAST SEDIMENTARY ROCK REGION
PORT ISLAND



NORTHEAST SEDIMENTARY ROCK REGION
PORT ISLAND



NORTHEAST SEDIMENTARY ROCK REGION
HUNG SHEK MUN



NORTHEAST SEDIMENTARY ROCK REGION
TUNG PING CHAU





NORTHEAST SEDIMENTARY ROCK REGION
TUNG PING CHAU



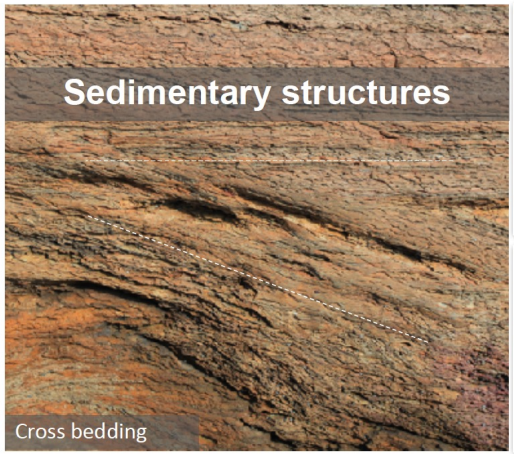
NORTHEAST SEDIMENTARY ROCK REGION
TUNG PING CHAU



NORTHEAST SEDIMENTARY ROCK REGION
TUNG PING CHAU



NORTHEAST SEDIMENTARY ROCK REGION
TUNG PING CHAU

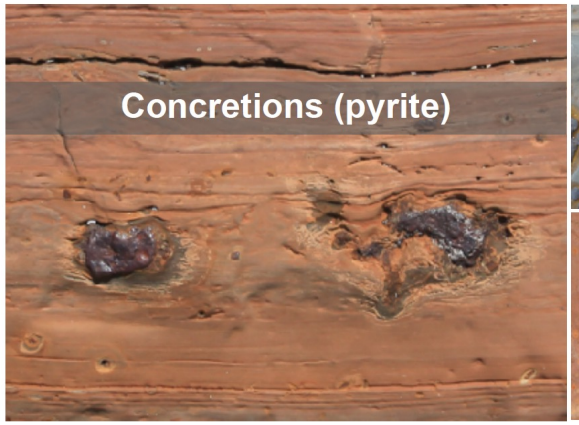

Sedimentary structures

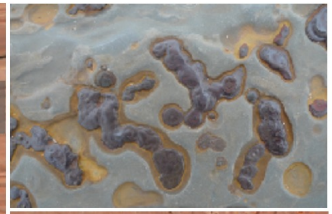
Cross bedding

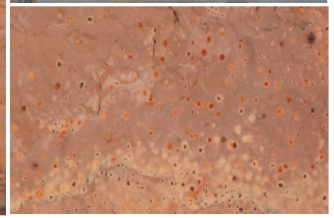

Ripple mark


Mud crack

NORTHEAST SEDIMENTARY ROCK REGION
TUNG PING CHAU


Concretions (pyrite)





