

---

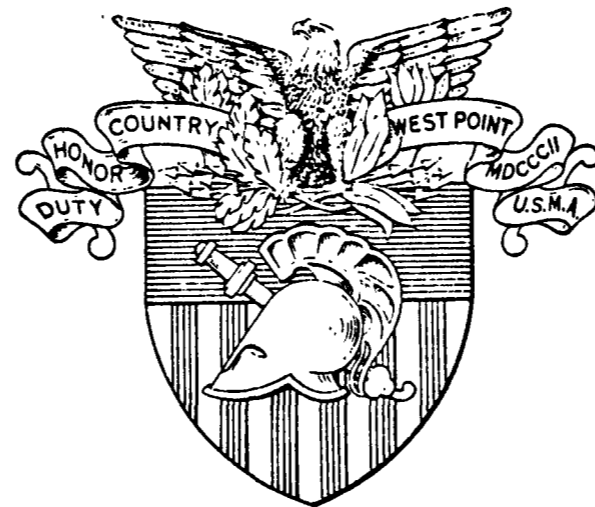
---

# ATLAS OF LANDFORMS

---

---

THIRD EDITION



H. ALLEN CURRAN

DREW M. YOUNG II

PHILIP S. JUSTUS

JOHN B. GARVER, JR.

DEPARTMENT OF GEOGRAPHY AND COMPUTER SCIENCE

UNITED STATES MILITARY ACADEMY

WEST POINT, NEW YORK

Sponsoring Author:  
Project Managers:  
  
Editor:  
Production Supervisors:  
  
Copy Editor:  
Illustrator:  
Designer:

Col. Gilbert W. Kirby, Jr.  
Maj. David W. Rhyne  
Captain Drew Young  
Katie Vignery  
Elizabeth Doble  
David Smith  
Rosemary Wellner  
Robert E. Rosenberger  
Phil McKenna

KA 210 348



Copyright © 1965, 1974, 1984 by Earth Science Fund

All rights reserved. Published simultaneously in Canada.

No reproduction of this Atlas in whole or in part except by agencies of the United States Government for use solely within these agencies is permitted except by written permission of the authors.

**Library of Congress Cataloging in Publication Data**

Main entry under title:

*Atlas of landforms.*  
United States Military Academy, West Point, New York,  
Dept. of Geography and Computer Science.

Includes index.  
1. Landforms—Maps. I. Curran, H. Allen (Harold Allen), 1940-  
G1046.C2A8 1984 912'.15514 83-675974  
ISBN 0-471-87434-5

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

# CONTENTS

<b>Index Map</b>	<b>1</b>				
<b>CHAPTER 1.</b>		<b>CHAPTER 6.</b>			
<b>Introduction to the Study of Landforms</b>		<b>Karst</b>			
Why Study Landforms?	2	Karst Topography—General	58	Coasts with Volcanic Features	114
How to Study Landforms	2	Mogotes and Sinkholes	60	Coasts with Volcanic Features, Platforms, and Reefs	115
Landform Illustrations	2	Coastal Plain Karst	62	<b>CHAPTER 10.</b>	
Map and Photograph Margin Information	2	Sinking Stream	63	<b>Wind</b>	
Topographic Maps	3	<b>CHAPTER 7.</b>		Types of Dunes	116
Imaging of Landforms	4	<b>Streams</b>		Coastal Dunes	117
Skylab, Landsat, Apollo, and Voyager Imagery	5	Youthful Stream	66	Transverse Dunes	119
Remote Sensing Applications to the Study of Landforms	5	Fully Mature Stream	68	Barchan and Parabolic Dunes	121
		Entrenched Meanders	70	Barchan and Parabolic Dunes; Loess	122
		Stream Piracy	74	Linear and Star Dunes; Sand Seas	123
		Alluvial Plains	75	<b>CHAPTER 11.</b>	
<b>CHAPTER 2.</b>		Braided Channel	76	<b>Submarine Topography</b>	
<b>Landforms on Horizontal Strata</b>		Coalesced Alluvial Fans	77	Introduction to Submarine Topography	124
Colorado Plateau	6	Desert Streams	78	North Atlantic Ocean	125
Humid Climatic Regime	14	Deltas	79	Pacific Ocean	126
The Geomorphic Cycle	16	Floodplain	81	Indian Ocean	127
Erosional Remnant	19	<b>CHAPTER 8.</b>		Arctic Ocean	128
		<b>Landforms Due to Glaciation</b>		Continental Margins—Passive	129
<b>CHAPTER 3.</b>		Alpine Glaciation		Continental Margins—Active	131
<b>Folded Structures</b>		Active Glaciation	82	Abyssal Plains and Hills, Oceanic Ridges	132
Folded Appalachians	20	Glacial Erosion Cycle	84	Ridges, Seamounts, Guyots, Atolls, Trenches	133
Plunging Anticlines and Synclines	24	Glacial Trough	86	<b>CHAPTER 12.</b>	
Rocky Mountains	25	Depositional Features	88	<b>Extraterrestrial Topography</b>	
Rocky Mountain Foothills	28	Terminal Moraine—Asymmetric Glaciation	90	Lunar Surface	
Worldwide Folds	30	Continental Glaciation		Lunar Index Photo	134
Domes and Basins	31	Kame and Kettle Topography	92	Mare Surfaces	135
Salt Domes (Diapirs)	33	Lacustrine Plain	94	Impact Craters	136
		Eskers—Drumlins	96	Impact and Volcanic Craters	138
<b>CHAPTER 4.</b>		Periglacial Topography		Massifs and Valleys	139
<b>Fault-Controlled Landforms</b>		Gelifluction and Cryoplanation	98	Rilles and Mountains	140
Normal Fault	34	Pingos and Patterned Ground	99	Rilles, Domes, and Wrinkle Ridges	141
Thrust Fault	40	<b>CHAPTER 9.</b>		Martian Surface	
Strike-Slip Fault	42	<b>Shorelines</b>		Viking Lander	142
		Shoreline Processes	100	Cratered Uplands and Plains	143
<b>CHAPTER 5.</b>		Wave Refraction	101	Volcanic Features	144
<b>Igneous Landforms</b>		Beach and Longshore Sediment Transport/ Wave-cut Terraces	102	Grand Canyons of Mars and Landslides	145
Stratovolcano	46	Coastline Retreat	104	Chaotic and Fretted Terrain, Ice Cap, Dunes	146
Plug-Dike—Caldera	47	Fiord Coasts	105, 107	Surfaces of Mercury and Venus	147
Volcanic Cone	48	Embayed, Resistant Coasts	106	Galilean Satellite Surfaces	148
Composite Cone	49	Embayed, Nonresistant Coasts	108	Terrestrial Impact Craters	149
Shield Volcano	50	Barrier Islands—General	110	<b>APPENDIX</b>	
Laccolith	52	Barrier Islands—Storm and Human Modifications	111	<b>Color Landsat Images</b>	<b>150</b>
Lava Flow—Dike	54	Natural Dynamics of Barrier Islands	112	<b>REFERENCES</b>	<b>159</b>
Stock	56			<b>INDEX</b>	<b>162</b>
Batholith—Volcano	57				