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Plate 1: Geological map of the NW Indian Himalaya

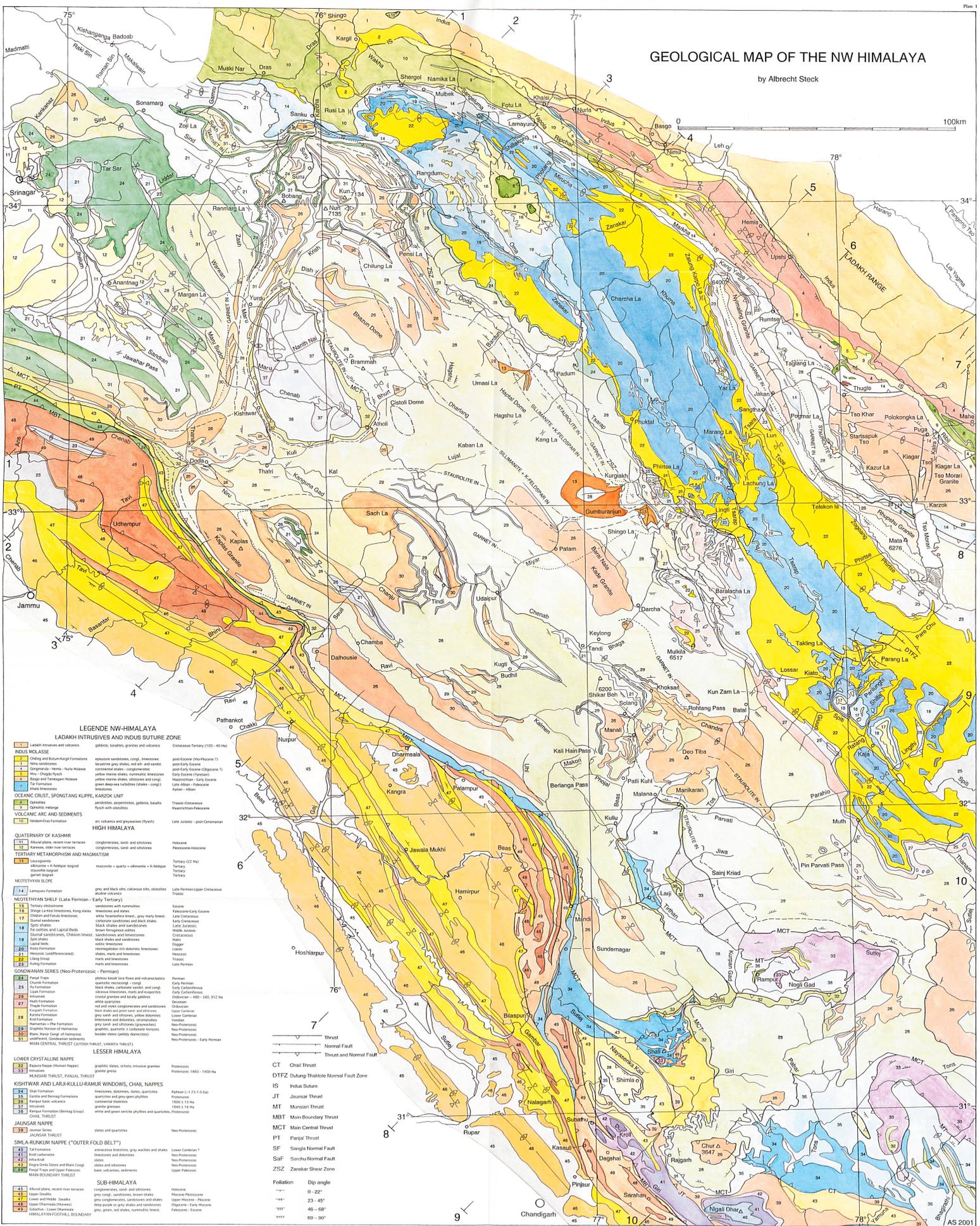
Plate 2: Geological sections through the NW Indian Himalaya

