

JANIS 85

Volume No. 2 of 2

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Confidential

Non-registered

JOINT ARMY - NAVY
INTELLIGENCE STUDY
OF
CENTRAL JAPAN:
Central and Northern
Honshū
(PLANS)

JOINT INTELLIGENCE STUDY PUBLISHING BOARD

October · 1944

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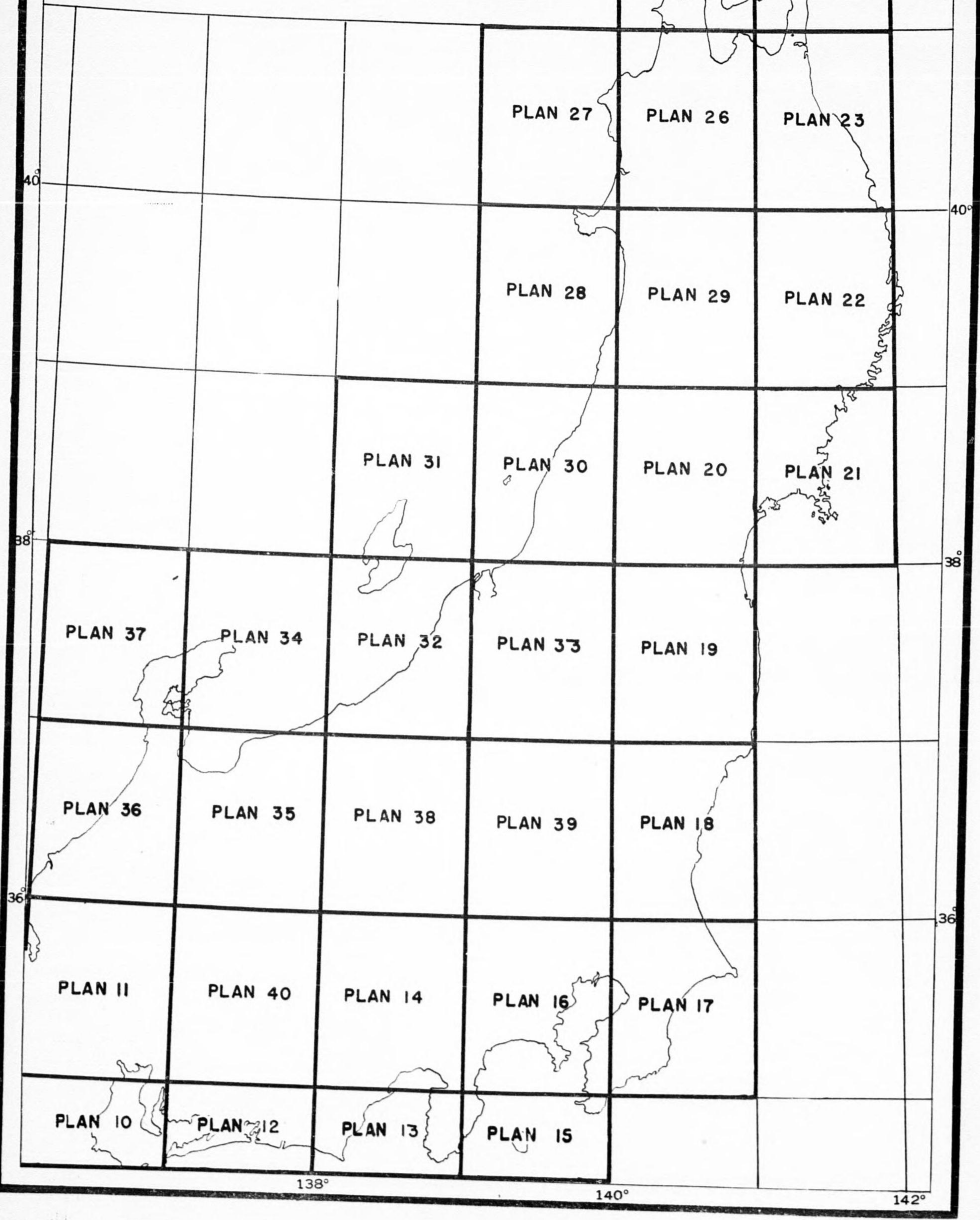
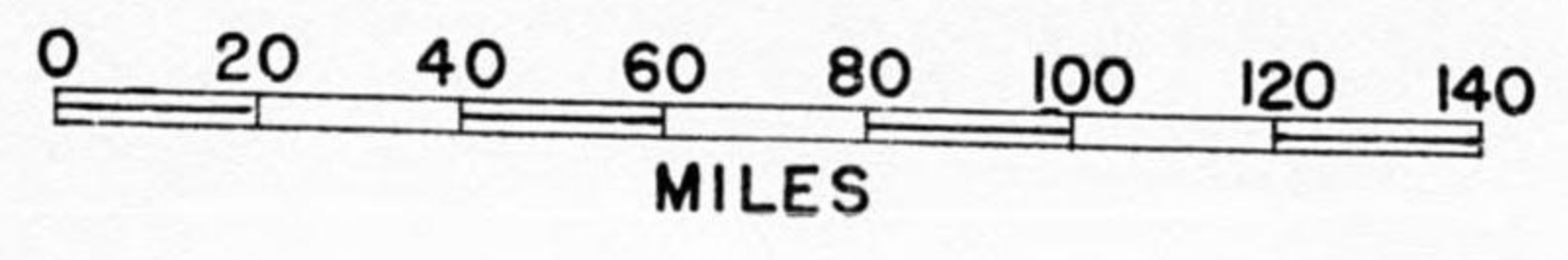
PLANS

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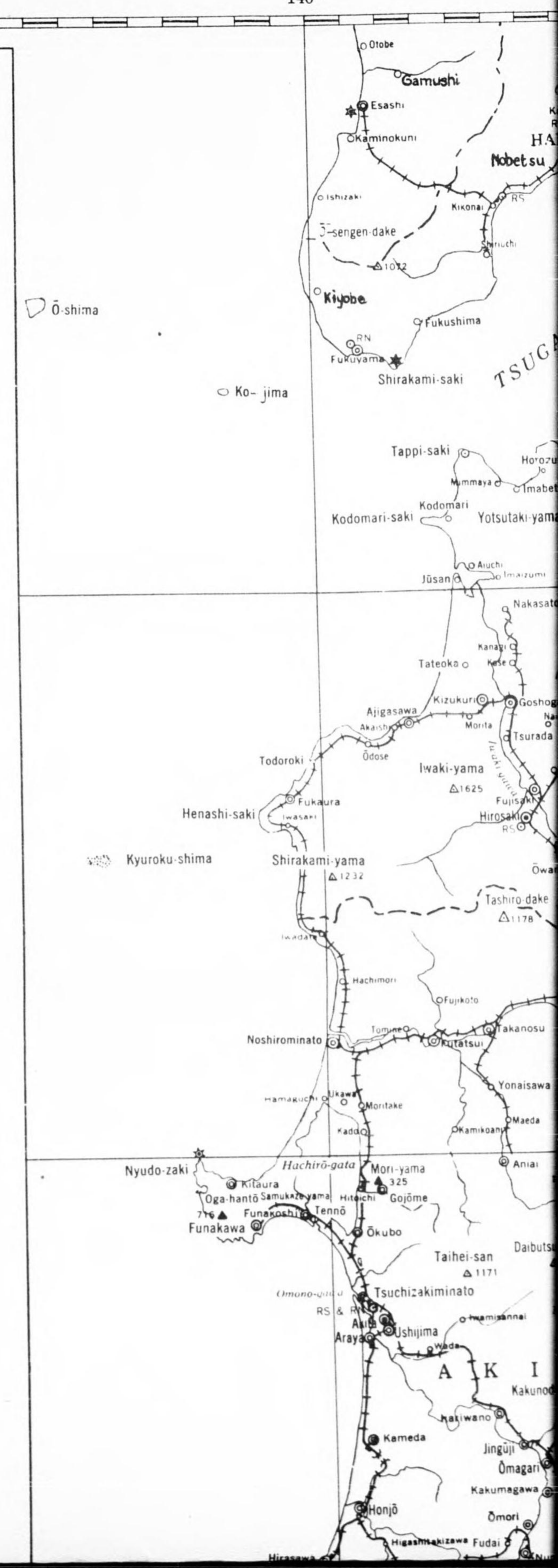
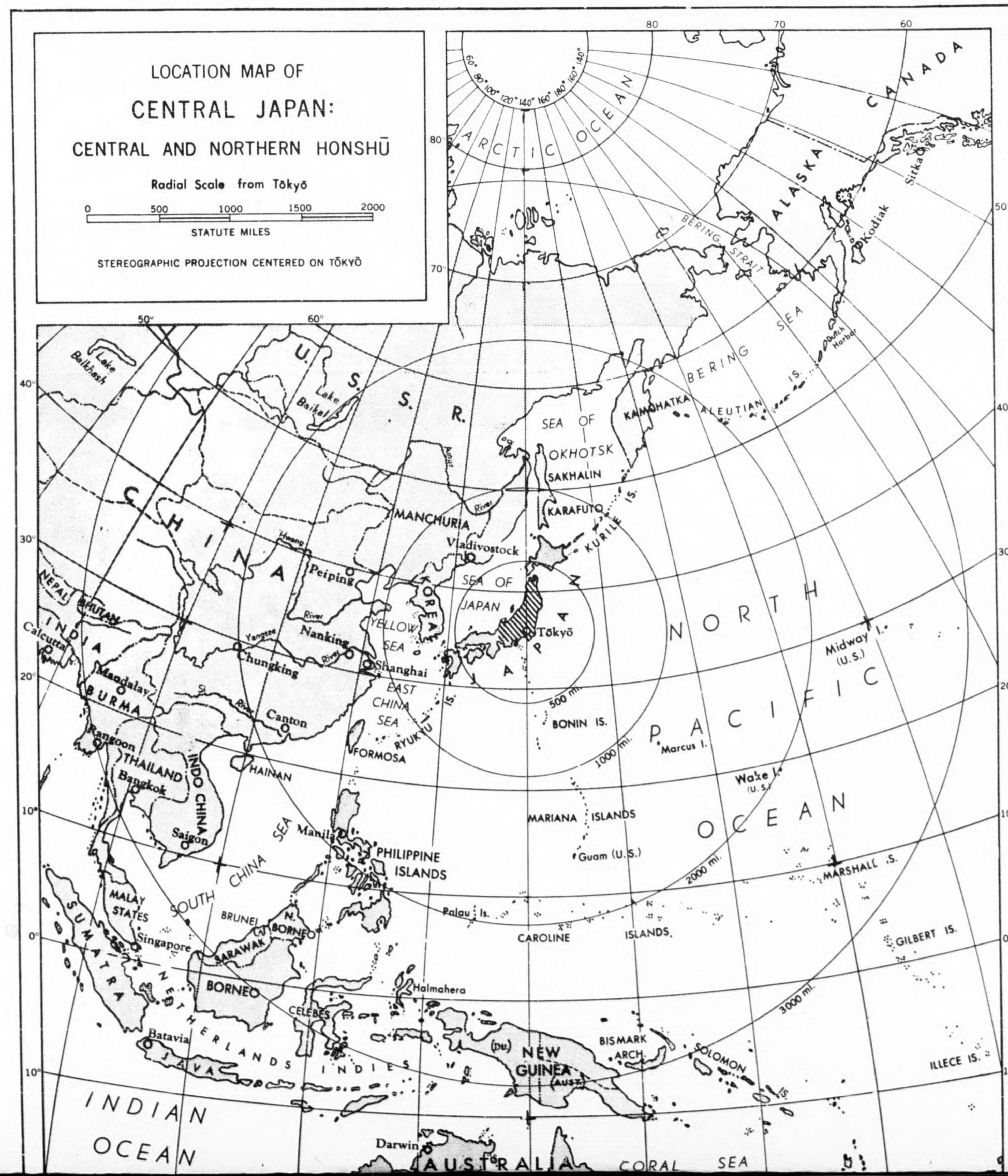
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136° 138° 140° 142°
CENTRAL JAPAN—CENTRAL AND NORTHERN HONSHŪ

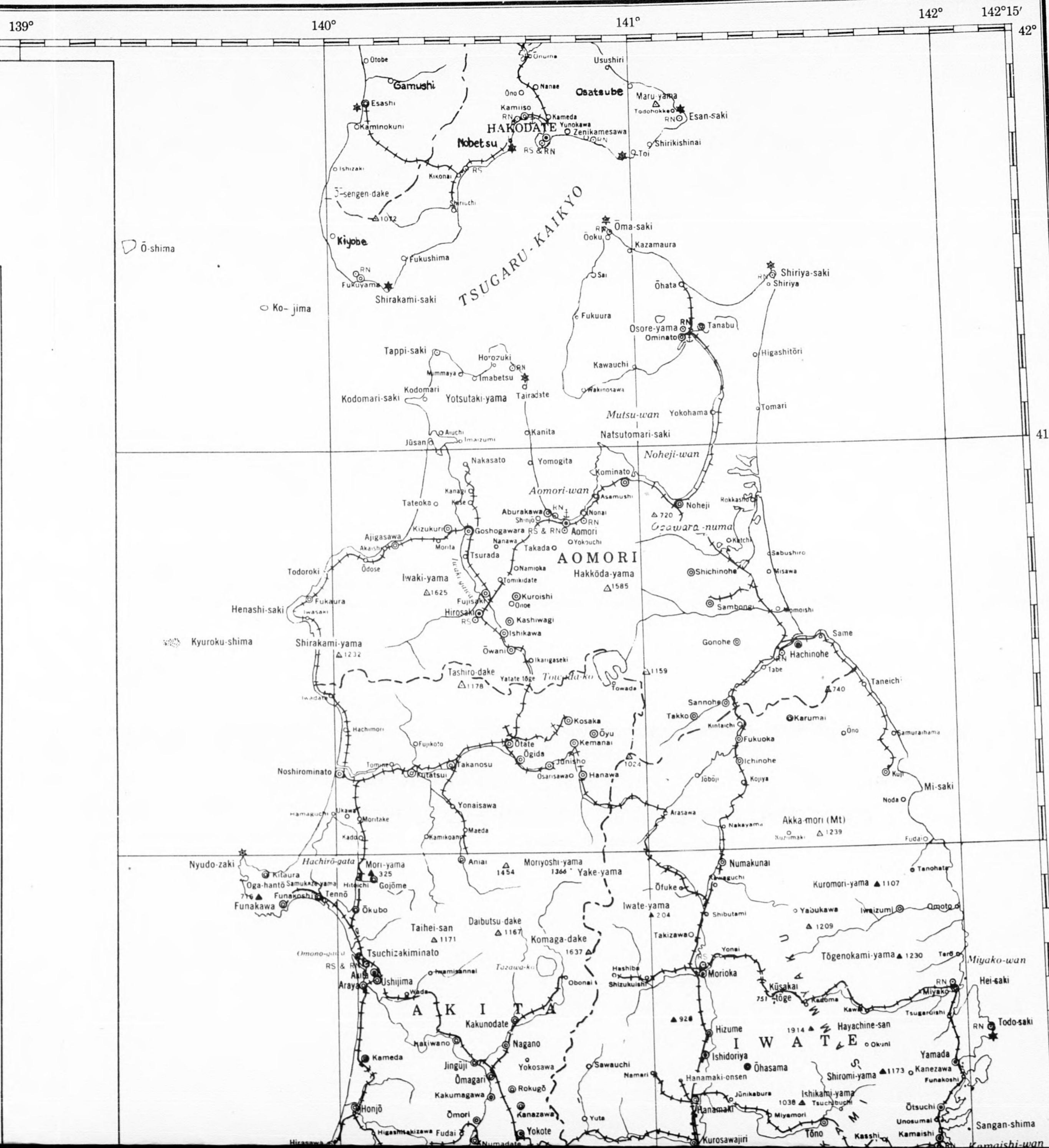
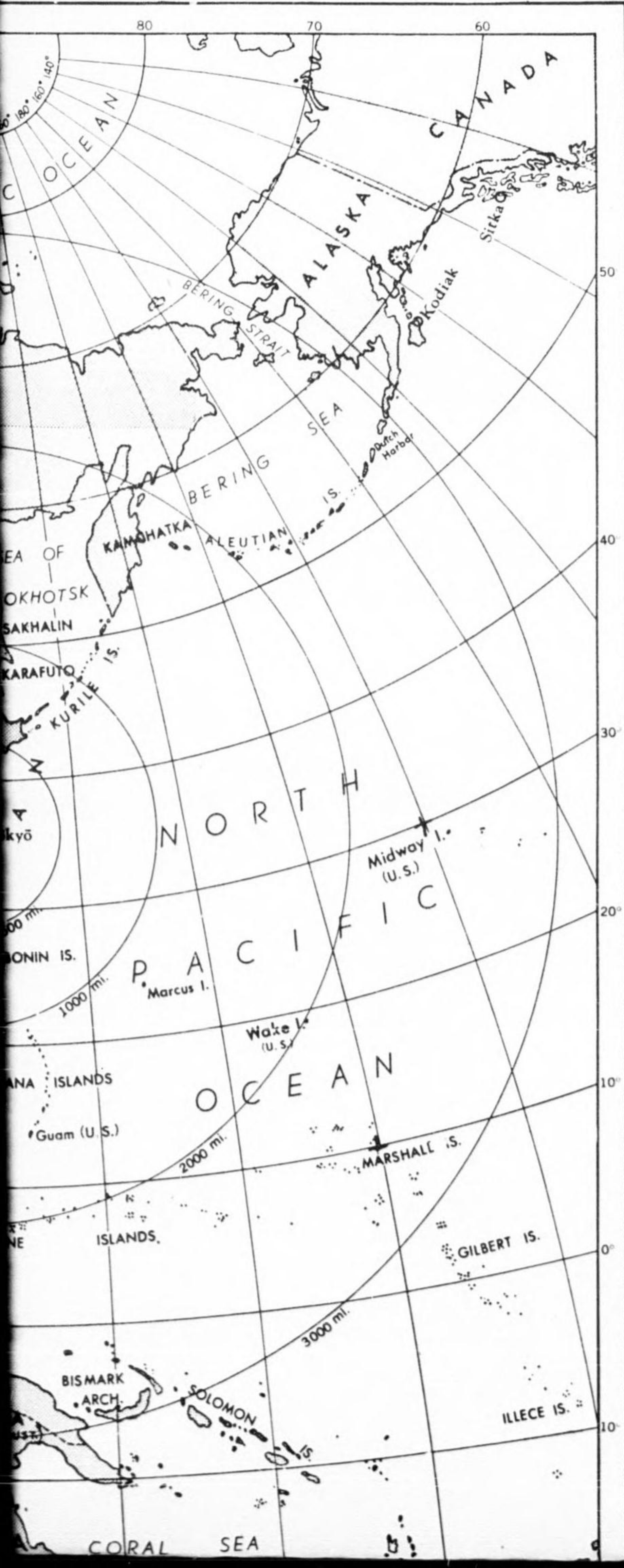
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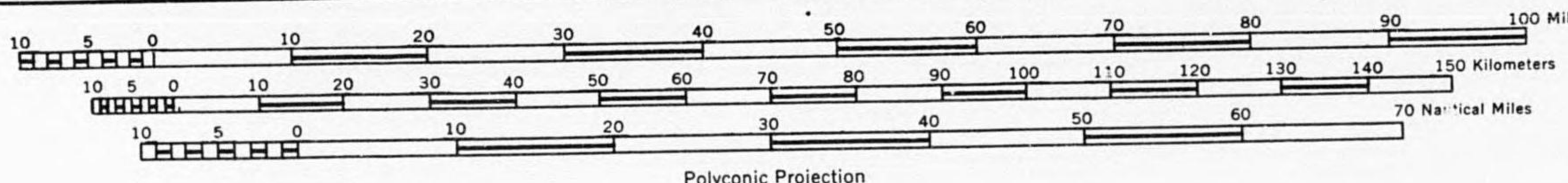


CENTRAL JAPAN CENTRAL AND NORTHERN HONSHŪ REFERENCE MAP



JAPAN NORTHERN HONSHŪ INDEX MAP





Polyconic Projection

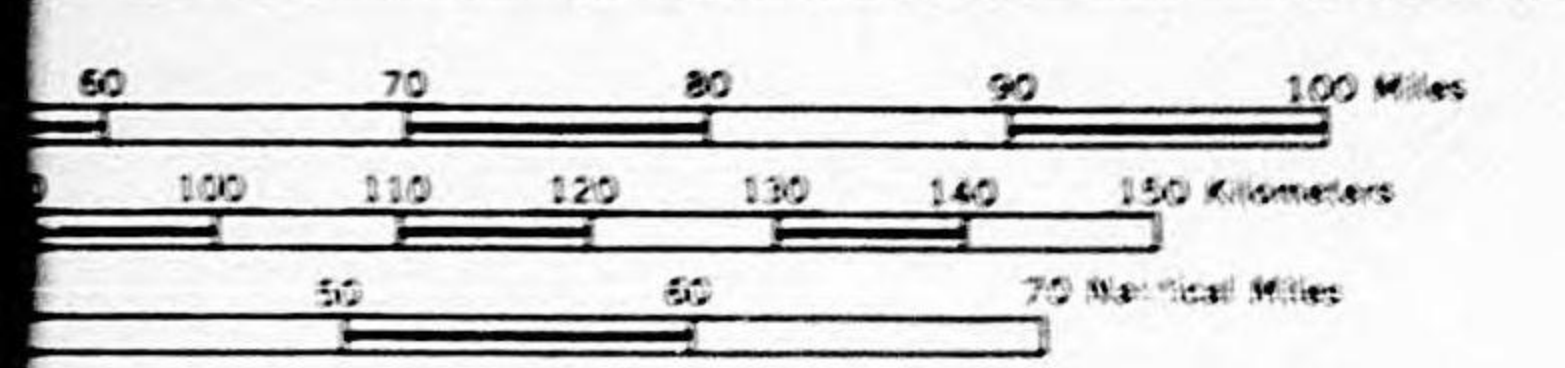
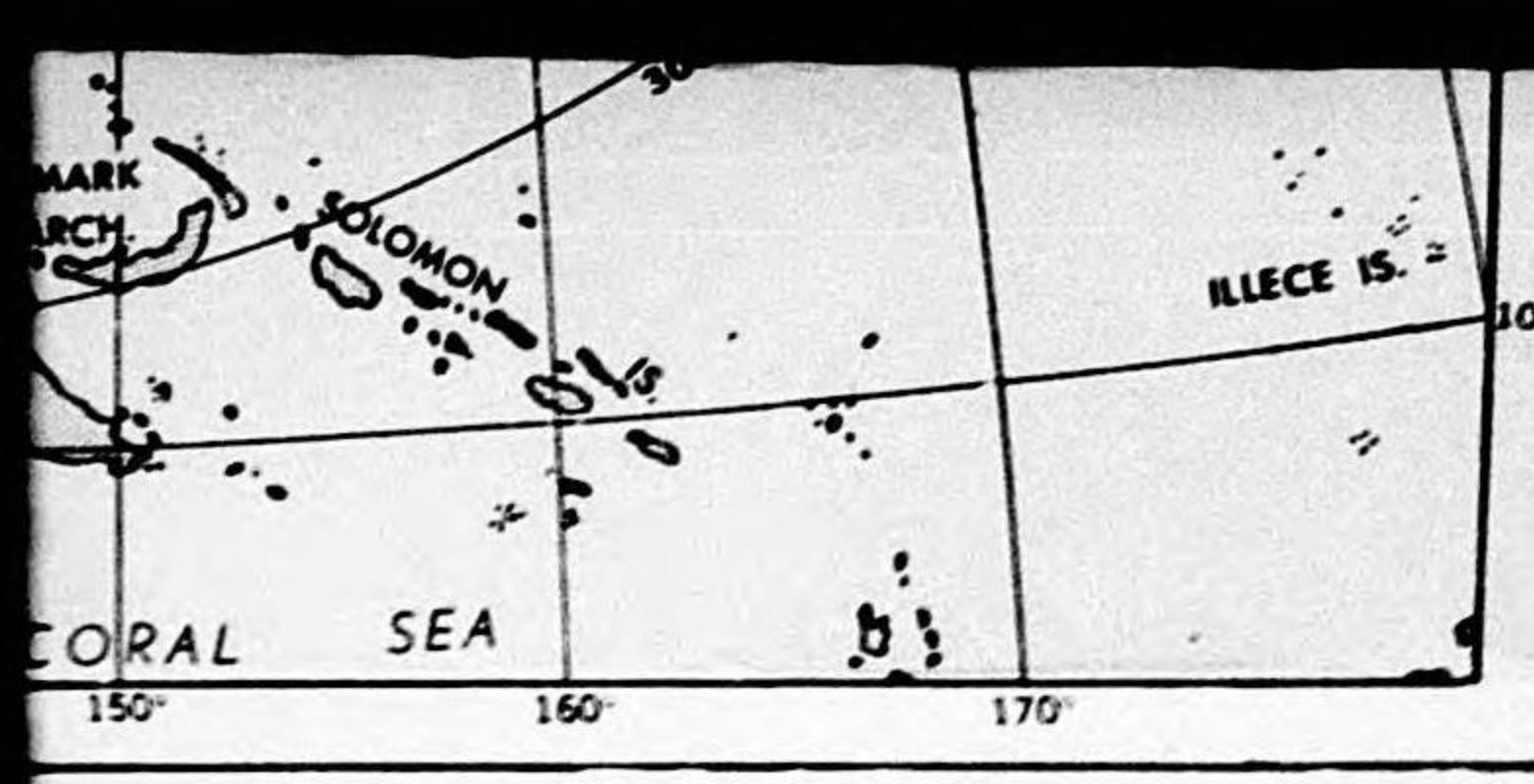
SEA OF JAPAN

39°

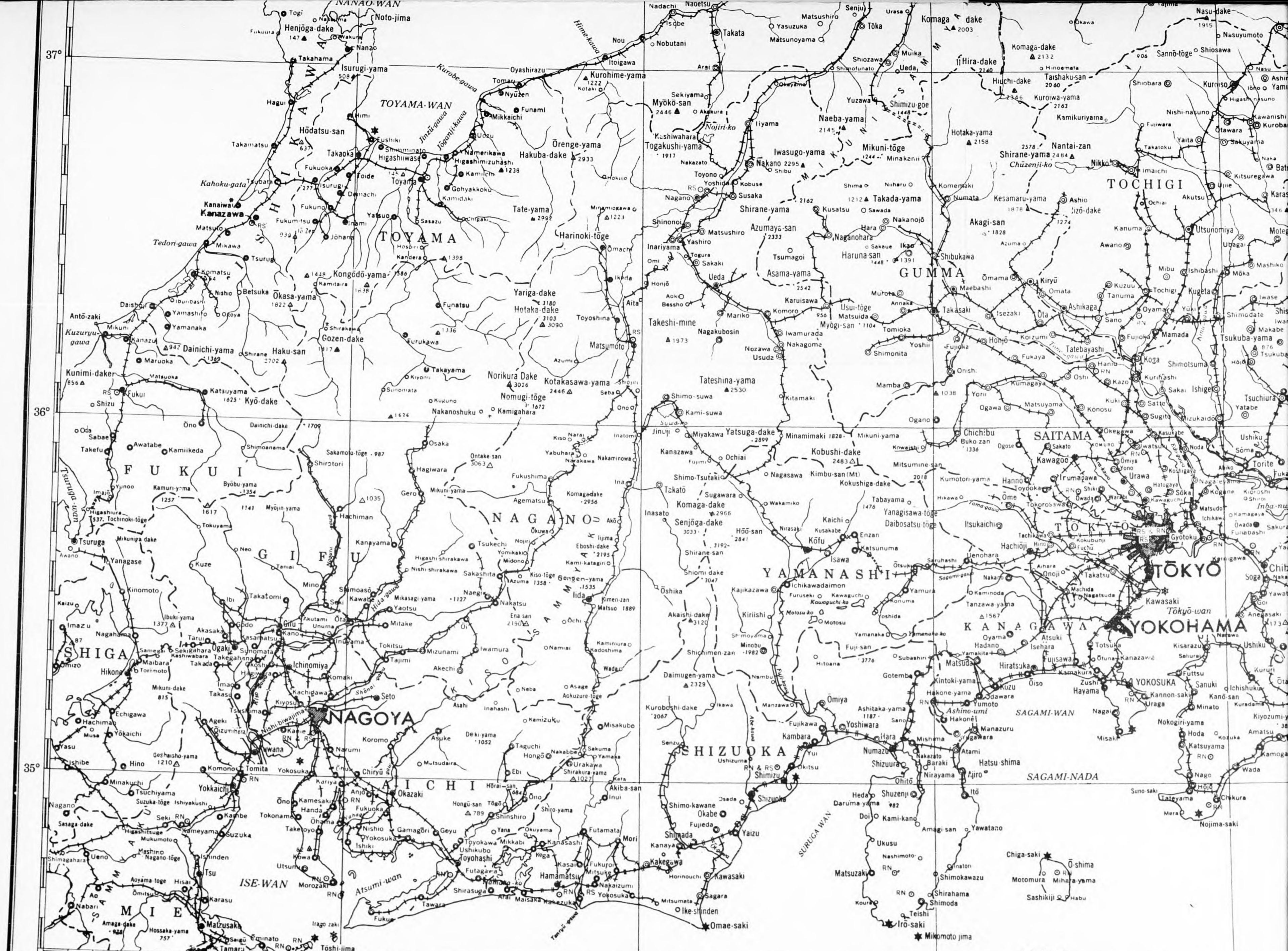
38°

37°





DACILEC



37°

36°

35°

136°

137°

138°

139°

140°

○ To-shima



PACIFIC

OCEAN

139° 140° 141° 142° 142° 15'

