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NO. PUB. 799-G

AD A950789



ATLAS  
OF  
SEA AND SWELL CHARTS,

INDIAN OCEAN.

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REPRINTED 1948, 1965, 1971

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**DISTRIBUTION STATEMENT A**  
 Approved for public release  
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PUBLISHED BY THE U.S. NAVAL OCEANOGRAPHIC  
 OFFICE, UNITED STATES NAVY, UNDER THE  
 AUTHORITY OF THE SECRETARY OF THE NAVY

WASHINGTON  
 1941  
 PRICE \$2.00

**UNANNOUNCED**

817

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NOP-799G	2. GOVT ACCESSION NO. AD-A950789	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Atlas of Sea and Swell Charts - Indian Ocean	5. TYPE OF REPORT & PERIOD COVERED	
	6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s)	8. CONTRACT OR GRANT NUMBER(s)	
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Navy Hydrographic Office Washington, DC	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
11. CONTROLLING OFFICE NAME AND ADDRESS	12. REPORT DATE 1944	
	13. NUMBER OF PAGES 12	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report) Unclassified	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report)  Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES  Reprinted by Naval Oceanographic Office in 1974.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Sea Swell Indian Ocean Winds Waves		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Sea and swell atlases show monthly, seasonal, or yearly charts, depending on data distribution. Winds, sea, and swell are shown monthly; persistence of waves and wave period-height and period-direction are presented seasonally.		

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

10° 20° 30° 40° 50°



A R A B I A

# INDIAN OCEAN SEA AND SWELL CHART

## JANUARY

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office to and including the year 1942, the majority of the observations having been taken during the years 1932 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent roses. THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE.

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the area outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale, and the numeral at the tail of the arrow, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the 't' is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

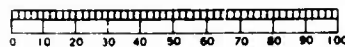
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 6, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

For example—The attached rose should be read as follows:

Sea calculations (light line arrow) were based on 178 observations of which 9 percent were calms; 14 percent were from the southwest and predominately medium; 31 percent were from the west, of which 55 percent were low and 36 percent were medium; 17 percent were from the northwest, of which 67 percent were low and 23 percent were medium; 7 percent were from the north and predominately high.

Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms; 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 36 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 50 percent were low and 50 percent were medium; 13 percent were from the west and predominately medium; 5 percent were from the northwest and predominately high.



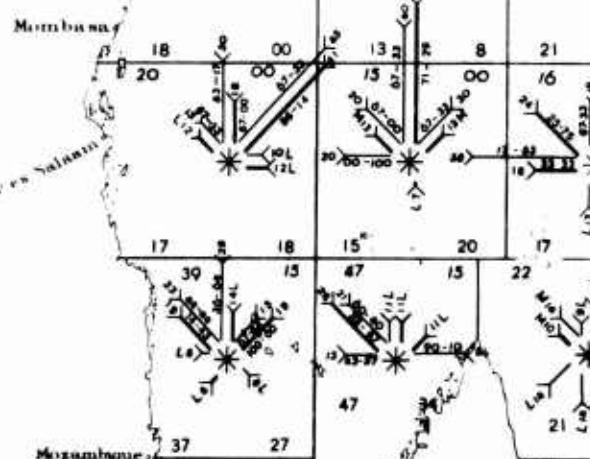
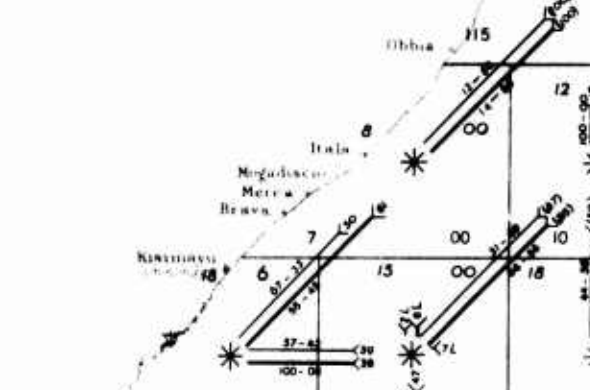
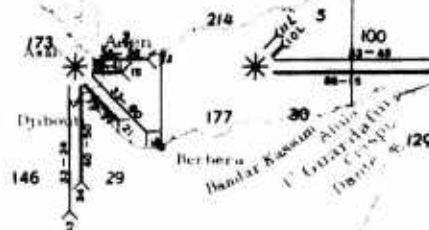
SCALE OF SEA OR SWELL PERCENTAGES