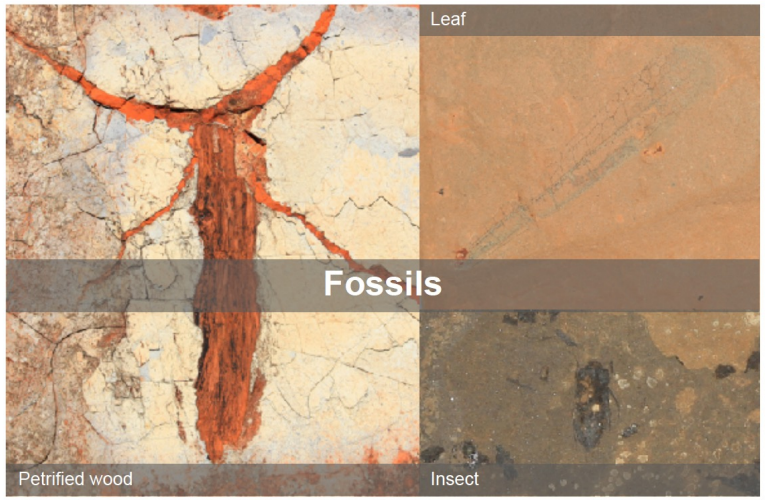
NORTHEAST SEDIMENTARY ROCK REGION
TUNG PING CHAU


Wave-cut platform

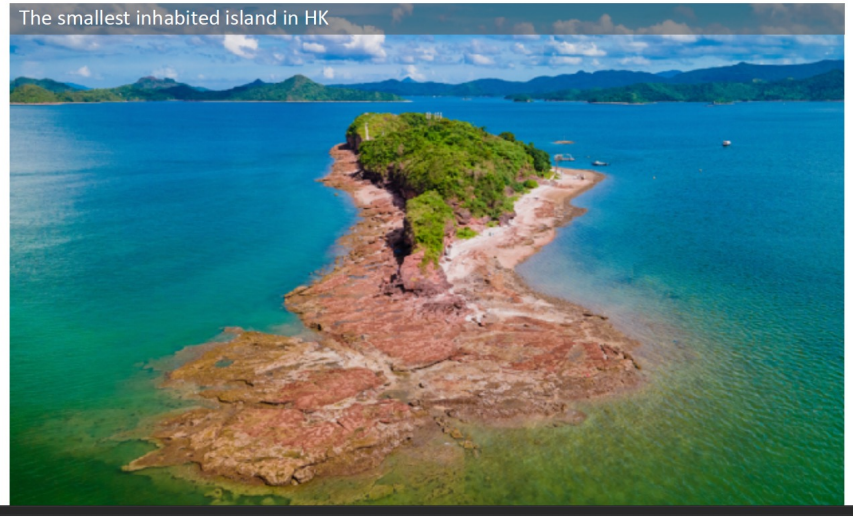
NORTHEAST SEDIMENTARY ROCK REGION
TUNG PING CHAU


Sea abrasion canyon

NORTHEAST SEDIMENTARY ROCK REGION
TUNG PING CHAU



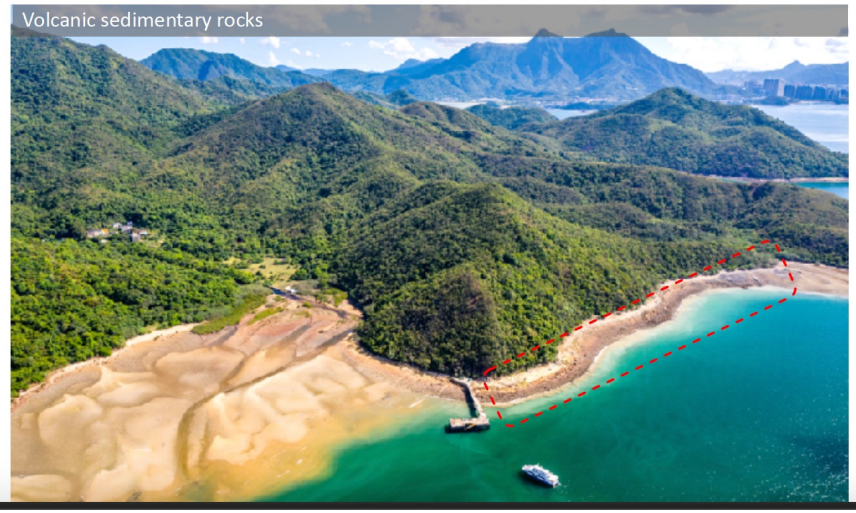
NORTHEAST SEDIMENTARY ROCK REGION
AP CHAU



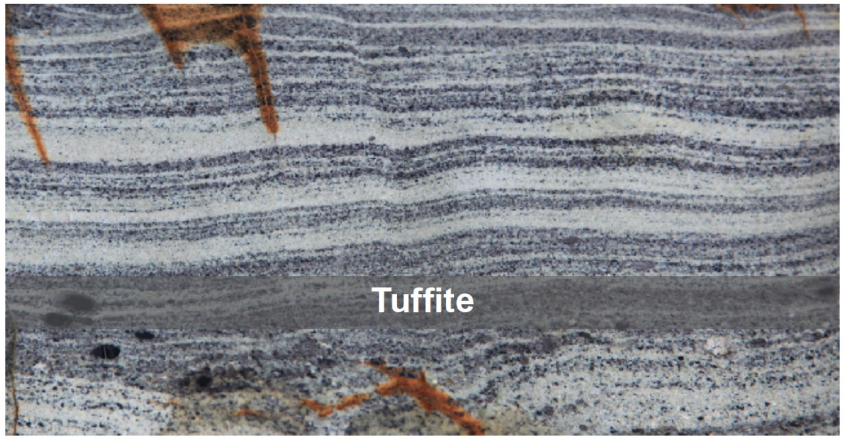
NORTHEAST SEDIMENTARY ROCK REGION