37°

36°

35°

PLAN 1

JANIS 85 CONFIDENTIAL

CENTRAL JAPAN
(HYPSONOMETRY)

136° 137° 138° 139° 140°

42° 41° 40°

CENTRAL JAPAN

(CENTRAL AND NORTHERN HONSHU)

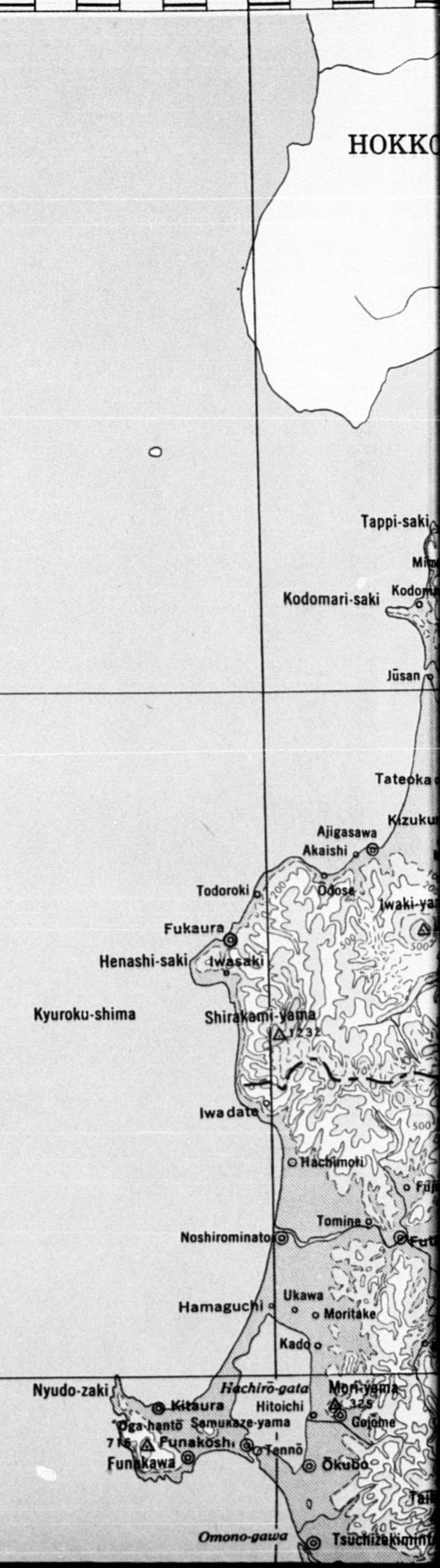
HYPSONOMETRY

ALTITUDE TINTS

Meters	Feet
3000	10811
2500	8202
2000	6562
1500	4921
1000	3281
500	1640
200	656
100	328
Sea Level	0

GLOSSARY

- dake mountain
- gawa river
- hana point
- jima island
- kaik, ō strait
- kawa river
- ko lake
- mino mountain
- misaki cape
- mori mountain
- nada sea
- saki cape, point
- sammyaku ... mountain range
- san mountain
- sen mountain
- shima island
- take mountain
- tōge mountain pass
- umi lake
- wan bay
- yama mountain
- zan mountain

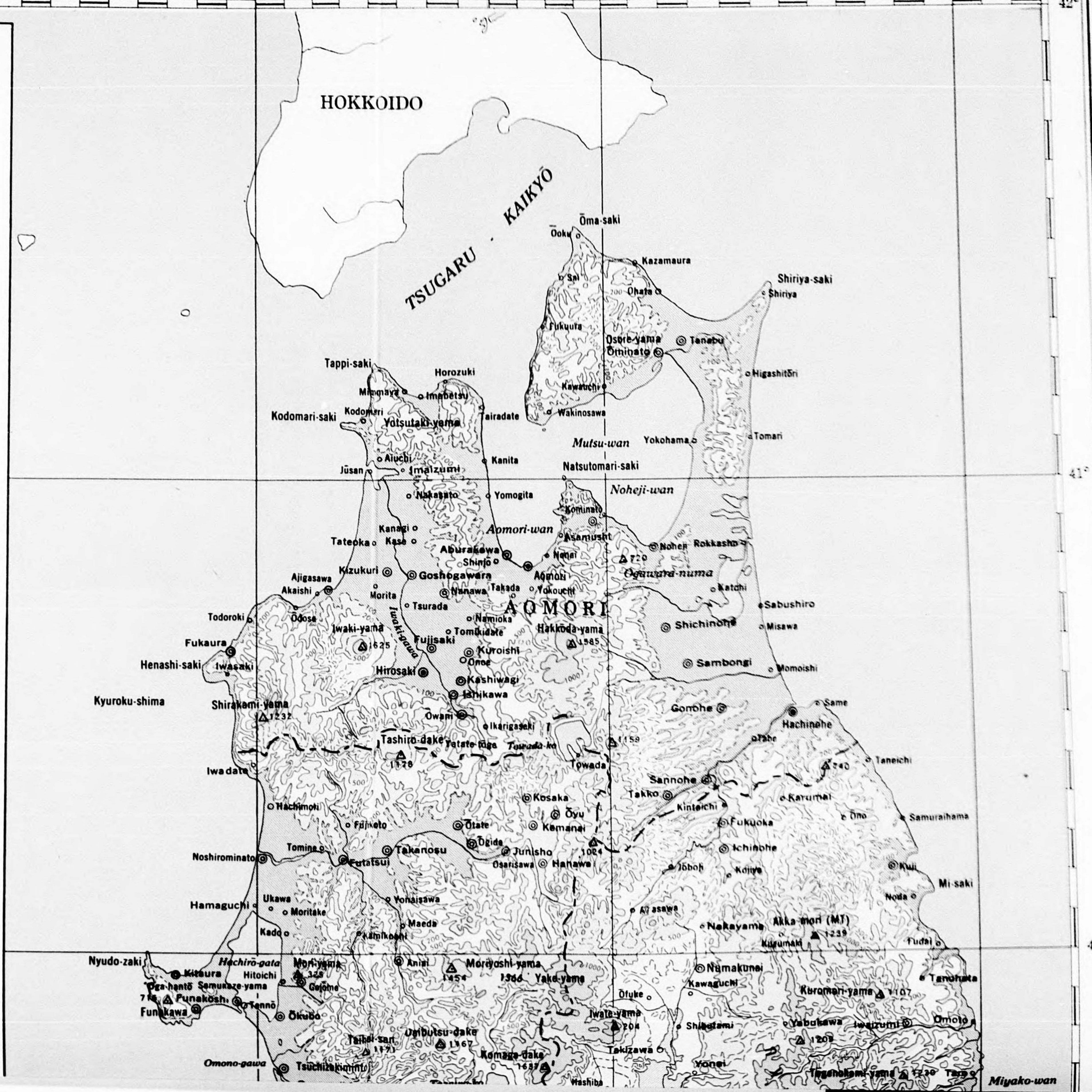


138° 139° 140° 141° 142° 142°15'

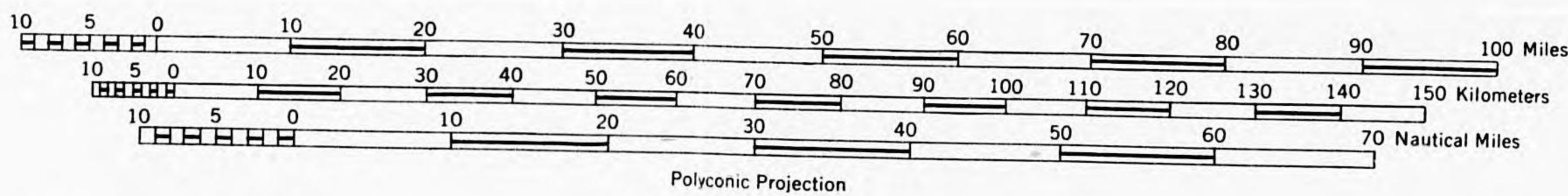
JAPAN
 (NORTHERN HONSHU)
 AOMORI PREFECTURE

GLOSSARY

- | | | |
|-------------------|-----------------|---------------|
| mountain | -sammyaku | mountain |
| river | range | |
| point | -san | mountain |
| island | -sen | mountain |
| strait | -shima | island |
| river | -take | mountain |
| lake | -tōge | mountain pass |
| mountain | -umi | lake |
| cape | -wan | bay |
| mountain | -yama | mountain |
| sea | -zan | mountain |
| cape, point | | |



HEIGHTS IN METERS



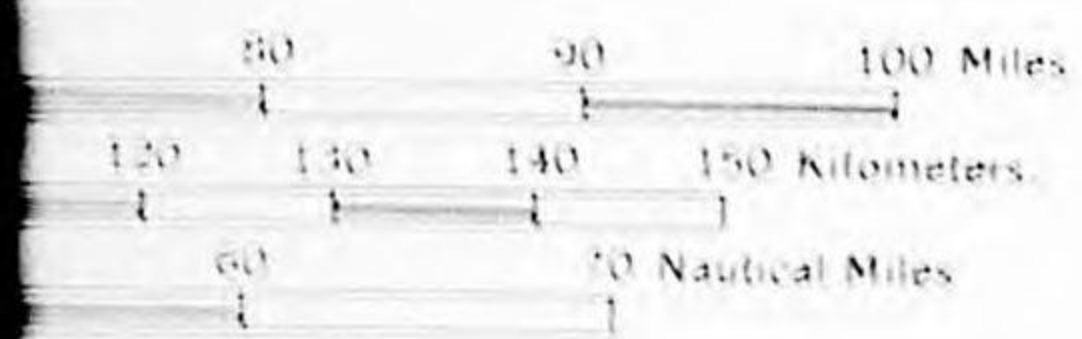
SEA OF JAPAN

39°

38°

37°



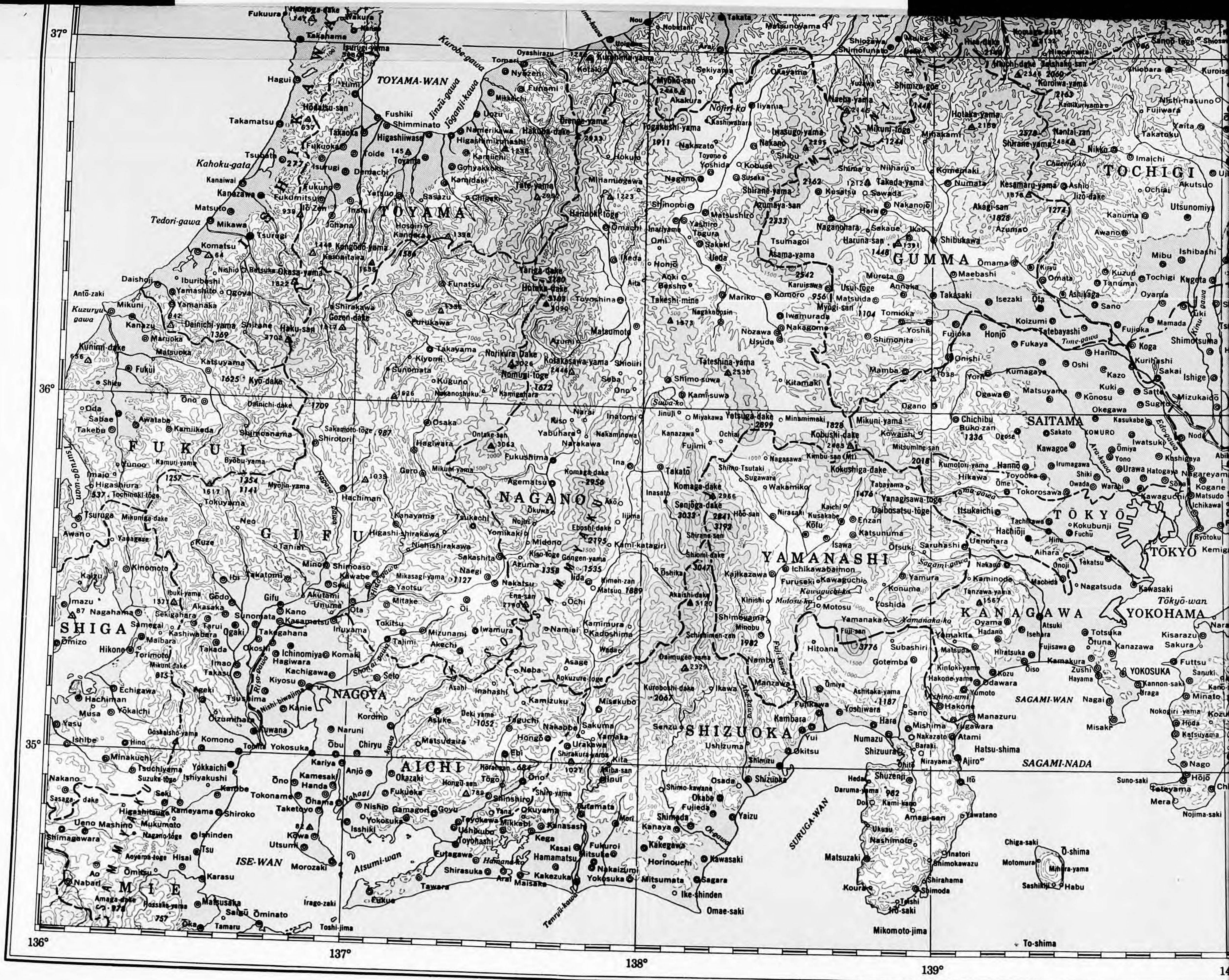


Miyako-wan
Hei-saki
Todo-saki
Sangan-shima
Kumatsi-wan
Kobe-saki

39°

38°

37°



37°

36°

35°

136°

137°

138°

139°

140°



37°

36°

35°

PACIFIC

OCEAN

139°

140°

141°

142°

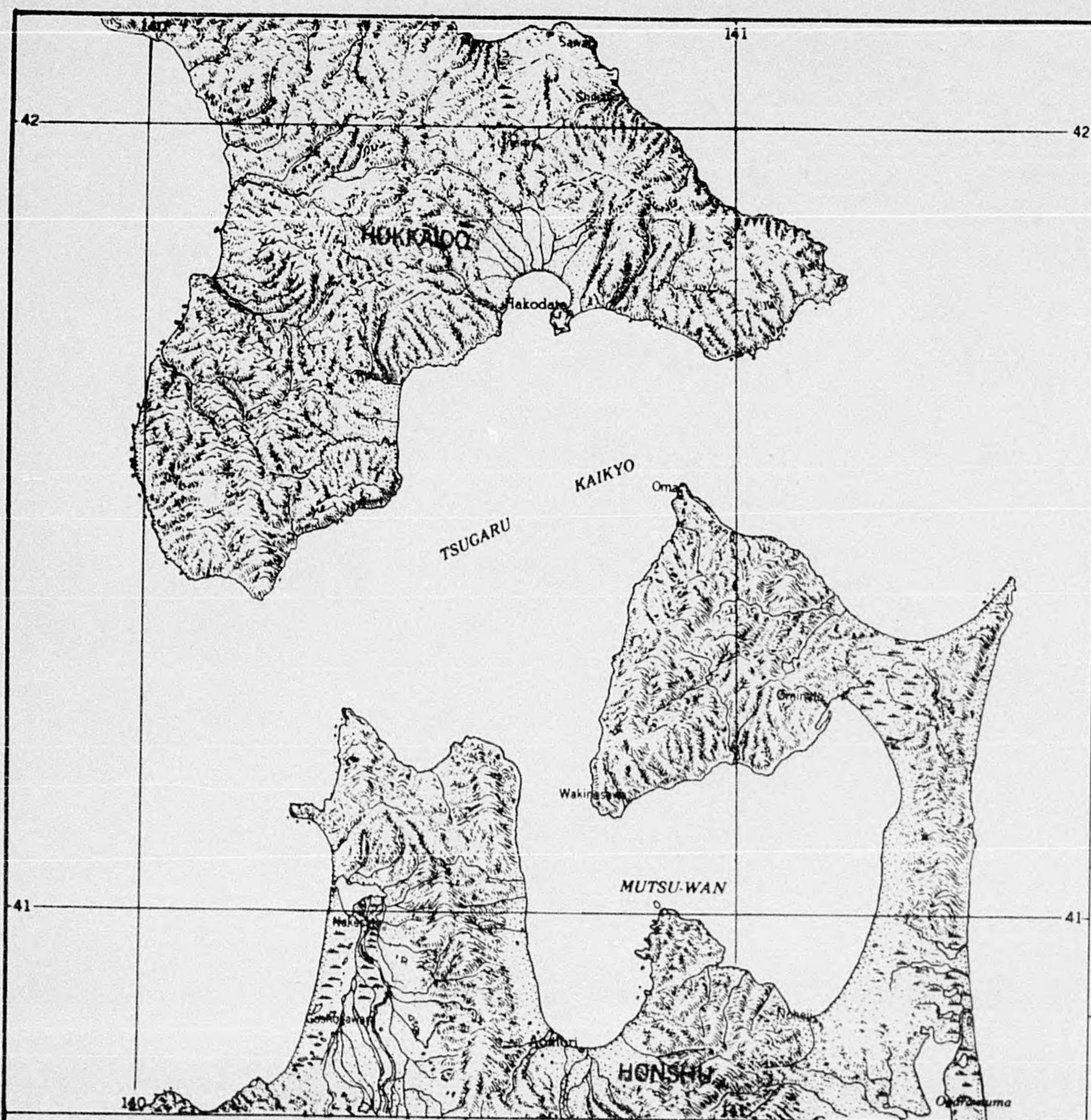
142°15'

PLAN 2

JANIS 85

RESTRICTED

CENTRAL AND NORTHERN HONSHU
(PHYSIOGRAPHIC DIAGRAM)



CENTRAL JAPAN CENTRAL AND NORTHERN HONSHŪ

PHYSIOGRAPHIC DIAGRAM

A physiographic diagram on this scale is capable of showing only a generalized pictorial representation of the relief features. This diagram does not pretend to show, or locate in detail, every mountain, valley, river, etc. It does show, however, the distribu-

J A P A N

S E A



PLAN 2
JANIS 85
RESTRICTED



JAPAN

SEA

MUTSU-WAN

Noshiromachi

Wakino

Furumai

Gambou

Yonagoi

Sarobe

Maebashi

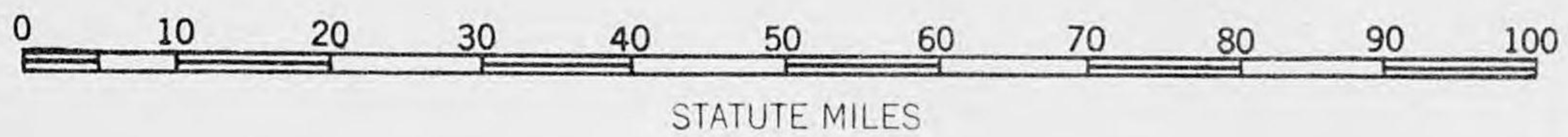
Mitsuta

Yamaguchi

Konno

Sakata

A physiographic diagram on this scale is capable of showing only a generalized pictorial representation of the relief features. This diagram does not pretend to show, or locate in detail, every mountain, valley, river, etc. It does show, however, the distribution and type of relief features. It is graphic and may be appraised rapidly. Conclusions based on this physiographic diagram must be based on an understanding of the mechanical limitations of the method.





39

38

37

OCEAN

PACIFIC

TH

Sakata

Yunohama

SENDAI BAY

Sakama

Niigata

Teradama

Kashima

Nagasaki

Olawara

Utsunomiya

Maebashi

Kumagaya

Kasumiga-ura





PLAN 3

JANIS 85

RESTRICTED

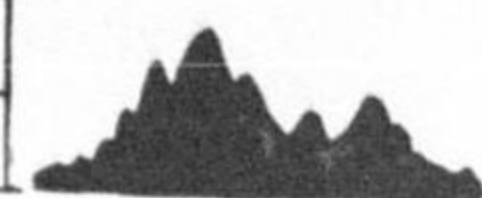
CENTRAL AND NORTHERN HONSHU
(TERRAIN REGIONS AND PROFILES)

CENTRAL JAPAN
CENTRAL AND NORTHERN
HONSHŪ
TERRAIN REGIONS AND PROFILES



Regional Boundaries

Feet
4000
2000
0



Profile (vertical scale exaggerated five times)



136

137

138

40



TSUGARU-KAIKYŌ
TSUGARU-KAIKYŌ



Wakirassu

MUTSU

PE

ISLAND

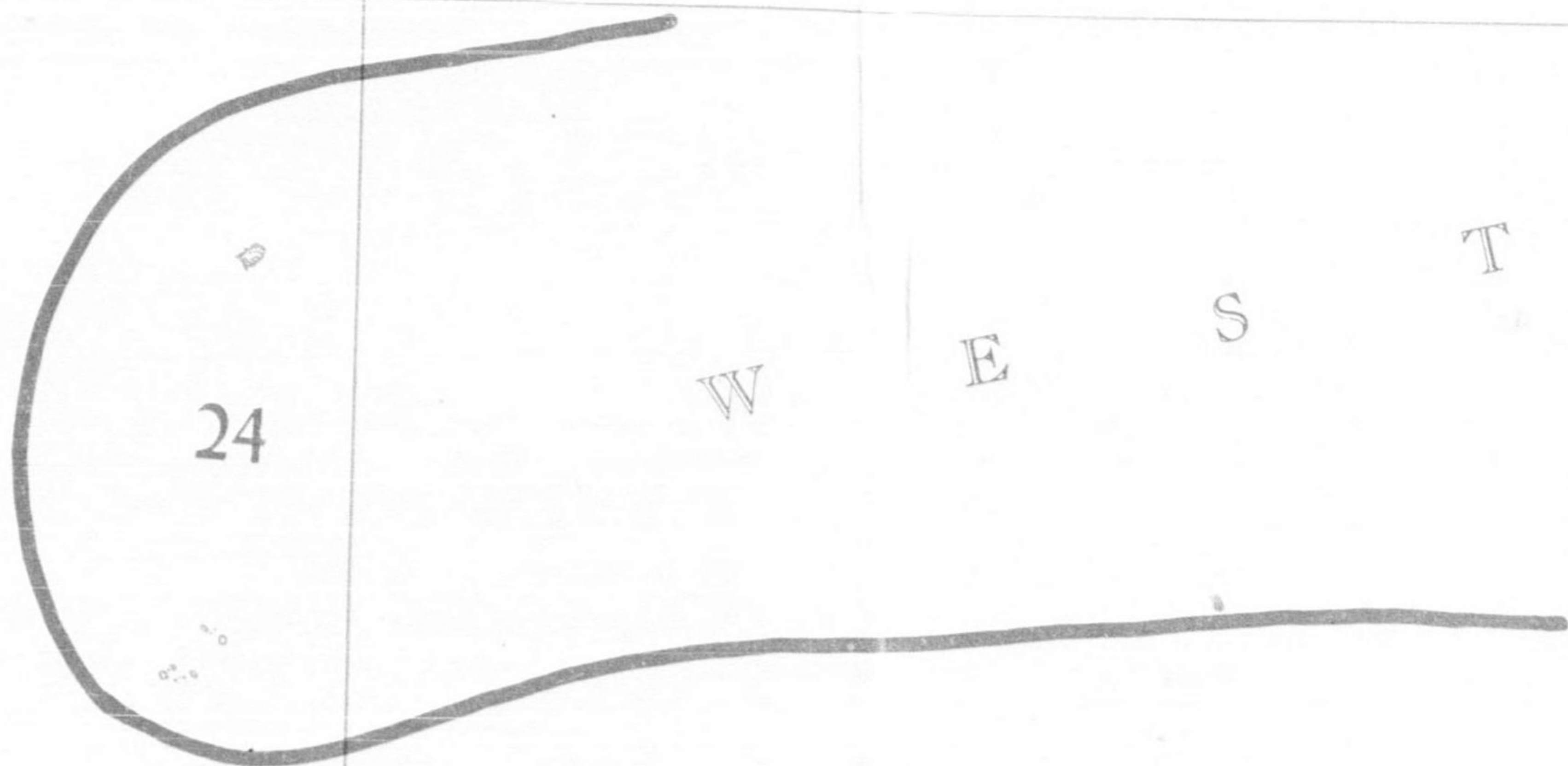


39

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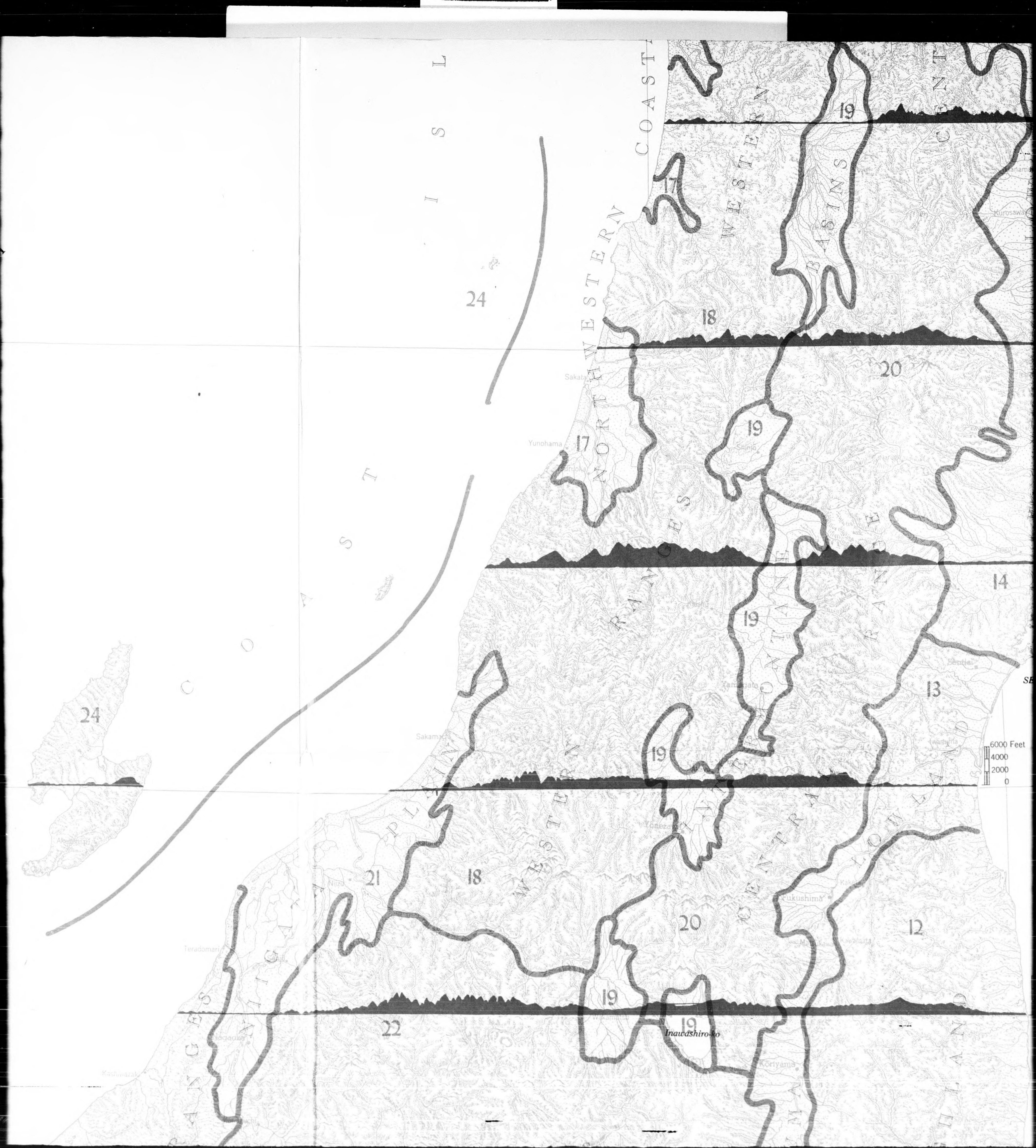
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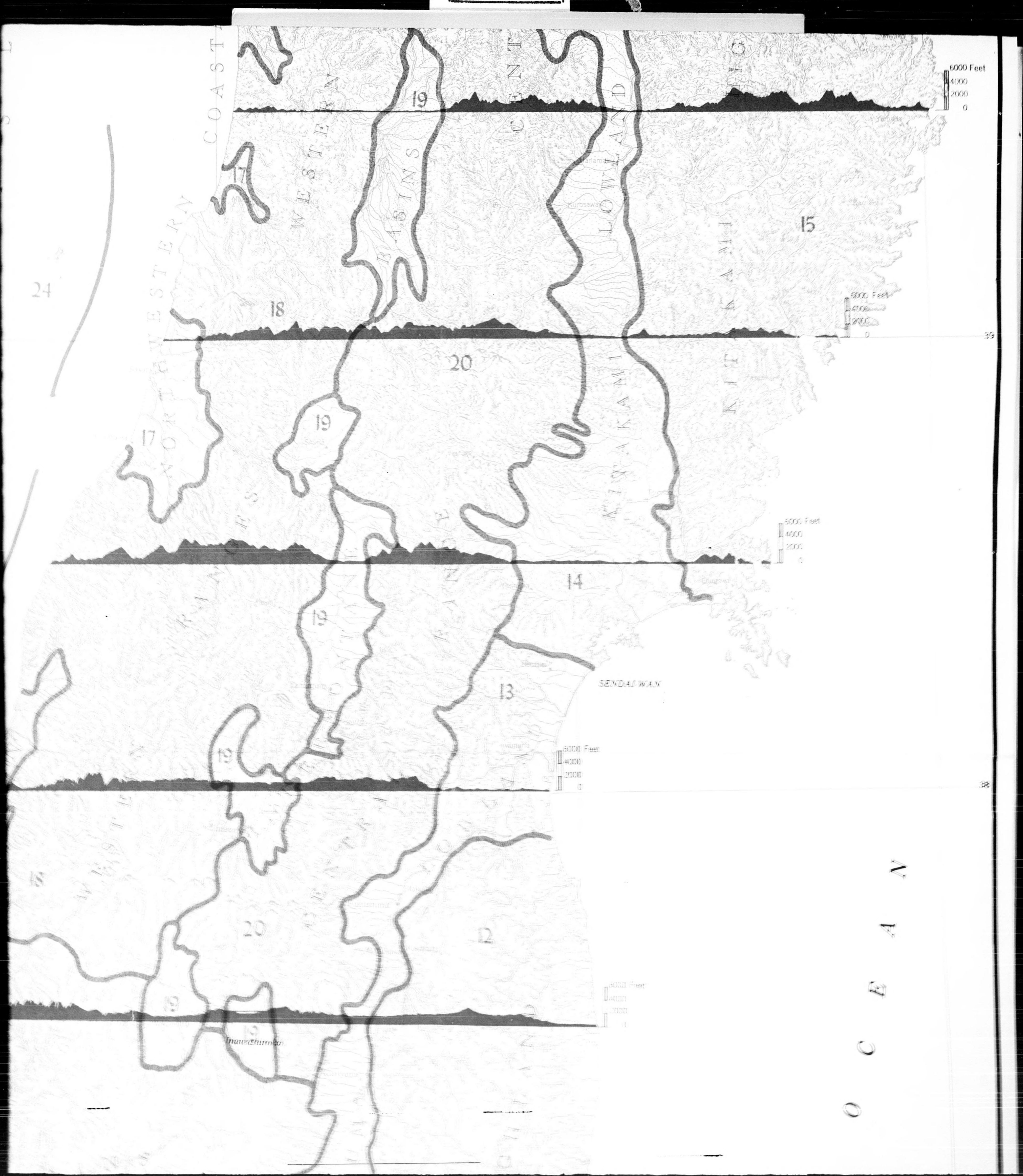


