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




I SYMBOLS FOR GEOMORPHOLOGICAL MAPS (ITC)

1. FORMS OF STRUCTURAL ORIGIN

DIP AND STRIKE

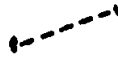


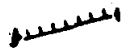
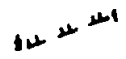













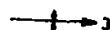

1.1	IN GENERAL	T
1.2	CONJECTURAL	T-
1.3	HORIZONTAL	+
1.4	GENTLE	A
1.5	MODERATE	A/
1.6	STEEP	A--
1.7	VERTICAL	x
1.8	OVERTURNED	x



















DIPSLOPE

1.9	IN GENERAL	
1.10	CONJECTURAL	
1.11	GENTLE	
1.12	MODERATE	
1.13	STEEP	
1.14	ABNORMAL (TECTONIC)	

CONTACT

1.15	JOINTS	
1.16	FAULT-LINE	

1.17	CONJECTURAL	
1.18	STRIKE FAULT	
1.19	WITH THROW	
	FAULT SCARP	
1.20	MINOR	
1.21	CONJECTURAL	
1.22	MAJOR	
1.23	STRONGLY ERODED	
	FAULTLINE SCARP	
1.24	MINOR	
1.25	CONJECTURAL	
1.26	MAJOR	
1.27	STRONGLY ERODED	
1.28	HORST	
1.29	GRABEN	
1.30	TILTED AND FAULT BLOCK	
	ANTICLINE	
7.37	SYMMETRICAL	
1.32	CONJECTURAL	
1.33	ASYMMETRICAL	
1.34	OVER TURNED	
7.35	PLUNGING (3°)	
7.36	BROAD ANTICLINAL CREST	

7.37	BROAD SYNCLINAL DEPRESSION SYNCLINE	
1.38	SYMMETRICAL	
1.39	CONJECTURAL	
1.40	ASYMMETRICAL	
1.41	OVERTURNED	
1.42	PITCHING (3°) FLEXURE	
1.43	FLEXURE SLOPE	
1.44	DISTINCT	
1.45	ERODED	
7.46	OVERTHRUST	
1.47	STRUCTURAL PLATEAU CUESTA SCARP	
1.48	DISTINCT	
1.49	ERODED HOGBACK	
1.50	DISTINCT	
1.51	ERODED STEEP STRUCTURAL RIDGE	
1.52	DISTINCT	
1.53	ERODED	
1.54	FOLIATION	

1.55 FRACTURE



2. FORMS OF VOLCANIC ORIGIN

CRATER

2.1 ACTIVE



2.2 INACTIVE



2.3 WITH LAKE.



2.4 EXPLOSION



2.5 MAAR(2.4 WITH LAKE)



CONE

2.6 ASH CONE



2.7 CINDER CONE



2.8 SPATTER CONE



2.9 ACTIVE STRATO VOLCANO.



2.10 ERODED STRATO VOLCANO



2.11 CALDERA



2.12 SHIELD VOLCANO



2.13 VOLCANIC SKELETON (NECK)



2.14 LAVA FIELD/FLOW



2.15 BLOCK(AA) LAVA



2.16 ROPY(PAHOEHOE) LAVA



2.17 PILLOW LAVA



2.18 LAVA TUNNEL



2.19 COLLAPSED LAVA TUNNEL














2.20 VDL CANIC PLUG



2.21	DIKE	
2.22	FLUVIO-VOLCANIC FLOW	
2.23	ASH FIELD	
2.24	BARRANCO	
2.25	FUMAROLE	
2.26	SOLFATARA	
2.27	GEYSER	

FORMS OF DENUDATIONAL ORIGIN

3.7	SURFACE OF PLANATION	
3.2	EROSION GLACIS PEDIMENT	
3.3	ACCUMULATION GLACIS	
3.4	RESIDUAL HILL (GENERAL)	
3.5	MONADNOCK	
3.6	INSELBERG	
3.7	BREAK OF 'SLOPE	
	SUMMIT WITH ALTITUDE	
3.8	ACUTE	
3.9	ROUNDED	
3.10	PASS	
3.17	ROCKWALL	