AP CHAU



NORTHEAST SEDIMENTARY ROCK REGION
LAI CHI CHONG



NORTHEAST SEDIMENTARY ROCK REGION
LAI CHI CHONG



NORTHEAST SEDIMENTARY ROCK REGION
LAI CHI CHONG



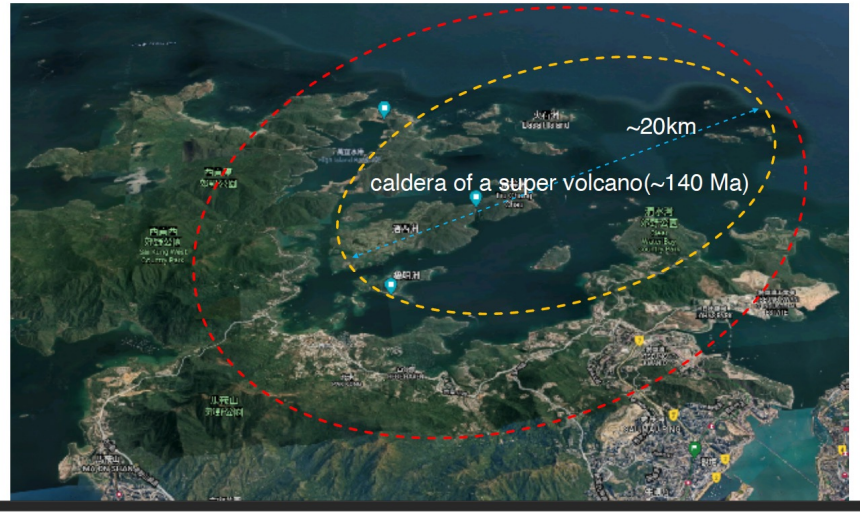
NORTHEAST SEDIMENTARY ROCK REGION
LAI CHI CHONG



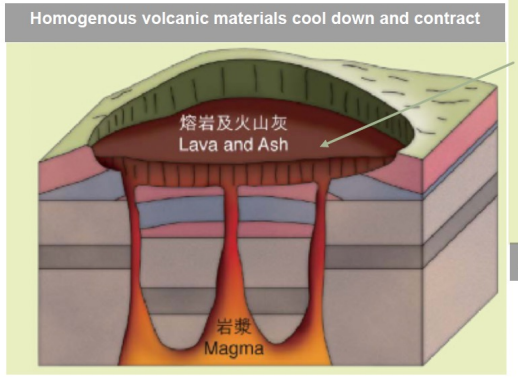
NORTHEAST SEDIMENTARY ROCK REGION
LAI CHI CHONG

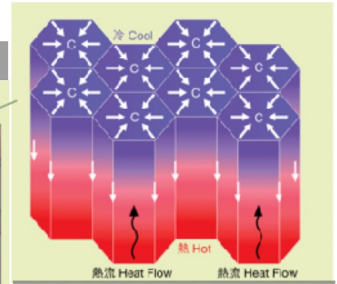


SAI KUNG VOLCANIC ROCK REGION
RELICS OF A SUPER VOLCANO