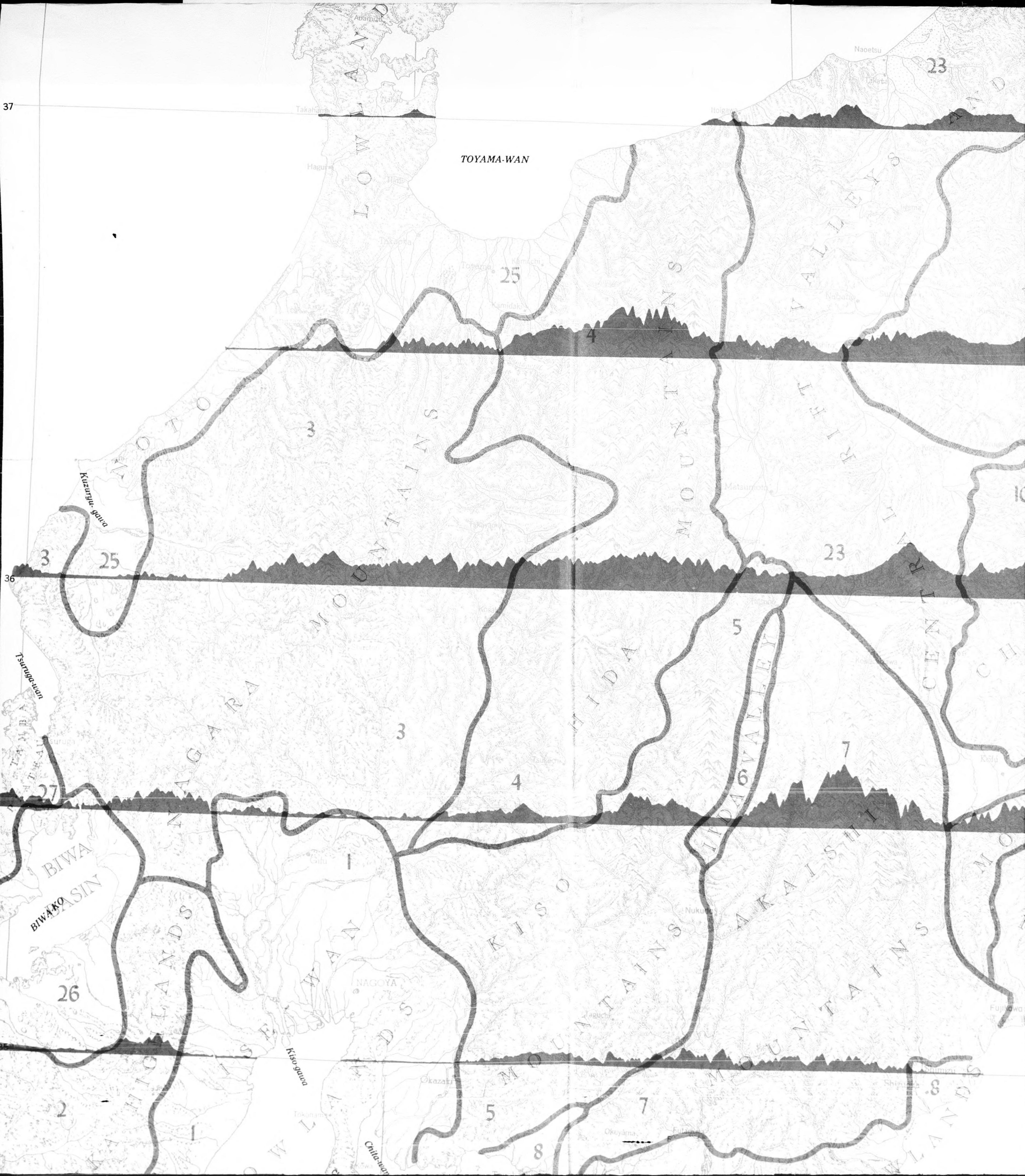
W
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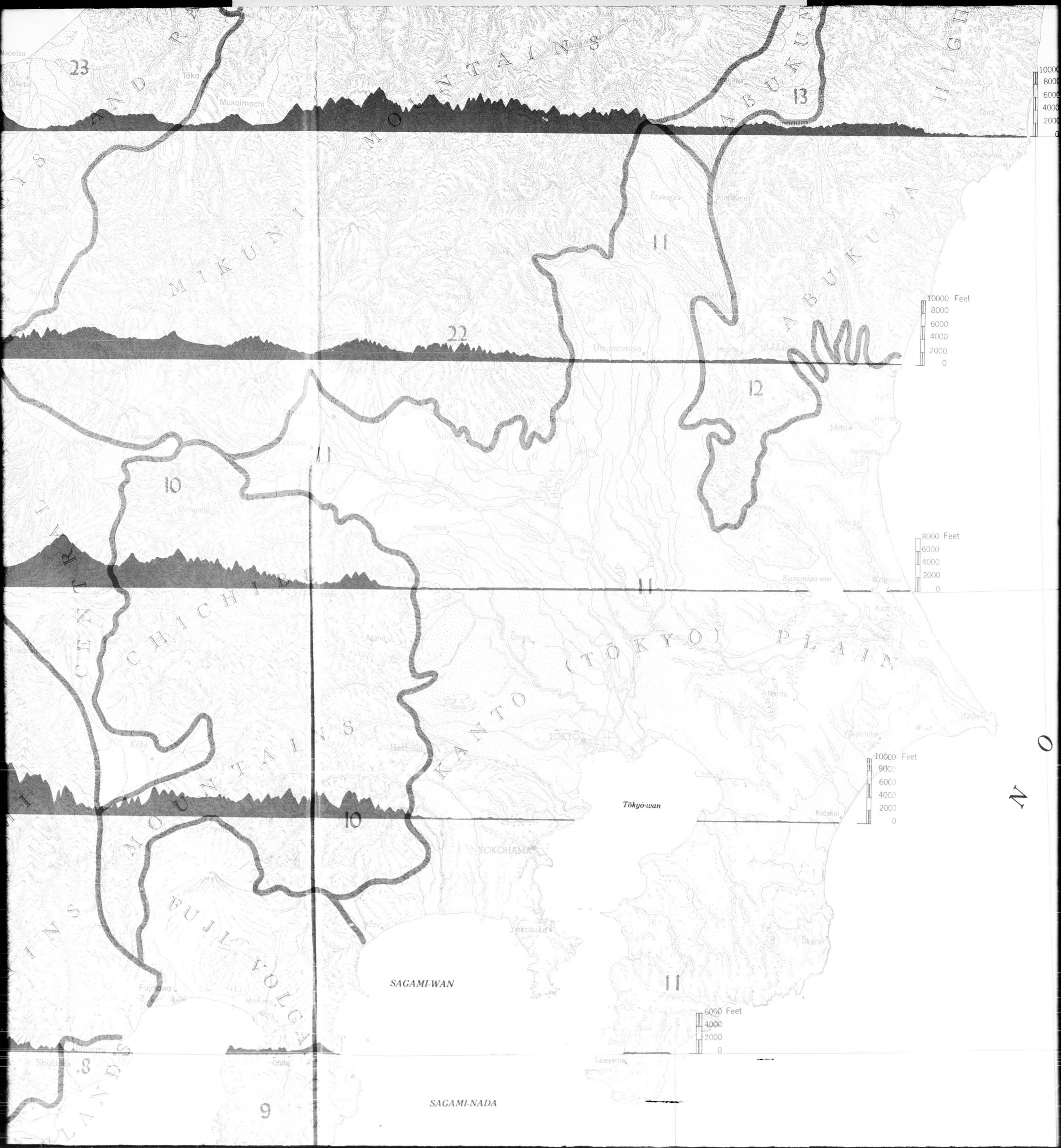


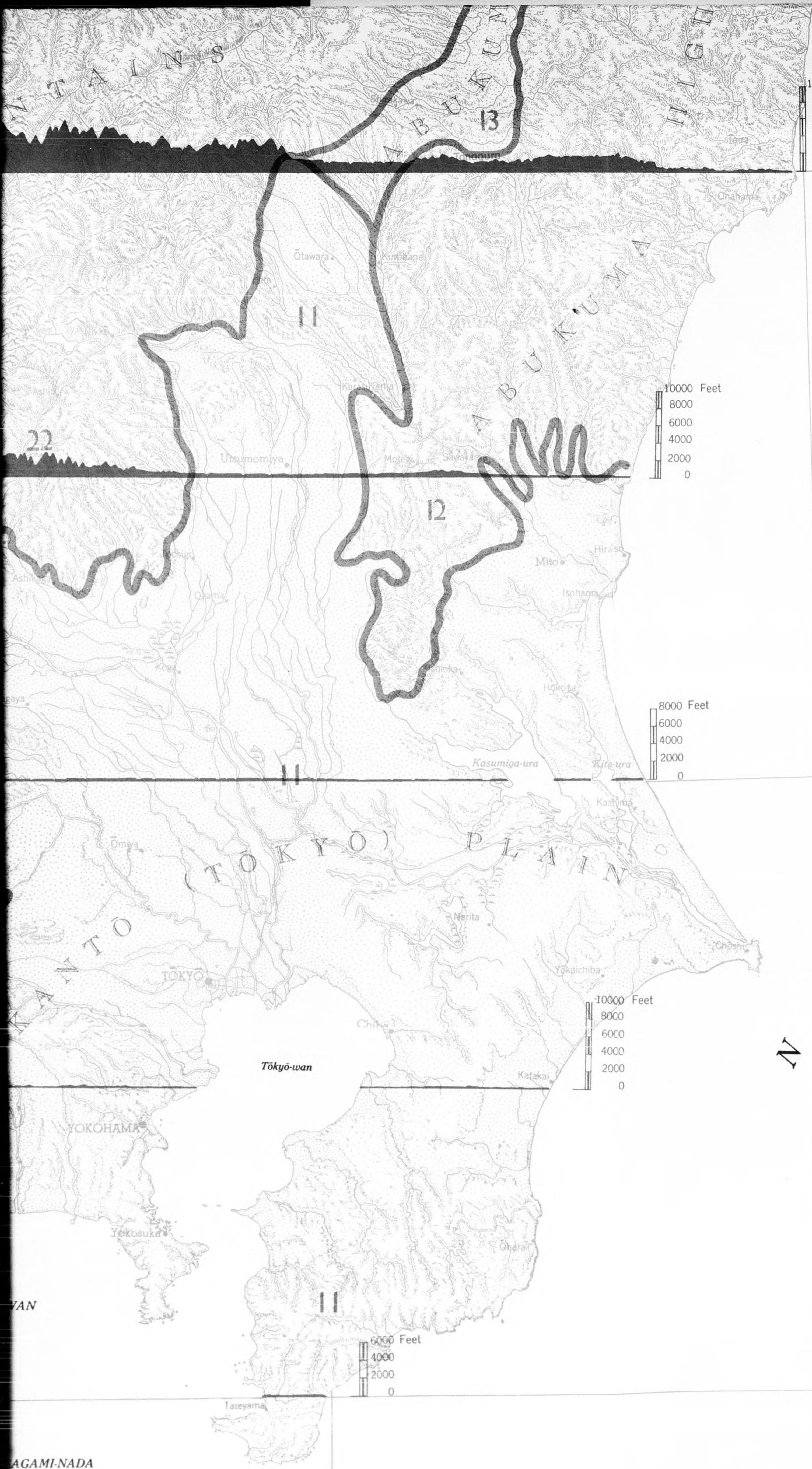
Kashiwazaki











P
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C

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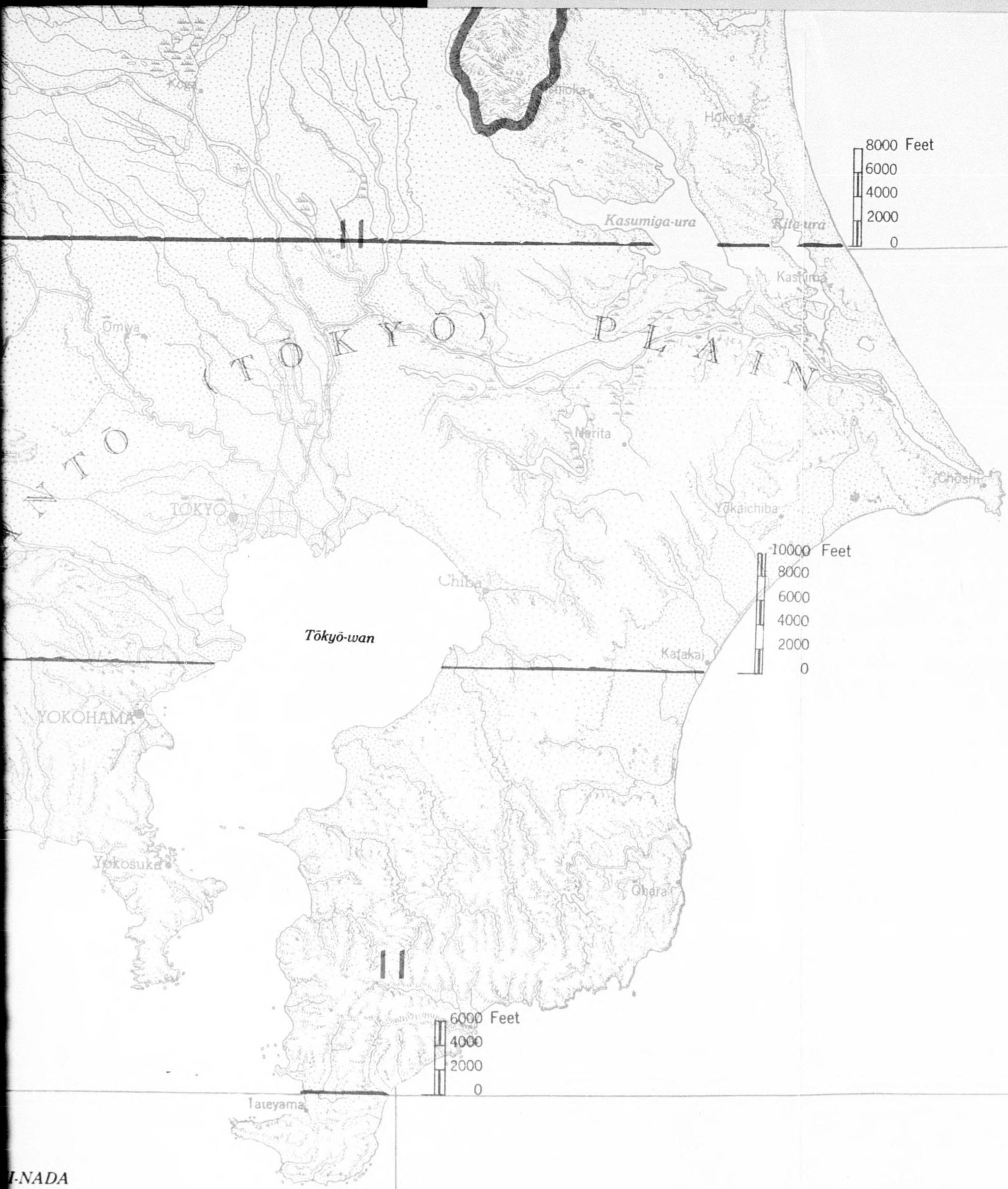
37

36

35

AGAMI-NADA





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JAPAN

140

141

142

PLAN 4(A)

JANIS 85

RESTRICTED

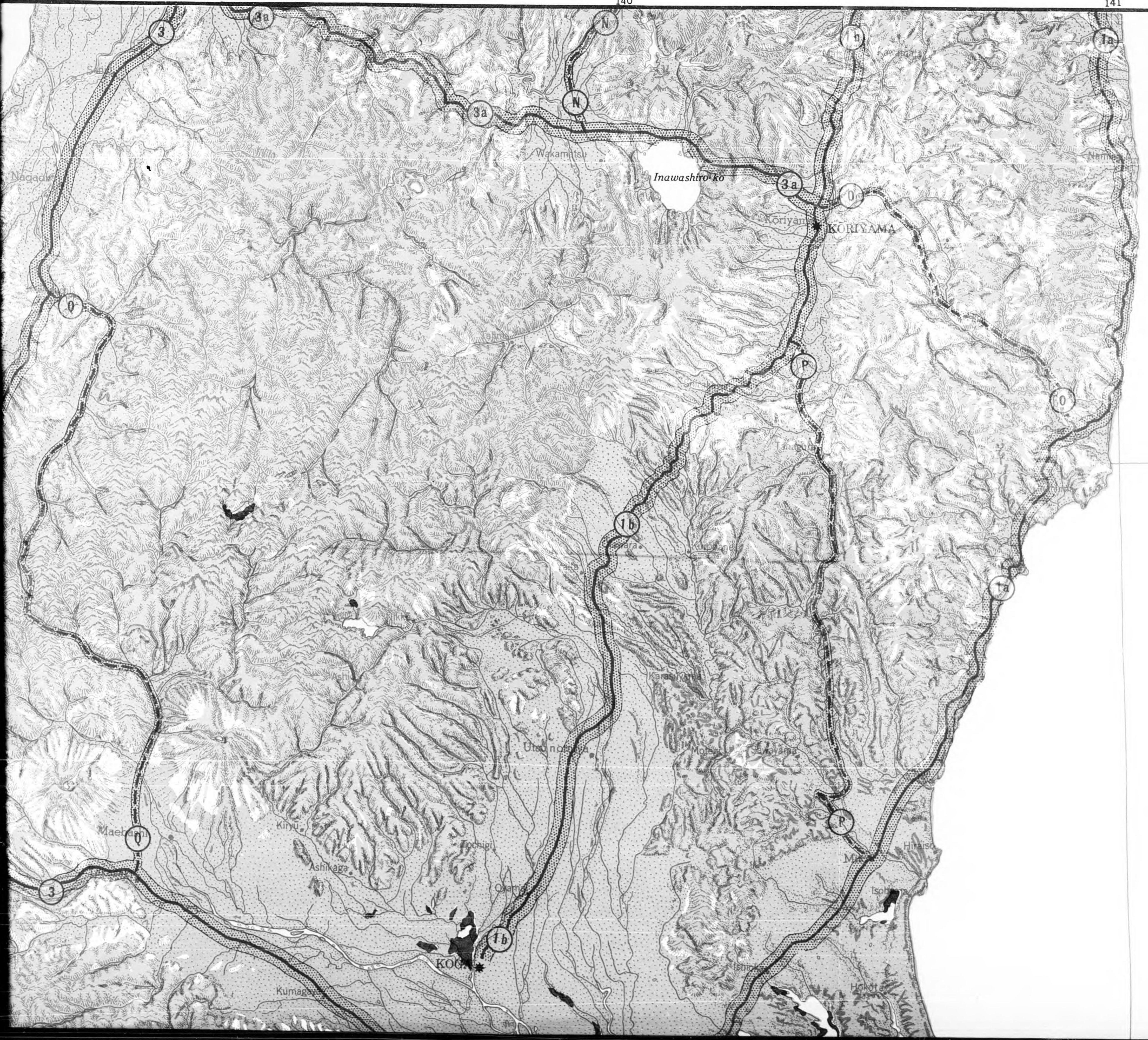
CENTRAL AND NORTHERN HONSHU

(SLOPE & SELECTED ROUTES)

SOUTH SHEET









141

142

OCEAN

37

PACIFIC

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36

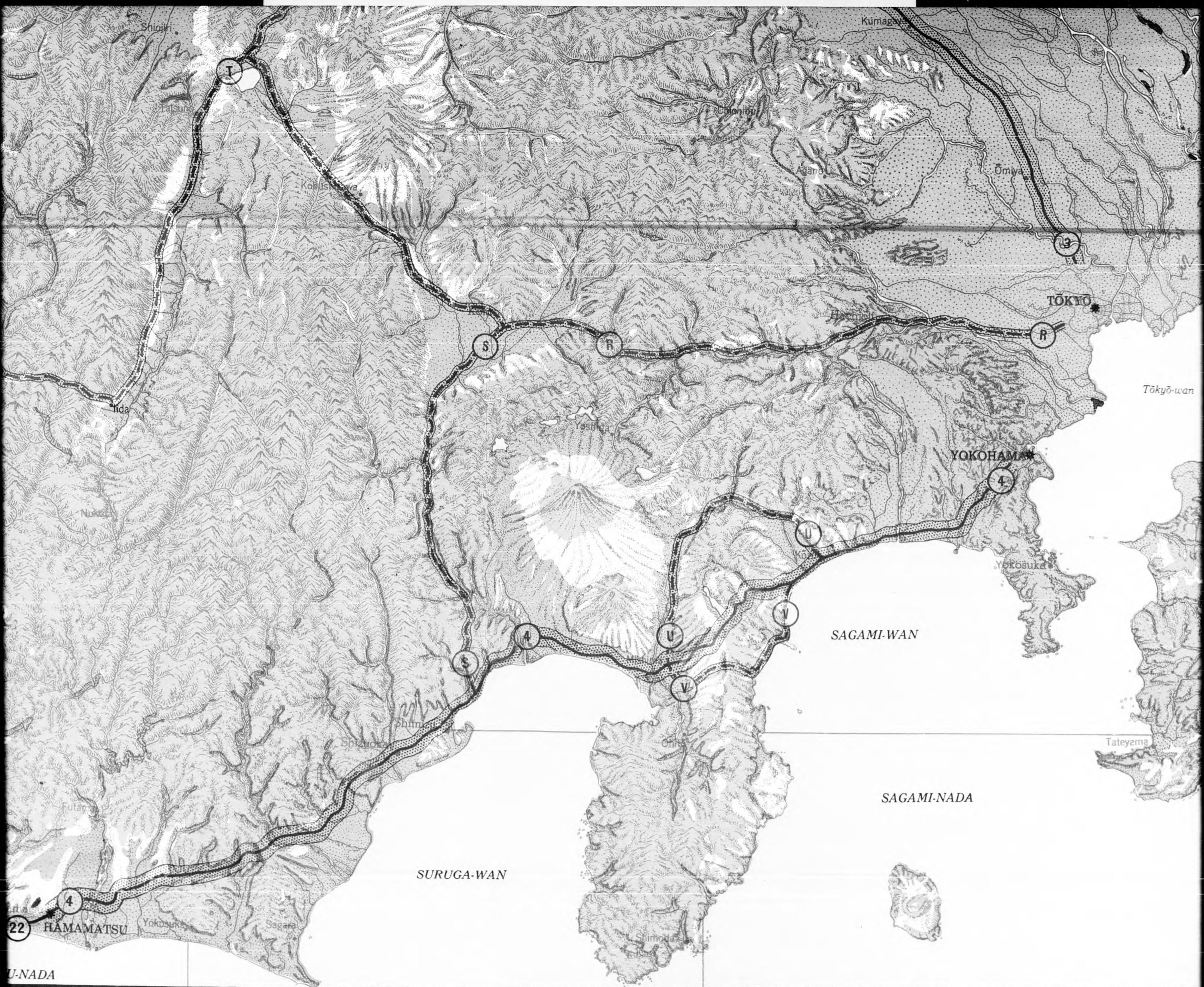
35

136

137

138

ENSHU-NADA



SAGAMI-NADA

SAGAMI-WAN

SURUGA-WAN

TOKYO

YOKOHAMA

Tōkyō-wan

Tateyama

Kumagata

Monbu

Adano

Ōmya

Kobusawa

Shioiri

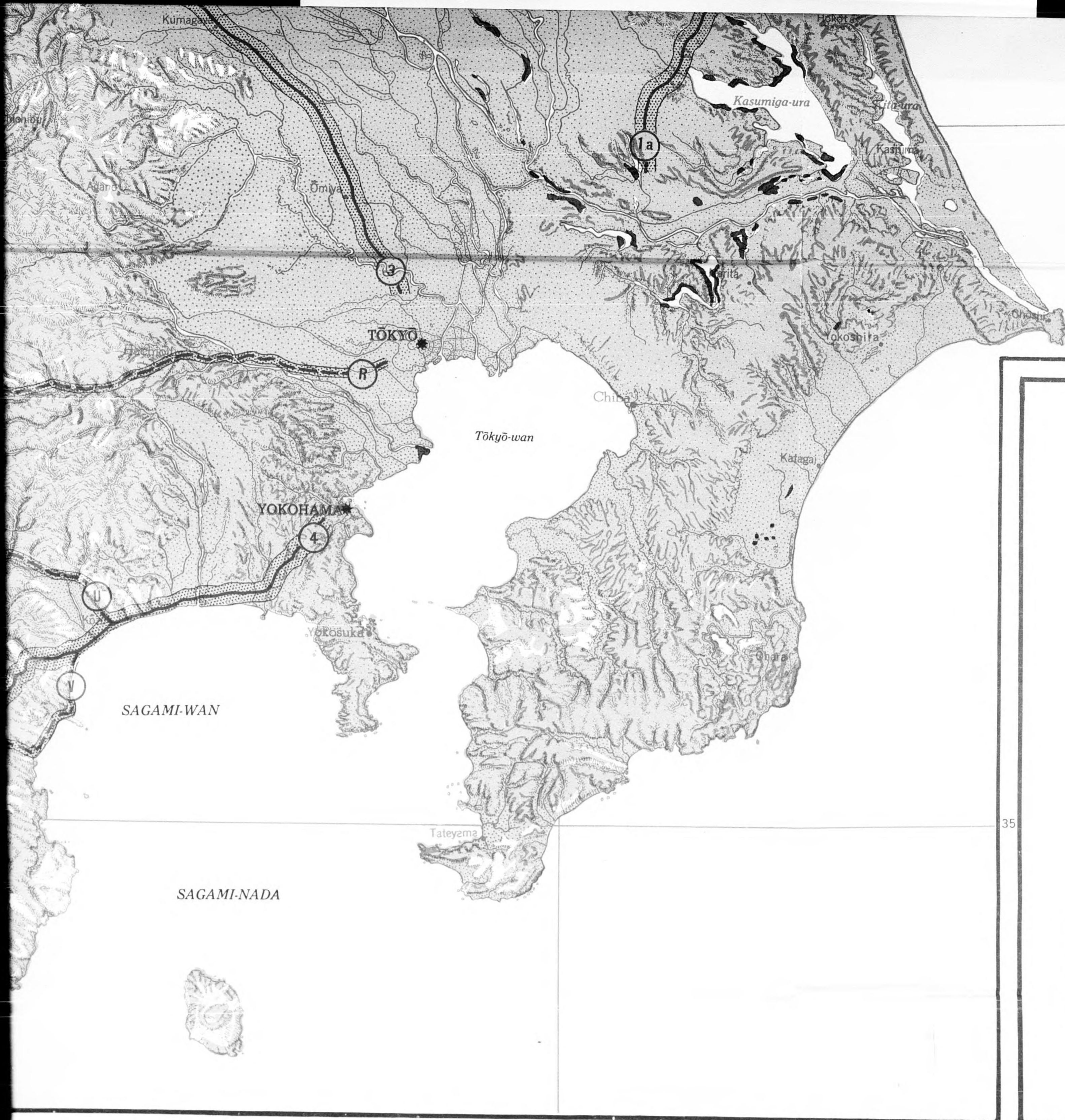
Iida

Nokubi

Futarō

Shimizu

Ōmi



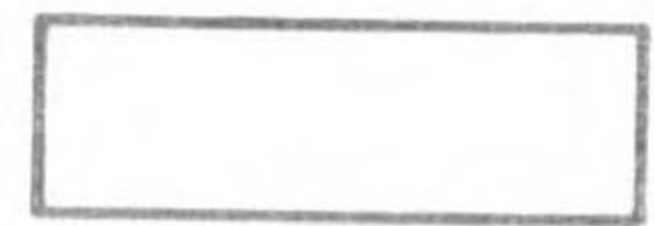
NORTH

141

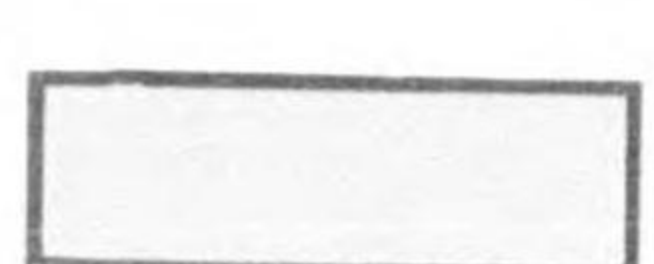
CENTRAL AREA
CENTRAL AREA
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 SLOPE AND S
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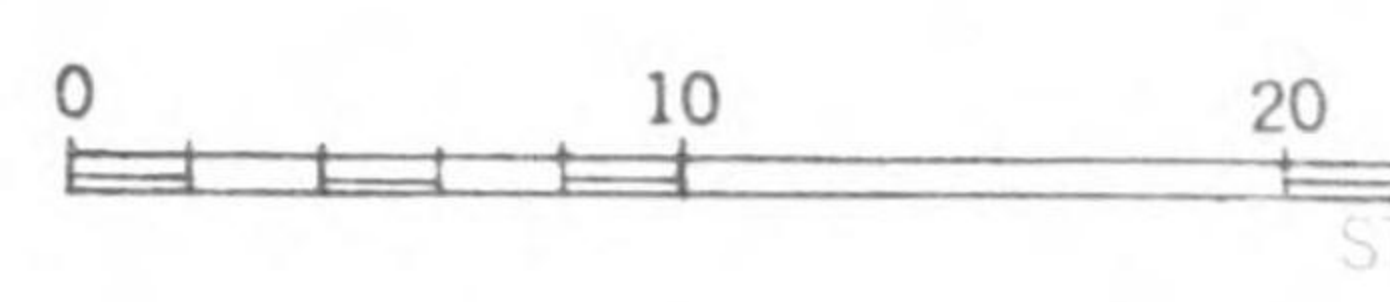
AREAS OF
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 rice cultivation



Marsh a



Selecte
 Second
 Routes



STAT



NORTH

36

141

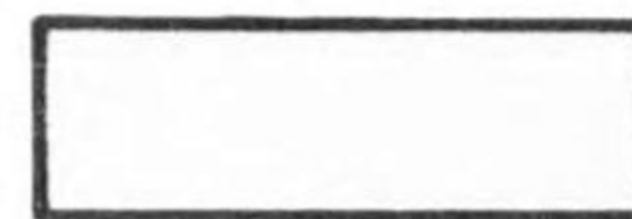
142

CENTRAL JAPAN CENTRAL AND NORTHERN HONSHŪ SLOPE AND SELECTED ROUTES SOUTH SHEET

SLOPE



AREAS OF STEEP SLOPE (mostly over 30 per cent) regardless of elevation. Includes steep hills, mountains, cliffs, narrow valleys, etc. Some inaccessible spots of less steep slope may be included. In general, areas of this slope class are barrier regions.