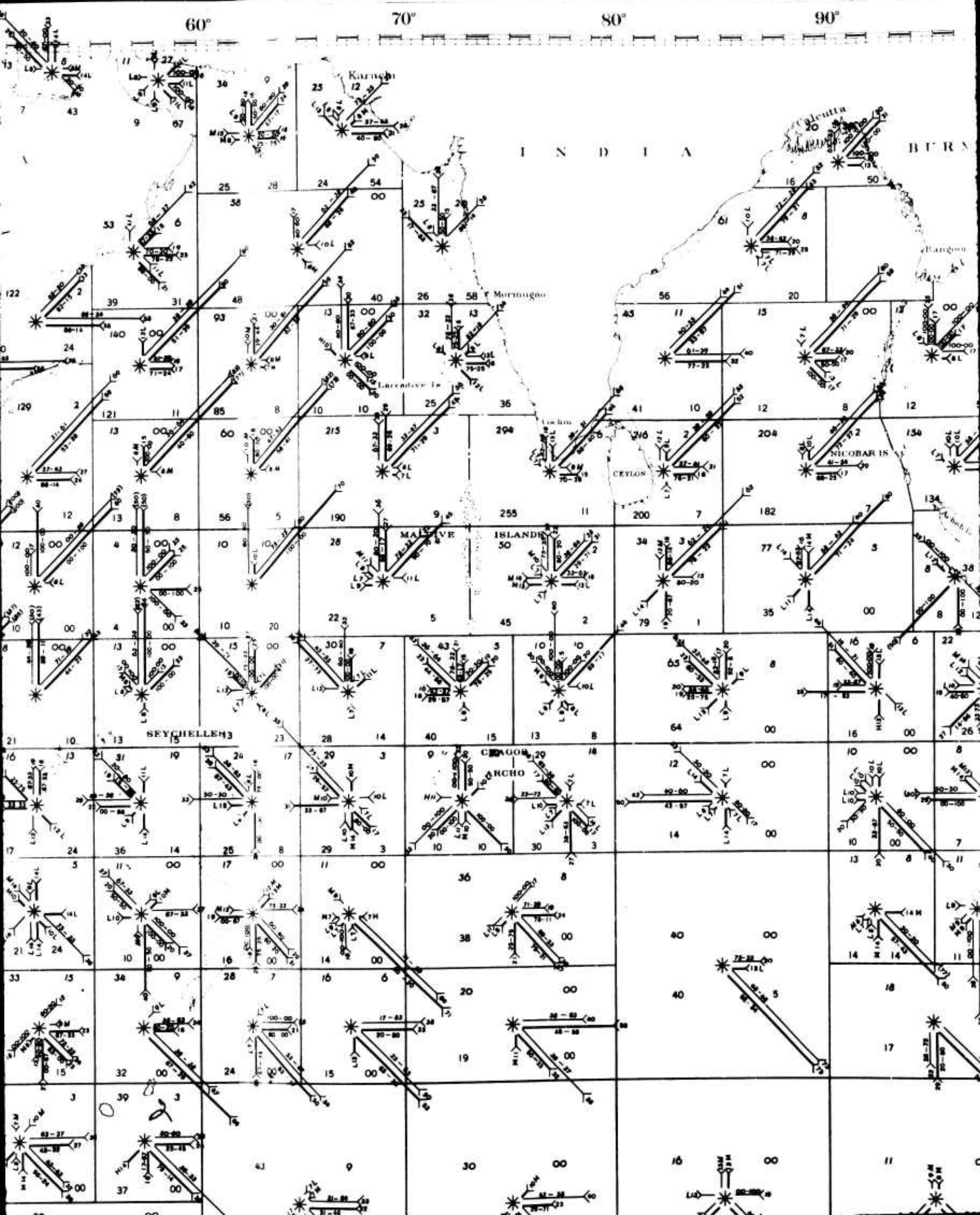
A F R I C A

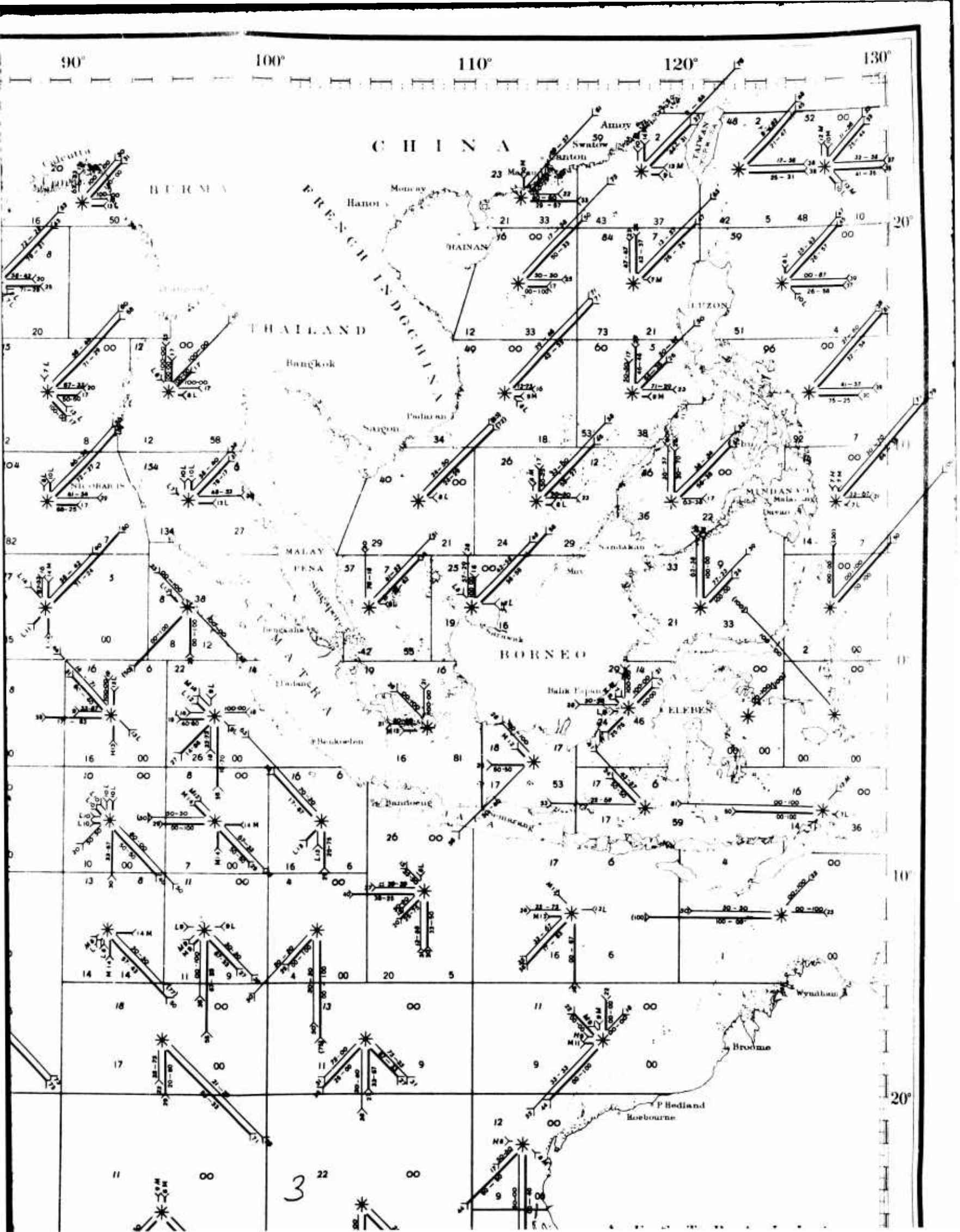
Port Sudan  
Suakin

Mussau



Laurenceo 112 4 72 3 65 2 20





90° 100° 110° 120° 130°

CHINA

BERMA

FRENCH INDOCHINA

THAILAND

HAINAN

LUZON

MALAY PENINSULA

BORNEO

CELEBES

MINDANAO

SUMATRA

JAVA

Bromo

P. Hedland  
Roebourne

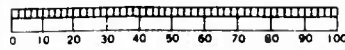
3

20°

10°

20°

Luanda Benguela



SCALE OF SEA OR SWELL PERCENTAGES

Mozambique

# A F R I C A

Mananjary

Manitrano

Tamatave

Tulleur

Mananjary

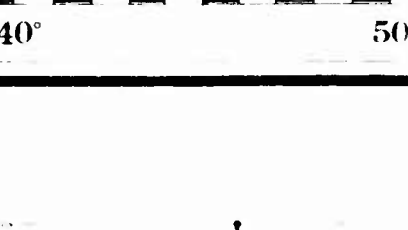
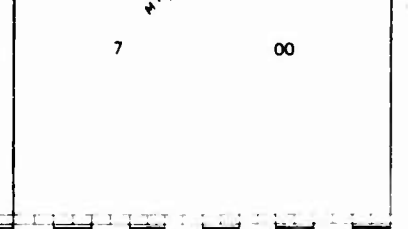
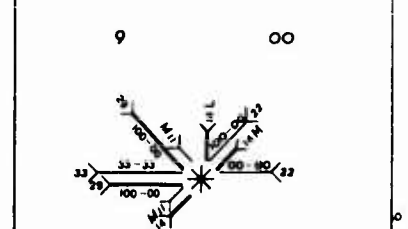
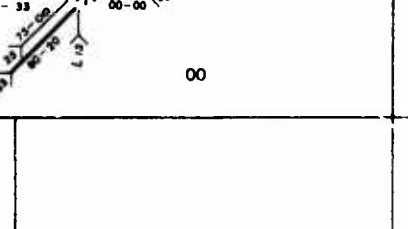
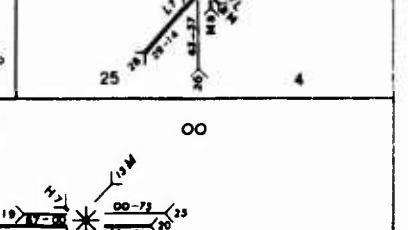
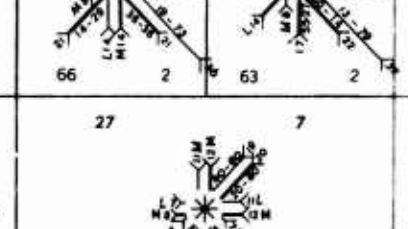
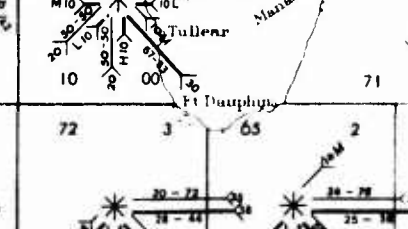
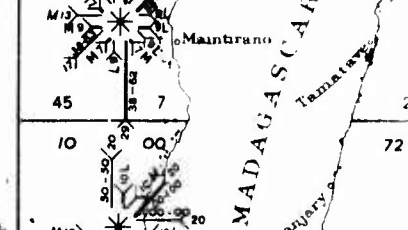
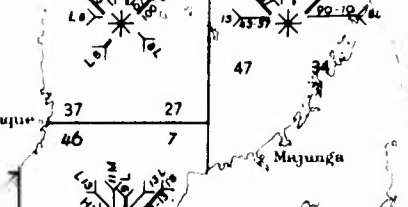
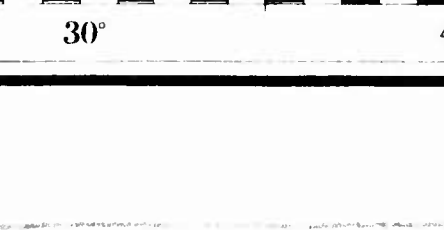
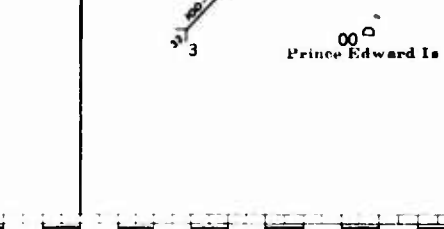
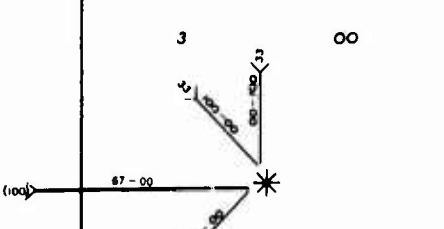
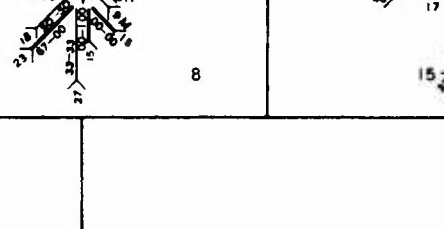
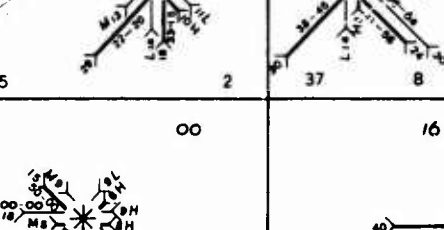
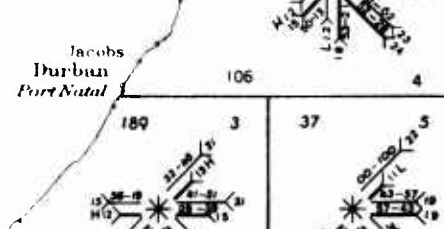
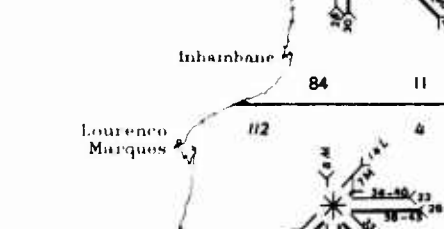
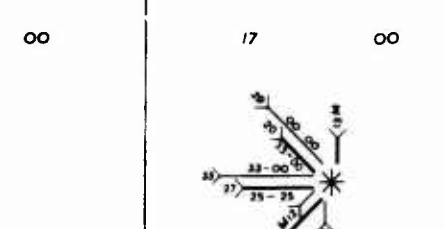
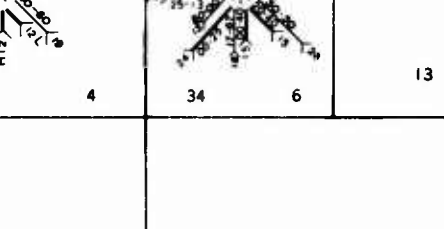
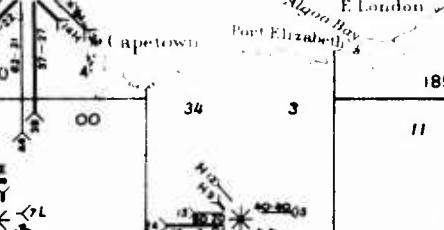
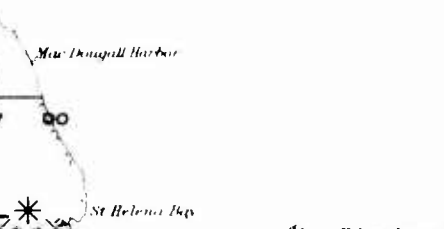
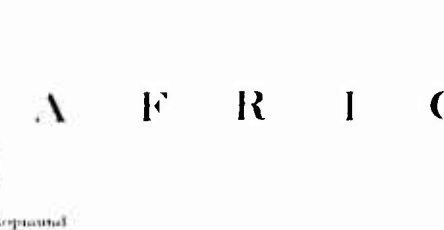
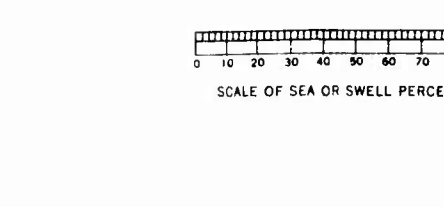
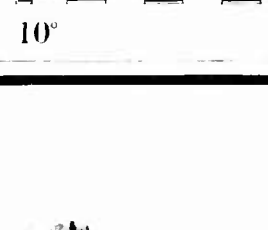
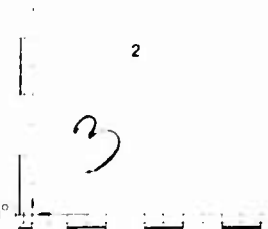
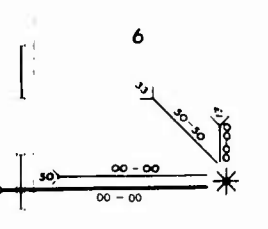
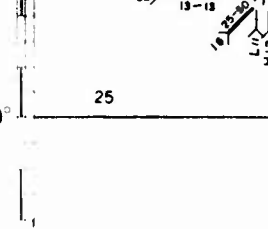
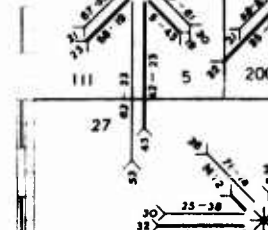
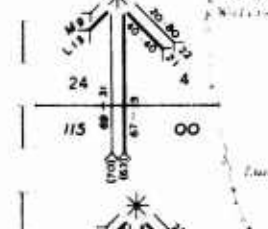
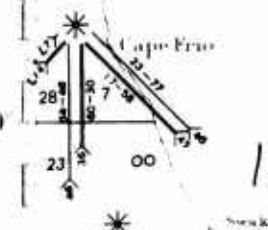
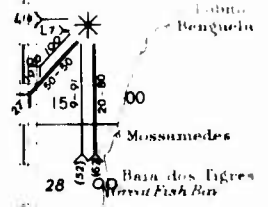
Port Dauphin

Port Natal

Port Elizabeth

E. London

Prince Edward Is.



