

新疆维吾尔自治区

# 典型航空影像图集





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新疆地质矿产局遥感地质站  
新疆地质矿产局区域地质调查大队

编

地质出版社

新疆维吾尔自治区  
典型航空影象图集

地质矿产部书刊编辑室编辑

责任编辑：马清阳

地质出版社出版

（北京西四）

中国地质图制印厂制版印刷

（山西省长治市）

新华书店北京发行所发行·全国新华书店经售

✱

开本：787×1092 $\frac{1}{2}$  印张：15 $\frac{1}{4}$

1984年1月北京第一版·1984年9月第一次印刷

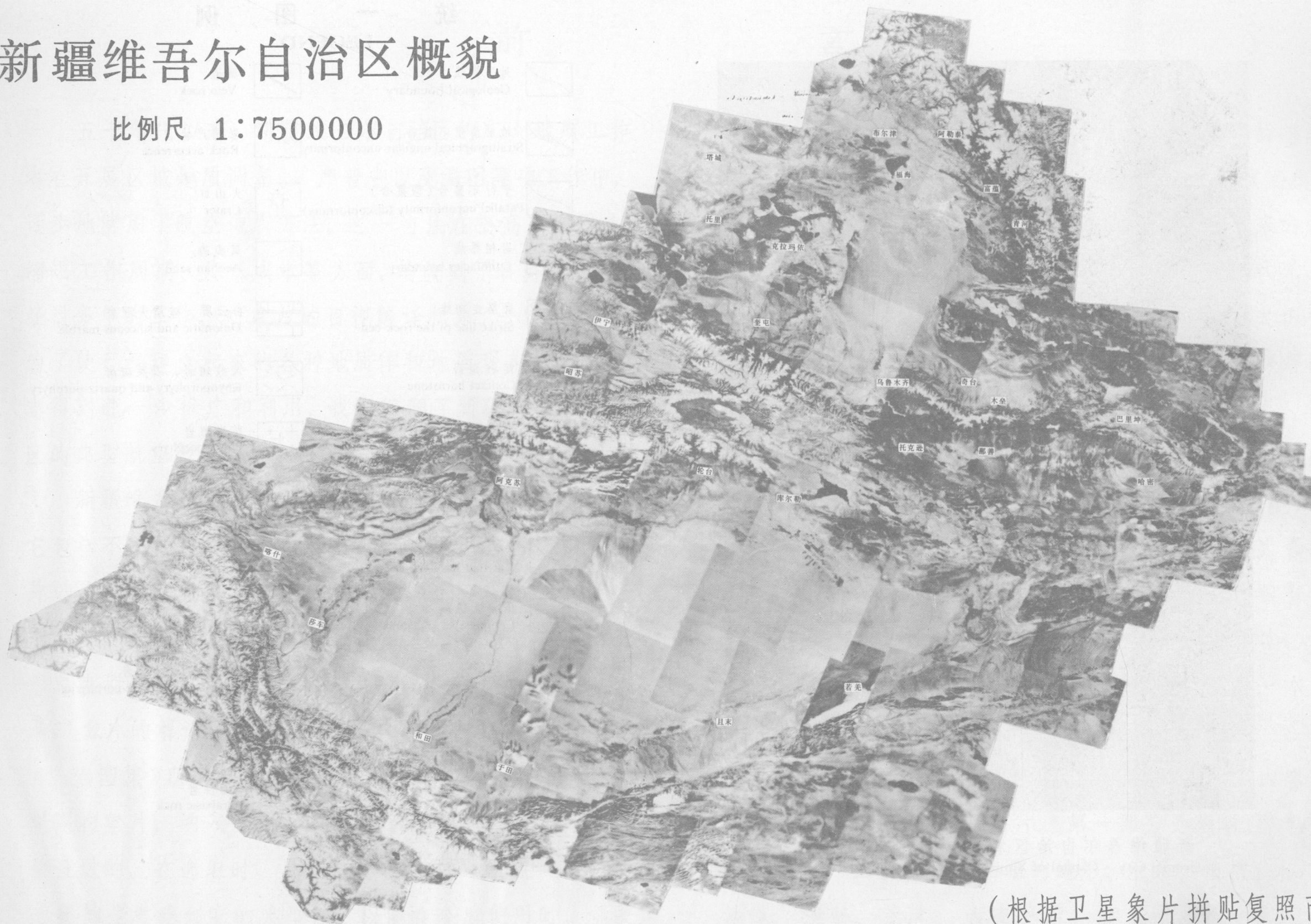
印数：1—3000册 定价：22.5元

统一书号：15038·新1059



# 新疆维吾尔自治区概貌

比例尺 1:7500000



(根据卫星象片拼贴复照而成)