AREAS OF INTERMEDIATE SLOPE (mostly between 10 per cent and 30 per cent). Includes hills, gentler mountain slopes, restricted flat valley bottoms, etc. Small areas of steeper or less steep slope are included, such as steep river banks and rolling hill tops. Terrain forms channel movement and restrict deployment to some extent for certain types of vehicles, but routes are available. Where vegetation permits, movement may be easier in parts of this slope class than on flatter lands where much of the surface may be soft, flooded rice fields.



AREAS OF LOW SLOPE (mostly under 10 per cent): Consists of plains, wide valley bottoms, low rolling hills, terrace flats. Small areas of steeper slope, such as stream banks, terrace fronts, dunes and beach ridges, etc., may be included. Slope alone is not an obstacle to movement over any considerable area, although larger parts of the surface may be soft due to rice cultivation or loose due to sand or volcanic ash.

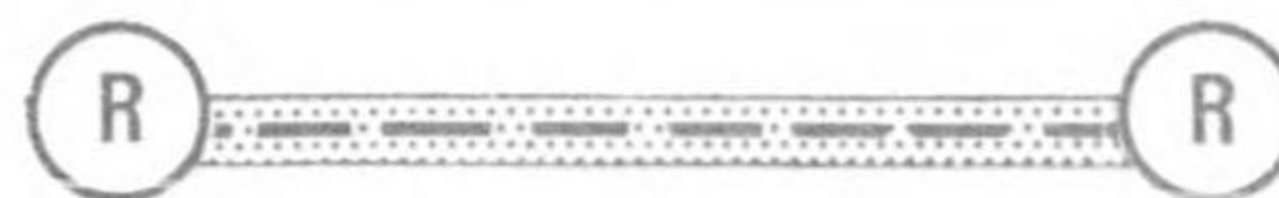


Marsh and Swamp

ROUTES



Selected Routes



Secondary Routes



Routes covered in JANIS 84 (Southwest Japan)



35

140

PLAN 4(B)

JANIS 85

RESTRICTED

CENTRAL AND NORTHERN HONSHU

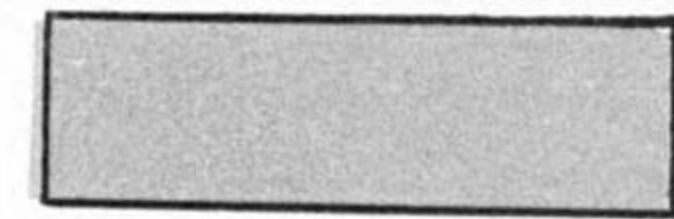
(SLOPE & SELECTED ROUTES)

NORTH SHEET

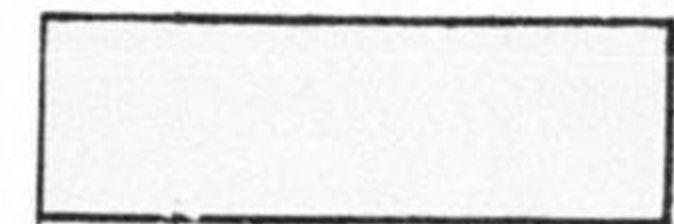
CENTRAL JAPAN CENTRAL AND NORTHERN HONSHŪ

SLOPE AND SELECTED ROUTES NORTH SHEET

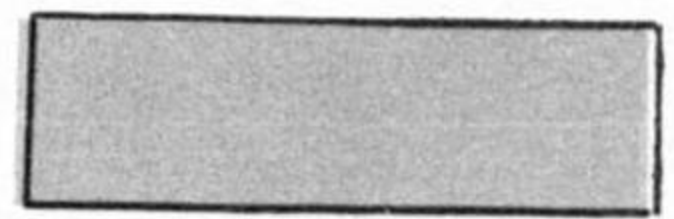
SLOPE



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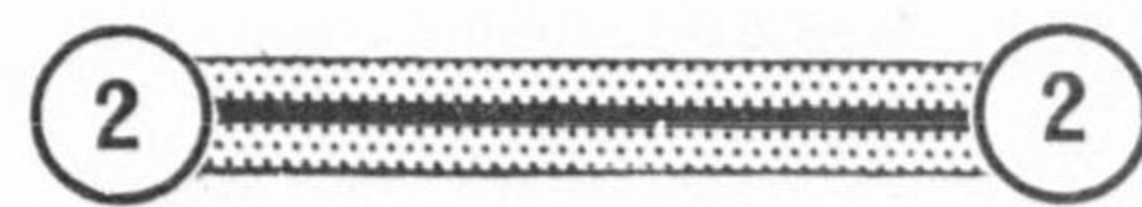


AREAS OF LOW SLOPE (mostly under 10 per cent): Consists of plains, wide valley bottoms, low rolling hills, terrace flats. Small areas of steeper slope, such as stream banks, terrace fronts, dunes and beach ridges, etc., may be included. Slope alone is not an obstacle to movement over any considerable area, although larger parts of the surface may be soft due to rice cultivation or loose due to sand or volcanic ash.



Marsh and Swamp

ROUTES



Selected Routes



Secondary Routes





140

141

142



TSUGARU-KAIKYŌ



Oshima

Wakirasa

MUTSU-WAN



Nakasa

Goshogawara

HONSHU

Ogawara-numa

G

Furumaki

Hirosaki

Sambori

1

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3

HACHINOHE

Powada-ko

Gori

Sanhone

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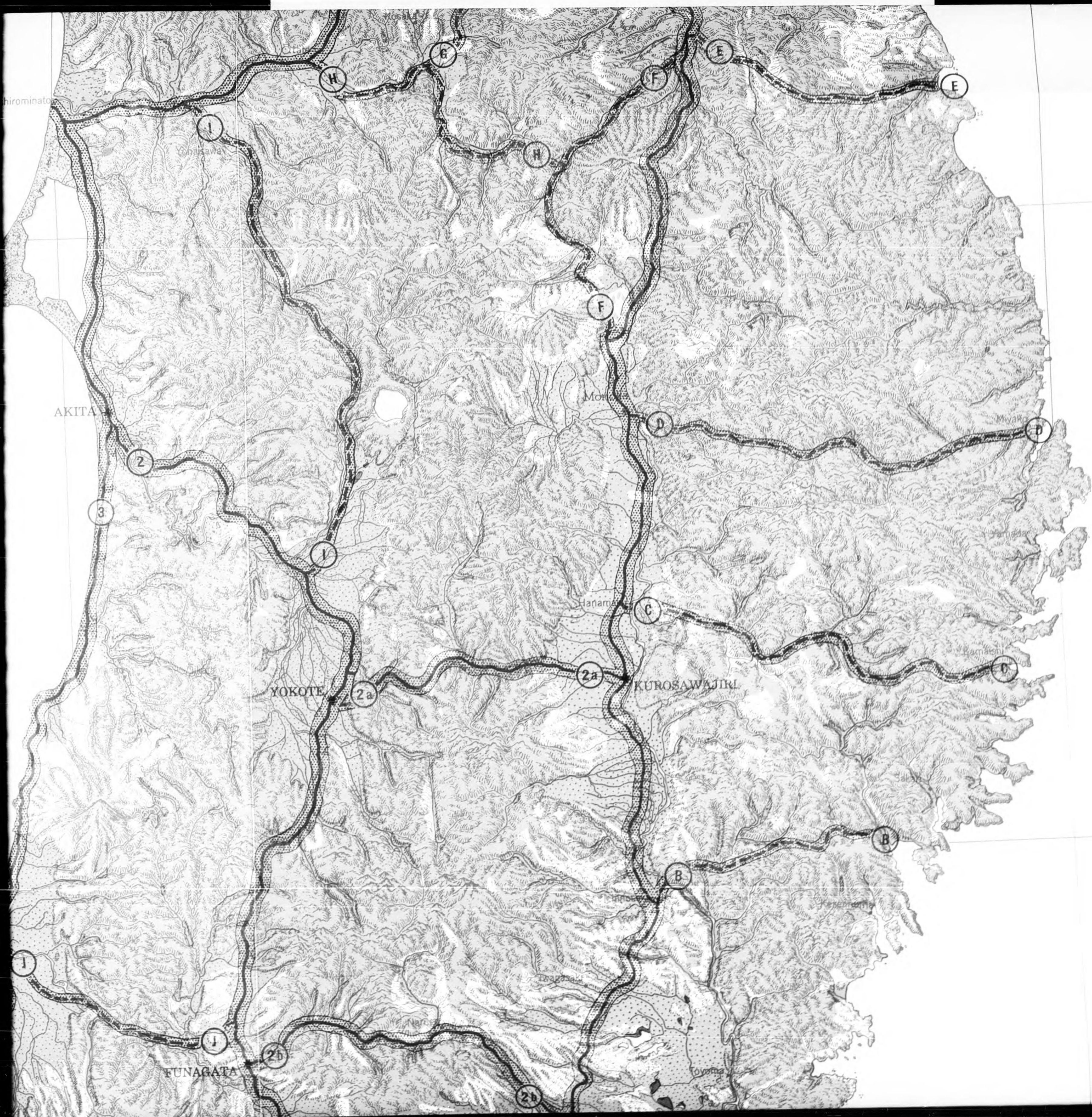
40

39

S E A

N





hirominato

AKITA

YOKOTE

KUROSAWAJIRI

FUNAGATA

Mori

Hanama

Yagasa

Yoyama

40

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6

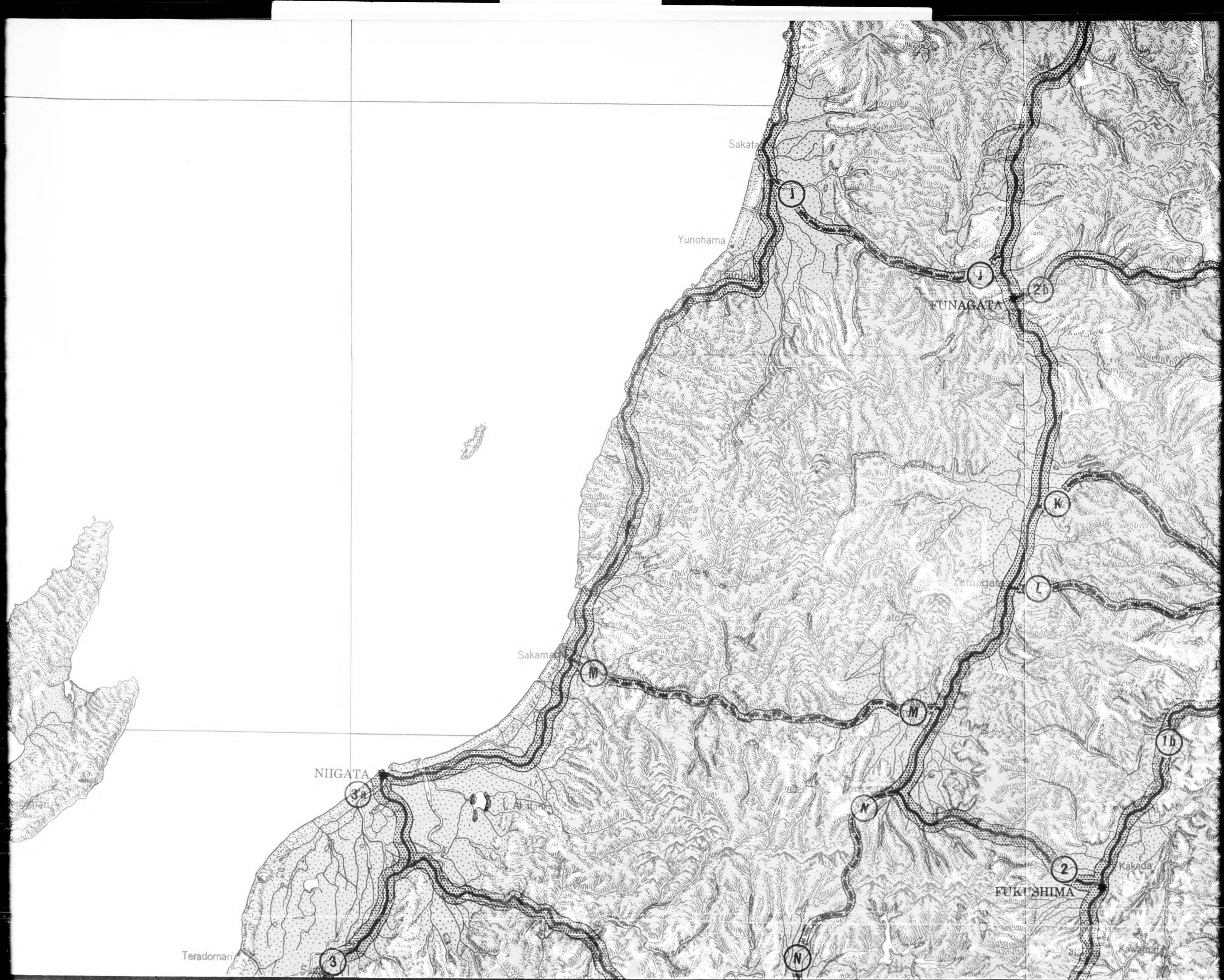
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Teradomari



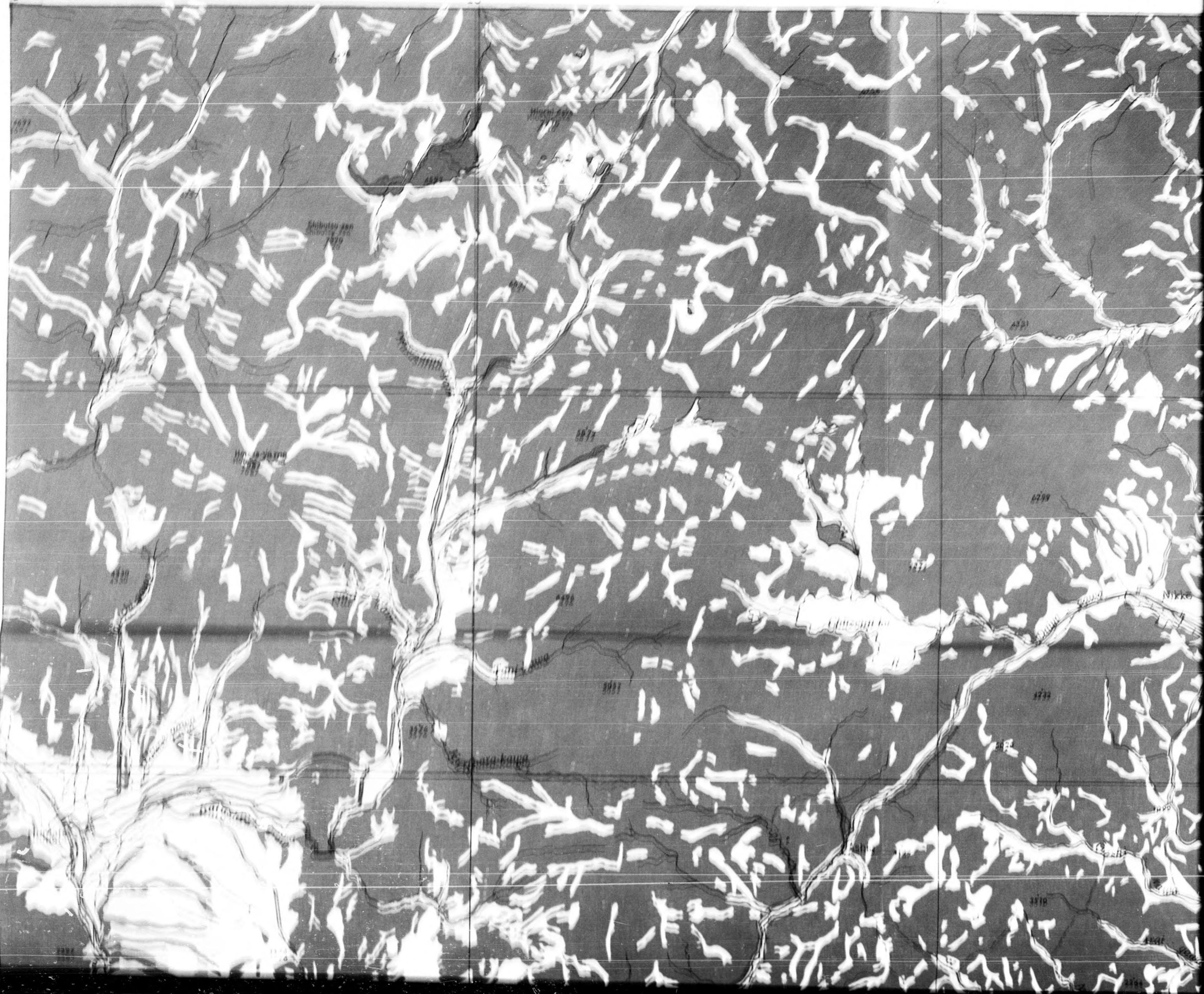


PLAN 5(A)

JANIS 85

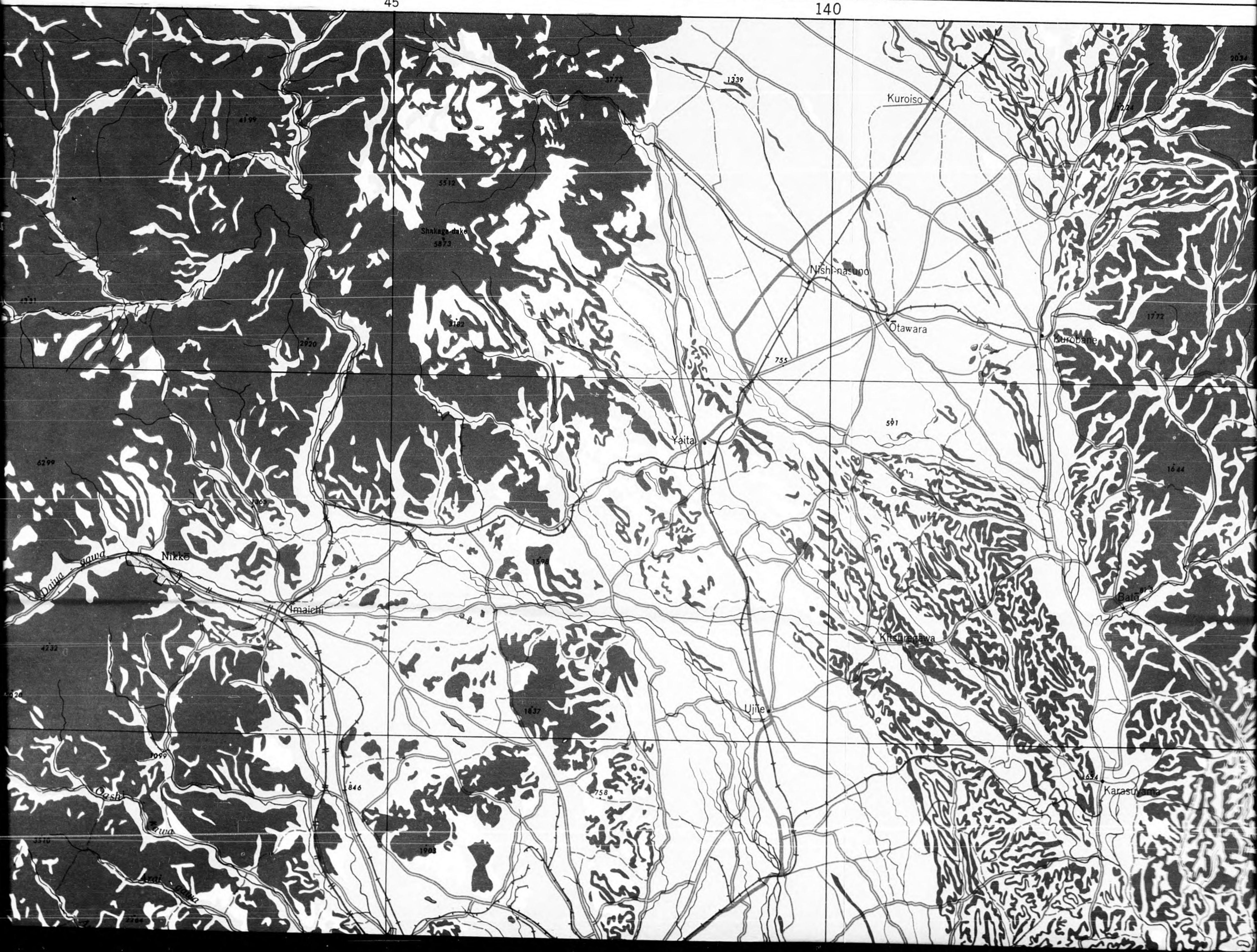
RESTRICTED

KANTO (TOKYO) PLAIN
(SLOPE AND TRANSPORTATION)
NORTH SHEET



45'

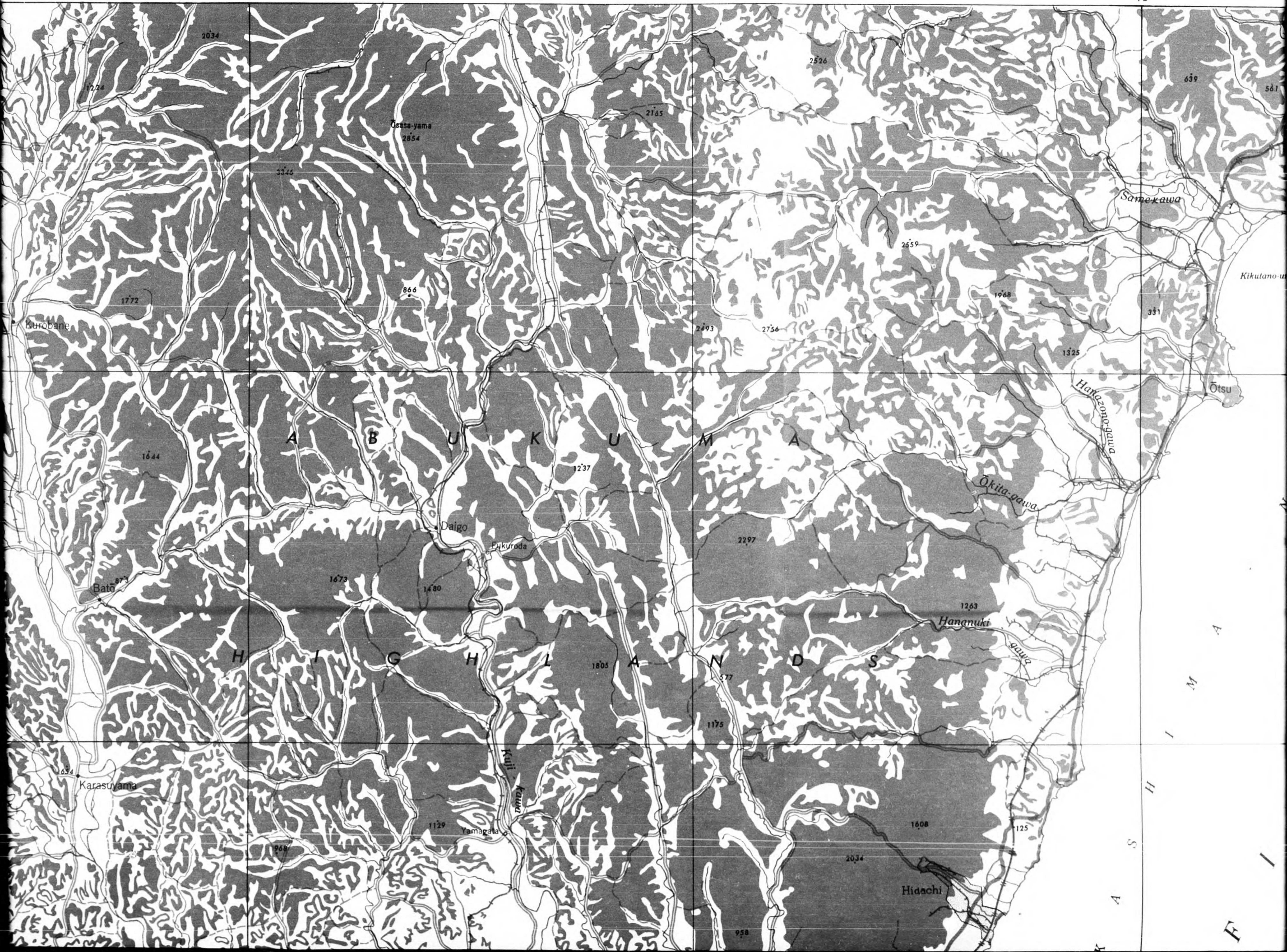
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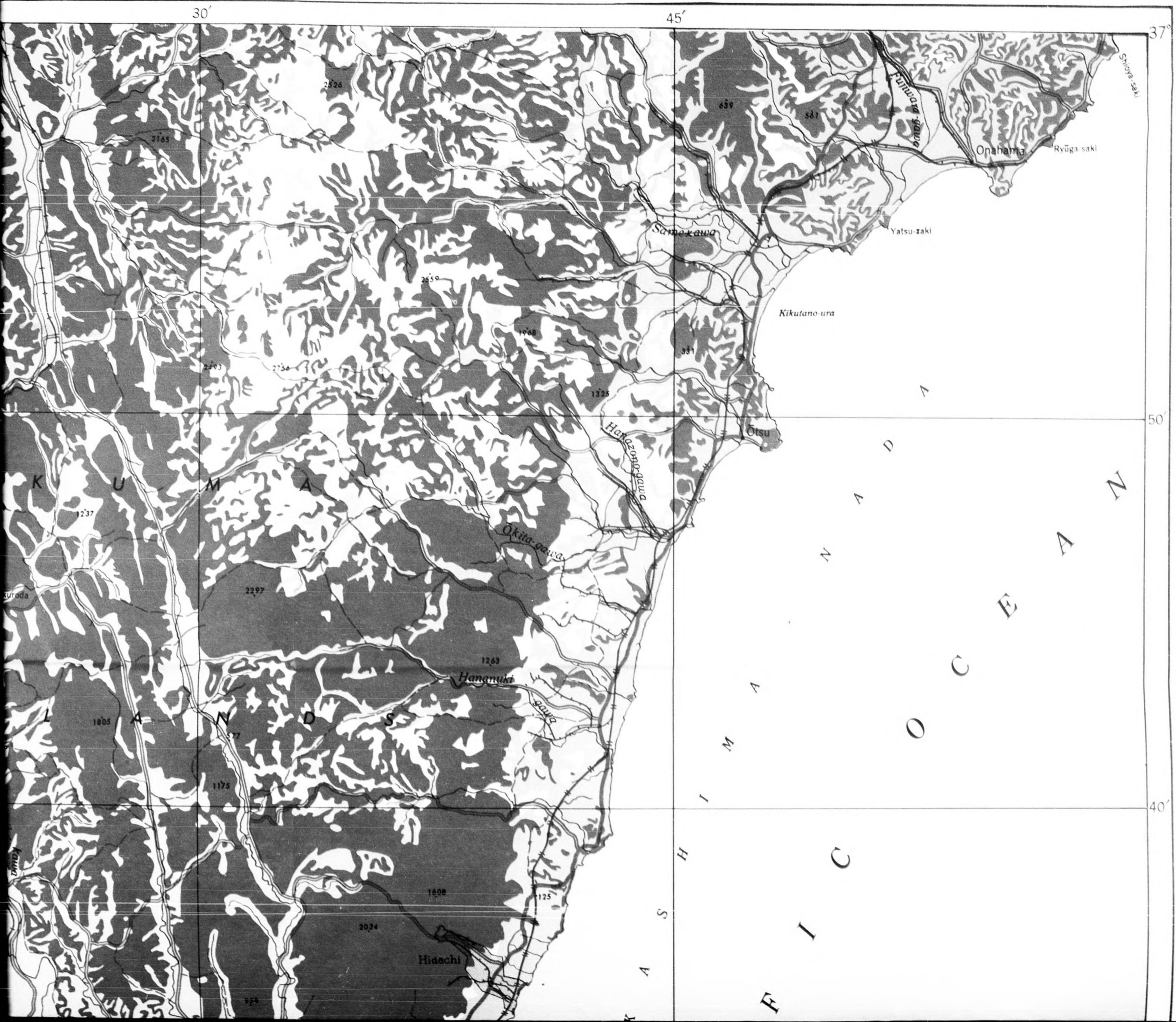