SAI KUNG VOLCANIC ROCK REGION
RELICS OF A SUPER VOLCANO



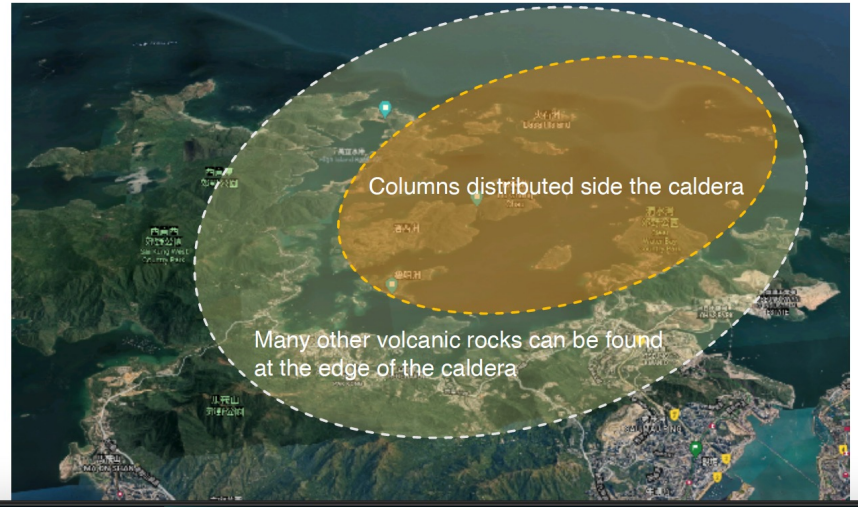


Development of columnar joint

SAI KUNG VOLCANIC ROCK REGION
COLUMNAR ROCK FORMATION



SAI KUNG VOLCANIC ROCK REGION
RELICS OF A SUPER VOLCANO

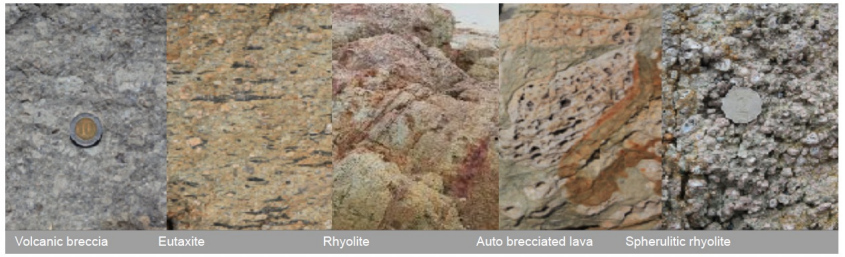


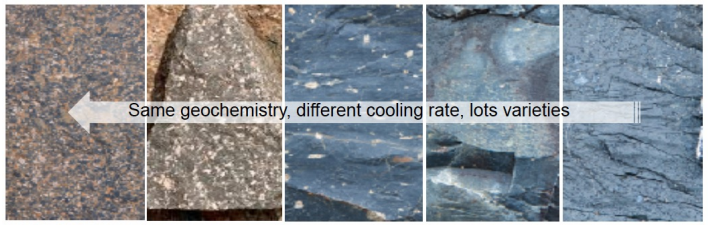
SAI KUNG VOLCANIC ROCK REGION
VOLCANIC ROCKS

Huge volcanic blocks (tens of meters each)