新疆维吾尔自治区首府——乌鲁木齐市  
Urumqi City—Capital of Xinjiang Uygur Autonomous Region

## 统一图例 LEGEND

	地质界线 Geological boundary		脉岩 Vein rock
	地层角度不整合 Stratigraphical angular unconformity		岩层产状 Rock accurrence
	平行不整合(假整合) Parallel unconformity (disconformity)		火山口 Crater
	岩相界线 Lithofacies boundary		风成沙 Aeolian sand
	岩层走向线 Strike line of the rock bed		白云质、硅质大理岩 Dolomitic and siliceous marble
	接触角岩 Contact hornstone		流纹斑岩、石英斑岩 Rhyolite and quartz-porphry
	深断裂 Abyssal rift		花岗斑岩 Granite
	证实的一般断裂 Rift that has been verified		闪长岩 Diorite
	推断的一般断裂 Rift that has been inferred		玄武岩、玄武玢岩 Basalt and basaltic porphyry
	压扭性断裂 Compressive and torsional fracture		辉绿岩、辉绿玢岩 Diabase and diabase-porphry
	扭性断裂 Torsional fracture		辉长岩 Gabbro
	张扭性断裂 Tensional and torsional fracture		超基性岩 Ultrabasic rock
	隐伏断裂 Blind fracture		
	活断裂 Active fracture		



## 前

五十年代以来,新疆维吾尔自治区的广大地质工作者在开展区域地质调查、矿产普查以及编图等项工作中,逐步地使用了航空地质方法。这一方法在提高工作质量、缩短工作周期、降低成本等方面,均收到了良好的效果。经过多年的工作,对象片的目视解译积累了一定的经验。为了使已经建立起来的各种地质体和地质现象的解译标志得到进一步推广和利用,我们编制了新疆维吾尔自治区的典型航空影象图集。

新疆维吾尔自治区地处我国西北边陲,地域辽阔,它包括不同的自然地理区及不同的地质构造区,航空象片的内容极为丰富。中低山及广大的丘陵区由于气候炎热干燥,地表水及植被均不发育,基岩裸露,航空象片形象典型,影象清晰,各种地质体及地质现象的直观性强,象片的解译程度较高。

《图集》所选取的航空象片,均为现在广泛使用的常规黑白象片,纳入《图集》的,绝大部分都是经实际工作验证过的。在选取时,除照顾分布上的地区性之外,更重要的是考虑到它的典型性,以便在今后使用时,能更

## 言

具有指导意义。从内容方面来说,所反映的解译标志较为全面,有直接解译标志,也有间接解译标志。《图集》中有许多很难得的象片,如由原生构造等显示出来的岩浆侵入通道和时空特征、罕见的碳酸岩脉的产出状况、昆仑山的近代活火山、天山及准噶尔界山区的古火山机构以及近年来引人注意的环状构造或圆形构造岩块等。还有表现动态变化的象片,如泥石流、滑坡、冰川、活断裂、河流的迁徙改道、地下水的运移、地表水的污染等。其中反映古冰川的多次后退、现代山岳冰川的形成、运动、消融及其地貌和冰碛物的象片,对于研究最新构造运动、古气候以及现代冰川的开发利用都是很有价值的资料。活动断裂的象片对地震研究、工程设计、地下水开发利用有实际的意义。此外,《图集》也是一本很好的教材。

本《图集》是从近十万张航空象片中选出的。内容包括四个部分,共计254幅图片。第一部分为地貌,包括图片91幅,主要反映了新疆的地形、水系、植被、冰川、沙漠、戈壁、荒漠、古夷平面、泥石流、滑坡等。另



外,对一些人工地貌,如农田、坎儿井、草库仑等也作了反映;第二部分为地层和岩浆岩,共83幅图片,主要反映了新疆各不同地区、不同时代的地层(包括变质的地层)及侵入岩、火山岩的影象特征以及各种不同类型的地层不整合、火山机构、侵入岩的接触关系等;第三部分为地质构造,包括图片69幅,主要反映了各地区不同时代、不同性质、不同规模的各种褶曲与断裂,其中对活断裂反映得更为突出,对中小型的构造岩块也作了反映;第四部分为矿产地质,包括11幅图片,重点反映了自治区范围内已知主要矿种的某些情况。《图集》中所选象片的内容侧重于地质专业,但对农林牧、环保等专业也有所反映。

本《图集》装订为一册,每幅图片都附有简单的文字说明;部分图片附有简略的解译地质图供读者参考。为了适应视觉习惯,在裱版时使所有象幅的南北故意倒置,即北向下、南向上。