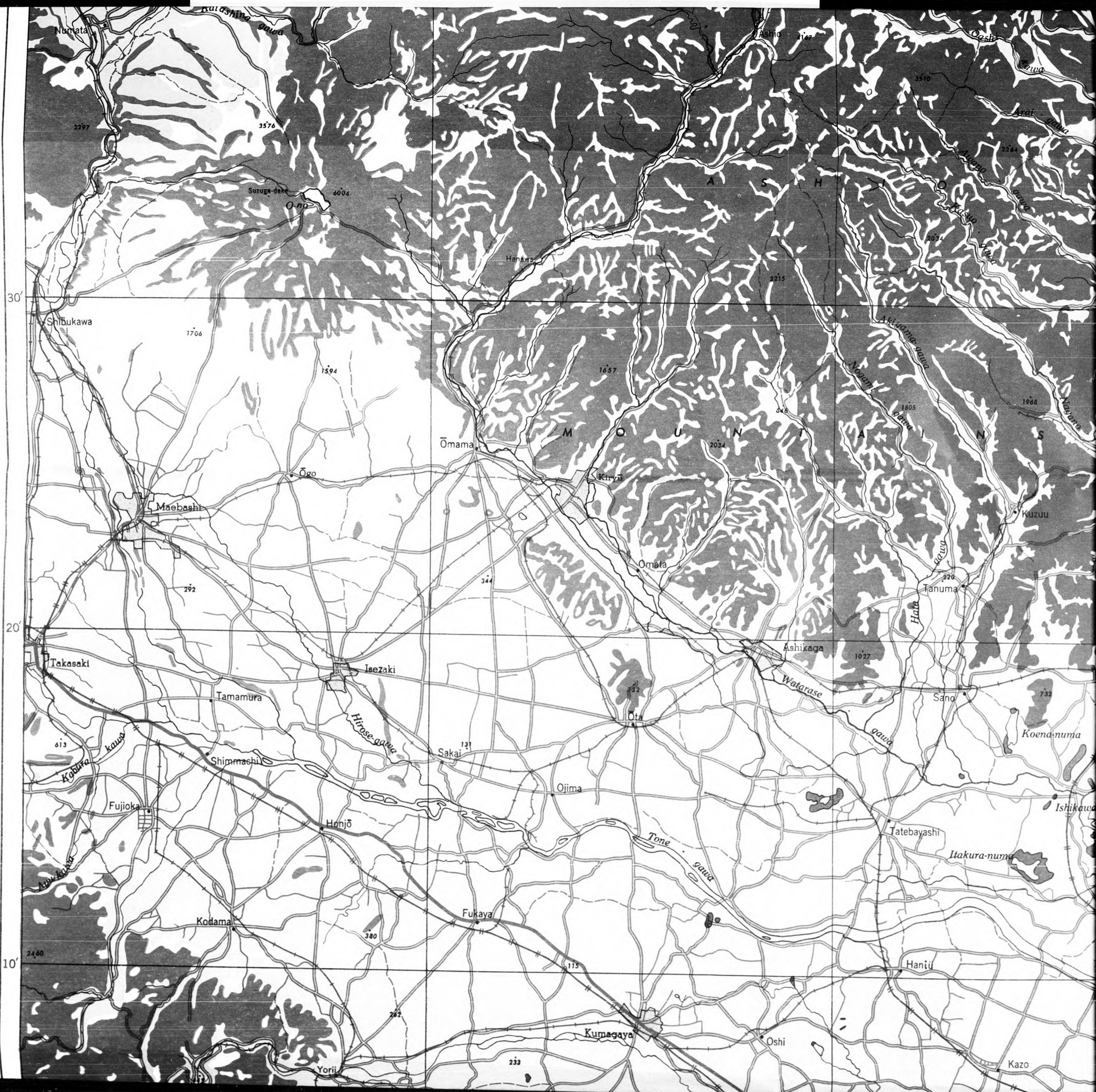
15'

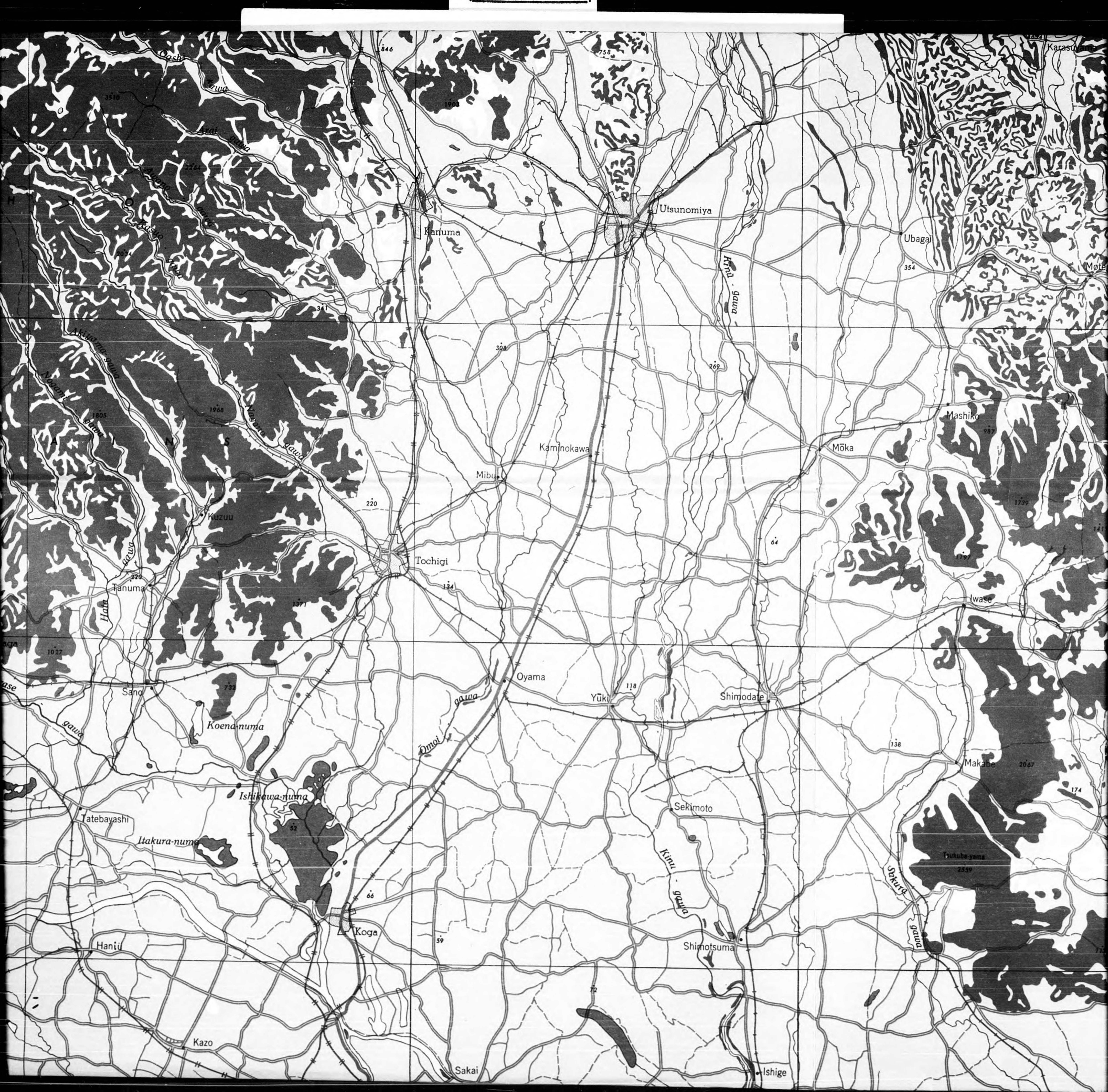
30'

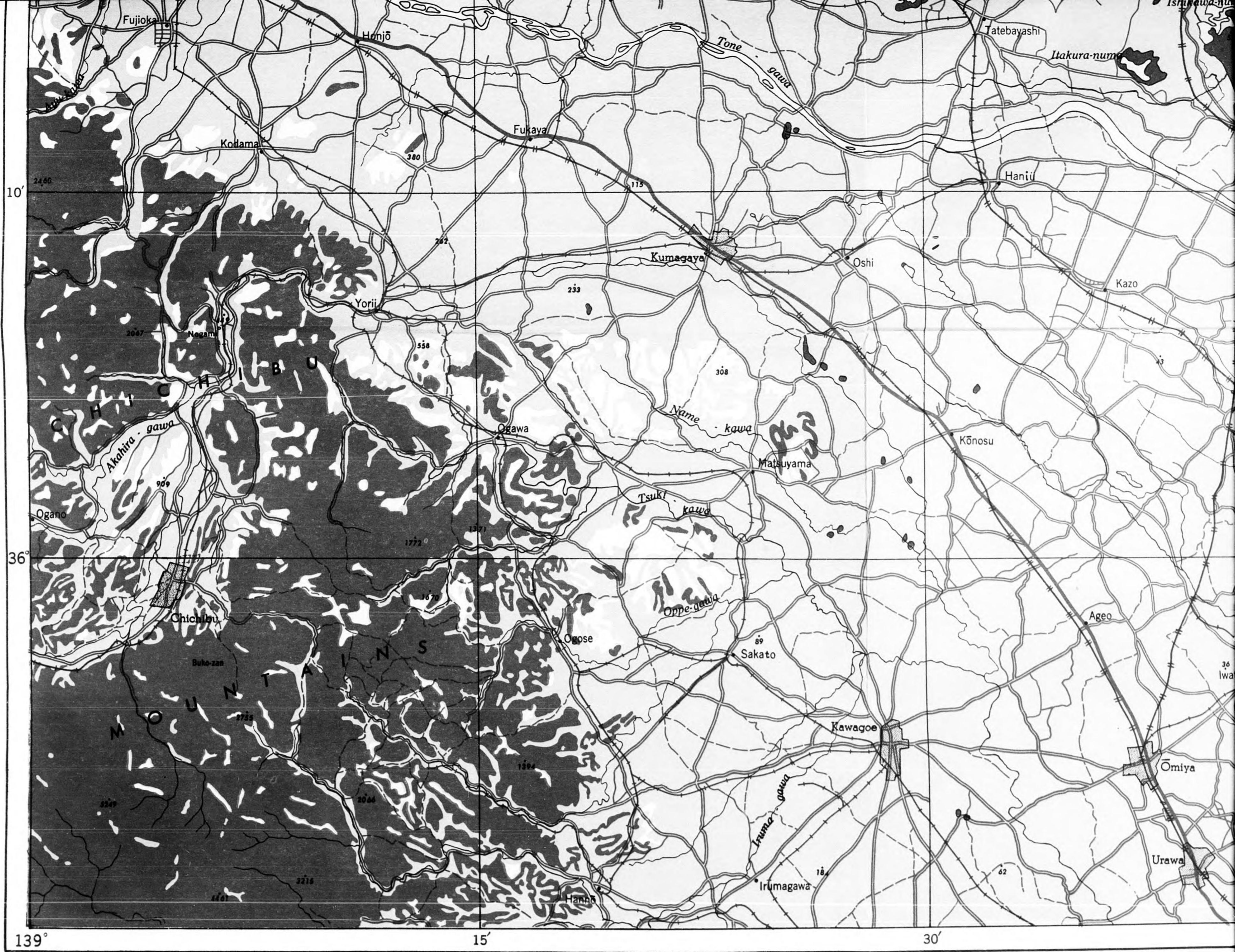
45'







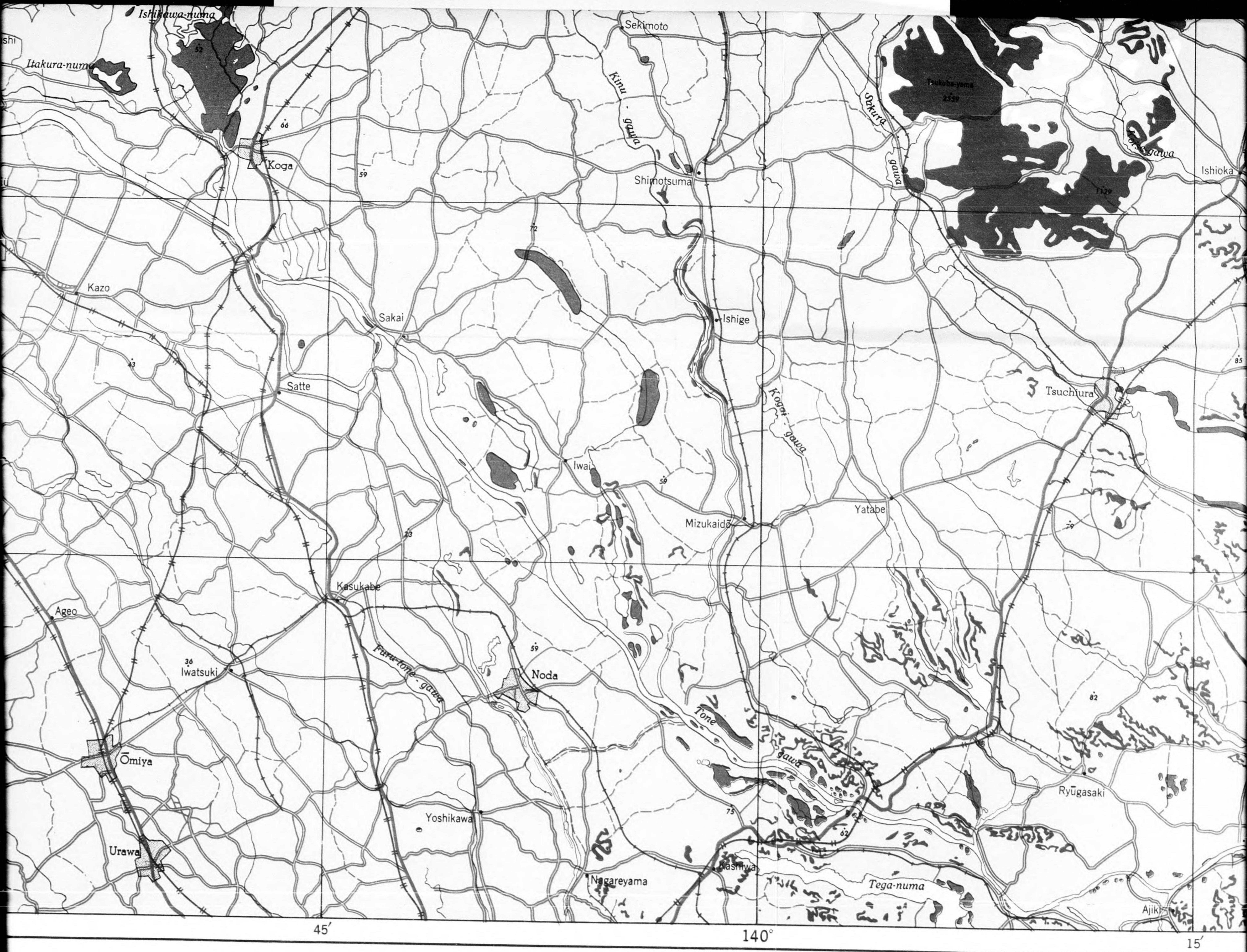




139°

15'

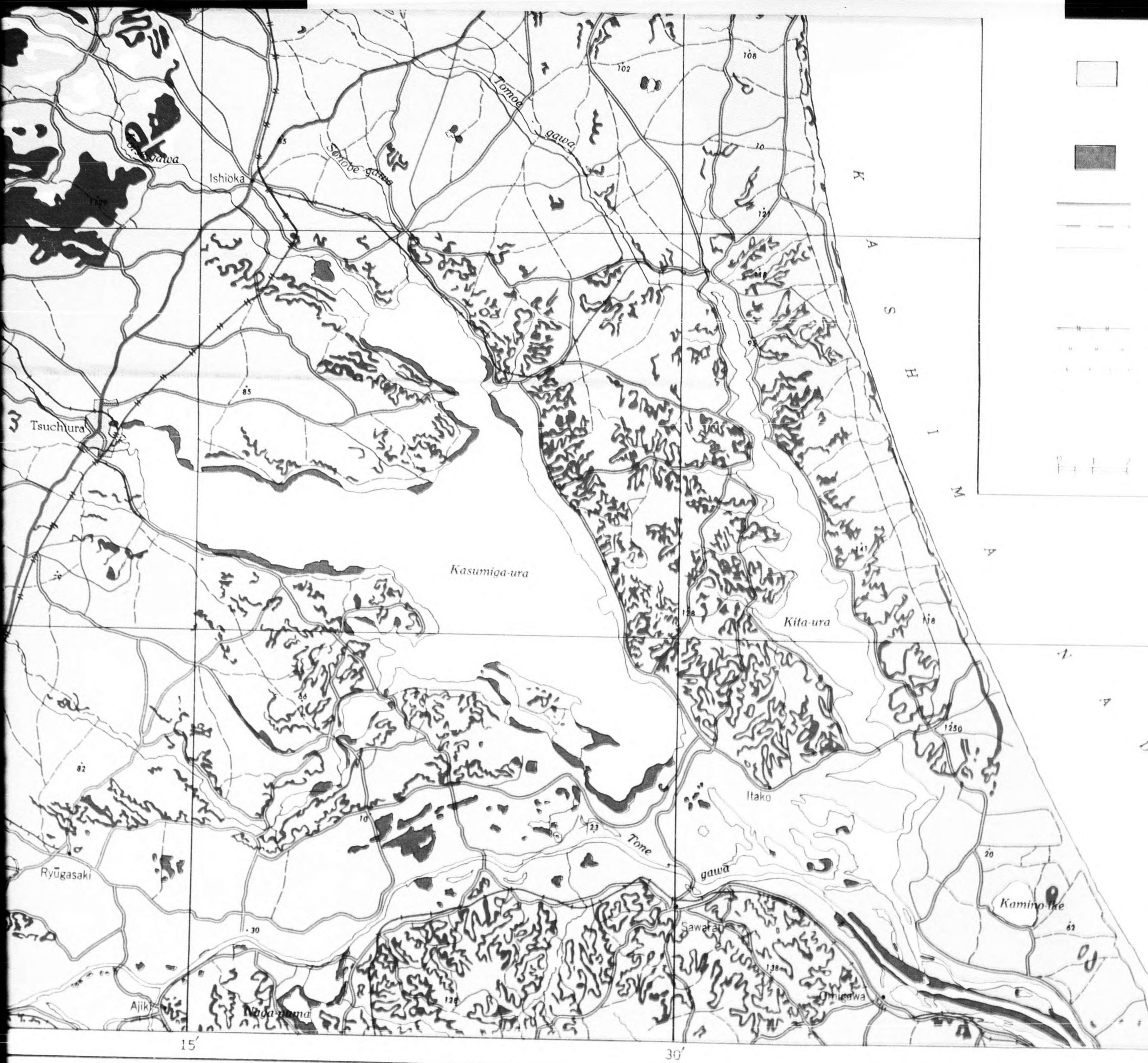
30'



45'

140°

15'



Where vegetation permits, movement may be easier than on flatter lands where much of the surface is

AREAS OF LOW SLOPE (mostly under 10 per cent slope, such as stream banks, terrace fronts, dunes and may be included. Slope alone is not an obstacle to considerable area, although large parts of the surface are rice cultivation.

MARSH AND SWAMP

ROADS

- National Highways 24 or more feet wide
- National Highways 13 or more feet wide
- Prefectural Highways 13 or more feet wide
- Roads 6-13 feet wide - dirt, usually graded
- Cut Roads

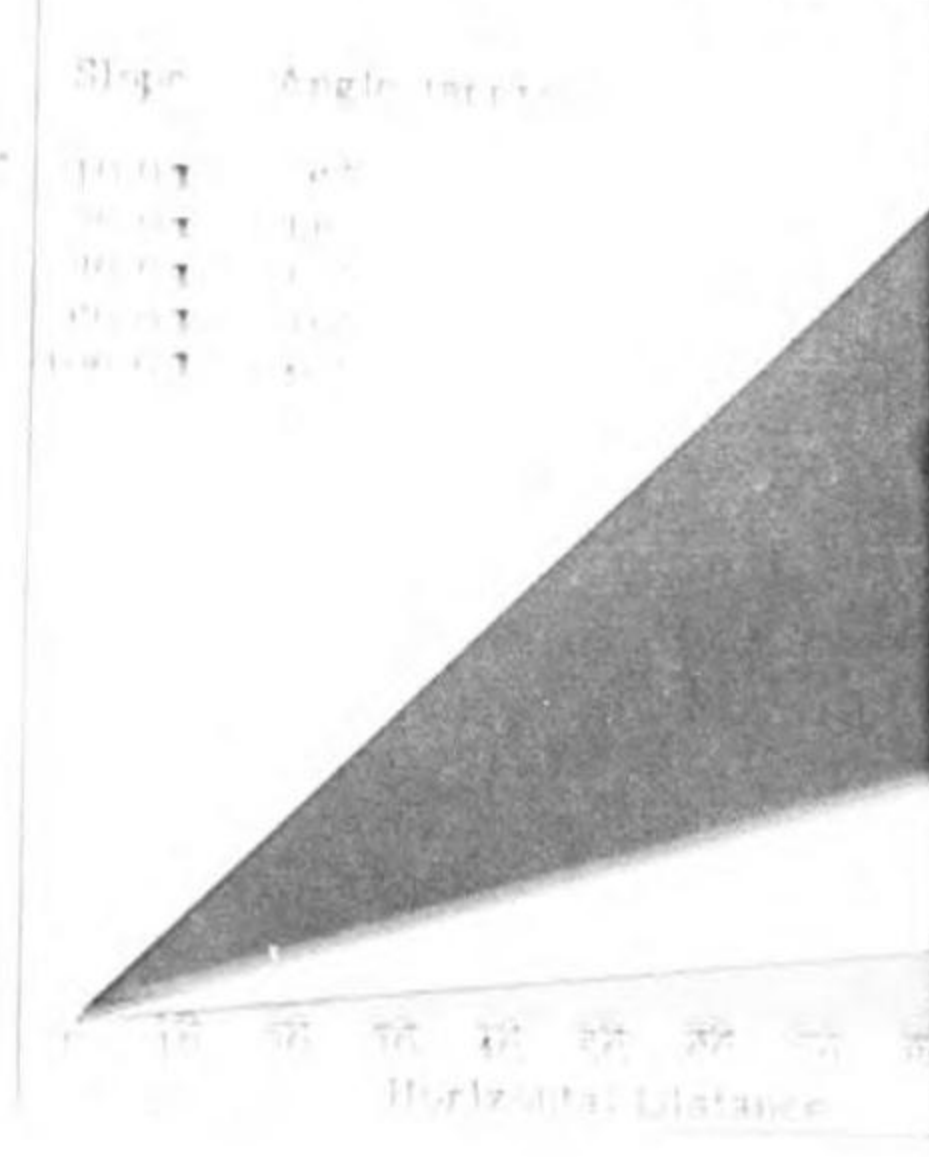
RAILROADS

- Double track, 4 1/2' gauge
- Double track, 3' 6" gauge (Japanese standard)
- Single track, 3' 6" gauge
- Double or single track feeder lines, narrow



STATUTE MILES

SLOPE GRAPH



15'

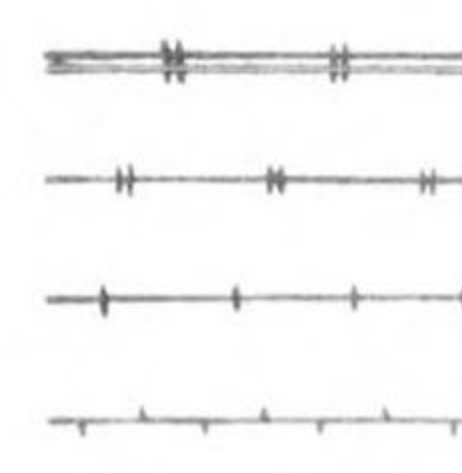
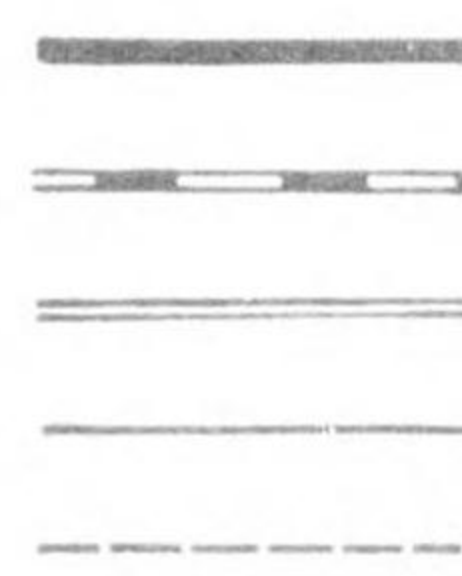
30'

45'



Where vegetation permits, movement may be easier in parts of this slope class than on flatter lands where much of the surface may be soft flooded rice fields.

AREAS OF LOW SLOPE (mostly under 10 per cent): Consists of plains, wide valley bottoms, low rolling hills, terrace flats. Small areas of steeper slope, such as stream banks, terrace fronts, dunes and beach ridges, etc., may be included. Slope alone is not an obstacle to movement over any considerable area, although large parts of the surface may be soft due to rice cultivation.