SAI KUNG VOLCANIC ROCK REGION
VOLCANIC ROCKS





SAI KUNG VOLCANIC ROCK REGION
COLUMNAR ROCK FORMATION



SAI KUNG VOLCANIC ROCK REGION
COLUMNAR ROCK FORMATION

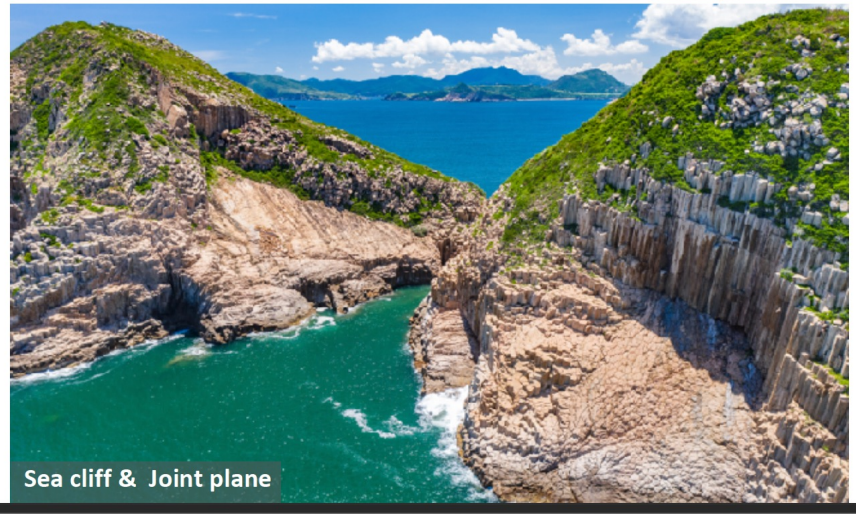


SAI KUNG VOLCANIC ROCK REGION
COASTAL EROSION LANDFORMS



Sea cliff

SAI KUNG VOLCANIC ROCK REGION
COASTAL EROSION LANDFORMS



Sea cliff & Joint plane

SAI KUNG VOLCANIC ROCK REGION
COASTAL EROSION LANDFORMS



Sea caves

SAI KUNG VOLCANIC ROCK REGION
COASTAL EROSION LANDFORMS



Sea caves

SAI KUNG VOLCANIC ROCK REGION
COASTAL EROSION LANDFORMS



Sea arches

SAI KUNG VOLCANIC ROCK REGION
COASTAL EROSION LANDFORMS



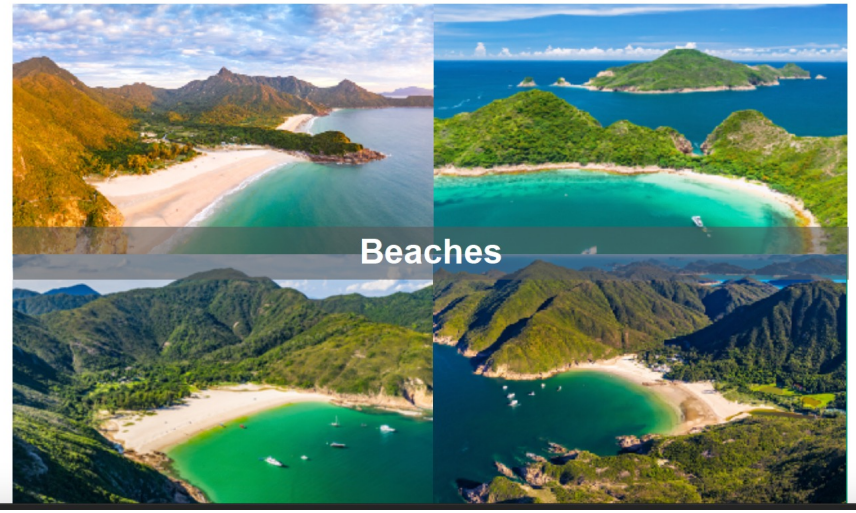
Sea stack

SAI KUNG VOLCANIC ROCK REGION
COASTAL EROSION LANDFORMS



Sea stack

SAI KUNG VOLCANIC ROCK REGION
DEPOSITIONAL LANDFORMS



Beaches

SAI KUNG VOLCANIC ROCK REGION
DEPOSITIONAL LANDFORMS



Boulder beach

DEPOSITIONAL LANDFORMS



Pebble beach

SAI KUNG VOLCANIC ROCK REGION
DEPOSITIONAL LANDFORMS



Tombolo

SAI KUNG VOLCANIC ROCK REGION
DEPOSITIONAL LANDFORMS



Tombolo

SAI KUNG VOLCANIC ROCK REGION
DEPOSITIONAL LANDFORMS



Sandspit

SAI KUNG VOLCANIC ROCK REGION
DEPOSITIONAL LANDFORMS



Alluvial fan (sandy bay)