本《图集》中选用的航空象片均为地质矿产部地质遥感中心、国家测绘总局、中国人民解放军总参谋部测绘局航摄的,其比例尺介于1:3万至1:10万之间。

本《图集》的选编工作始于一九七九年五月,工作自

始至终是在地质矿产部新疆地质局及其所属区域地质调查大队的领导下进行的。参加《图集》选编工作的有:新疆地质局遥感地质站的张成经、朱庆亮、祝皆水;新疆地质局区域地质调查大队的胡树荣。新疆地质局遥感地质站的项国瑞、刘锡成、杜青松、李岚、刘保国、伊发源等同志也做了部分工作。新疆地质局区域地质调查大队绘图室清绘整饰。

《图集》编成后,地质矿产部地矿司的同志进行了审阅,并由地质矿产部地质遥感中心的陈荫祥高级工程师进行了详细地评审。《图集》最终由新疆地质局主持了验收,陶钧政、王广平、董鹤皋、张致民等同志参加了评议。

限于编者水平不高,经验不足,在象片的选择和版面编排等方面都存在一定的问題,敬请读者指正。

一九八三年五月



## PREFACE

Since the 50's, the broad masses of geological workers of Xinjiang Uygur Autonomous Region have gradually applied aerogeological method in their work, which results in better quality, shorter working cycle and lower cost of their regional geological survey, reconnaissance survey for mineral resources and geological mapping. They have hence accumulated certain experiences of visual photo-interpretation through their perennial efforts. This Album entitled "Typical Aerial Imagery of Xinjiang Uygur Autonomous Region", is aimed at spreading and making good use of the established interpretation criteria of various geological targets and features.

Xinjiang Uygur Autonomous Region represents the Northwest border of China. It has a vast area with different physiographical and geological structure units, which promises substantially implicating aerial photographs. The photographs taken from the medium-low mountain areas and the vast hilly land areas, always clearly show typical features since it is hot and dry there and little surface water and vegetation can be found on the outcropped bedrocks. Most of the geological bodies and features there are directly perceivable and highly interpretable on the photographs. All the photographs in this Album are black and white ones in common use and most of them are selected from those verified through practical work. As concerns the criteria of air-photo selection for this Album, in addition to their regional distribution, the typicalness of these air-photos are

considered most important for providing more instructive information for our future work.

The Album contains relatively complete interpretation criteria including direct and indirect ones. Many photographs are really hard to come by, such as those showing magma intrusion channels and time space features revealed by primary structures, the seldom seen carbonite vein occurrences, the younger active volcanos in Kunlun mountain area, the ancient volcanic structures in Tianshan and Dzungaria bordering mountain areas and recently conspicuous ring or circular structure blocks. There are also photographs showing dynamic changes, such as mud flows, land slides, glaciers, active faults, river course changes, groundwater motion and surface water pollution. Inasmuch as the photographs reflect the multistage regression of the ancient glaciers, the formation, migration and melting of mountain glaciers and their geomorphology and glacial tills, they are very valuable for the study of neo-tectonic movements and paleoclimate, and also for developing and making good use of modern glaciers. The photographs showing active faults, have practical significance in earthquake study, engineering designation and development and utilization of underground water. In addition, this Album can be taken as a very good teaching material as well.

The Album contains 254 photographs, which are selected from some 100,000 air-photos, and is divided into four parts. Part I is devoted to geomorphology.



It includes 91 photographs, mainly reflecting topography, drainage systems, vegetation, glaciation, deserts, gobi, wilderness, paleo-peneplanation planes, mud flows and land slides, as well as some of the artificial geomorphology, such as farmland, karez and pastureland. Part II is on stratigraphy and magmatic rocks, 83 photographs mainly show the image features of intrusive and volcanic rocks and stratigraphy of different age and in different areas in Xinjiang as well as various stratigraphic unconformities, volcanic mechanism, and contact relationship of intrusive rocks. Part III is dedicated to geological structures. It includes 69 photographs, mainly on various folds and faults developed in different areas in Xinjiang and different in age, size and nature. Among these, the active faults are more striking in the photos. Structural blocks of medium and small size are also reflected. Part IV gives geology of mineral resources; a total of 11 photographs reflect some features of the main known mineral deposits in this region. In general, the photographs in this Album were selected with particular emphasis on geology, but they also provide some information useful for agriculture, forestry, animal husbandry and environmental protection.

This Album is binded up in one single volume. Each photograph has a brief written caption and some of them are incorporated with a geological interpretation sketch for reference. For convenience to readers, we intentionally have the south and north directions of the photographs reverted, e.g. north downwards and south upwards.

The air-photos, 1:30,000 to 1:100,000 in scale, collected in this Album are taken by the Geological Remote Sensing Centre of the Ministry of Geology and Mineral Resources, the State Bureau of Surveying and Cartography, and the Mapping Bureau under the Headquarters of General Staffs of the People's

Liberation Army of China.