FORMS OF GRAVITATIONAL ORIGIN

3.12 SCREE SLOPE/FAN



3.13 CREEP



SOLIFLUXION

3.14 SUPERFICIAL



3.15 IN FLOWS



3.16 ROCK GLACIER



3.17 EARTH FLOW



3.18 MUD FLOW



LANDSLIDE, MINOR

3.19 ACTIVE



3.20 INACTIVE



LANDSLIDE, MAJOR

3.21 ACTIVE



3.22 INACTIVE



3.23 SLUMP



3.24 ROCK FALL



3.25 ROCK SLIDE



EROSIONAL FORMS AND

PROCESSES

3.26 SHEET EROSION



RILL EROSION

3.27 ACTIVE



3.28 INACTIVE



3.29 GULLY EROSION



3.30 BADLANDS



3.31 CONCENTRATION OF
LINEAR EROSION



4. FORMS OF FLUVIAL ORIGIN

RIVER BED

4.1 WITH WATER



4.2 WITHOUT WATER



4.3 ABANDONED/DEAD



RIVER EROSION

4.4 VERTICAL



4.5 LATERAL



4.6 WATERFALL/RAPIDS



4.7 POTHOLE














VALLEY FORMS

TERRACE (WITH NUMBER AND LITHOLOGY)

4.8 EROSION



- 4.9 ACCUMULATION 
- 4.10 ALLUVIAL PLAIN 
- ALLUVIAL DEPOSITS IN
GENERAL
- RIVER
- 4.11 BRAIDED 
- 4.12 WITH SAND BAR 
- 4.13 CUT-OFF MEANDER 
- 4.14 OXBOW-LAKE 
- 4.15 LEVEES WITH
CREVASSE (SPRAY) 
- 4.16 POINT BARS 
- 4.17 ALLUVIAL FAN 
- 4.18 DELTA (WITH
SUBAQUOUS PARTS) 
- 4.19 FRESHWATER SWAMP 
- LAKE
- 4.20 PERMANENT 
- 4.21 TEMPORARY
LAKE DEPOSITS 

5. FORMS OF MARINE ORIGIN

5.1 WIND DIRECTION



5.2 SURF ZONE



5.3 LONGSHORE CURRENT



5.4 LONGSHORE DRIFTING



5.5 BEACH DRIFTING



CLIFF COAST

5.6 RECENT



5.7 UPLIFTED



5.8 WAVE CUT PLATFORM



5.9 MARINE TERRACE



WITH NUMBERING AND

LITHOLOGY

BEACH

5.10 ROCKY



5.11 PEBBLY



5.12 SANDY



5.13 MUDDY



5.14 CLAYEY



5.15 MARSHY



5.16 TIDAL FLAT



VEGETATION

5.17 MANGROVE IN GENERAL



5.18 OTHER MANGROVES



5.19 ALGAE ETC.



5.20 UPROOTED TREES



5.21 CREEKS



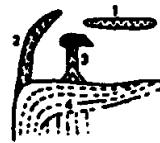
5.22 ALLUVIAL COAST WITH

'OFF-SHORE BAR(1)

SPIT(2)

TOMBOLO(3)

BEACH RIDGES(4)