MARSH AND SWAMP

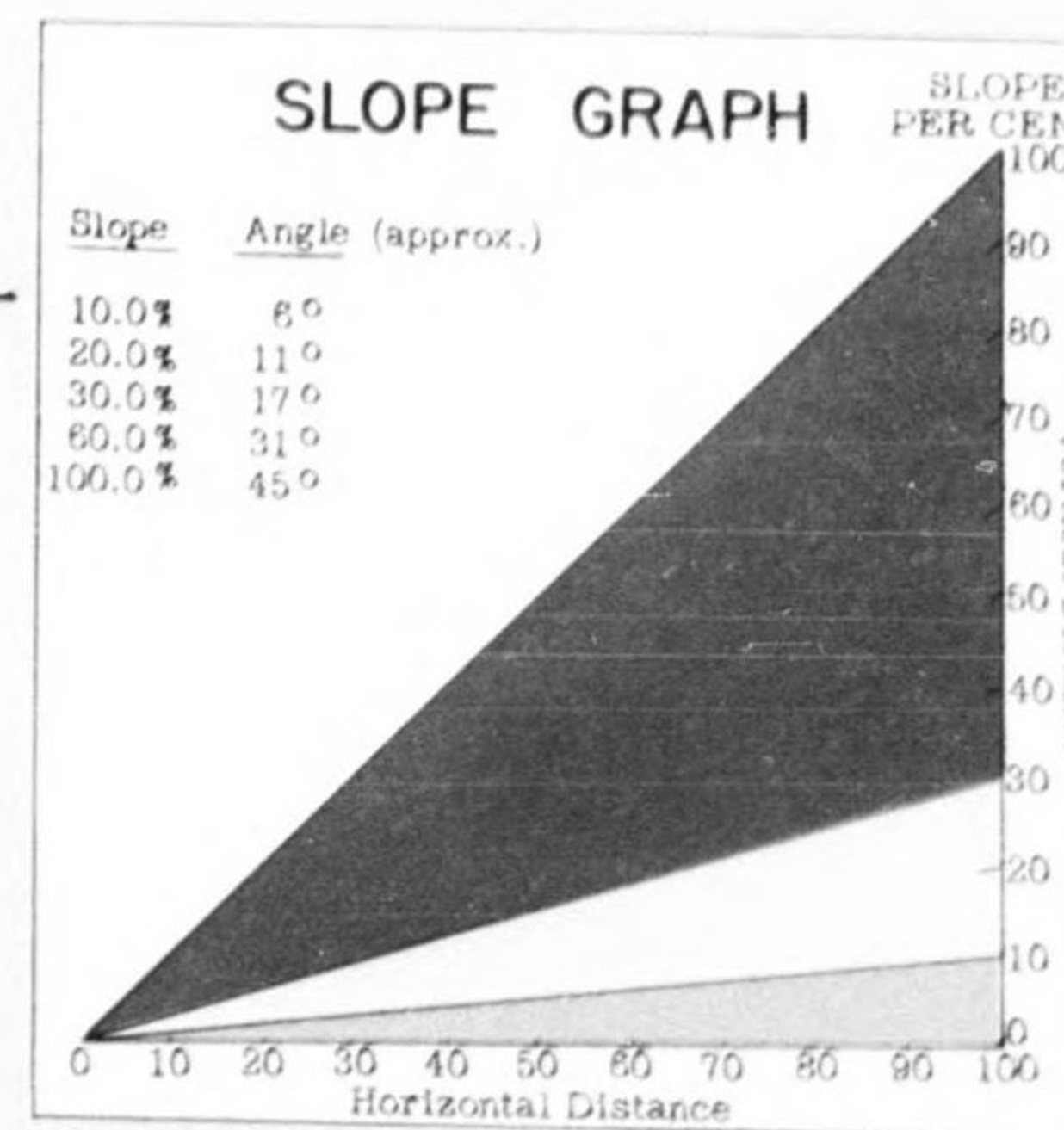
1020 SPOT ELEVATIONS IN FEET

ROADS

- National Highways -24 or more feet wide, concrete or asphalt surfaced.
- National Highways -13 or more feet wide, gravel-surfaced, all-weather trunk highway.
- Prefectural Highways -13 or more feet wide, usually gravel-surfaced.
- Roads -6-13 feet wide, dirt, usually graded, dry-weather.
- Cart Roads.

RAILROADS

- Double track, 4' 8 1/2" gauge.
- Double track, 3' 6" gauge (Japanese standard.)
- Single track, 3' 6" gauge.
- Double or single track feeder lines, narrow gauge less than 3' 6".



GLOSSARY

- bae rock
- bama beach
- bana point
- bara plain, field
- bashi bridge
- chō township
- dai plateau, plain, hill, field
- daira plain, field
- dake mountain
- daki waterfall
- dani valley, stream
- fu prefecture
- gan rock, cliff
- gata lake, inlet, bay
- gawa river
- goe mountain pass
- goshi mountain pass
- gun county
- gunto archipelago
- hae rock
- hana beach
- hana point
- hantō peninsula
- hara plain, field
- hashi bridge
- heiva plain, field
- hō mountain
- ike pond
- ishi rock, cliff
- iso rock, shoal, shore
- iwa rock, cliff
- ji temple
- jima island(s)
- jinja shrine
- jinsha shrine
- kai bay, gulf
- kaiyō strait
- kata lake, inlet, bay
- kawa river
- ken prefecture
- ko lake, pond
- kō harbor
- koe mountain pass
- koshi mountain pass
- ku ward
- machi township
- minato harbor
- mine mountain
- misaki cape, point
- mori forest
- mura township
- nada sea
- ne rock, isle
- no field, plain
- numa lake, pond, swamp
- oka hill, mountain
- onsen hot spring, spa
- rettō island chain
- saka grade, slope
- saki cape, point
- sammyaku mt range
- san mountain, ridge, hill
- sawa stream, ravine, marsh
- se reef, shoal, rapid
- seto strait
- shi municipality, city
- shima island(s)
- shō reef, shoal
- shotō island group
- suidō channel
- tai plateau, plain, hill, field
- taira plain, field
- take mountain
- taki waterfall
- tani valley, stream
- tō island(s)
- tōge mt pass, mountain
- umi bay, gulf, lake, pond
- ura inlet, beach, lake
- wan bay, gulf
- yama mountain, ridge, hill
- yu mineral spring, spa
- zaka grade, slope
- zaki cape, point
- zan mountain, ridge, hill
- zawa stream, ravine, marsh

PLAN 5(B)

JANIS 85

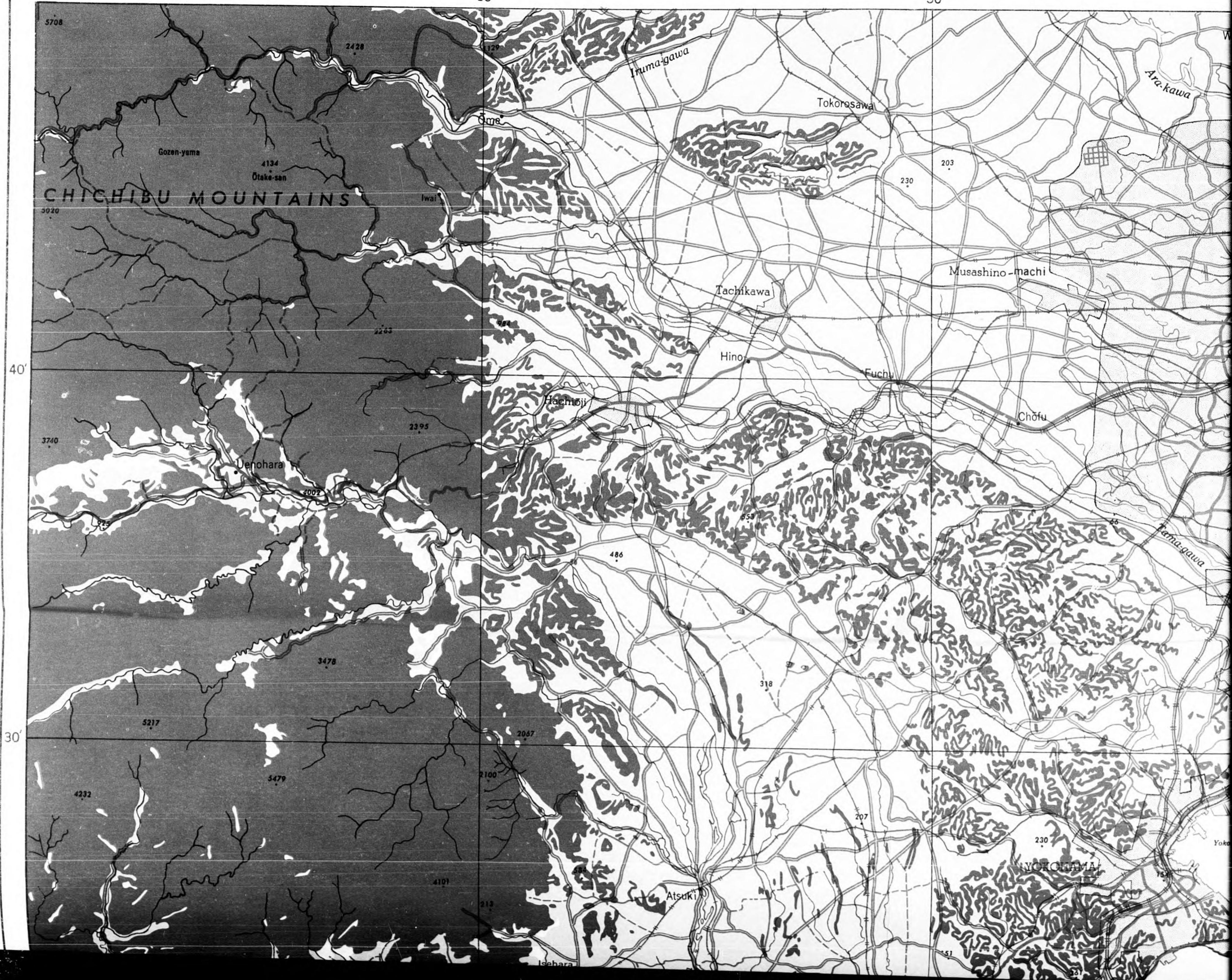
RESTRICTED

KANTO (TOKYO) PLAIN
(SLOPE AND TRANSPORTATION)
SOUTH SHEET

139°

15'

30'





PLAN 54
LANDS 25
RESTRICTED





S A G A M I N A D A



D A



O
C
E
A
N

KANTŌ (T)
SLOPE AN

Daitō-zaki

a-gawa

20'

10'

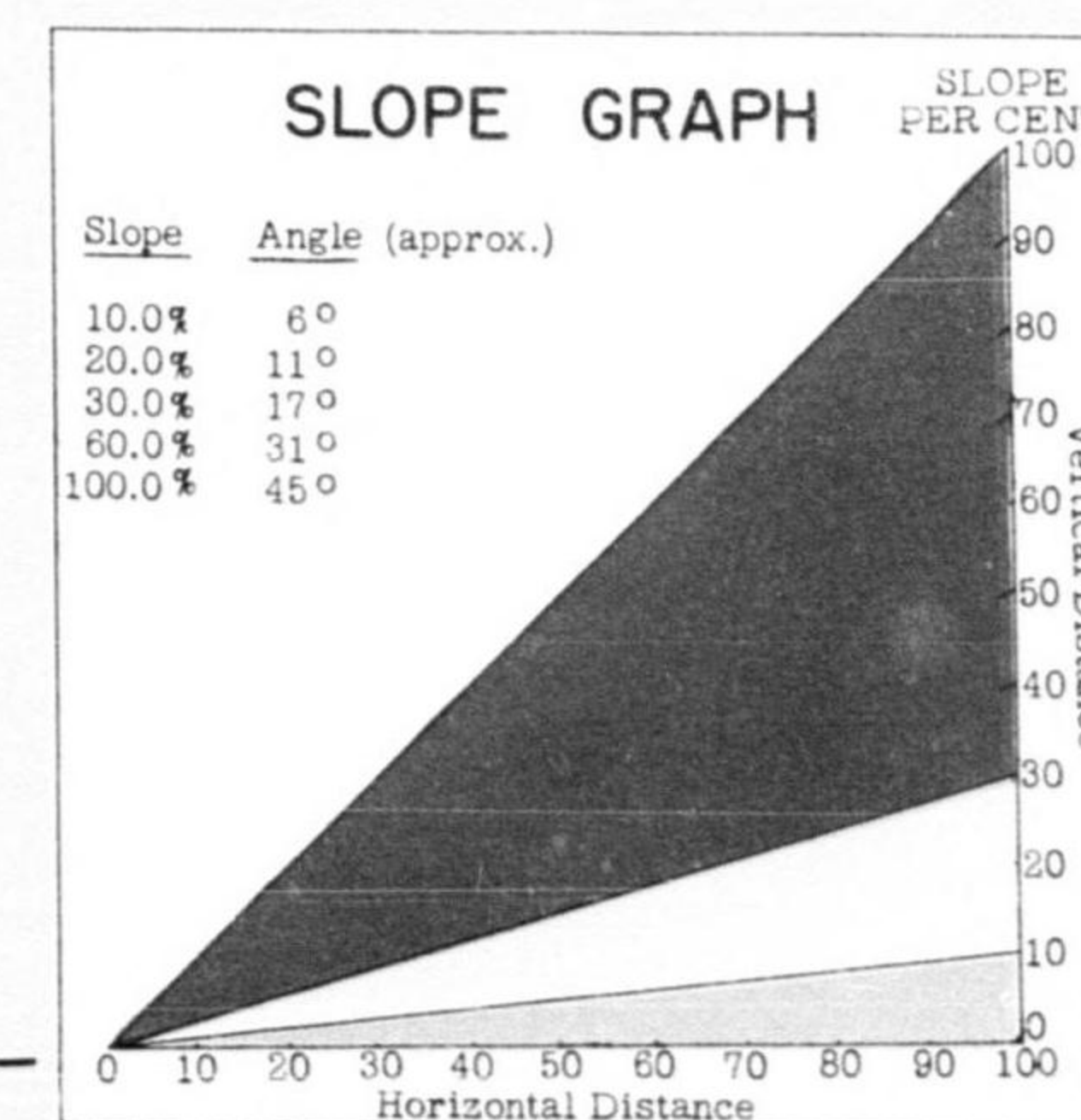
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A

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35°

KANTŌ (TŌKYŌ) PLAIN

(SOUTH SHEET)

SLOPE AND TRANSPORTATION

GLOSSARY

- bae.....rock
- bama.....beach
- bana.....point
- bara.....plain, field
- bashi.....bridge
- chō.....township
- dai plateau, plain, hill, field
- daira.....plain, field
- dake.....mountain
- daki.....waterfall
- dani.....valley, stream
- fu.....prefecture
- gan.....rock, cliff
- gata.....lake, inlet, bay
- gawa.....river
- goe.....mountain pass
- goshi.....mountain pass
- gun.....county
- guntō.....archipelago
- hae.....rock
- hama.....beach
- hana.....point
- hantō.....peninsula
- hara.....plain, field
- hashi.....bridge
- helya.....plain, field
- hō.....mountain
- ike.....pond
- ishi.....rock, cliff
- iso.....rock, shoal, shore
- iwa.....rock, cliff
- ji.....temple
- jima.....island(s)
- jinja.....shrine
- jinsha.....shrine
- kai.....bay, gulf
- kaikyō.....strait
- kata.....lake, inlet, bay
- kawa.....river
- ken.....prefecture
- ko.....lake, pond
- kō.....harbor
- koe.....mountain pass
- koshi.....mountain pass
- ku.....ward
- machi.....township
- minato.....harbor

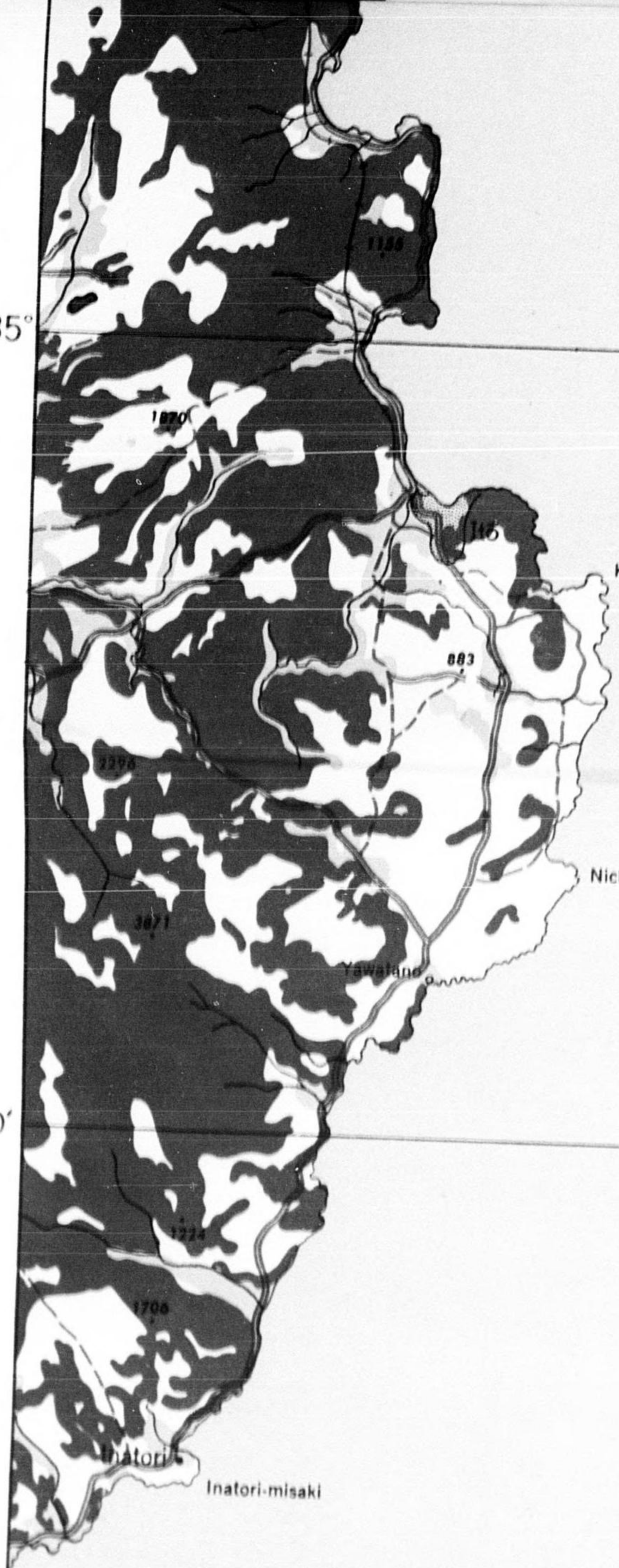
35°

50°

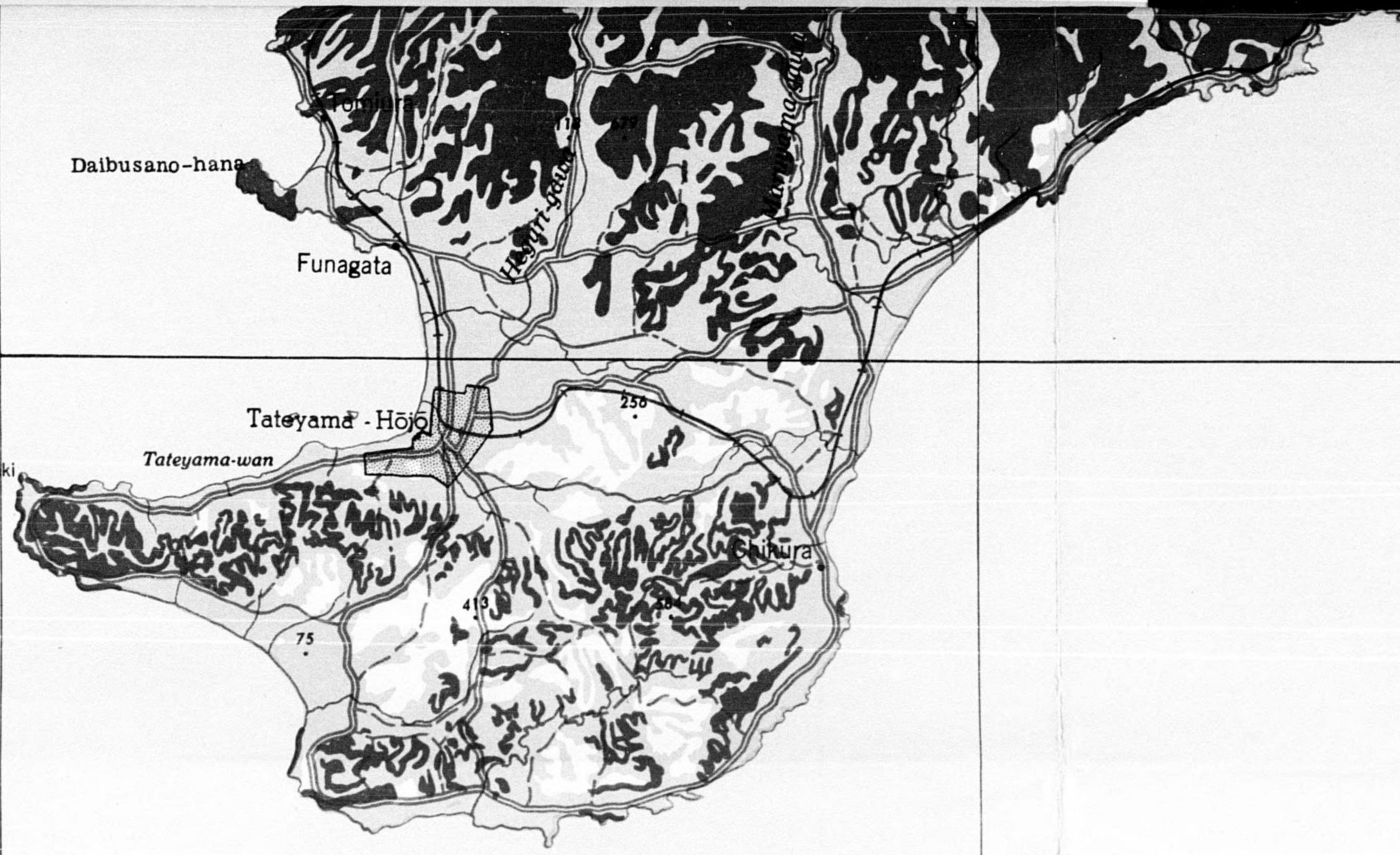
139

15'

30'



S A G A M I P E N I N S U L A



D A

P A C I

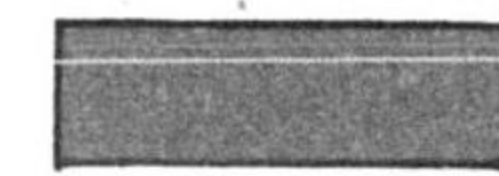
30'

45'

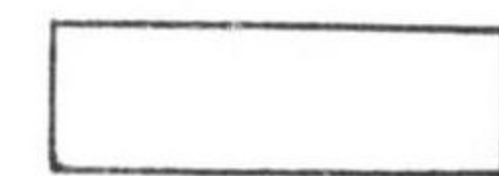
140°

KANTŌ (TŌKI) (SOUTH)

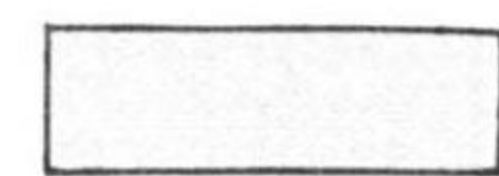
SLOPE AND TR



AREAS OF STEEP SLOPE
Includes steep hills, mountains, etc. Spots of less steep slope are barrier regions.



AREAS OF INTERMEDIATE SLOPE (10 to 25 per cent). Includes hills, etc. Small areas of steep slope on river banks and rolling hills. Where vegetation permits, more difficult to traverse than on flatter lands where rice cultivation is common.



AREAS OF LOW SLOPE (less than 10 per cent). Includes wide valley bottoms, low hills, etc. Slope may be included. Slope may be considerable area, although not suitable for rice cultivation.



MARSH AND SWAMP



ROADS
National Highways -



National Highways -



Prefectural Highway



Roads - 6-13 feet wide



Cart Roads.



RAILROADS
Double track, 4' 8 1/2" gauge



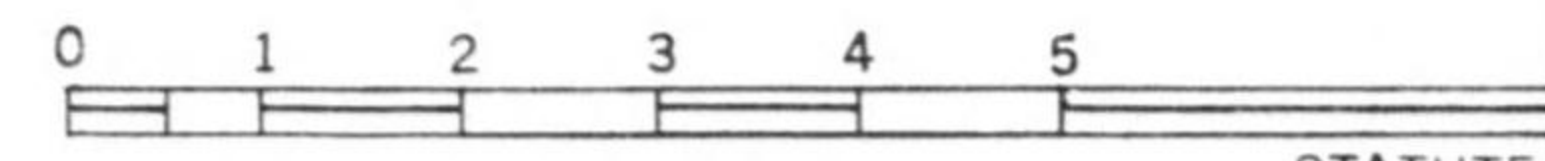
Double track, 3' 6" gauge



Single track, 3' 6" gauge



Double or single track



STATUTE MILES

15'

30'

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PLAN 6

CONFIDENTIAL

JANIS 85

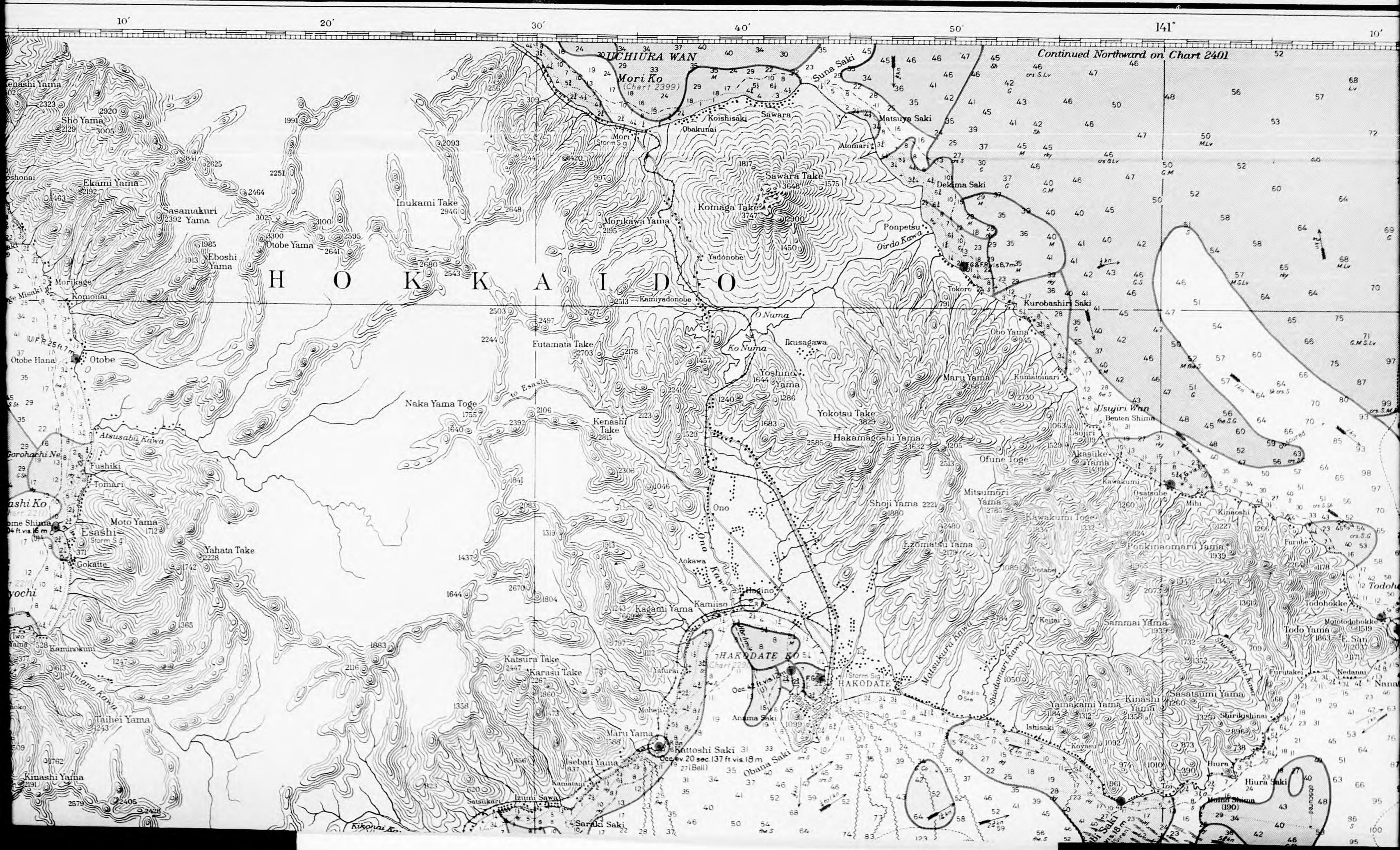
H. O. CHART 3308 BS

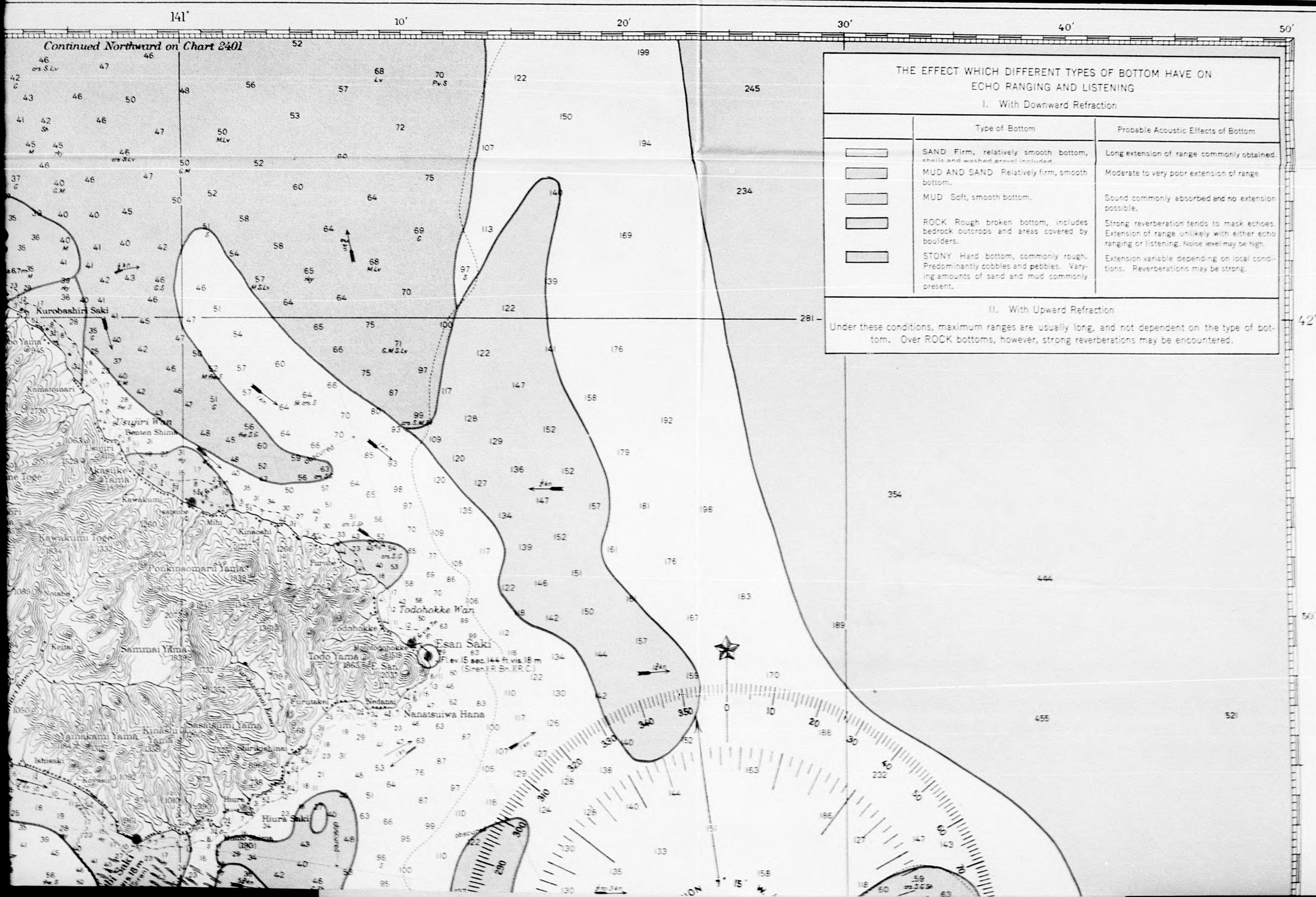
TABLE 1
SUMMARY OF RESULTS

DATE	TIME	TEMP.	WIND	SEA	WAVE
1/15/85	0800	55	10	2	1.5
1/15/85	1200	58	12	3	2.0
1/15/85	1600	60	15	4	2.5
1/15/85	2000	62	18	5	3.0
1/16/85	0400	65	20	6	3.5
1/16/85	0800	68	22	7	4.0
1/16/85	1200	70	25	8	4.5
1/16/85	1600	72	28	9	5.0
1/16/85	2000	75	30	10	5.5



BOTTOM SEDIMENT CHART





THE EFFECT WHICH DIFFERENT TYPES OF BOTTOM HAVE ON ECHO RANGING AND LISTENING

I. With Downward Refraction

Type of Bottom	Probable Acoustic Effects of Bottom
SAND Firm, relatively smooth bottom, shells and washed gravel included.	Long extension of range commonly obtained.
MUD AND SAND Relatively firm, smooth bottom.	Moderate to very poor extension of range.
MUD Soft, smooth bottom.	Sound commonly absorbed and no extension possible.
ROCK Rough broken bottom, includes bedrock outcrops and areas covered by boulders.	Strong reverberation tends to mask echoes. Extension of range unlikely with either echo ranging or listening. Noise level may be high.
STONY Hard bottom, commonly rough. Predominantly cobbles and pebbles. Varying amounts of sand and mud commonly present.	Extension variable depending on local conditions. Reverberations may be strong.