3

10°

20°

30°

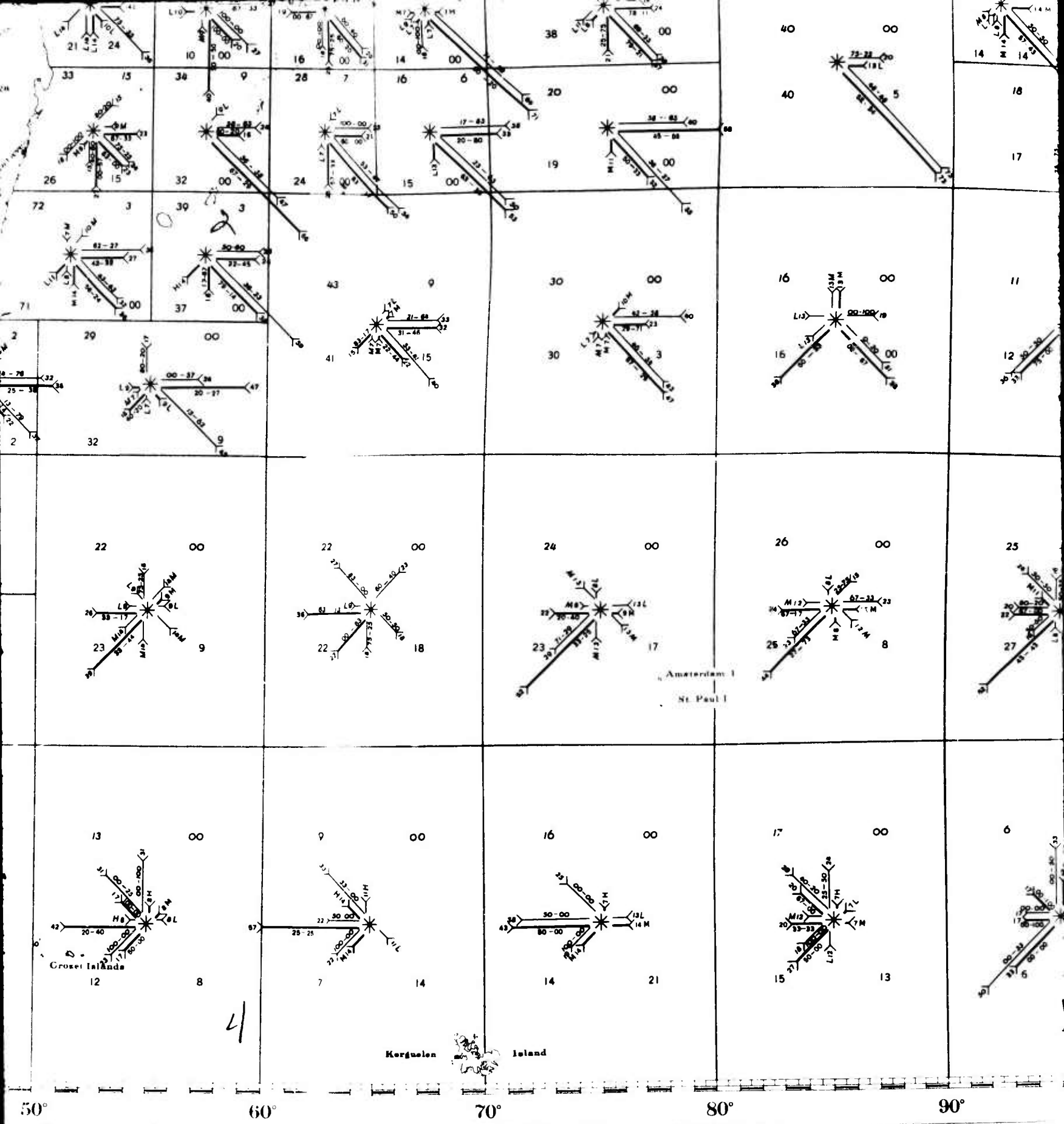
40°

50°

(100)

(100)

Prince Edward Is.



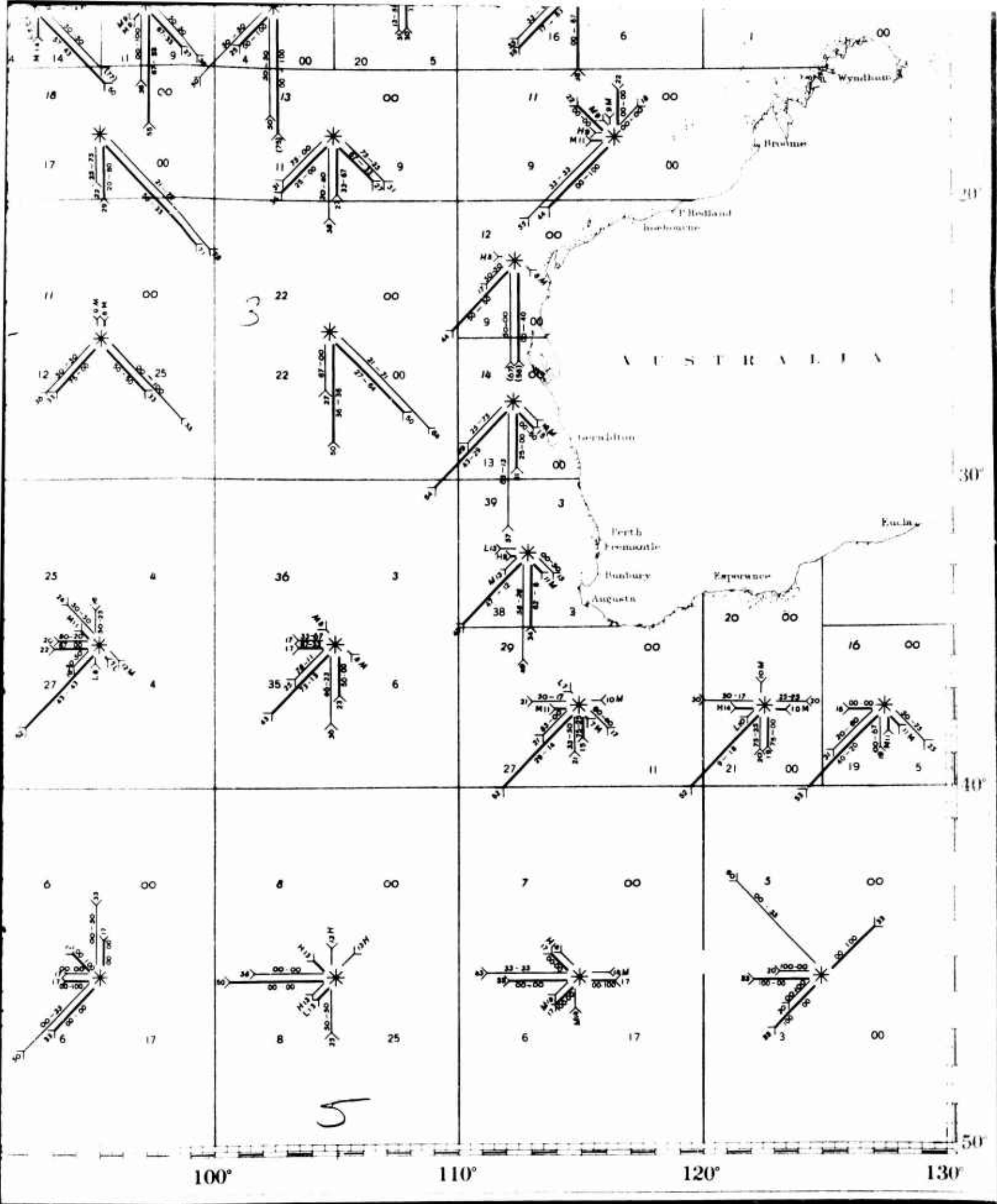
50°

60°

70°

80°

90°



6

10° 20° 30° 40° 50°



# INDIAN OCEAN SEA AND SWELL CHART

## FEBRUARY

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office to and including the year 1942, the majority of the observations having been taken during the years 1932 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent roses. **THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE.**

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. **THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE.** No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale and the numeral at the tail of the arrow, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

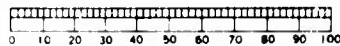
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 6, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