The compilation of this Album started in May, 1979. The work was done, from the beginning through to the end, under the leadership of Xinjiang Geological Bureau of the Ministry of Geology and Mineral Resources. It was compiled by Zhang Chengjing, Zhu Qingliang and Zhu Jieshui from the Geological Remote Sensing station of Xinjiang Geological Bureau, and Hu Shurong from the Region Geological Survey Brigade of Xinjiang Geological Bureau. Xiang Guorui, Liu Xicheng, Du Qingsong, Li Lan, Liu Baoguo and Yi Fayuan from the Geological Remote Sensing Station of Xinjiang Geological Bureau also took part in some of the work. Drawing and decoration of the Album were done by the Cartographer's Group of the Regional Geological Survey Brigade of Xinjiang Geological Bureau.

After compilation, the draft album was checked by comrades of the Department of Geology and Mineral Resources of the Ministry of Geology and Mineral Resources. A detailed commentary and appraisal were given by Chen Yixiang, senior engineer of the Geological Remote Sensing Centre of the Ministry of Geology and Mineral Resources. The final check and acceptance were organized by Xinjiang Geological Bureau and Tao Junzheng, Wang Guangping, Dong Hegao and Zhang Zhimin took part in the appraisal and discussion.

The editor would like hereby to invite comments from readers of this Album especially to any improper selection of the photographs or to any possible shortcomings in the general layout of the Album, which may be caused because of the low editing level and incomplete experience in this field.

May, 1983



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# 一、地貌



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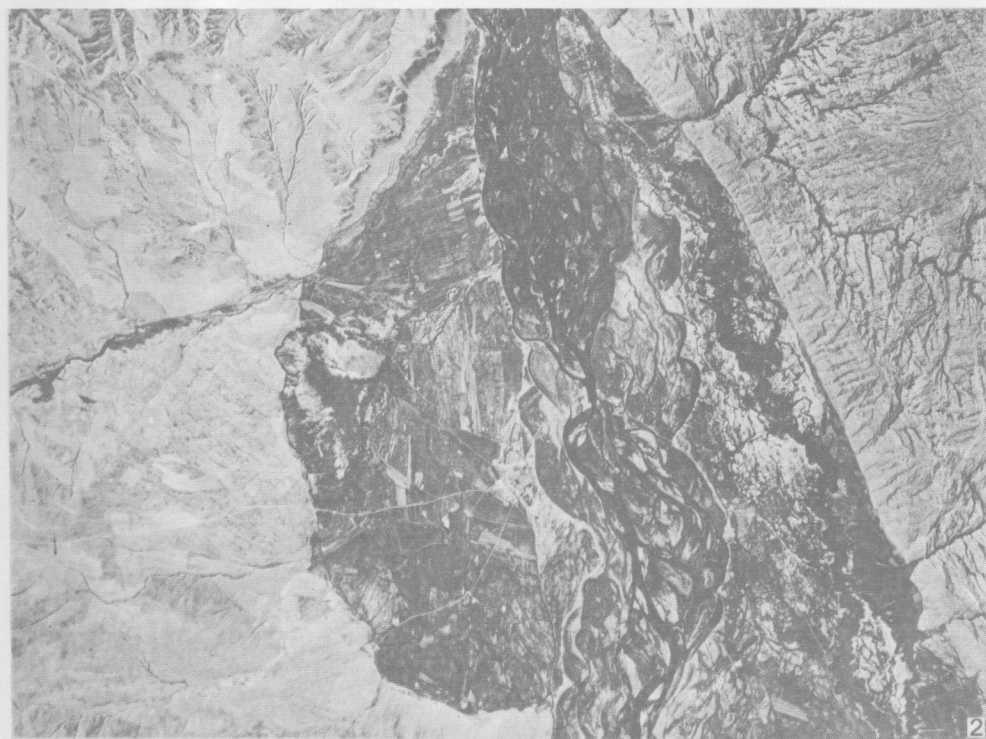
哈巴河县北喀拉塔斯一带  
发育在不同岩性上的平行状水系