II. With Upward Refraction

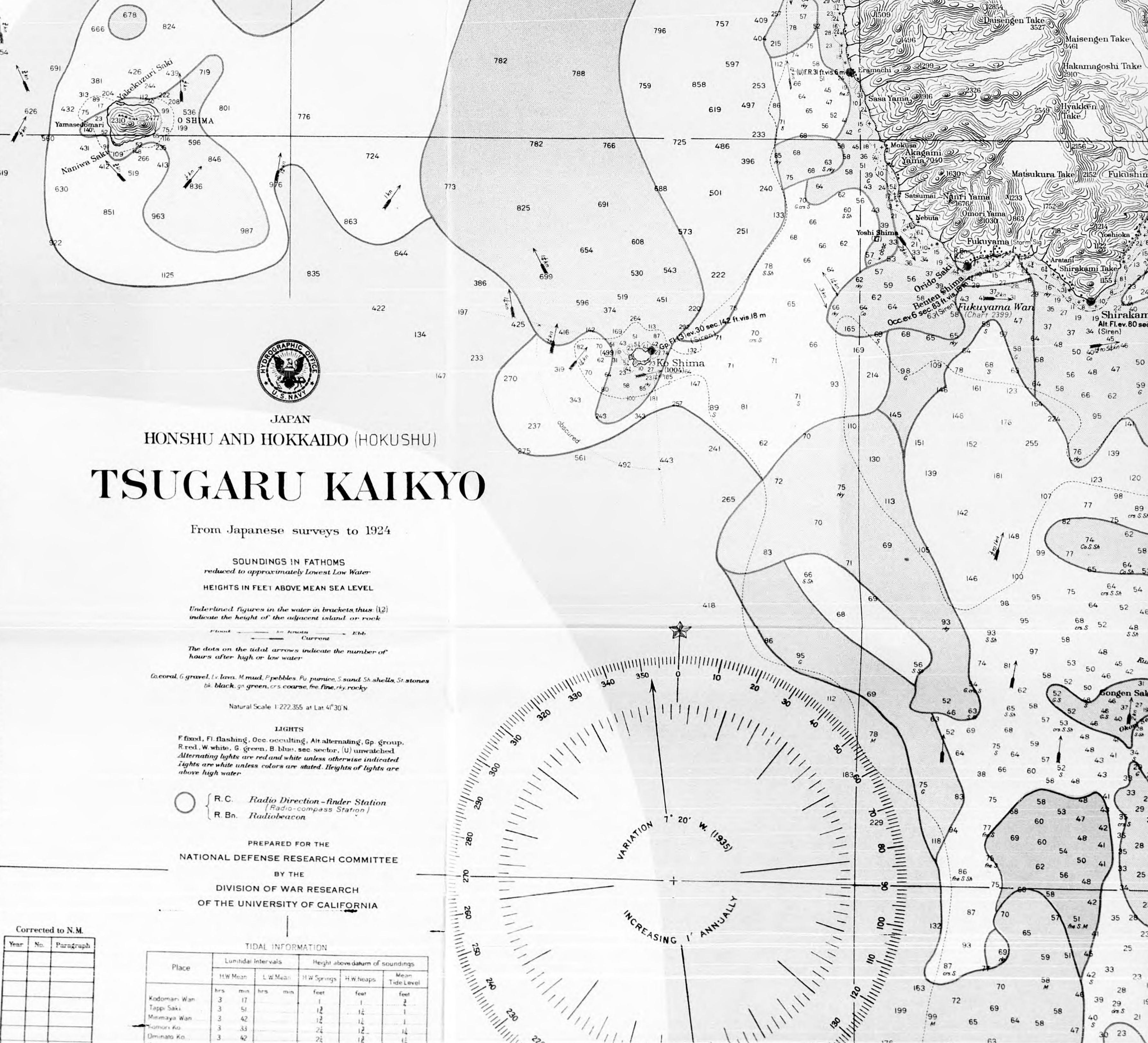
Under these conditions, maximum ranges are usually long, and not dependent on the type of bottom. Over ROCK bottoms, however, strong reverberations may be encountered.

JAPANESE AND ENGLISH TERMS		
Byochi	anchorage	Numa lake, marsh, lagoon
Hana	headland, cape	Saki or Misaki cape, point
Ishi or Iwa	rock, stone	Se or Ne rock, reef, shoal
Kaikyo	strait	Shima island
Kaiwan	gulf	Take peak
Kawa	river	Wan bay
Ka	harbor, port	Yama mountain, hill

AUTHORITIES
Japanese Charts Nos. 10, 11
U. S. Hydrographic Office Publications

CONVERSION TABLE
FATHOMS TO METERS

Fathoms	Meters	Fathoms	Meters	Fathoms	Meters
1/4	0.5	4 1/2	8.2	14	25.6
1/2	0.9	4 3/4	8.7	15	27.4
3/4	1.4	5	9.1	16	29.3
1	1.8	5 1/4	9.6	17	31.1
1 1/4	2.3	5 1/2	10.1	18	32.9
1 1/2	2.7	5 3/4	10.5	19	34.7
1 3/4	3.2	6	11.0	20	36.6
2	3.7	6 1/4	11.4	30	54.9
2 1/4	4.1	6 1/2	11.9	40	73.2
2 1/2	4.6	6 3/4	12.3	50	91.4
2 3/4	5.0	7	12.8	60	109.7
3	5.5	8	14.6	70	128.0
3 1/4	5.9	9	16.5	80	146.3
3 1/2	6.4	10	18.3	90	164.6
3 3/4	6.9	11	20.1	100	182.9
4	7.3	12	21.9		
4 1/4	7.8	13	23.8		



JAPAN
HONSHU AND HOKKAIDO (HOKUSHU)

TSUGARU KAIKYO

From Japanese surveys to 1924

SOUNDINGS IN FATHOMS
reduced to approximately Lowest Low Water

HEIGHTS IN FEET ABOVE MEAN SEA LEVEL

Underlined figures in the water in brackets thus (12) indicate the height of the adjacent island or rock

Flow ——— Ebb

The dots on the tidal arrows indicate the number of hours after high or low water

Co. coral, G. gravel, L. lava, M. mud, P. pebbles, Pu. pumice, S. sand, Sh. shells, St. stones, bk. black, gn. green, crs. coarse, fm. fine, rk. rocky

Natural Scale 1:222,355 at Lat 41°30' N

LIGHTS

Fixed, Fl. flashing, Occ. occulting, Alt. alternating, Gp. group, R. red, W. white, G. green, B. blue, sec. sector, (U) unwatched
Alternating lights are red and white unless otherwise indicated. Lights are white unless colors are stated. Heights of lights are above high water.

○ R. C. Radio Direction-finder Station (Radio-compass Station)
○ R. Bn. Radiobeacon

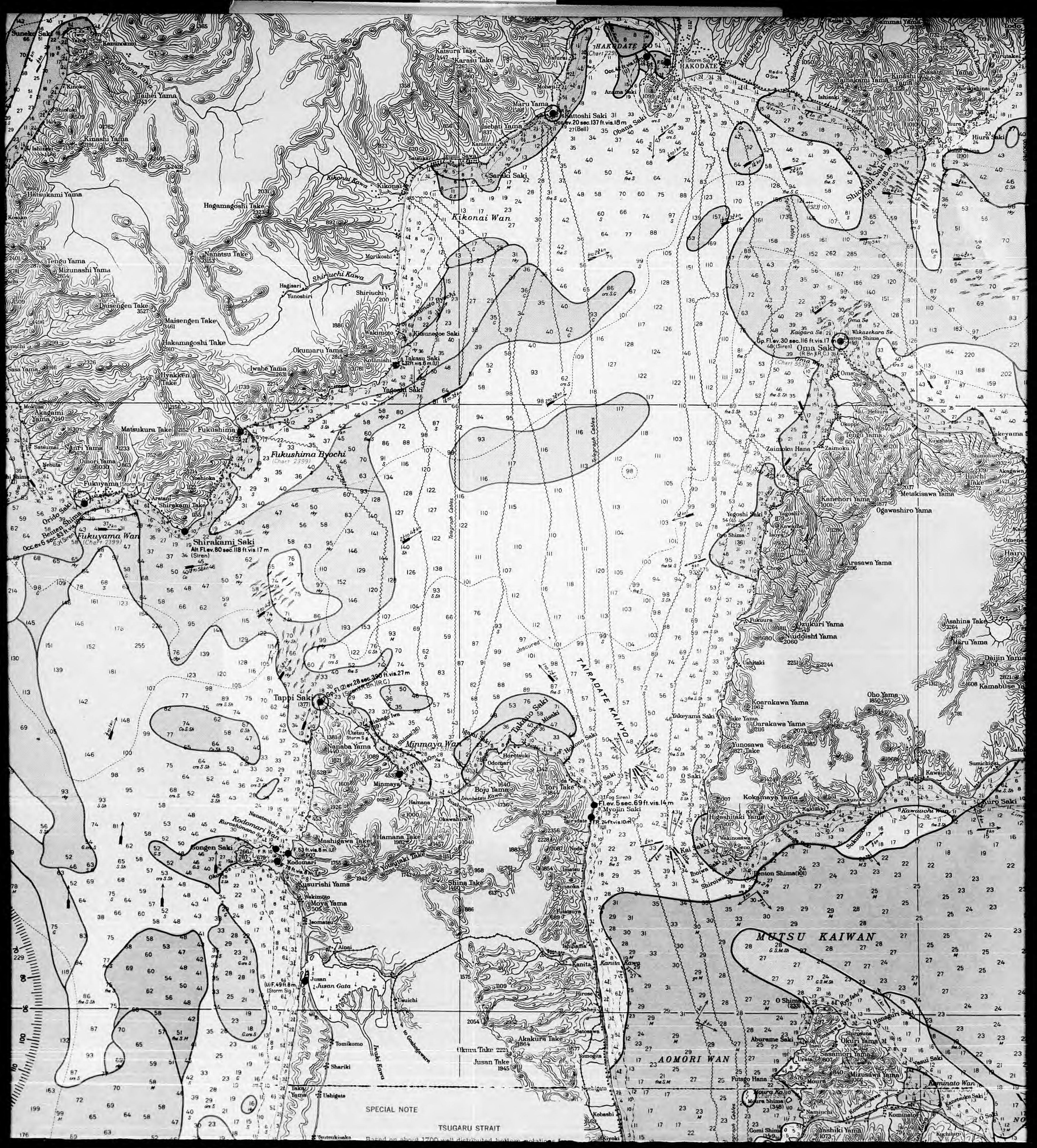
PREPARED FOR THE
NATIONAL DEFENSE RESEARCH COMMITTEE
BY THE
DIVISION OF WAR RESEARCH
OF THE UNIVERSITY OF CALIFORNIA

Corrected to N.M.

Year	No.	Paragraph

TIDAL INFORMATION

Place	Lunilar Intervals				Height above datum of soundings		
	HW Mean	LW Mean	HW Springs	HW Neaps	feet	feet	feet
Kodoman Wan	3 17		1 1	1 1	1	1	2
Tappi Saki	3 51		1 1	1 1	1	1	1
Minimaya Wan	3 42		1 1	1 1	1	1	1
Kotomaru Ko	3 33		2 1	1 1	1	1	1
Dominato Ko	3 42		2 1	1 1	1	1	1
Uhata	3 35		2 1	1 1	1	1	1



SPECIAL NOTE

TSUGARU STRAIT

Based on about 1700 well distributed balloon sightings





JAPAN
HONSHU AND HOKKAIDO (HOKUSHU)

TSUGARU KAIKYO

From Japanese surveys to 1924

SOUNDINGS IN FATHOMS
reduced to approximately Lowest Low Water
HEIGHTS IN FEET ABOVE MEAN SEA LEVEL

Underlined figures in the water in brackets, thus [12]
indicate the height of the adjacent island or rock

Flood $\xrightarrow{\text{kn knots}}$ Ebb
Current

The dots on the tidal arrows indicate the number of hours after high or low water

Co. coral, G. gravel, L. lava, M. mud, P. pebbles, Pu. pumice, S. sand, Sh. shells, St. stones
bk. black, gn. green, crs. coarse, fne. fine, rky. rocky

Natural Scale 1:222,355 at Lat. 41° 30' N

LIGHTS

F. fixed, Fl. flashing, Occ. occulting, Alt. alternating, Gp. group,
R. red, W. white, G. green, B. blue, sec. sector, (U) unwatched
Alternating lights are red and white unless otherwise indicated
Lights are white unless colors are stated. Heights of lights are
above high water.

R. C. Radio Direction-Aider Station
(Radio-compass Station)
 R. B. Radiobeacon

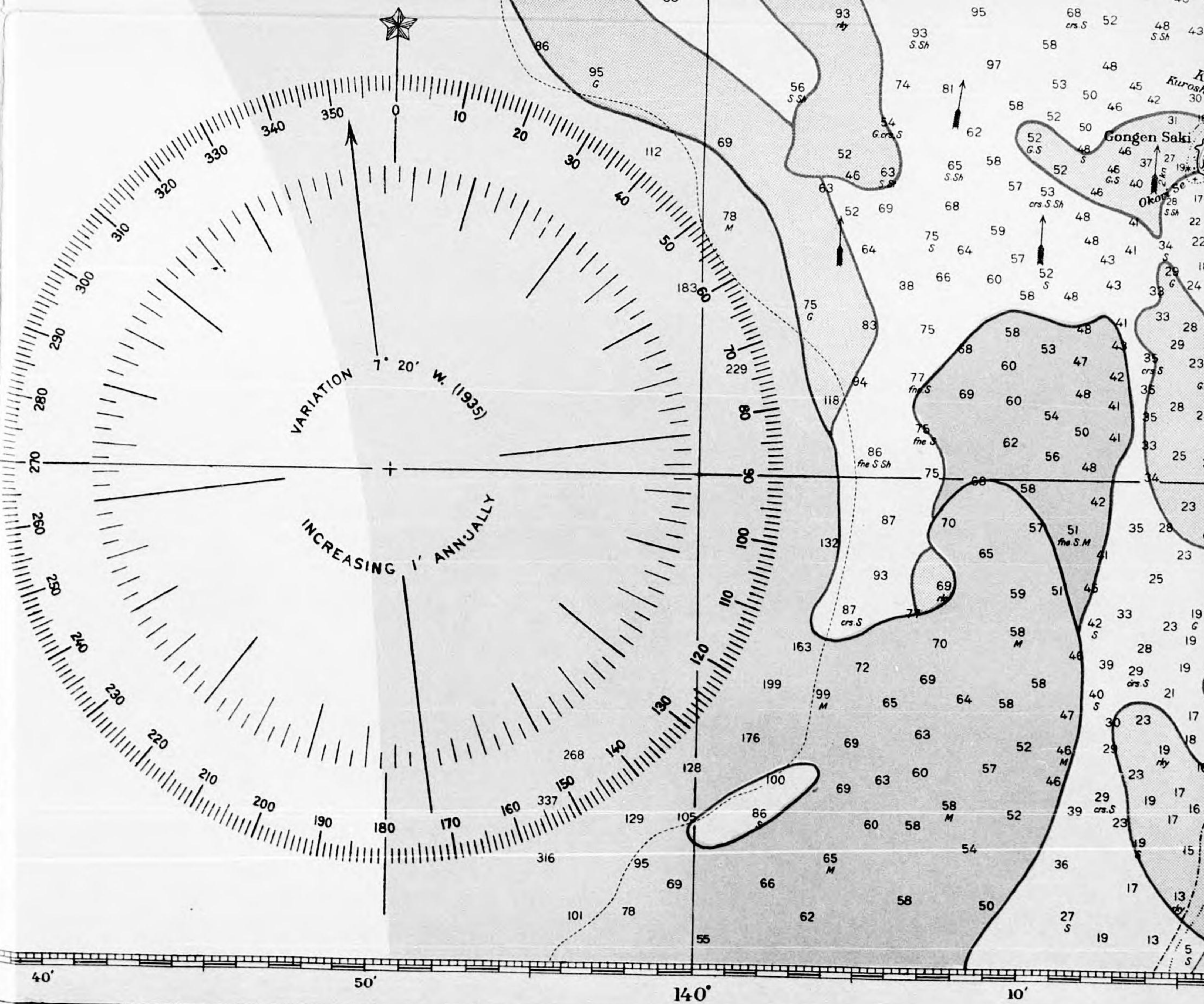
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Corrected to N.M.

Year	No.	Paragraph

TIDAL INFORMATION

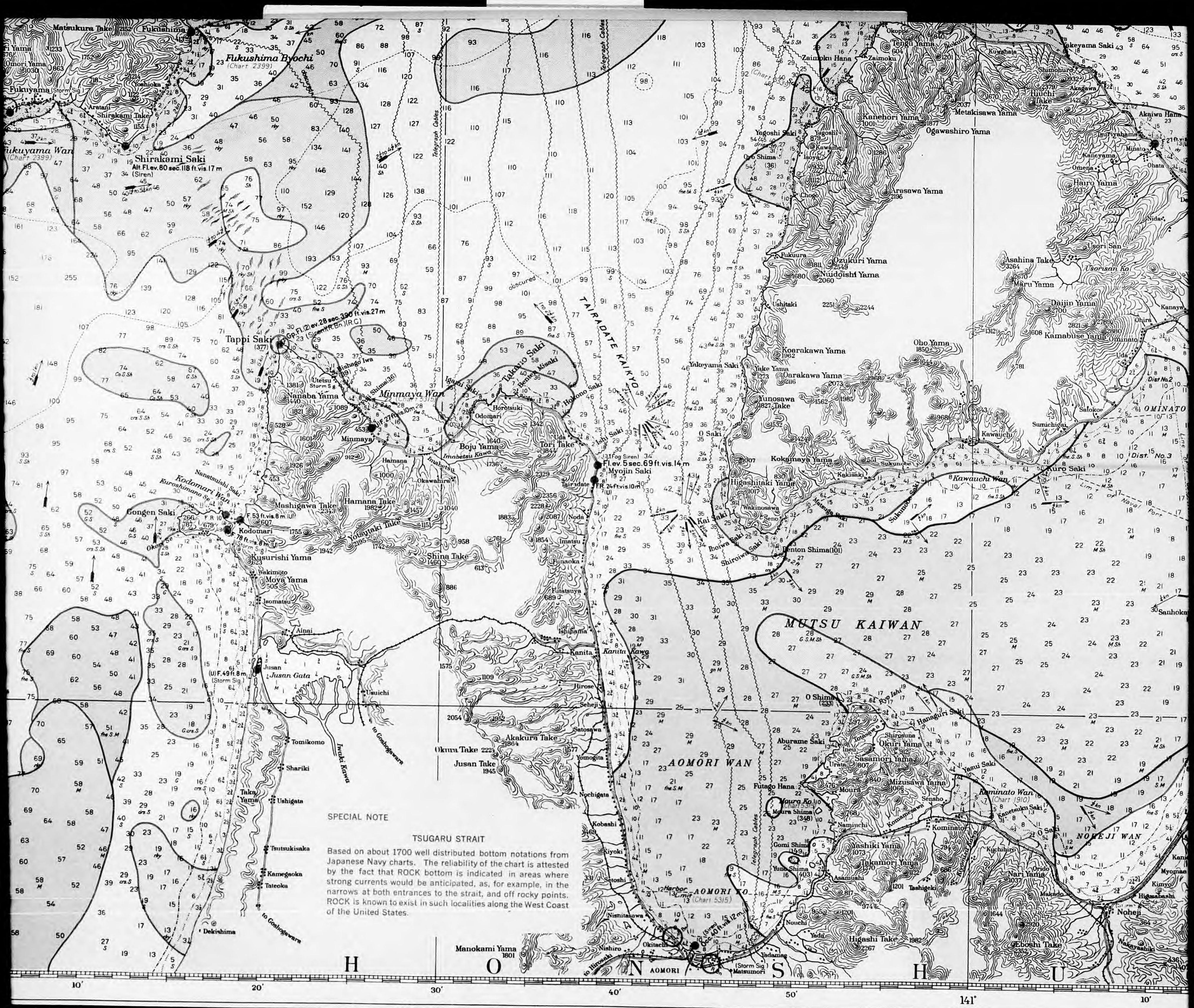
Place	Lunital Intervals		Height above datum of soundings		
	HW Mean	LW Mean	HW Springs	HW Neaps	Mean Tide Level
	hrs	min	feet	feet	feet
Kodomari Wan	3	17	1	1	2
Tappi Saki	3	51	1 1/2	1 1/2	1
Minmaya Wan	3	42	1 1/2	1 1/2	1
Aomori Ko	3	33	2 1/2	1 1/2	1 1/2
Ominato Ko	3	42	2 1/2	1 1/2	1 1/2
Ohata	3	35	3 1/2	3	2 1/2
Shiraya	3	37	4 1/2	4	3 1/2
Tornari	3	39	4 1/2	4	3 1/2
Okushiri Shima	3	43	1	2	2
Fukuyama Wan	3	34	1	2	2
Wakimoto Byochi	3	53	2 1/2	2 1/2	2
Hakodate Ko	3	50	3	2 1/2	2
Shokubi Saki	4	04	4 1/2	3 1/2	3
Usujiri Wan	3	34	4 1/2	3 1/2	2 1/2
Mori Ko	3	31	4 1/2	3 1/2	2 1/2



CONFIDENTIAL

April 1941

Small corrections [Printed Mar '37 | Mar '40 | Sept '41
from Notices to Mariners: | '36-4, 31, 47 ('37-10 | II '40 | IX '41
from other sources: | III '37



SPECIAL NOTE

TSUGARU STRAIT

Based on about 1700 well distributed bottom notations from Japanese Navy charts. The reliability of the chart is attested by the fact that ROCK bottom is indicated in areas where strong currents would be anticipated, as, for example, in the narrows at both entrances to the strait, and off rocky points. ROCK is known to exist in such localities along the West Coast of the United States.

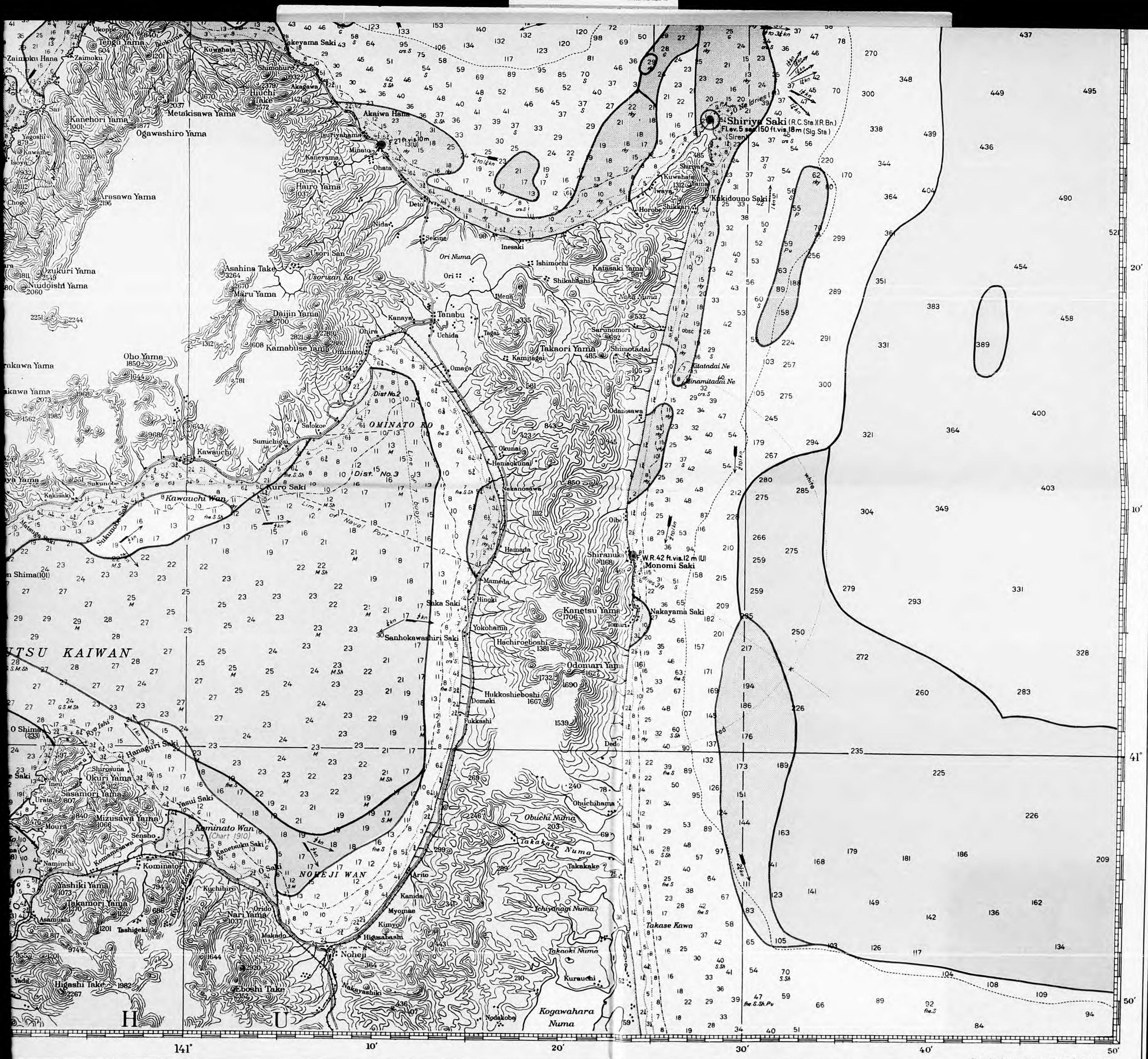
WARNING

A SAND bottom does NOT guarantee long maximum ranges in all cases. The precise extent to which bottom reflections may be generally relied upon to produce extended ranges is not yet known.