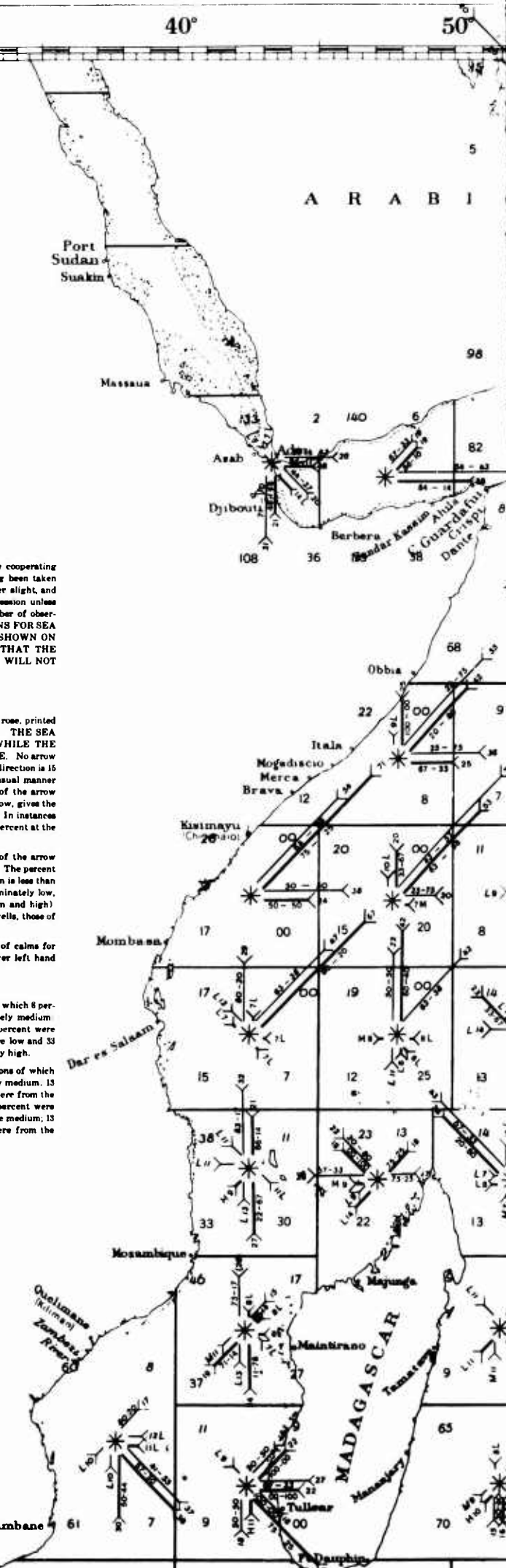
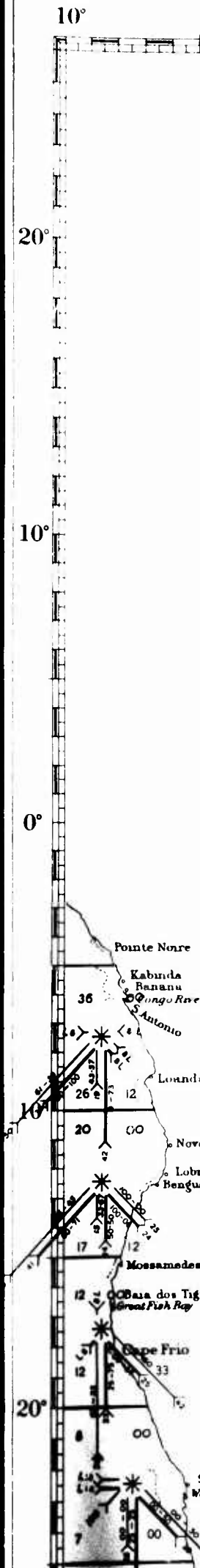
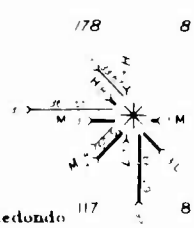
For example - The attached rose should be read as follows

Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms, 14 percent were from the southwest and predominately medium, 31 percent were from the west, of which 56 percent were low and 36 percent were medium, 17 percent were from the northwest, of which 67 percent were low and 33 percent were medium, 7 percent were from the north and predominately high.

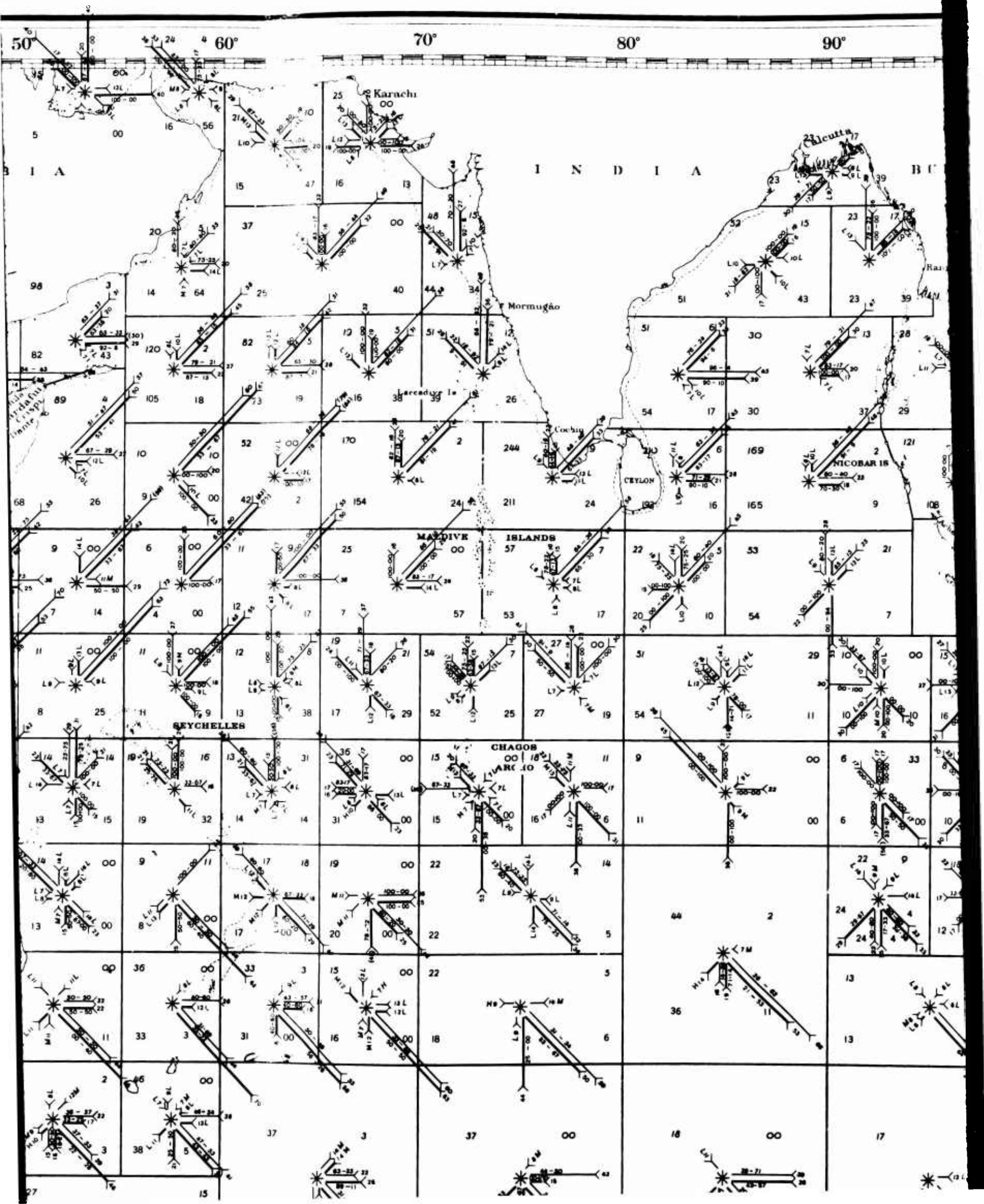
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms, 7 percent were from the east and predominately medium, 13 percent were from the southeast and predominately low; 26 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 50 percent were low and 50 percent were medium; 13 percent were from the west and predominately medium, 8 percent were from the northwest and predominately high.