图片2

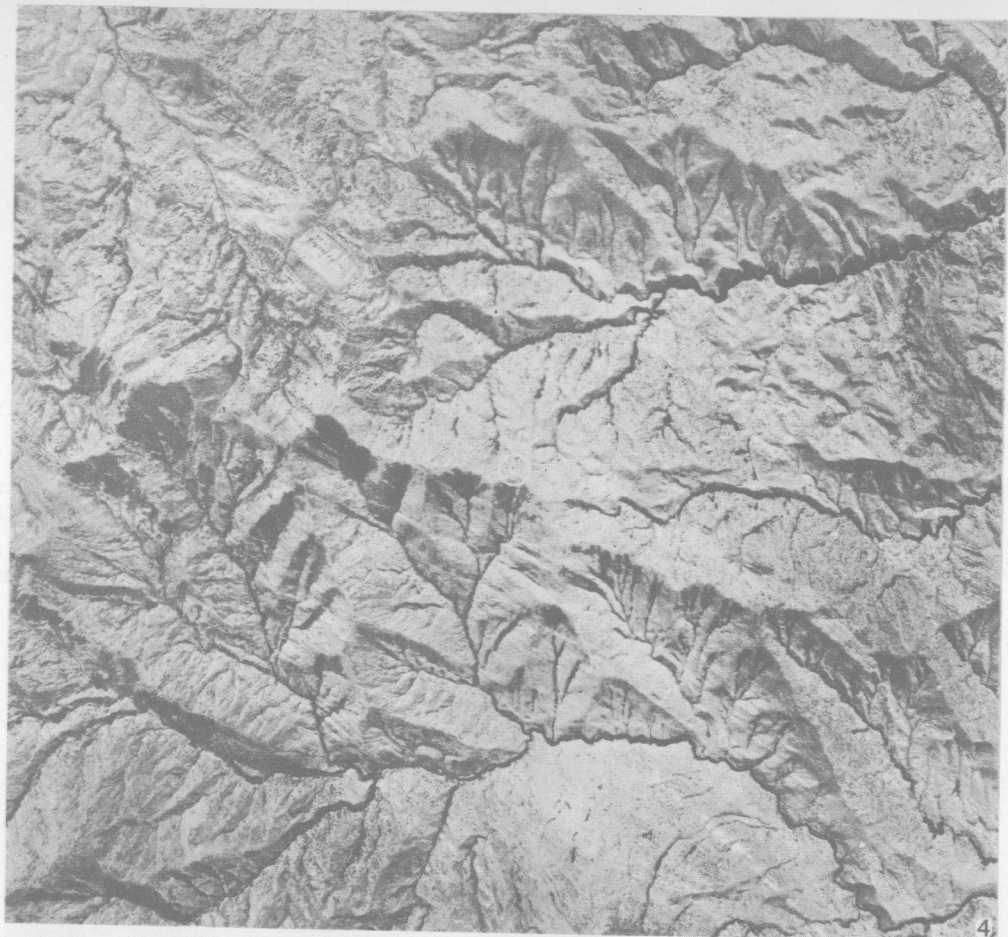
布尔津县琼库尔  
布尔津河中游的网状水系

图片3

富蕴县额尔齐斯河中游  
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图片4

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图片8

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图片9

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图片10