Plate 3: Tectonic map of the NW Indian Himalaya

Plate 4: Metamorphic map of the NW Indian Himalaya

GEOLOGICAL MAP OF THE NW HIMALAYA

by Albrecht Steck

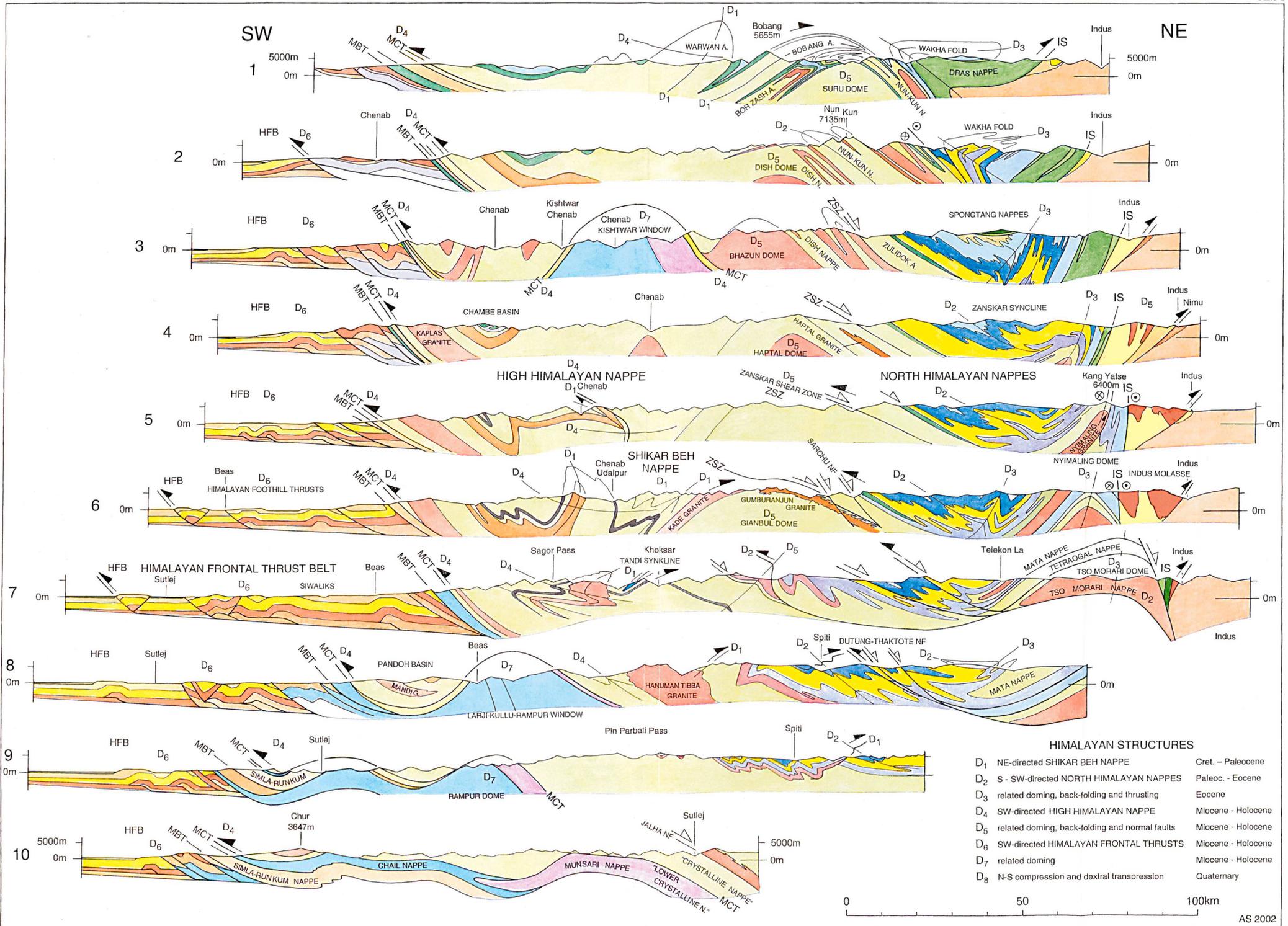


LEGENDE NW-HIMALAYA
LADAKH INTRUSIVES AND INDUS SUTURE ZONE

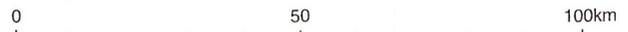
1	Ladakh intrusives and volcanics	granitic, syenitic, granitic and volcanics	Cretaceous-Tertiary (105 - 40 Ma)
INDUS MOLASSE			
2	Indus (Baramulla) Formation	quartzite sandstones, congl. limestone	post-Eocene (100-Flouren 7)
3	Newly sandstones	limestone grey shales, red sh. and sandst.	post-Early Eocene
4	Dagshai - Hathi, Naha, Holiase	conglomerates, sandstones, shales	post-Early Eocene (Dagshai 7)
5	Miyu - Chaghi Flysch	yellow marls shales, nummulitic limestone	Early Eocene (Sengal)
6	Yarlung - Pongtang-Holase	yellow marls shales, nummulitic limestone	Early Eocene - Early Oligocene
7	The Formation	grey deep-sea turbidites (shales - congl.)	Lower Albian - Fluviocene
8	Indus Intrusives	granite	Albian - Albian
OCEANIC CRUST, SPONGTANG KLIPPE, KARZOK UNIT			
9	Ophiolites	peridotites, serpentinites, gabbros, basalts	Triassic-Cretaceous
10	Spongtang Klippe	shales with siltstones	Maestrichtian-Miocene
VOLCANIC ARC AND SEDIMENTS			
11	Indus-Cashmere Formation	volcanics and granitoids (rhyol.)	late Jurassic - post-Cretaceous
QUATERNARY OF KASHMIR			
12	Alluvial plains, recent river terraces	conglomerates, sands and siltstones	Holocene
13	Terrestrial, older river terraces	conglomerates, sands and siltstones	Pleistocene-Holocene
TERTIARY METAMORPHISM AND MAGMATISM			
14	Unconformity	metacarbonate - quartz - sillimanite + K-feldspar	Tertiary (22 Ma)
15	Unconformity - K-feldspar megacryst	metacarbonate - quartz - sillimanite + K-feldspar	Tertiary