COASTAL DUNES

5.23 WITH VEGETATION



5.24 WITHOUT VEGETATION



5.25 CORAL REEF; SHAPE



DEPENDS ON REEF

TYPE

5.26 REEF EDGE



WITH BOAT CHANNEL

5.27 LITHOTHAMNION RIDGE















5.28 REEF FLAT
























5.29 REEF KNOLL
















5.30	SHINGLE RAMPART	
5.31	MIGRATION OF RAMPART	
5.32	SAND CAY WITH LINES OF GROWTH	
5.33	LAGOON	
	CORAL BOULDER	
5.34	ALIVE	0
5.35	DEAD (BLACK)	●
5.36	BEACH ROCK	
	REEF CAP	
5.37	TERRA CEO	
5.38	UNDULATING	
5.39	WITH REEF RINGS	
5.40	HORIZONTAL	
5.41	TILTED	
5.42	REEF CLIFF WITH NOTCH	
5.43	DEEP POOL	








6. FORMS OF GLACIAL AND PERI-GLACIAL ORIGIN

6.1	GLACIER ICE	
6.2	PERENNIAL S N O W	
6.3	AVALANCHE TRACK	

6.4	CREVASSES	
6.5	CAVERNOUS ZONE.	
6.6	ARÊTE	
6.7		
6.8	NIVATION CIRQUE	
6.9	CIRQUE	
6.10	THRESHOLD	
6.17	ROCHES MOW TONNÉES	
6.12	EXARATION HOLLOW	
6.13	GLACIAL TROUGH WITH SHOULDER	
6.14	HANGING VALLEY	
	MORaine	
6.15	GROUND	
6.16	ABLATION	
6.17	TERMINAL, STATIC	
6.18	TERMINAL, MOVING	
6.19	TERMINAL, RECESS IONAL	
6.20	LATERAL, STATIC	
6.21	LATERAL, MOVING	
6.22	LATERAL, RECESS IONAL	
6.23	MEDIAN	
6.24	PUSH MORaine	

- 6.25 DRUMLIN 
- 6.26 ERRATIC BLOCKS 
- 6.27 DEAD-ICE DEPRESSION 
- 6.28 FLUVIO-GLACIAL VALLEY 
- 6.29 KAME DEPDS ITS 
- 6.30 GLACIAL OUTWASH 
- 6.31 ESKER 
- 6.32 SOLIFLUXION TERRACE 
- 6.33 DELL 
- 6.34 PINGO 
- 6.35 BLOCK FIELD 
- 6.36 PATTERED GROUND 
- 6.37 STONE STRIPES 

7. FORMS OF AEOLIAN ORIGIN

- DUNE
- 7.1 EMBRYONIC 
- 7.2 FORE. 
- 7.3 PARABOLIC 
- 7.4 LONGITUDINAL 
- 7.5 BARCHAN 
- 7.6 TRANSVERSE 
- 7.7 STAR-SHAPED 

ABSTACLE

- 7.8 WINDWARD
 7.9 LEEWARD (SAND SHADOW)
 7.10 LOESS
 7.11 SAND SHEET
 7.12 NEBKA
 7.13 BLOW-OUT HOLLOW
 7.14 YARDANG
 7.15 UPROOTED TREES
 7.16 SANDY DESERT/ERG
 7.17 STONY DESERT/REG/
 SERIR
 7.18 ROCKY DESERT/ HAMADA








8. FORMS OF SOLUTIONAL (KARST) ORIGIN

- 8.1 LAPIES
 8.2 CONICAL KARST
 8.3 TOWER KARST
 8.4 LABYRINTH KARST
 8.5 KARST BORDER PLAIN
 8.6 ISOLATED LIMESTONE
 HILL/HUM



KARST DEPRESSIONS

8.7	SINK(HOLE), GENERAL	
8.8	SINK(HOLE), WITH LAKE	
8.9	SINK(HOLE), COLLAPSE	
8.10	INTERGROWN/UVALA	
8.11	TECTONIC/POLJE	
8.12	KARST SPRING	
8.13	SWALLOW HOLE/ PONOR	
8.14	CAVE ENTRANCE	
8.15	BLIND VALLEY WITH PONOR	
8.16	DRY VALLEY	
8.17	UNDERGROUND RIVER	
8.18	COLLAPSE VALLEY/KARST CANYON WITH NATURAL BRIDGE	