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这种方向性极强的冲沟可能反映了一组近南北向的新构造节理





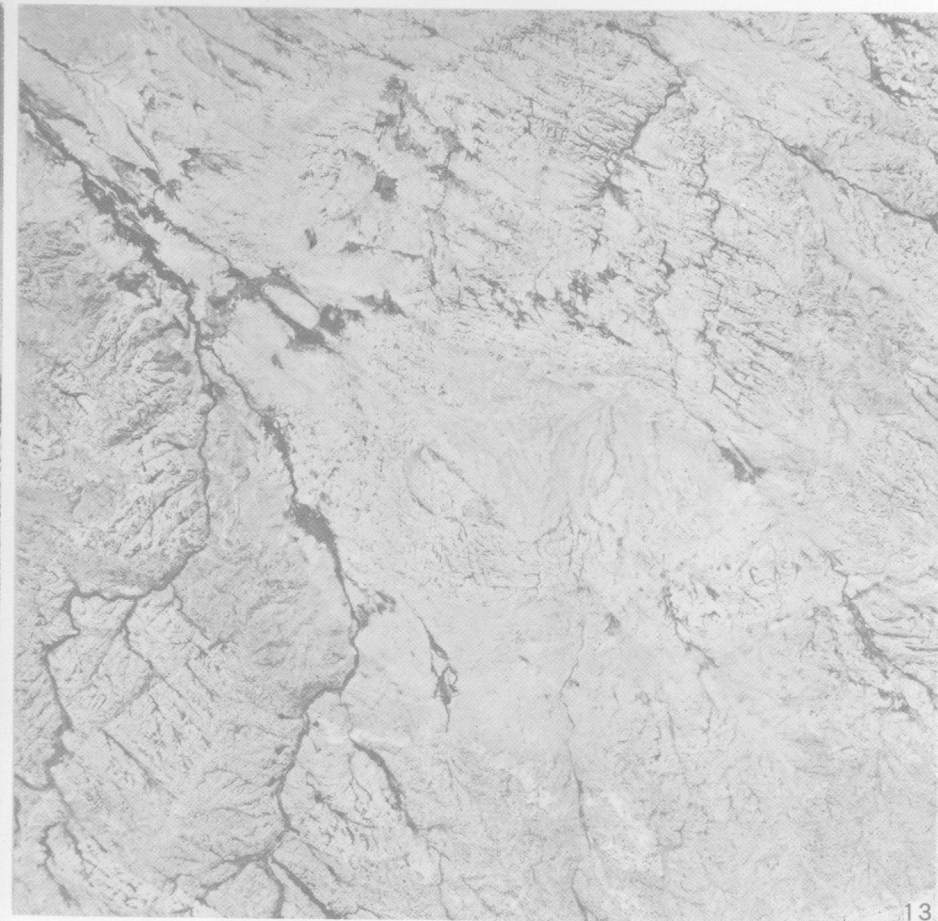


图片12

若羌县穹塔格山地区  
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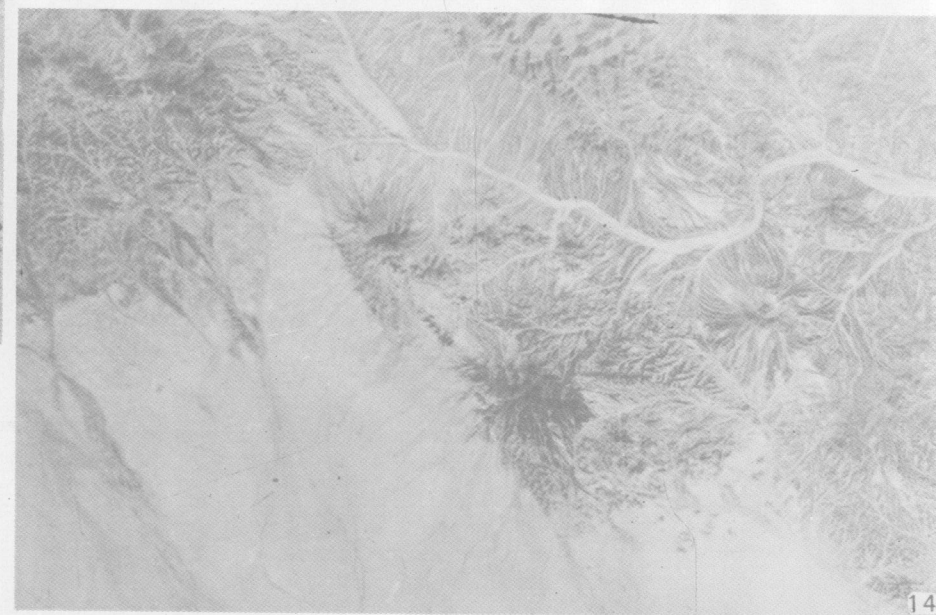
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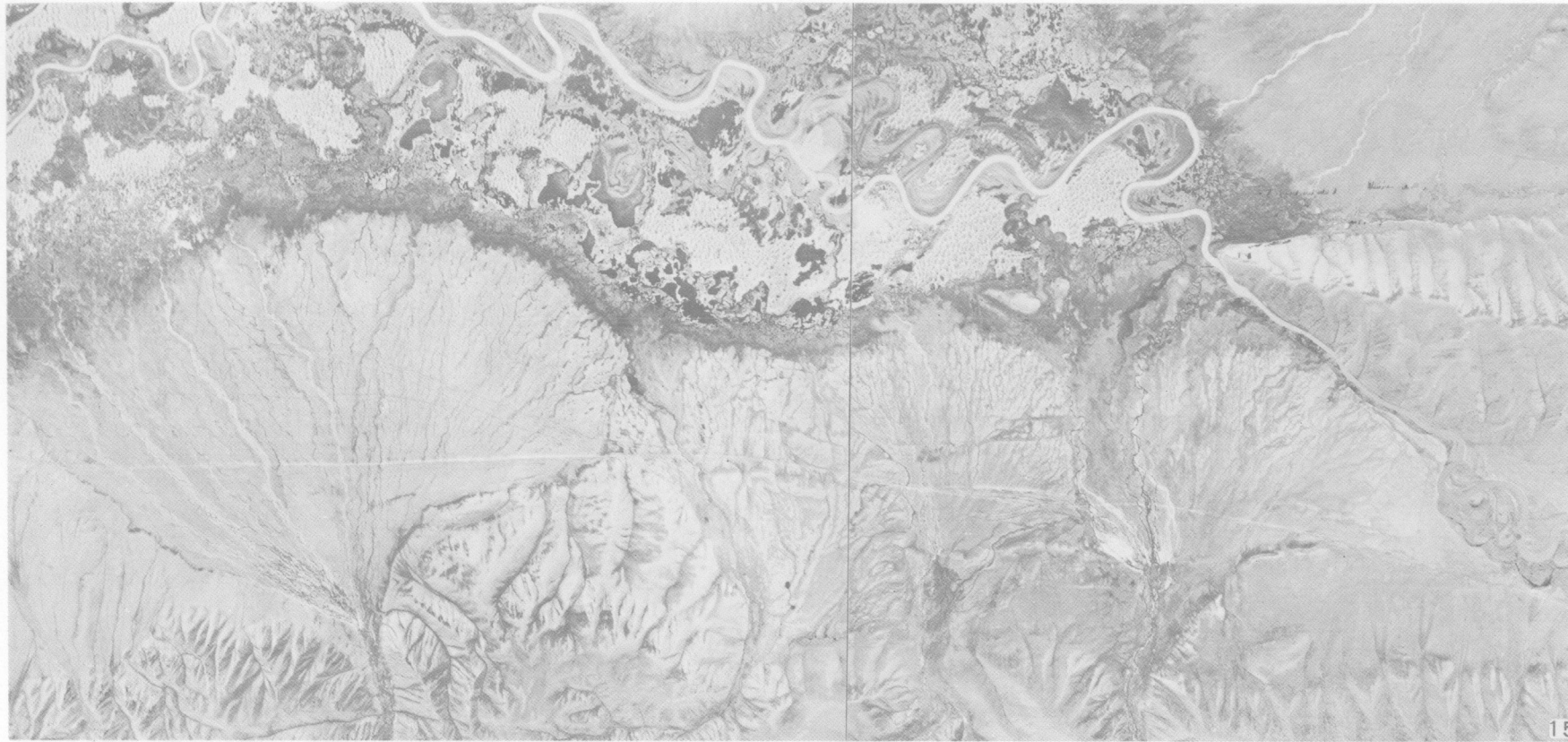