16	gneiss	metacarbonate - quartz - sillimanite + K-feldspar	Tertiary
NEOTETHYAN SCALPE			
17	Zaskar nappe	grey and black shales, calcareous shales, siltstones	late Permian-Upper Cretaceous
18	NEOTETHYAN SHELF (Eurasia - Permian - Early Tertiary)	shales and shales	Permian
19	Tertiary siltstones	sandstones with nummulites	Eocene
20	Shigal - Hathi siltstones, long shales	shales and shales	Palaeocene-Early Eocene
21	Chikim and Lagal siltstones	white to tanaceous grey, grey, marly limestone	Lower Cretaceous
22	Spirit shales	calcareous shales and black shales	Early Cretaceous
23	Forbes and Lagal Shale	black shales and sandstones	Lower Cretaceous
24	General sandstones, Chikim siltst.	sandstones and siltstones	Cretaceous
25	Spirit shales	black shales and sandstones	Maestrichtian
26	Ladakh shales	caliche limestone	Dogger
27	Alpine siltstones	conglomerates with siliceous limestone	Lower Cretaceous
28	Heinrich (sandstone)	shales, marls and limestone	Maestrichtian
29	Upper Group	marls and limestone	Tertiary
30	Lower Group	marls and limestone	Lower Permian
31	King Formation	marls and limestone	Lower Permian
CONGLOMERATE SERIES (Neo-Proterozoic)			
32	Patil Formation	quartzite, quartz - congl.	Permian
33	Ho Formation	quartzite, quartz - congl.	Early Permian
34	Ho Formation	black shales, calcareous sandst. and congl.	Permian
35	Ho Formation	black shales, calcareous sandst. and congl.	Permian
36	Ho Formation	crystal granites and locally gabbros	Ordovician - 480 - 580, 912 Ma
37	Ho Formation	shales and shales	Devonian
38	Ho Formation	red and violet conglomerates and sandstones	Ordovician
39	Ho Formation	black shales and shales	Upper Cambrian
40	Ho Formation	grey sand and siltstones, yellow siliceous limestone and dolomite, chromitite	Lower Cambrian