April 1913

Washington, D.C. published May, 1914, at the Hydrographic Office, under the authority of the SECRETARY OF THE NAVY.

New Publication: 7th.



Dimensions between inner lines: 26.54" N. S. 38.31" E. W.

WARNING

NOT guarantee long maximum ranges in all cases. which bottom reflections may be generally relied. ded ranges is not yet known.

New Publication: 7th. Ed., July 1935

7th EDITION, July 1935

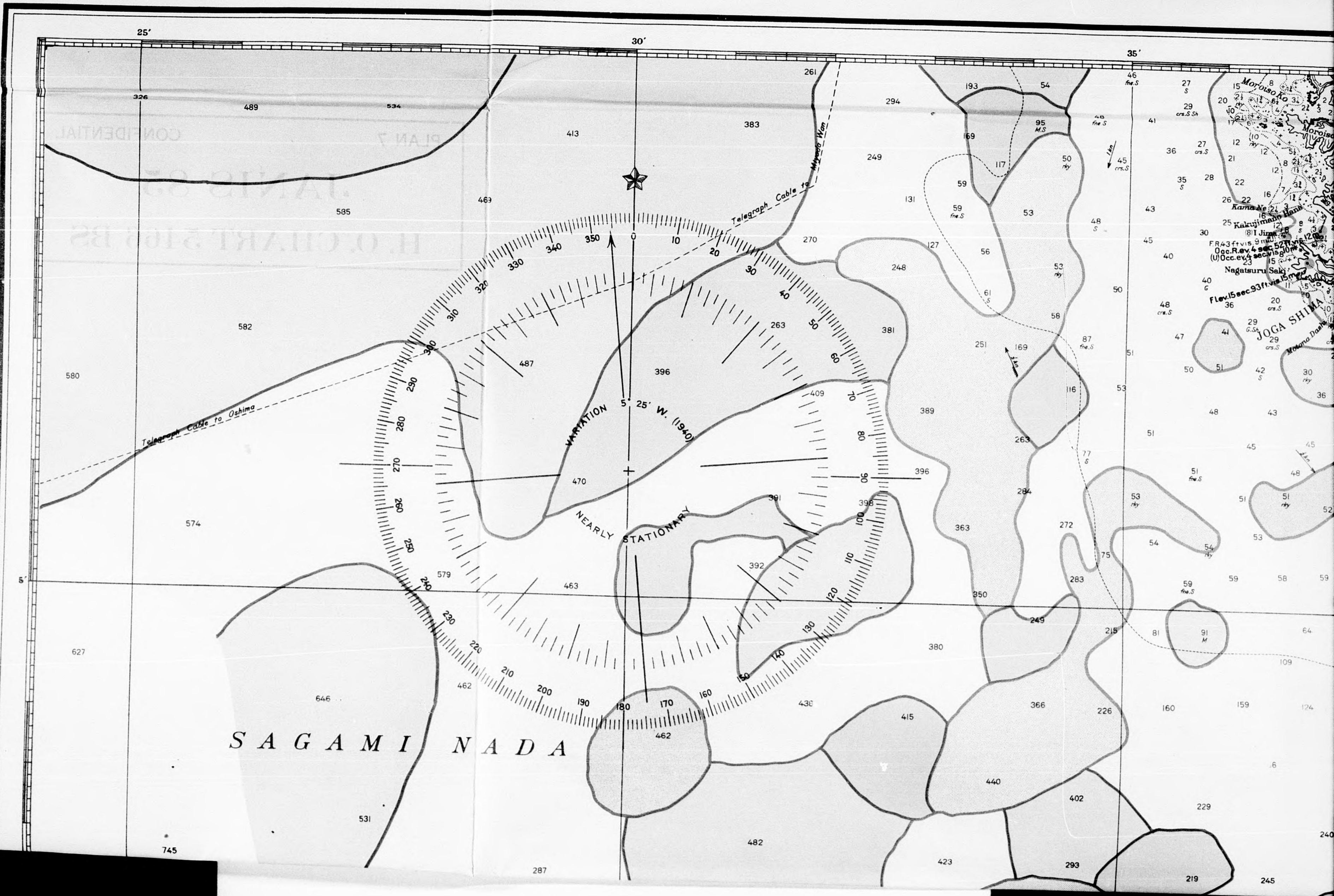
No. 3308 - BS

PLAN 7

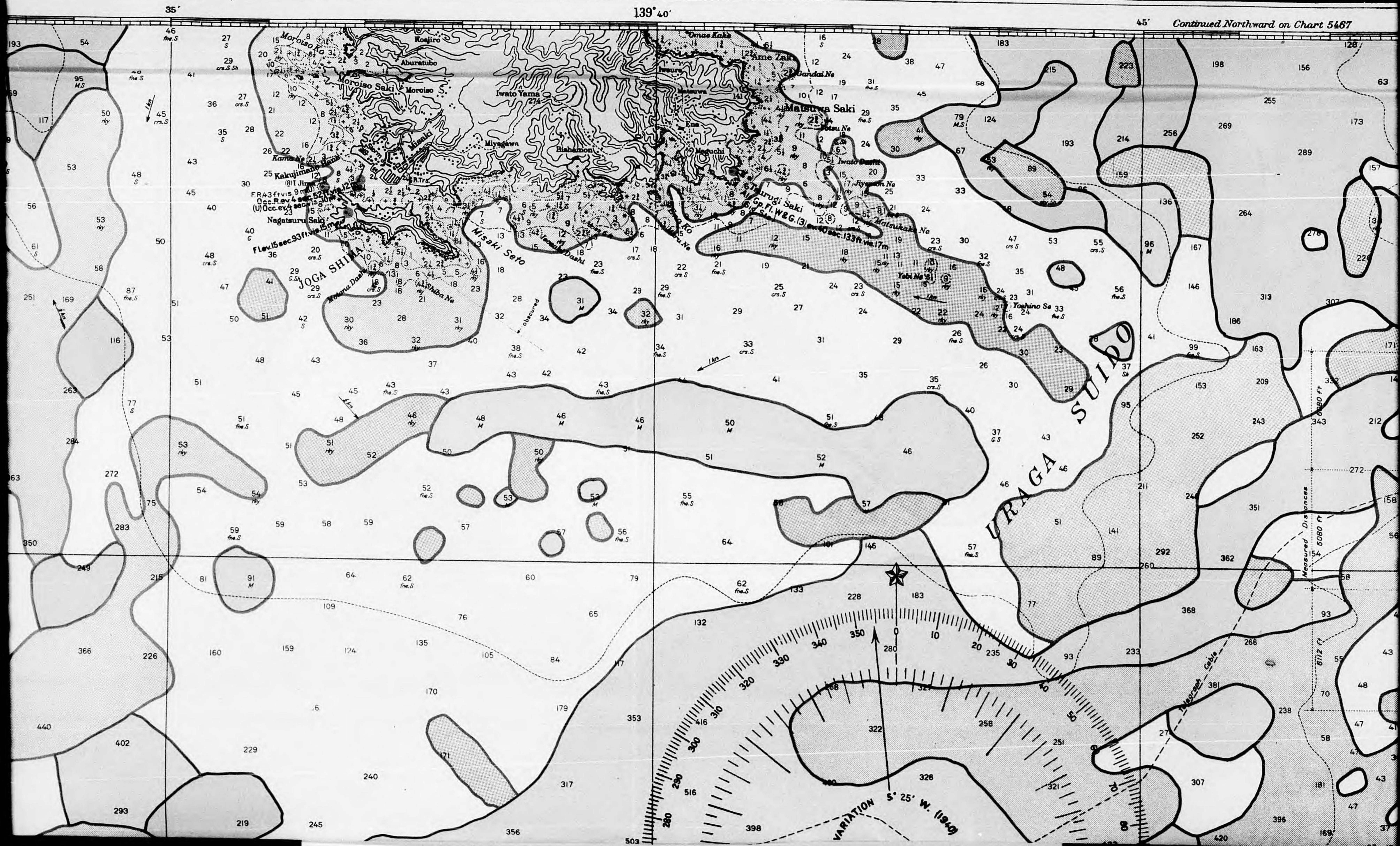
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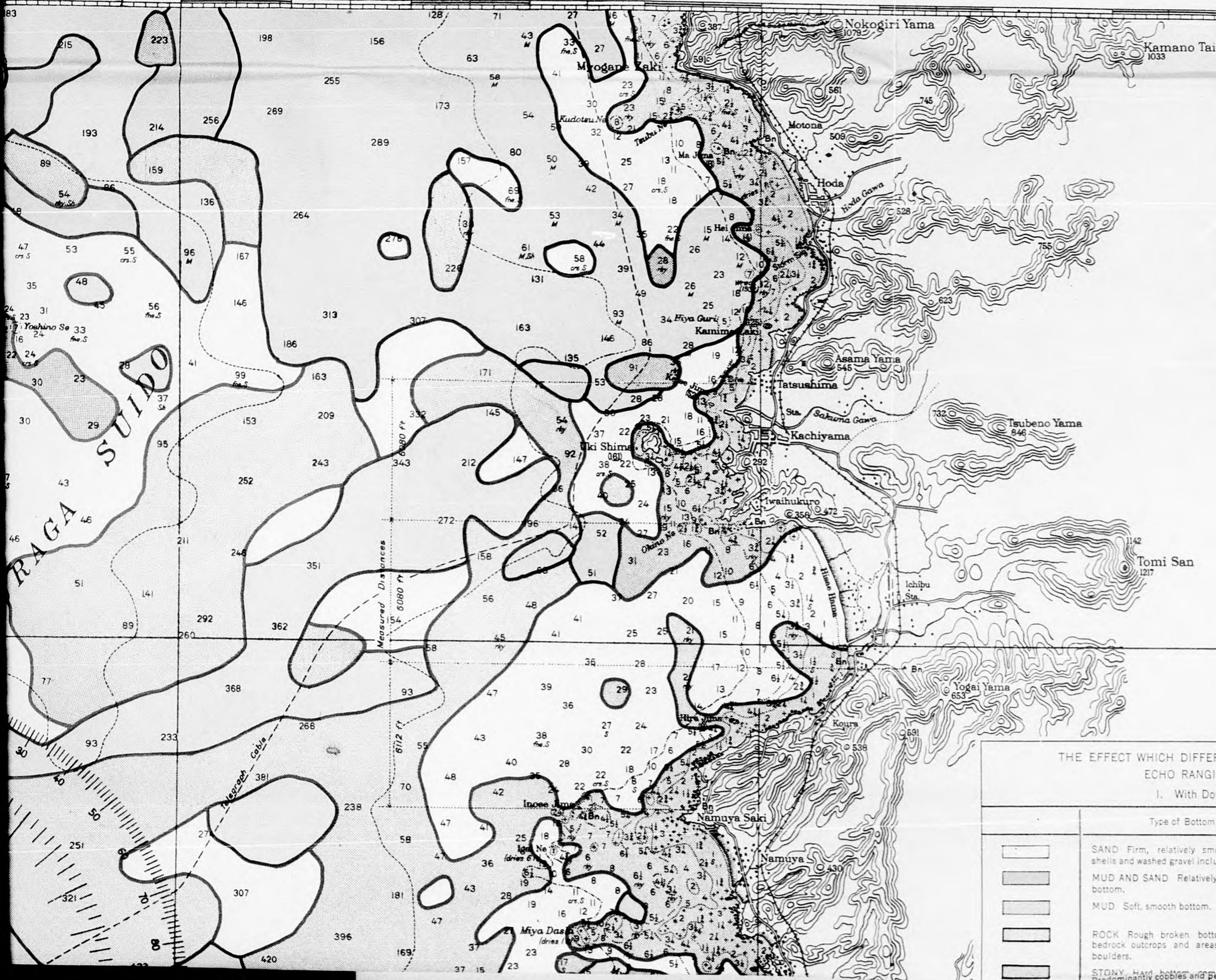
JANIS 85

H. O. CHART 5466 BS



BOTTOM SEDIMENT CHART





CONVERSION TABLE
FATHOMS TO METERS

1/2	0.5	4 1/2	8.2	14	25.6
1	0.9	5	9.1	15	27.4
1 1/2	1.4	5 1/2	10.1	16	29.3
2	1.8	6	11.0	17	31.1
2 1/2	2.3	6 1/2	11.9	18	32.9
3	2.7	7	12.8	19	34.7
3 1/2	3.2	7 1/2	13.7	20	36.6
4	3.7	8	14.6	30	54.9
4 1/2	4.1	9	16.5	40	73.2
5	4.6	10	18.3	50	91.4
5 1/2	5.0	11	20.1	60	109.7
6	5.5	12	21.9	70	128.0
6 1/2	5.9	13	23.8	80	146.3
7	6.4			90	164.6
7 1/2	6.9			100	182.9
8	7.3				
8 1/2	7.8				

Corrected to N.M.

Year	No.	Paragraph

THE EFFECT WHICH DIFFERENT TYPES OF BOTTOM HAVE ON
ECHO RANGING AND LISTENING
1. With Downward Refraction

Type of Bottom	Probable Acoustic Effects of Bottom
SAND Firm, relatively smooth bottom, shells and washed gravel included.	Long extension of range commonly obtained.
MUD AND SAND Relatively firm, smooth bottom.	Moderate to very poor extension of range.
MUD Soft, smooth bottom.	Sound commonly absorbs and no extension possible.
ROCK Rough broken bottom, includes bedrock outcrops and areas covered by boulders.	Strong reverberation tends to mask echoes. Extension of range unlikely with either echo ranging or listening.
STONY Hard bottom and pebbles. Varying sizes.	Reverberations may be strong.

SAGAMI NADA

35°

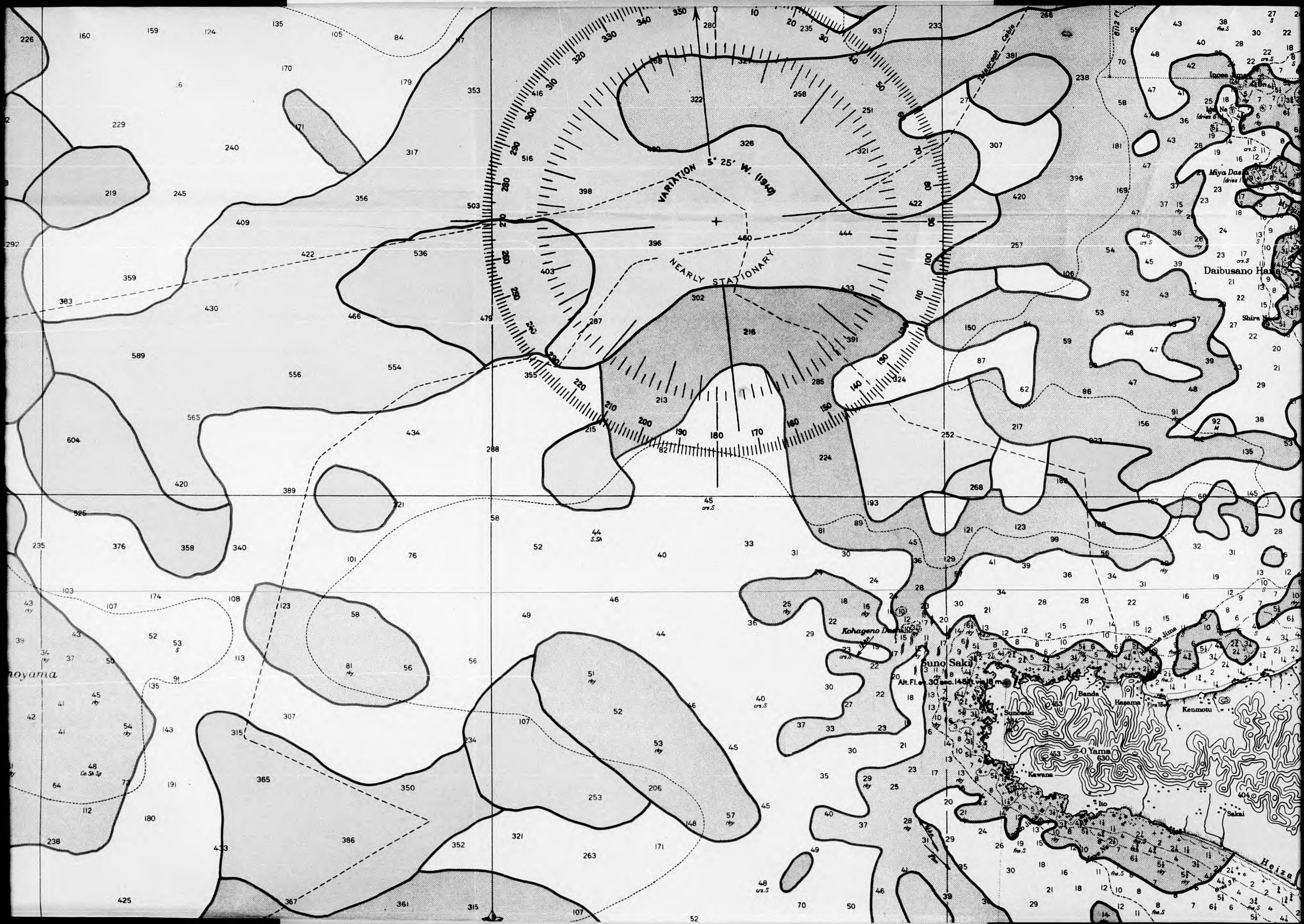
PREPARED FOR THE
NATIONAL DEFENSE RESEARCH COMMITTEE
BY THE
DIVISION OF WAR RESEARCH
OF THE UNIVERSITY OF CALIFORNIA



JAPAN
HONSHU - SOUTH COAST
SOUTHERN PART OF

Telegraph Cable to Oshima







THE EFFECT WHICH DIFFERENT TYPES OF BOTTOM HAVE ON ECHO RANGING AND LISTENING

I. With Downward Refraction

Type of Bottom	Probable Acoustic Effects of Bottom
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II. With Upward Refraction

Under these conditions, maximum ranges are usually long, and not dependent on the type of bottom. Over ROCK bottoms, however, strong reverberations may be encountered.

SPECIAL NOTE

SOUTHERN PART OF TOKYO KAIWAN

Based on about 1200 bottom notations from Japanese Navy charts. The boundaries in the areas less than 100 fathoms deep are well established, but in the deeper portions the boundaries are more generalized because of scarcity of samples.

The rocky areas and the irregular bottom, particularly around the submarine valleys should make for bad sound conditions over much of the area. Furthermore it is possible that crackling background noises coming from the shallow rocky bottoms in this area will add to the difficulty of detecting submarines.

TIDAL INFORMATION

Place	Lunital Intervals		Height above datum of soundings		
	H.W. Mean	L.W. Mean	H.W. Springs	H.W. Neaps	Mean Tide Level
Iwahukuro	hrs. 5 min. 07	hrs. 5 min. 07	feet 4½	feet 3½	feet 3.0
Tateyama Wan	5 05	5 05	5	4	3.3
Nojima Saki	4 56	4 56	4½	3½	3.0
Aburatubo	5 16	5 16	5	3½	3.0
Joga Shima	5 2	5 2	5	4	3.0

JAPANESE AND ENGLISH TERMS

- | | | | |
|---------------|------------------|----------------------|--------------------------|
| Bana or Hana | cape, headland | Ko | harbor, port |
| Dashi | rock, shoal | Saki, Zaki or Misaki | point, cape |
| Gawa or Kawa | river | Se, Su or Ne | bank, rock, reef |
| Guri | rock, reef | Suido or Seto | strait, channel, passage |
| Jima or Shima | island | Wan | bay |
| Yama | mountain, hill | | |
| | Shintoist temple | | |
| | Buddhist temple | | |

AUTHORITIES

Japanese Chart No. 1063
U.S. Hydrographic Office Publications

35°

BY THE
DIVISION OF WAR RESEARCH
OF THE UNIVERSITY OF CALIFORNIA



JAPAN
HONSHU - SOUTH COAST
**SOUTHERN PART OF
TOKYO KAIWAN**

From Japanese surveys in 1923 and 1924

SOUNDINGS IN FATHOMS
reduced to approximately Lowest Low Water

HEIGHTS IN FEET ABOVE MEAN SEA LEVEL

Underlined figures in the water in brackets, thus: (12) indicate the height of the adjacent island or rock

Flood ← — kn, knots — → Ebb

*G. clay, C. gravel, M. mud, S. sand, Sh. shells, St. stones
crs. coarse, fne. fine, rky. rocky*

Natural Scale 1:52,000

LIGHTS

*F. fixed, Fl. flashing, Occ. occulting, Alt. alternating, Gp. group,
R. red, W. white, G. green, B. blue, sec. sector, (U) unwatched
Alternating lights are red and white unless otherwise indicated
Lights are white unless colors are stated*

BUOYS

..... red
..... black
..... with vertical stripes
..... with horizontal stripes
..... whistle
..... bell
..... lighted
..... mooring

▲ Bn. Beacon

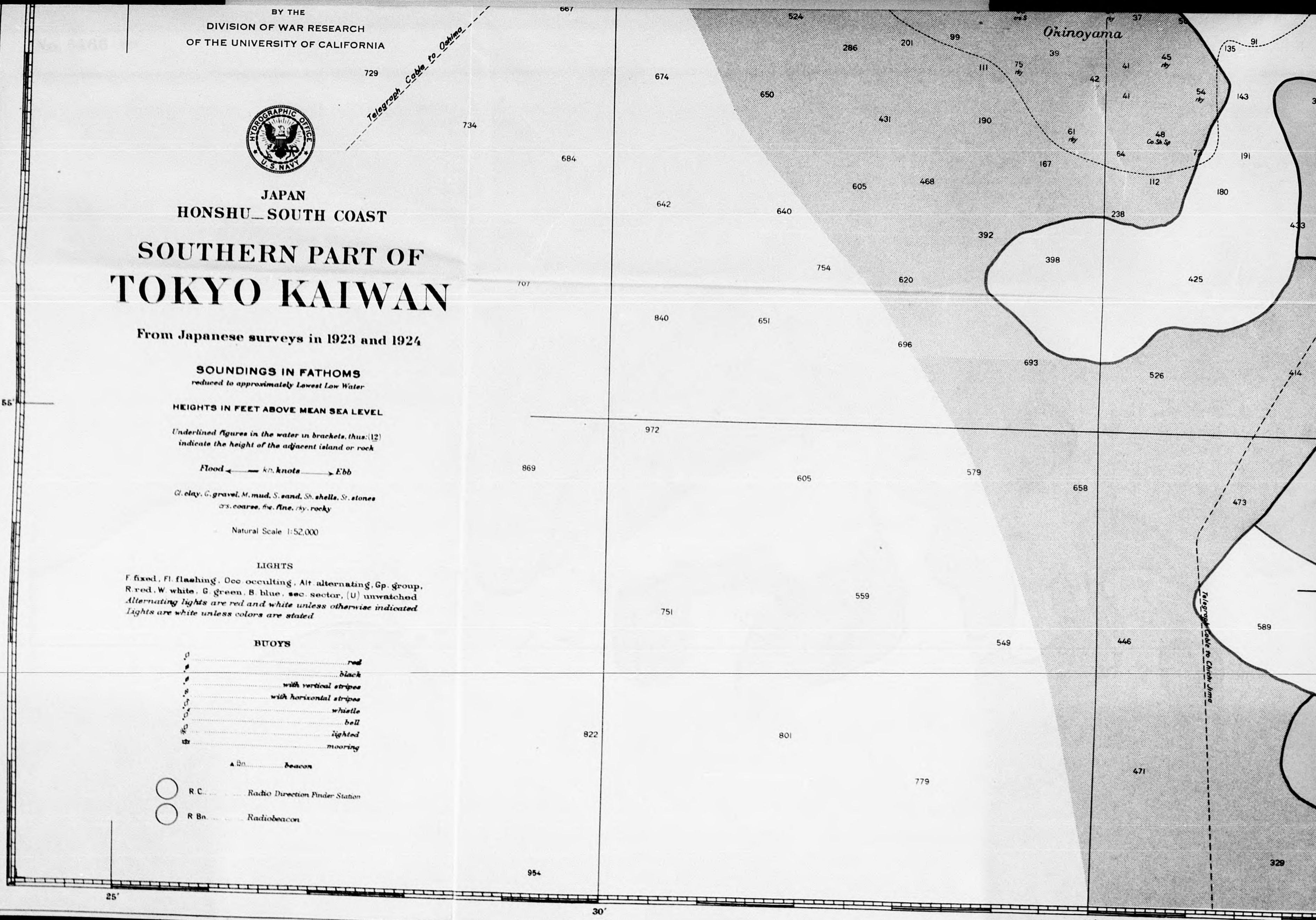
○ R. C. Radio Direction Finder Station

○ R. Bn. Radiobeacon

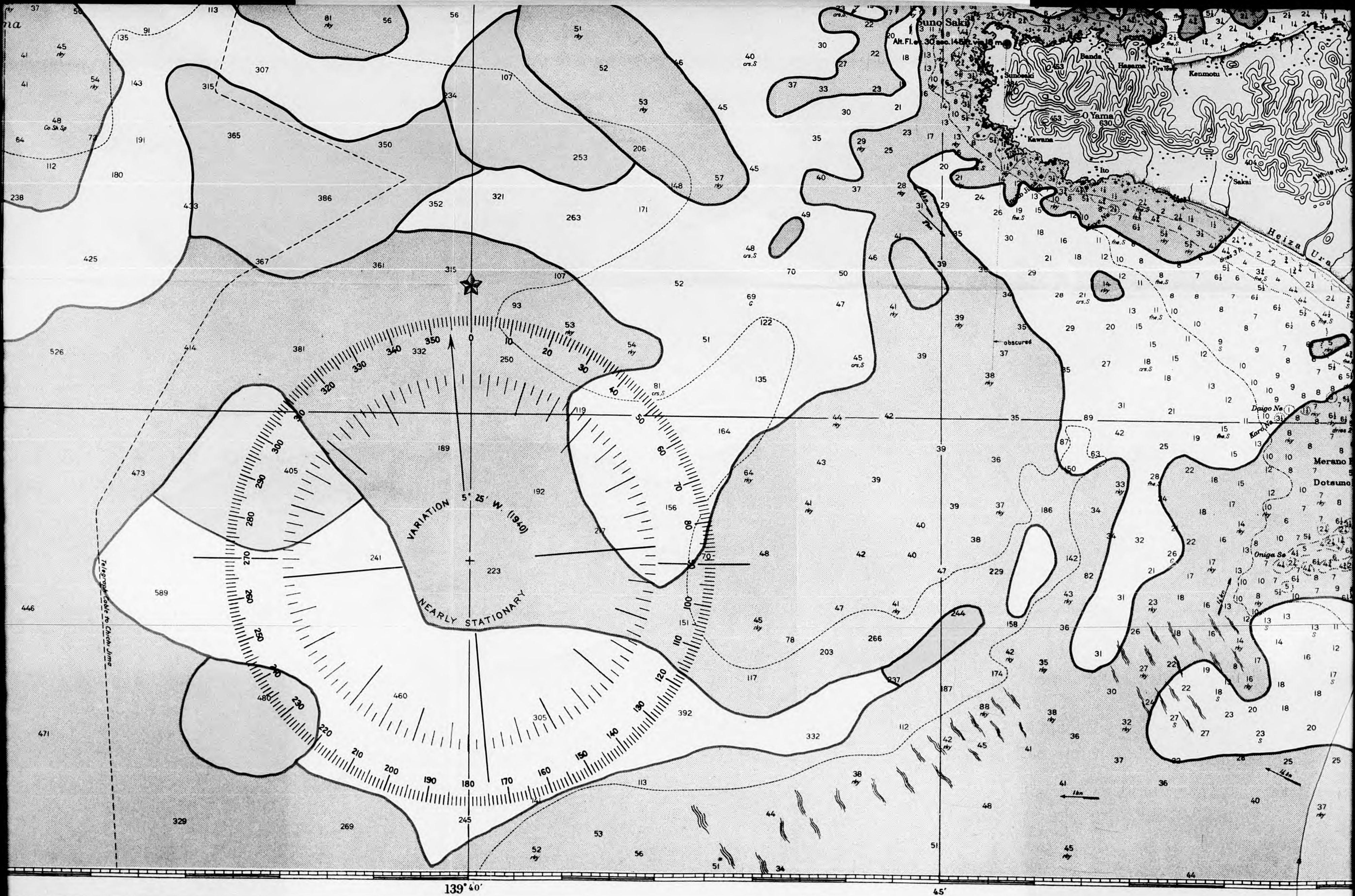
Telegraph Cable to Oshima

Telegraph Cable to Choshi Jima

Okinoyama



Small corrections Printed: Mar '32
from Notices to Mariners: '30-31('31-35('32-5
from other sources: Feb '33 Sept '37
'32-24 '33-29('35-31('36-6('37-1,28 Nov. '40 Apr. '42
II '33 IX '37 '39-9('40-47 XI '40 I '42



April 1943

Published at the Hydrographic Office, Washington, D.C., Sept. 1929
under the authority of the SECRETARY OF THE NAVY

WARNING

A SAND bottom does NOT guarantee long maximum ranges in all cases. The precise extent to which bottom reflections may be generally relied upon to produce extended ranges is not yet known.