图片13

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图片16

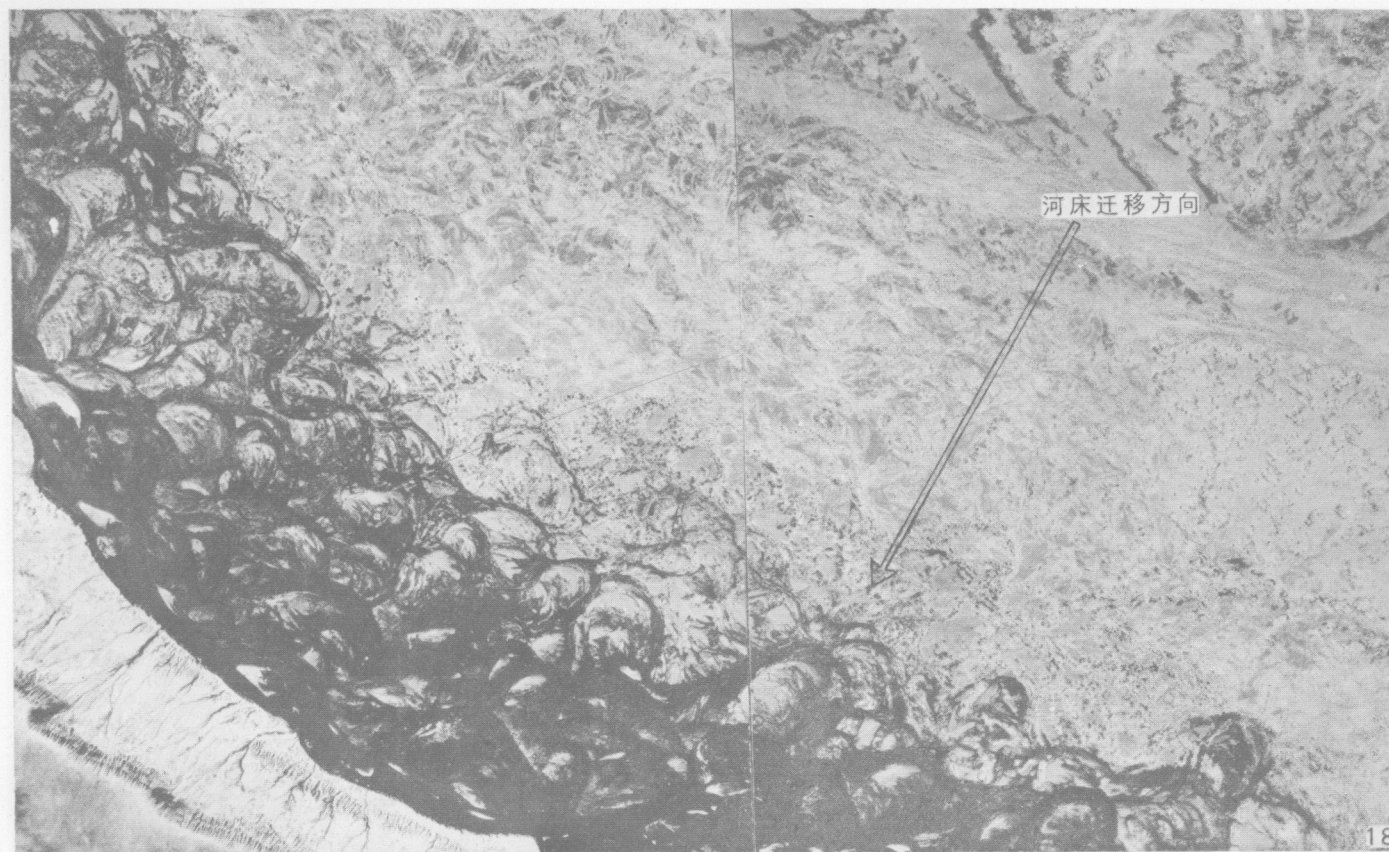
和布克赛尔县  
玛纳斯湖西岸的沙咀



图片17

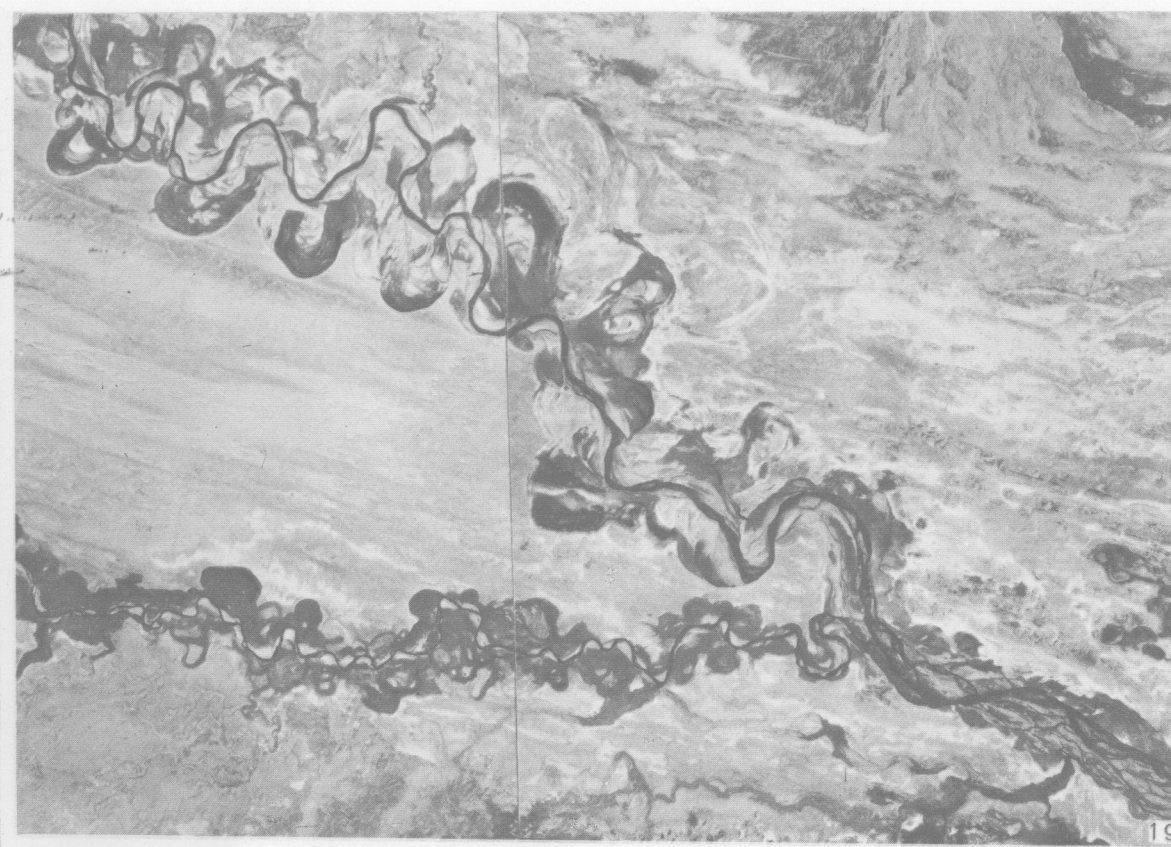
福海县乌伦古湖东北隅  
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图片18 布尔津县哈拉克列克一带 由古河床遗迹反映出的额尔齐斯河河床在新构造运动时期由南向北逐渐迁移

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