SCALE OF SEA OR SWELL PERCENTAGES



# A F R I C A



100°

110°

120°

130°

CHINA

BERMA

FRENCH INDOCHINA

THAILAND

LUZON

MINDANAO

BORNEO

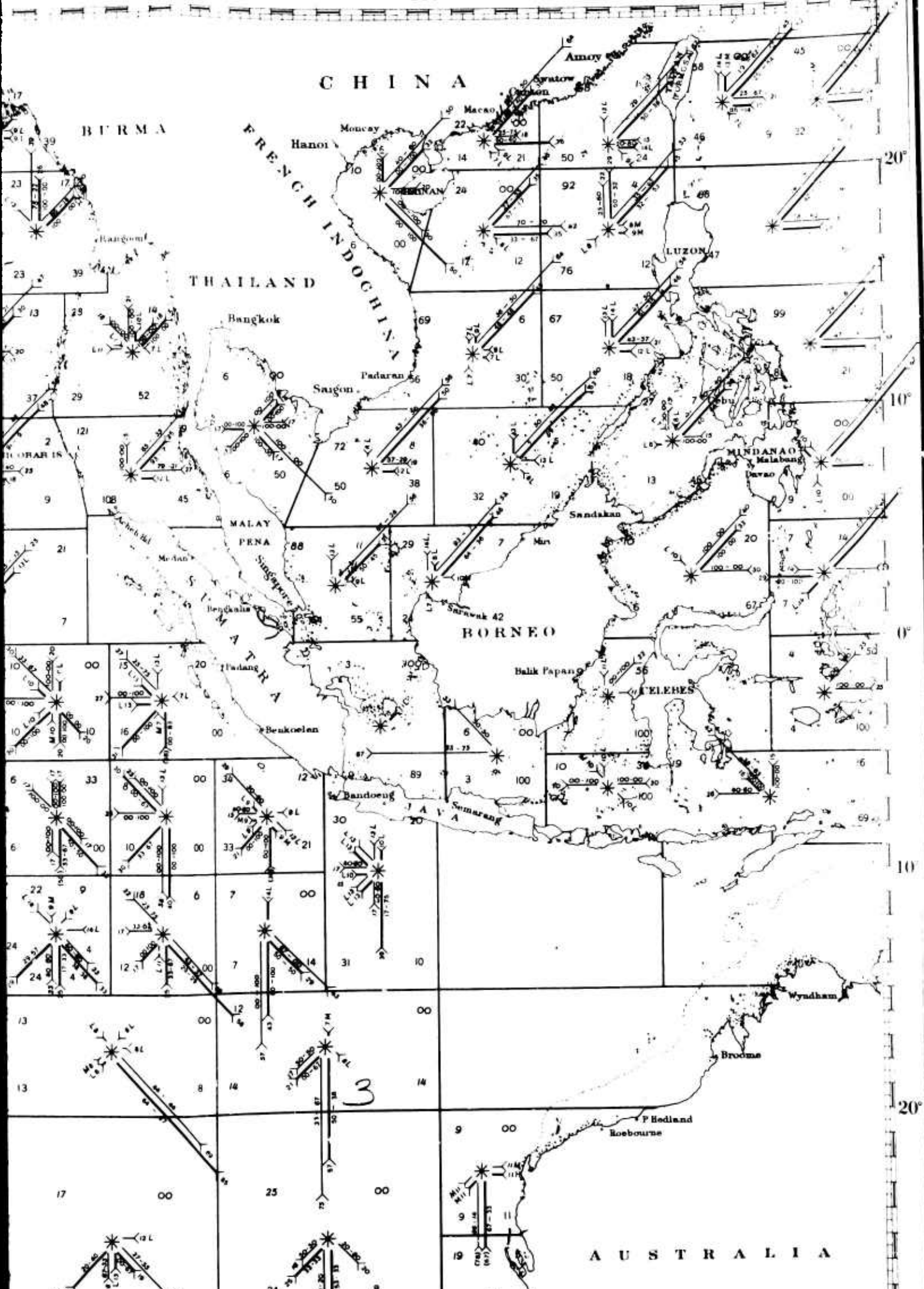
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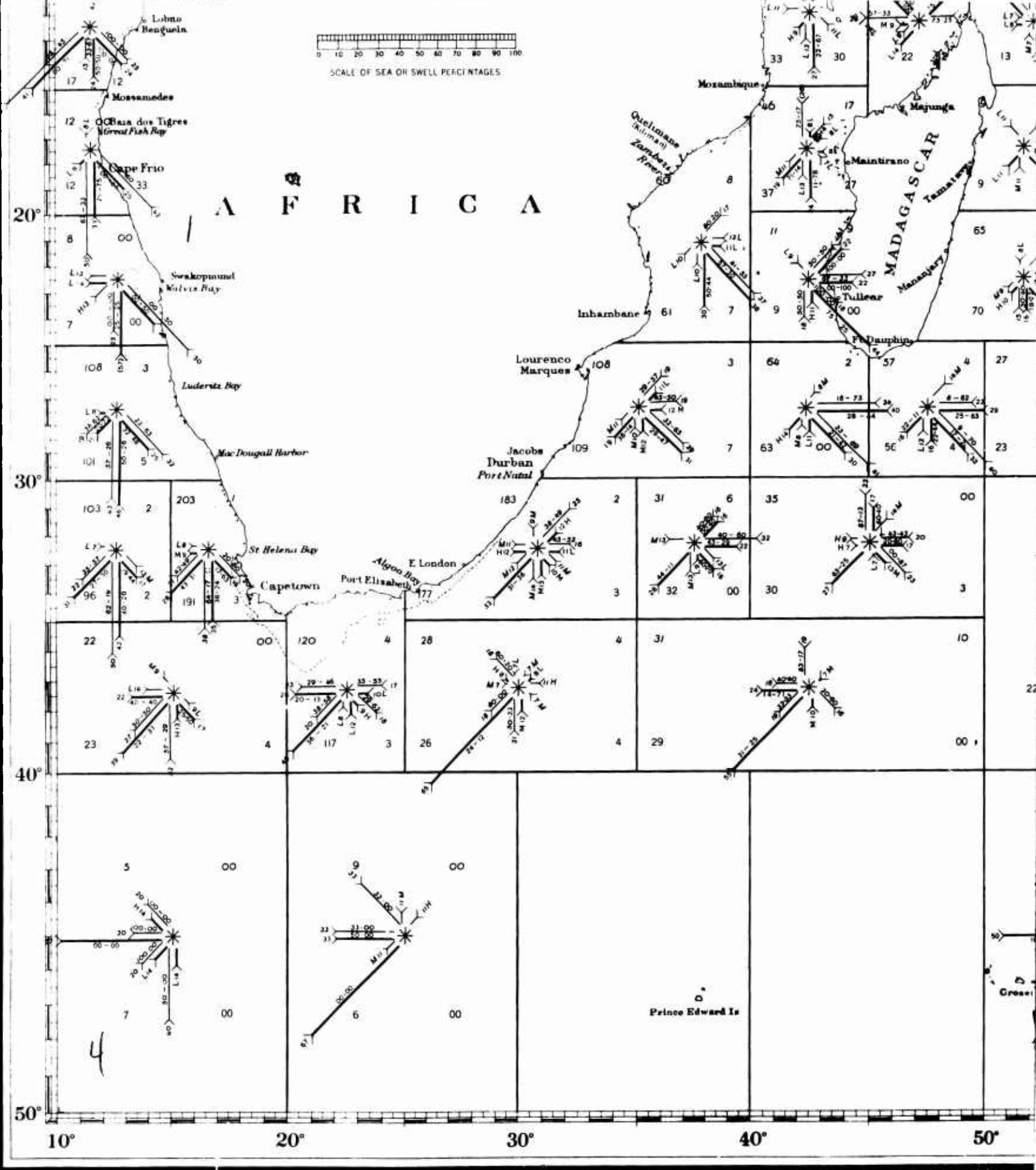
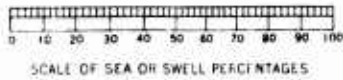
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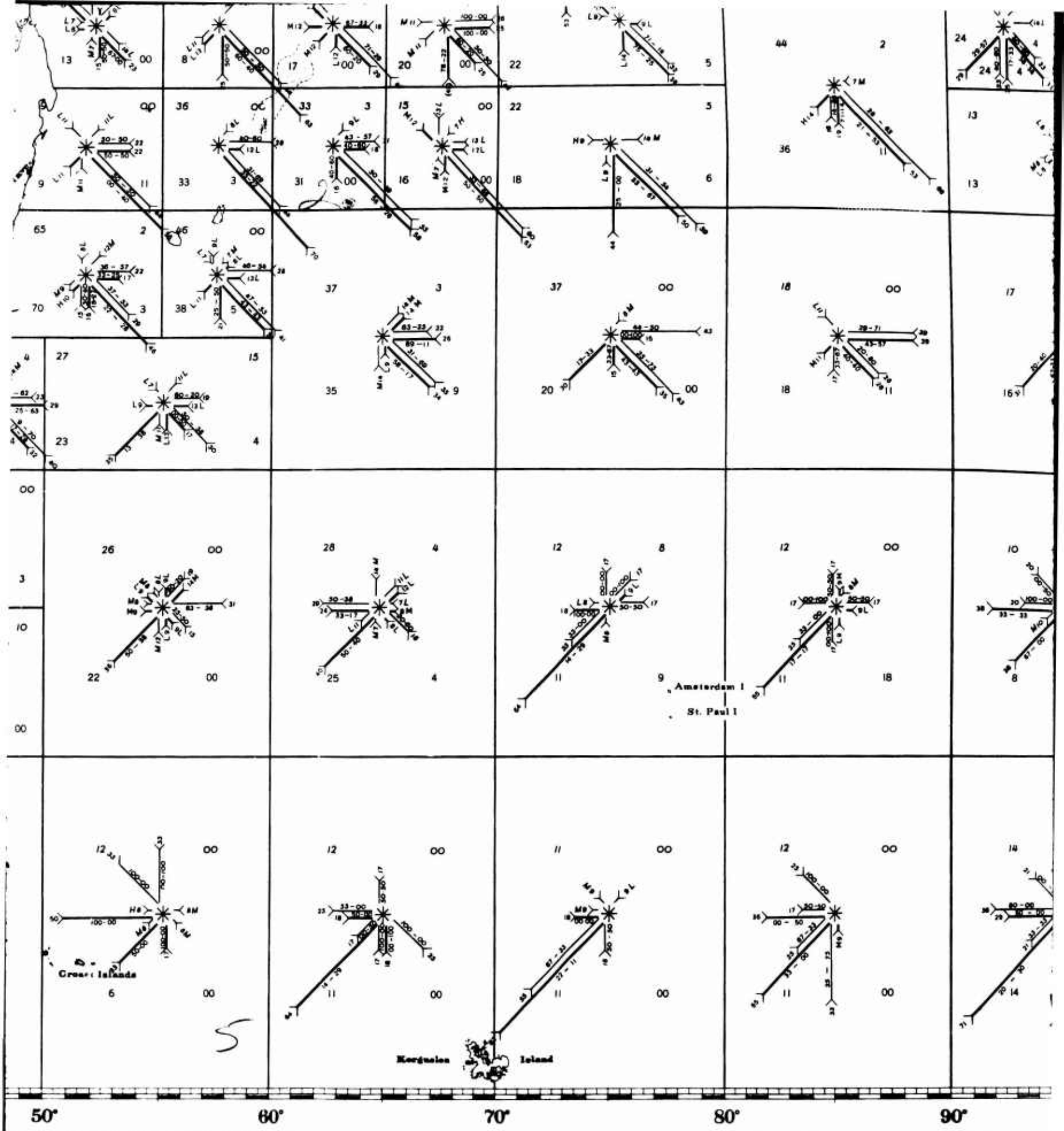
SUMATRA