41	Ho Formation	grey sand and siltstones (argillaceous)	Permian
42	Ho Formation	quartzite, quartz - calcareous shales	Neo-Proterozoic
43	Ho Formation	black shales (siliceous dolomitic)	Neo-Proterozoic - Early Permian
44	Ho Formation	black shales (siliceous dolomitic)	Neo-Proterozoic - Early Permian
LESSER HIMALAYA			
45	Bakura Nappe (Hudson Nappe)	granitic, shales, shales, intrusive granites	Proterozoic
46	Hemant	granite gneiss	Proterozoic 1800 - 1900 Ma
47	Margdar Thrust, Panjal Thrust		
KASHMIR AND LAR-KULLU-RAMUR WINDOWS, CHAIL NAPPES			
48	Chail Thrust		
49	Ganai and Bering Formations	quartzites and grey-green gneisses	Proterozoic
50	Bering and Kishan	quartzites and grey-green gneisses	1800 ± 10 Ma
51	Holoway	granite gneisses	1840 ± 14 Ma
52	Bering Formation (Bering Group)	granite gneisses	Proterozoic
53	Chail Thrust		
JANSGAR NAPPE			
54	Janjira Series	siltstones and quartzites	Neo-Proterozoic
SMILAKHURUM NAPPE ("OUTER FOLD BELT")			
55	1st Formation	amphibolite, quartz, grey shales and shales	Lower Cambrian ?
56	2nd Formation	limestone and dolomite	Neo-Proterozoic
57	3rd Formation	shales and siltstones	Neo-Proterozoic
58	4th Formation	shales and siltstones	Neo-Proterozoic
59	5th Formation	basic volcanics, sediments	Upper Permian
MAIN BOUNDARY THRUSTS			
60	Sub-Himalaya	conglomerates, sand and shstones	Holocene
61	Lower and Middle Swakla	grey shales, sandstones, siltstone shales	Proterozoic-Holocene
62	Upper (Haramita) (Haramita)	grey conglomerates, sandstones and shales	Upper Miocene - Holocene
63	Sakran - Lower Dhamru	grey shales, grey shales and siltstones	Oligocene - Early Miocene
64	Himalayan FOOTWALL BOUNDARY	grey, grey and black, hornfelsic limestone	Permian - Eocene