9. MORPHOMETRY

SUMMIT WITH HEIGHT

9.1	SHARP	
9.2	ROUNDED	
9.3	PASS	
9.4	NARROW PASS	

SHARP CRESTLINE

9.5 MAJOR



9.6 MINOR

**ROUNDED CRESTLINE**

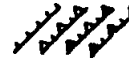
9.7 MAJOR



9.8 MINOR



9.9 ESCARPMENT

**HEIGHT CLASSIFICATION TO****THE DISCRETION OF THE AUTHOR**

9.10 CONTOUR LINES.



9.11 FORM LINES

**FORMS OF VALLEYS**

9.12 SYMMETRICAL, V-SHAPED



9.13 SYMMETRICAL, ROUNDED



9.14 SYMMETRICAL, WITH

**FLAT BOTTOM**

9.15 ASYMMETRICAL, V-SHAPED



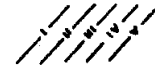
9.16 ASYMMETRICAL, ROUNDED



9.17 ASYMMETRICAL WITH

**FLAT BOTTOM**

9.18 HEIGHT OF RIVER BANK
(E.G. 1, 2, 3, 4, 5, M)



HEIGHT OF TERRACE EDGES.
ESCARPMENTS, ETC.

9.19 E. G. 1-5 M



9.20 5-10 M



9.21 > 10 M



BREAK OF SLOPE

10. L I T H O L O G Y

L I T H O L O G I C A L B O U N D A R Y

10.1 CERTAIN



10.2 PROBABLE



10.3 UNCERTAIN



L I T H O L O G Y

10.4 UNSPECIFIED



IGNEOUS ROCKS

INTRUSIVE ROCKS

10.5 GRANITE



10.6 DIORITE



10.7 GABBRO



10.8 PORPHYRITE



EXTRUSIVE ROCKS

10.9 RHYOLITE



10.10 ANDESITE



10.11 BASALT



10.12 VOLCANIC BOMBS



10.13 SCORIA



10.14 LAPILLI



10.15 VOLCANIC SAND



10.16 VOLCANIC ASHES



METAMORPHIC ROCKS

10.17 GNEISS



10.18 SERPENTINE



10.19 SCHIST



10.20 MARBLE



10.21 QUARTZITE



10.22 SLATE, PHYLLITE



SEDIMENTARY ROCKS

10.23 CHALK



10.24 LIMESTONE









10.25 DOLOMITE










10.26	SHALE	
10.27	SANDSTONE	
10.28	CON GLOMERATE	
10.29	BRECCIA	

UNCONSOLIDATED

10.30	ANGULAR BLOCKS	
10.31	ROUNDED BLOCKS	
10.32	GRAVEL	
10.33	SAND	
10.34	SILT	
10.35	CLAY	

PEAT

10.36	EUTROPHE	
10.37	MESOTROPHE	
10.38	OLIGOTROPHE	
10.39	ON SLOPE	
10.40	SOLIFLUXIONAL	
10.41	STRING BOG	
10.42	COAL	

DURICRUST

10.43	IN GENERAL	
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10.44 GYPSEOUS



10.45 CALCAREOUS



10.46 FERRUGINOUS



10.47 BAUXITIC


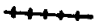










11. CHRONOLOGY

THE ABBREVIATIONS MENTIONED BELOW (IN BLACK) ARE USED TO INDICATE THE AGE OF FORMS WHEREVER THIS IS KNOWN. MORE DETAILED SPECIFICATION OF THE CHRONOLOGY IS LEFT TO THE DISCRETION OF THE AUTHOR, E.G. THE DIVISION OF THE HOLOCENE IN H_1, H_2, H_3 , ETC.