JAVA

A U S T R A L I A

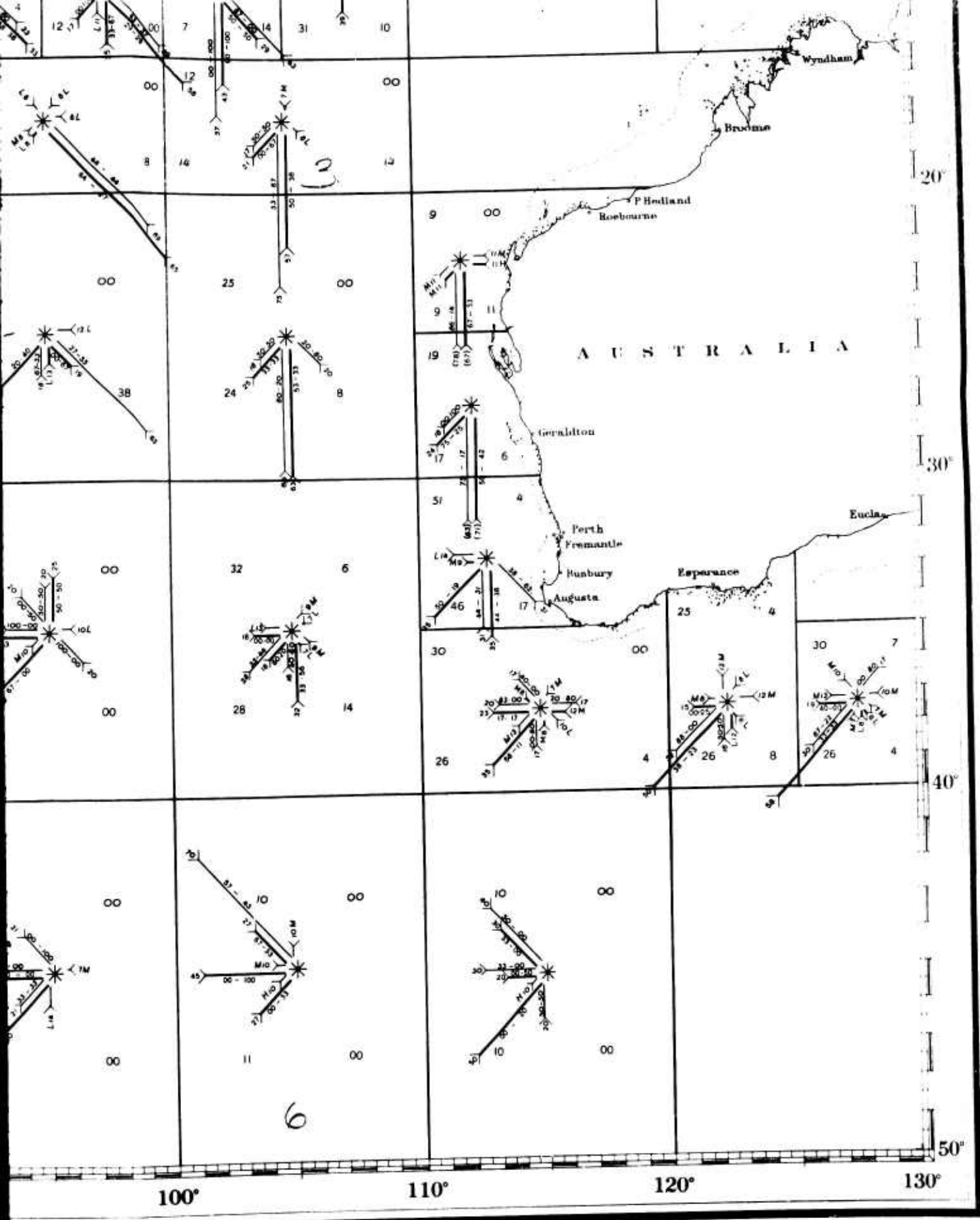






S

50° 60° 70° 80° 90°





# INDIAN OCEAN SEA AND SWELL CHART

## MARCH

### PREVAILING SEAS, SWELLS AND CALMS

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The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale and the numeral at the tail of the arrow, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

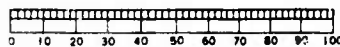
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 5, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

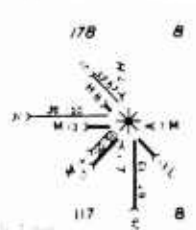
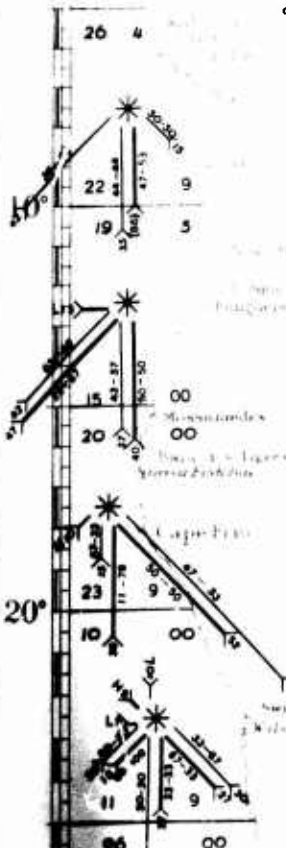
For example—The attached rose should be read as follows:

Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms; 14 percent were from the southwest and predominately medium; 31 percent were from the west, of which 55 percent were low and 34 percent were medium; 17 percent were from the northwest, of which 67 percent were low and 22 percent were medium; 7 percent were from the north and predominately high.

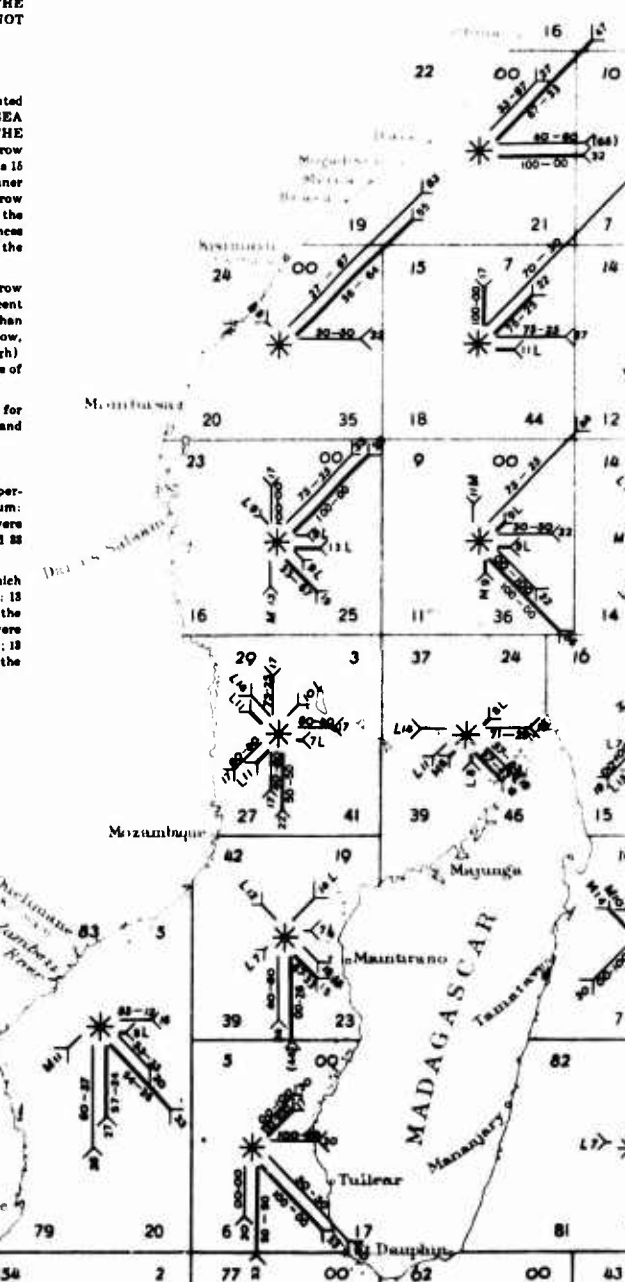
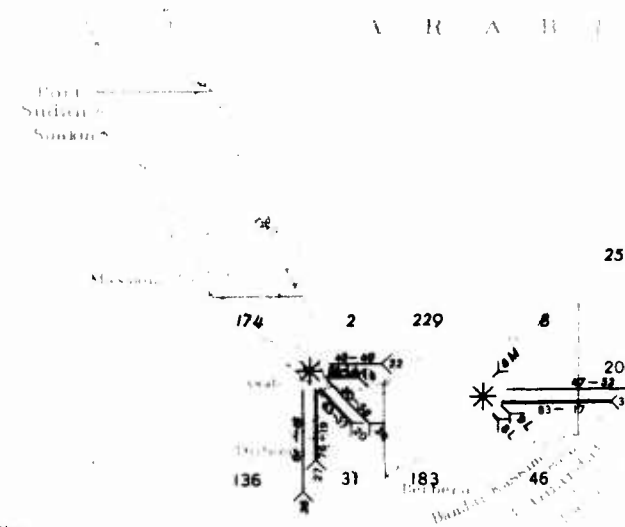
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms; 7 percent were from the east and predominately medium; 18 percent were from the southeast and predominately low; 26 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 80 percent were low and 20 percent were medium; 18 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.