CT Chail Thrust
DTFZ Duhang Thaktoke Normal Fault Zone
IS Indus Suture
JT Jansgar Thrust
MT Munstari Thrust
MBT Main Boundary Thrust
MCT Main Central Thrust
PT Panjal Thrust
SF Sangla Normal Fault
SaF Sarechu Normal Fault
ZSZ Zaskar Shear Zone

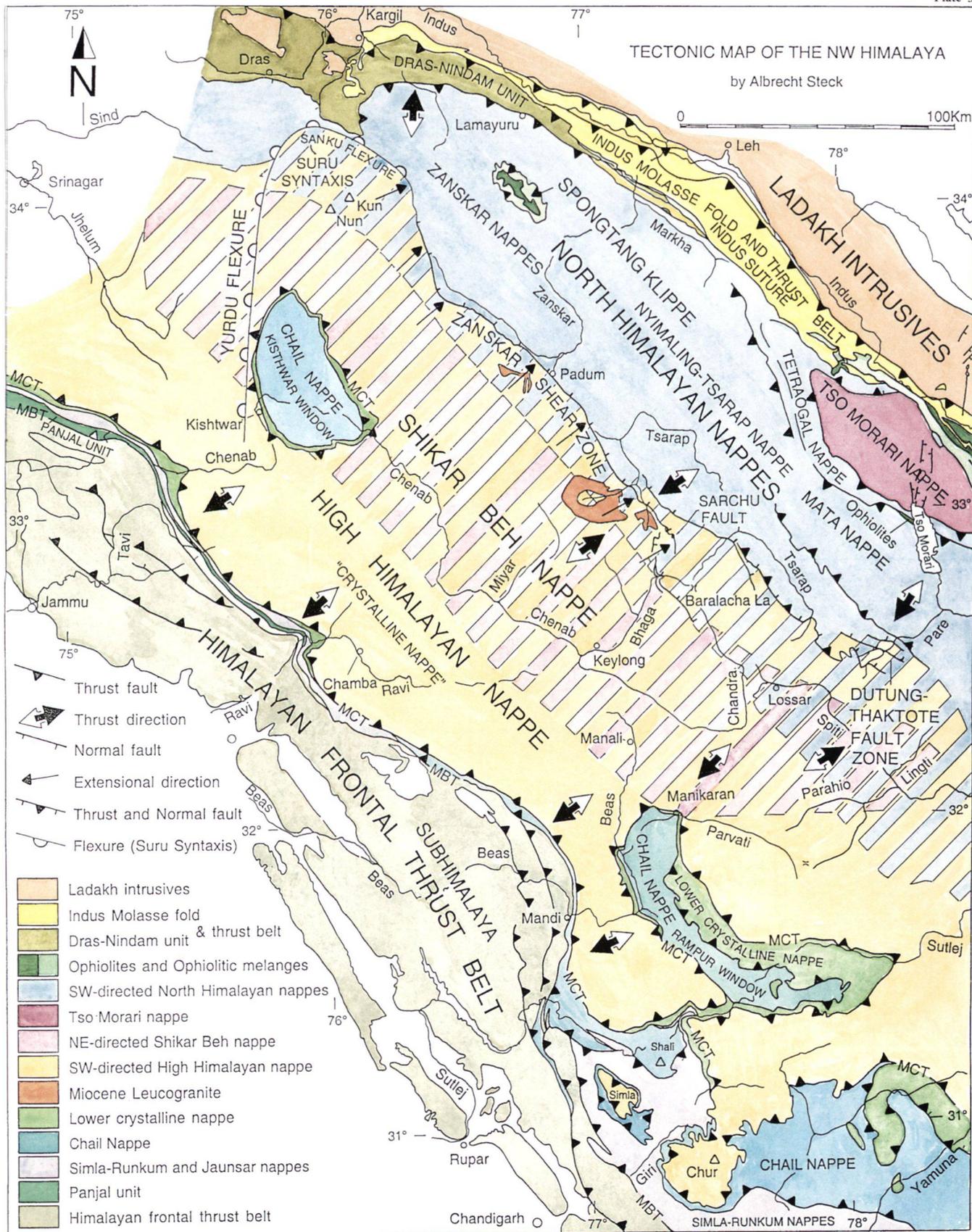
Foliation Dip angle
 0 - 22°
 23 - 45°
 46 - 68°
 69 - 90°



- HIMALAYAN STRUCTURES**
- D₁ NE-directed SHIKAR BEH NAPPE Cret. - Paleocene
 - D₂ S - SW-directed NORTH HIMALAYAN NAPPES Paleoc. - Eocene
 - D₃ related doming, back-folding and thrusting Eocene
 - D₄ SW-directed HIGH HIMALAYAN NAPPE Miocene - Holocene
 - D₅ related doming, back-folding and normal faults Miocene - Holocene
 - D₆ SW-directed HIMALAYAN FRONTAL THRUSTS Miocene - Holocene
 - D₇ related doming Miocene - Holocene
 - D₈ N-S compression and dextral transpression Quaternary



TECTONIC MAP OF THE NW HIMALAYA
by Albrecht Steck



METAMORPHIC MAP OF THE NW HIMALAYA

by Albrecht Steck