SAI KUNG VOLCANIC ROCK REGION
DEPOSITIONAL LANDFORMS



GEOLOGICAL STRUCTURES
FOLDS



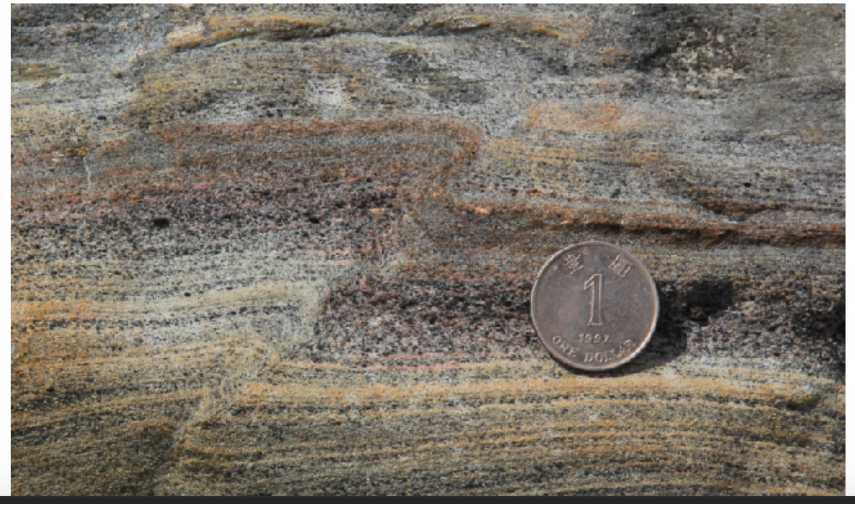
GEOLOGICAL STRUCTURES
FOLDS



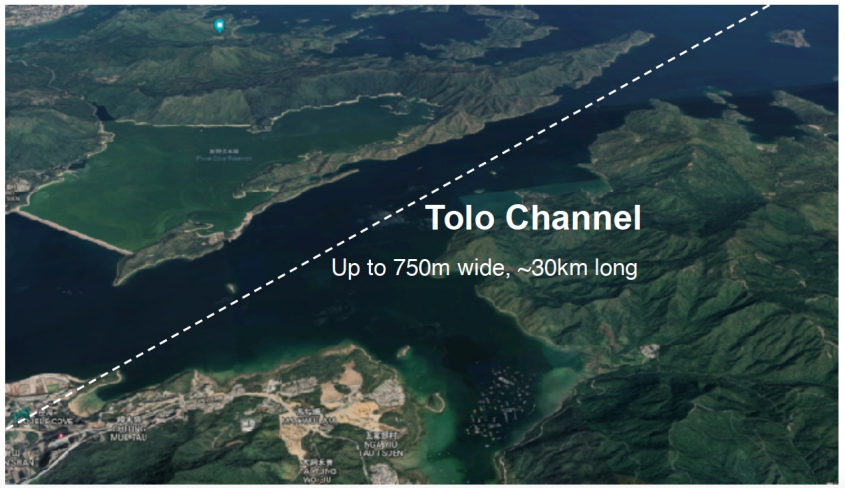
GEOLOGICAL STRUCTURES
FOLDS



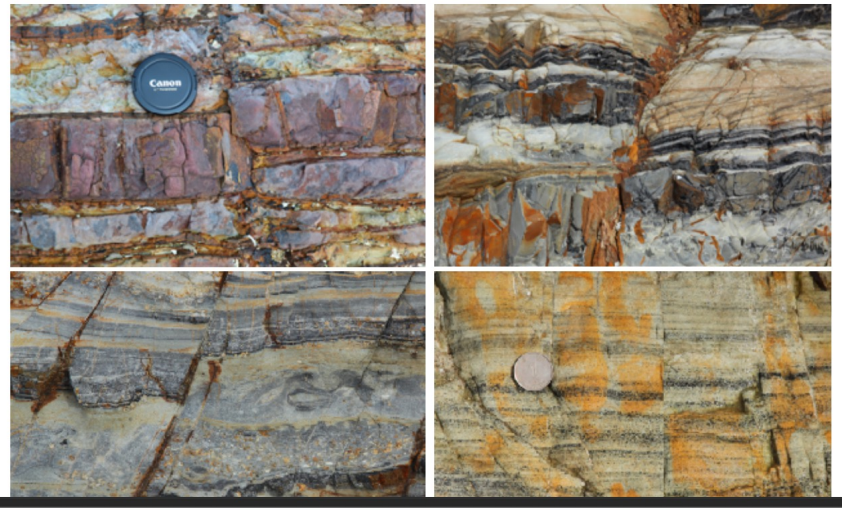
GEOLOGICAL STRUCTURES
MICRO-FOLD



GEOLOGICAL STRUCTURES
FAULTS



GEOLOGICAL STRUCTURES
FAULTS



GEOLOGICAL STRUCTURES
MICRO-FAULTS



WEATHERING & EROSION PATTERNS



Polygonal cracking



Exfoliation



Honeycomb weathering

WEATHERING & EROSION PATTERNS



Honeycomb weathering

CONCLUSION



Thank You



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