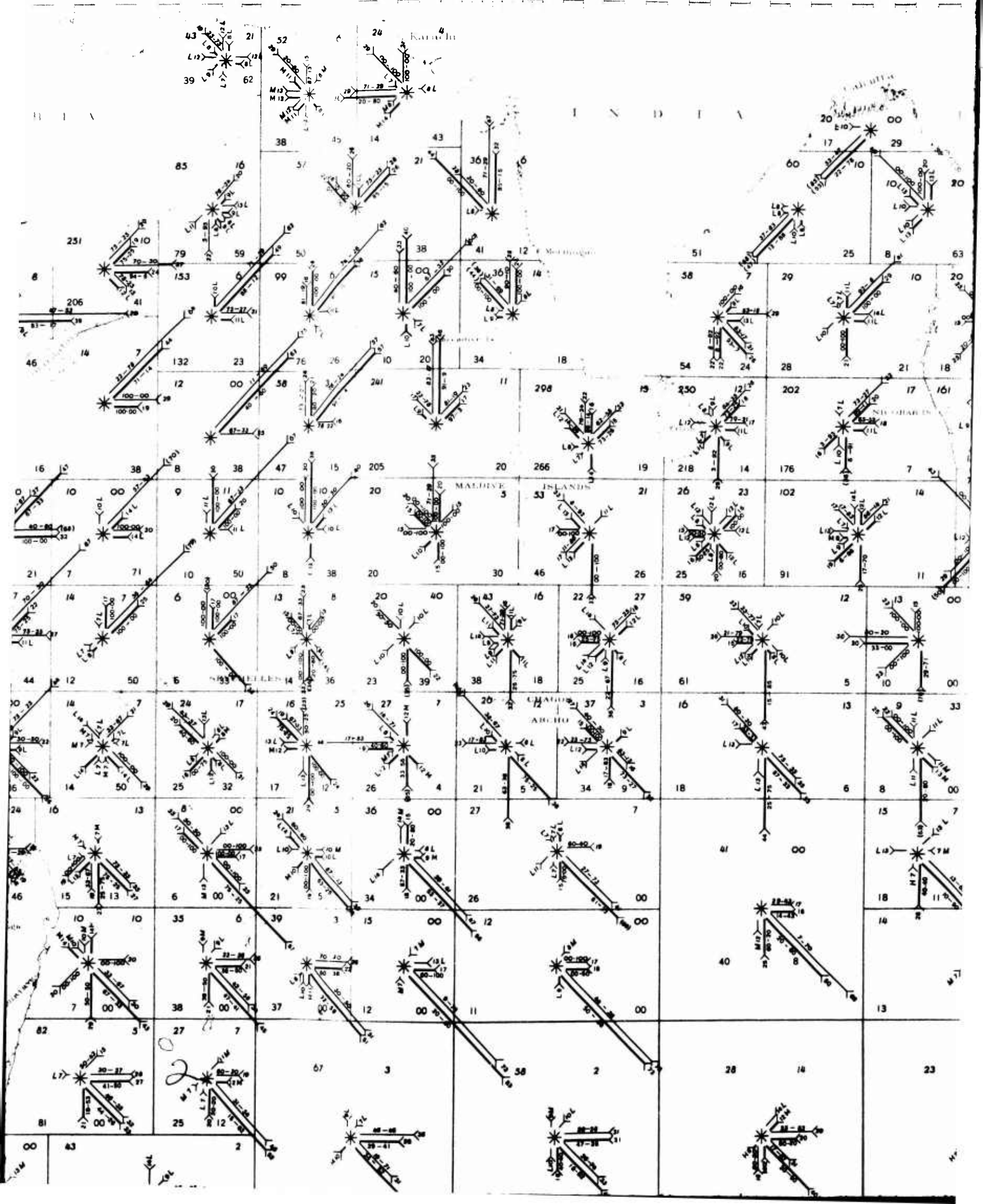


SCALE OF SEA OR SWELL PERCENTAGES



# A F R I C A





CHINA

THE GREAT WALL OF CHINA

HAINAN

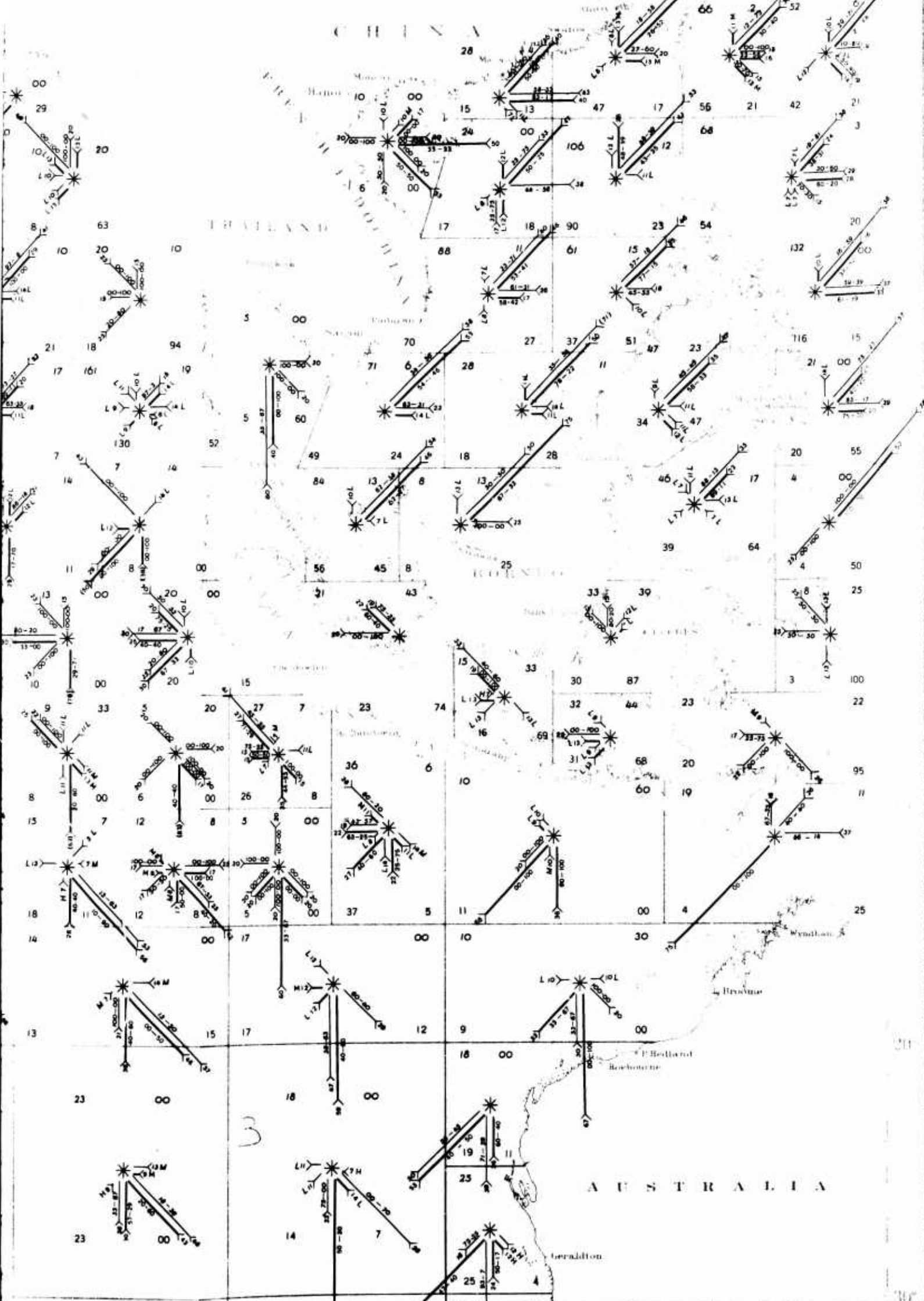
INDONESIA

THE PHILIPPINES

THE MALAY PENINSULA

A U S T R A L I A

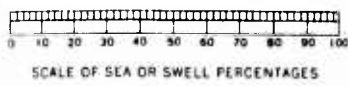
Geraldton



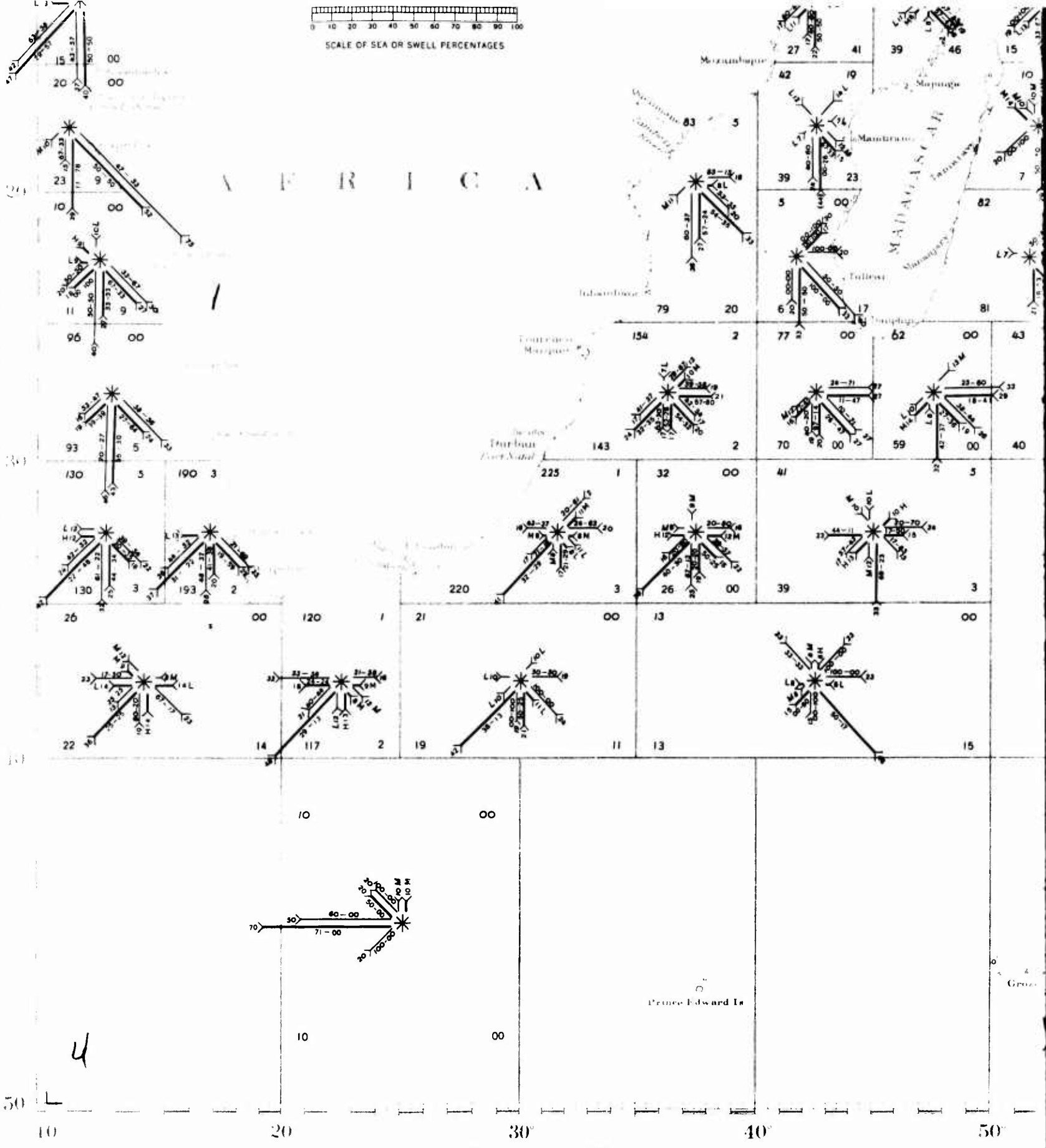
3

11

11

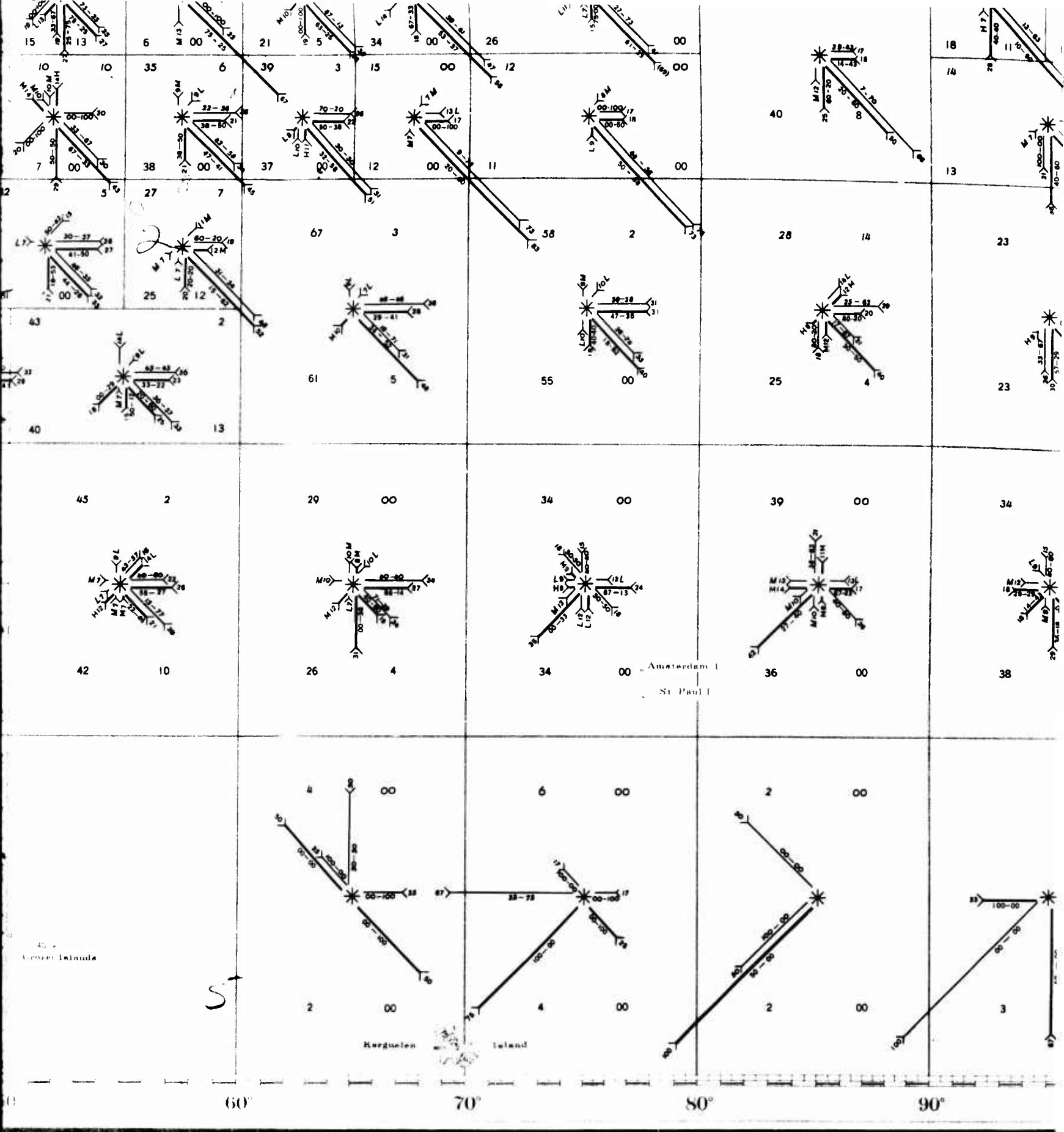


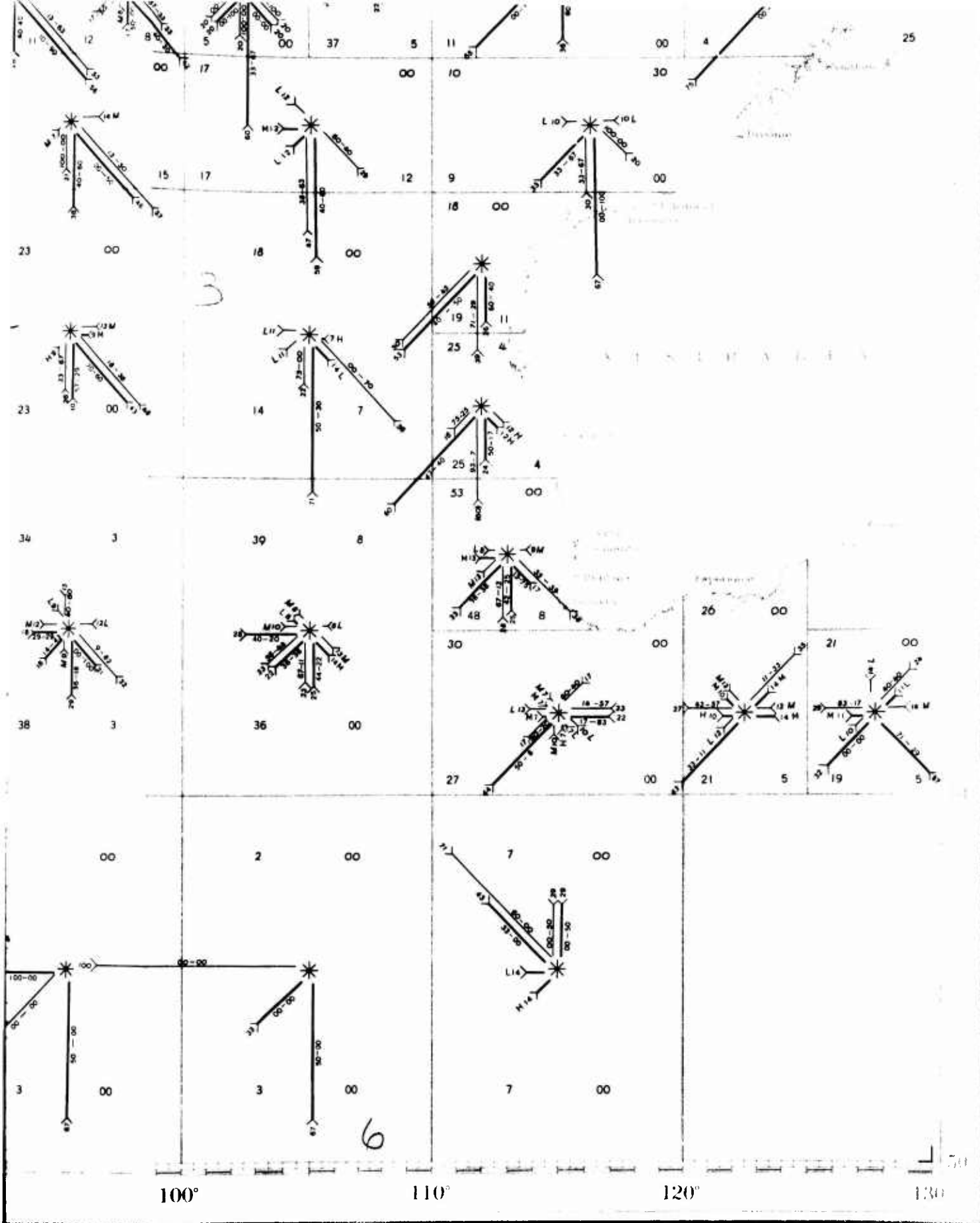
# A F R I C A



4







10° 20° 30° 40° 50° 30



# INDIAN OCEAN SEA AND SWELL CHART

## APRIL

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office and including the year 1942, the majority of the observations having been taken during the years 1922 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent roses. **THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE.**

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. **THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE.** No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale, and the numeral at the tail of the arrow, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