ERA.	PERIOD	EPOCH	ABBREVIATIONS
CENOZOIC	QUATERNARY	HOLOCENE	H
		PLEISTOCENE	P
	TERTIARY	PLIOCENE.	Pl
		MIOCENE	Mi
		OLIGOCENE	Ol
		EOCENE	E
	PALAEOCENE	Pc	
PRETERTIARY			PT

12. TOPOGRAPHY

12.1	ROADS	
12.2	FOOT PATH	
12.3	RAILWAY	
	CANAL	
12.4	WITH SLUICE AND BRIDGE	
12.5	DIKE	
12.6	CUT AND FILL	
12.7	TUNNEL	
12.8	PIPELINE	
12.9	TELEPHONE LINE	
12.10	POWER LINE	
12.11	BUILT-UP AREA	
12.12	SETTLEMENTS	
	ARTIFICIAL, SURFACE	
12.13	RAISED	
12.14	EXCAVATED	
12.15	HOUSE, TOWER	
12.16	ANCIENT MONUMENT	
12.77	TUMULUS	
12.18	GROUP OF TUMULI	
12.19	POLDER	

12.20	QUARRY	○
12.21	MINE	✕
12.22	MINE, ABANDONED	✕
12.23	LONE OF SUBSIDENCE	└┘
12.24	MINE TIPS	□
12.25	DAM) I

ON PRELIMINARY MAP 5

12.26	PRINCIPAL POINT OF A.P.	+
12.27	WING POINT OF A.P.	○
12.28	GROUND CONTROL POINT OF A.P.	△

- . ที่มา : H.Th.Verstappen and R.A.van Zuidam, ITC System of Geomorphological Survey, 1975, หน้า 21 - 30.

II LAND USE CLASSIFICATION IN THAILAND

URBAN LAND (U)

- u 1. RESIDENTIAL LAND
- u 2. COMMERCIAL LAND
- u 3. INSTITUTIONAL LAND (SCHOOLS, HOSPITALS, PARKS,
TEMPLES ETC)
- u 4. TRANSPORTATIONAL LAND (RAILROAD YARDS, ROADS,
AIRFIELDS)
- U 5. INDUSTRIAL LAND
 - 5.1 MINES AND DUMPS
 - 5.2 FACTORIES

AGRICULTURAL LAND (A)

- A 1. HORTICULTURAL LAND
 - A 1.1 TRUCK CROP LAND
 - A 1.2 ORNAMENTAL PLANT GARDEN
 - A 1.3 VINE YARD
 - A 1.4 OTHERS
- A 2. PERENNIAL CROP LAND
 - A 2.1 ORCHARDS
 - A 2.1.1 MIXED ORCHARD
 - A 2.1.2 ORANGE
 - A 2.1.3 DURIAN

- A 2.1.4 RAMBUTAN
- A 2.1.5 LONGAN
- A 2.1.6 LITCHI
- A 2.1.7 MANGO
- A 2.1.8 CUSTARD APPLE
- A 2.1.9 JUJUBE
- A 2.1.10 PEACH
- A 2.1.11 APPLE
- A 2.1.12 OTHERS

- A 2.2 RUBBER
- A 2.5 COCONUT
- A 2.4 BANANA
- A 2.5 KAPOK
- A 2.6 COFFEE
- A 2.7 TEA
- A 2.8 MANG TEA
- A 2.9 OIL PALM
- A 2.10 MALBERRY
- A 2.11 PEPPER
- A 2.12 BAMBOO PLANTATION
- A 2.13 SUGAR PALM
- A 2.14 OTHERS

A 3. FIELD CROP**A 3.1 CORN****A 3.2 SUGAR CANE****A 3.5 CASSAVA****A 3.4 COTTON****A 3.5 TOBACCO****A 3.6 PINEAPPLE****A 5.7 SOYBEAN****A 3.8 MUNG BEAN****A 3.9 RED BEAN****A 3.70 PEANUT****A 3.11 FIBER CROP (KENAF OR JUTE)****A 3.12 MELONS****A 3.13 CASTOR BEAN****A 3.14 SORGHUM****A 3.15 SESAME****A 3.16 UPLAND RICE****A 3.17 IRISH POTATO****A 3.18 SWEET POTATO****A 3.19 MINT****A 3.20 CHILI****A 3.21 OTHERS**

A 4. PADDY LAND

A 4.1 BROADCAST RICE LAND

A 4.1.1 ONE BROADCAST RICE CROP ONLY

A 4.1.2 DOUBLE CHOPPING IN ROTATION WITH
OTHER CROPS.A 4.1.3 IRRIGATED DOUBLE OR TRIPLE CROPPING
IN ROTATION WITH OTHER CROPS.

A 4.2 TRANSPLANTED RICE LAND

A 4.2.1 RAINFED, ONE TRANSPLANTED RICE
CROP ONLYA 4.2.2 RAINFED, DOUBLE CROPPING IN ROTATION
WITH OTHER CROPS.A 4.2.3 IRRIGATED, ONE TRANSPLANTED RICE
CROP ONLY.A 4.2.4 IRRIGATED, DOUBLE TRANSPLANTED RICE
CROP.A 4.2.5 IRRIGATED, DOUBLE OR TRIPLE CROPPING
IN ROTATION WITH OTHER CROPS.

A 5. PASTURE AND RANGELAND

A 6.1 LAND CURRENTLY UNDER SWIDDEN CULTIVATION

A 6.1.1 UPLAND RICE IN ROTATION OR ASSOCIATION
WITH OTHER CROPSA 6.1.2 CORN OR OPIUM IN ROTATION OR
ASSOCIATION WITH OTHER CROPS

A 6.1.3 OTHER SWIDDEN CROPLAND

A 6.2 BUSH FALLOW LAND

FOREST (F)

F 1. EVERGREEN FOREST

F 1.1 HILL EVERGREEN FOREST.

F 1.1.1 HILL EVERGREEN FOREST

F 1.1.2 DRY EVERGREEN FOREST

F 1.1.3 MOIST EVERGREEN FOREST

F 1.2 CONIFEROUS FOREST

F 1.3 MANGROVE FOREST

F 2. DECIDUOUS FOREST

F 2.1 MIXED DECIDUOUS FOREST.

F 2.1.1 MIXED DECIDUOUS FOREST, WITH TEAK.

F 2.1.2 MIXED DECIDUOUS FOREST, NO TEAK.

F 2.2 DRY DIPTEROCARP OR DECIDUOUS DIPTEROCARP
FOREST

F 3. BEACH FOREST

F 4. SWAMP FOREST

F 5. FOREST PLANTATION

F 5.1 TEAK PLANTATION

F 5.2 PINE PLANTATION

F 5.3 OTHER PLANTATION

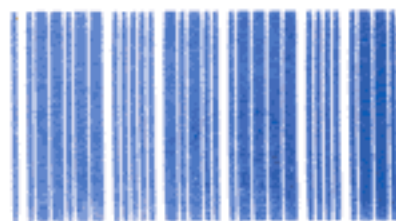
WATER BODY (W)

- W 1. SALT PAN
- W 2. SHRIMP POND
- W 3. FISH POND
- W 4. OTHER WATER BODIES (DAM, RESERVIOR, LAKE, POND)

MISCELLANEOUS LAND (M)

- M 1. MARSH AND SWAMP
- M 2. ROCKY LAND (ROCK - OUT CROPS)
- M 3. WASTE LAND (SAND DUNE, RIVER OR MARINE LEVEE)
- M 4.. IDLE LAND (CURRENTLY UNUSED LAND THAT IS NOT CLASSIFIED AS ABOVE, EITHER CAPABLE OR INCAPABLE OF SUPPORTING AGRICULTURE OR COMMERCIAL FOREST.)

ที่มา :: สำนักงานสำรวจและวางแผนการไร้ที่ดิน กองจำแนกที่ดิน กรมพัฒนาที่ดิน



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