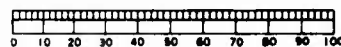
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 8, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

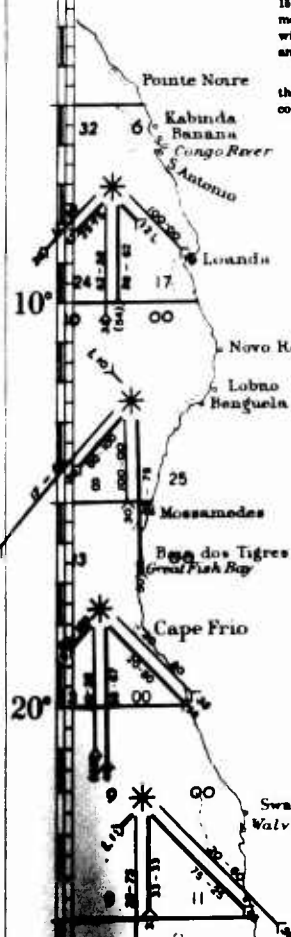
For example—The attached rose should be read as follows:

Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms; 14 percent were from the southwest and predominately medium; 31 percent were from the west, of which 55 percent were low and 36 percent were medium; 17 percent were from the northwest, of which 67 percent were low and 23 percent were medium; 7 percent were from the north and predominately high.

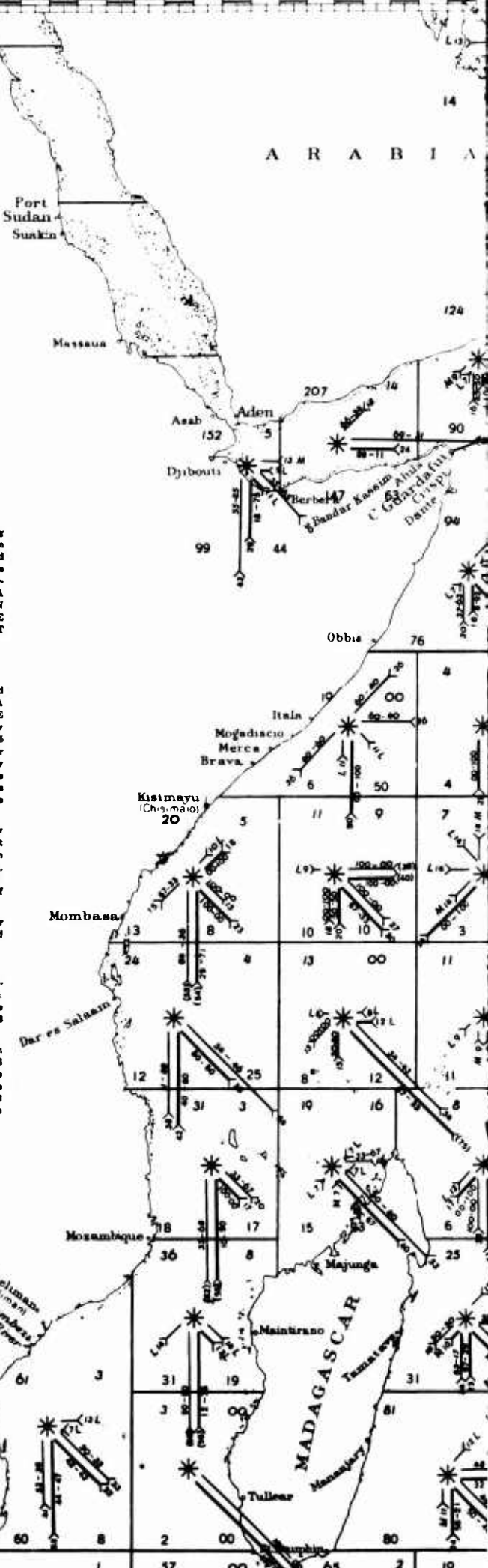
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms; 7 percent were from the east and predominately medium; 18 percent were from the southeast and predominately low; 26 percent were from the south of which 23 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 80 percent were low and 20 percent were medium; 12 percent were from the west and predominately medium; 5 percent were from the northwest and predominately high.



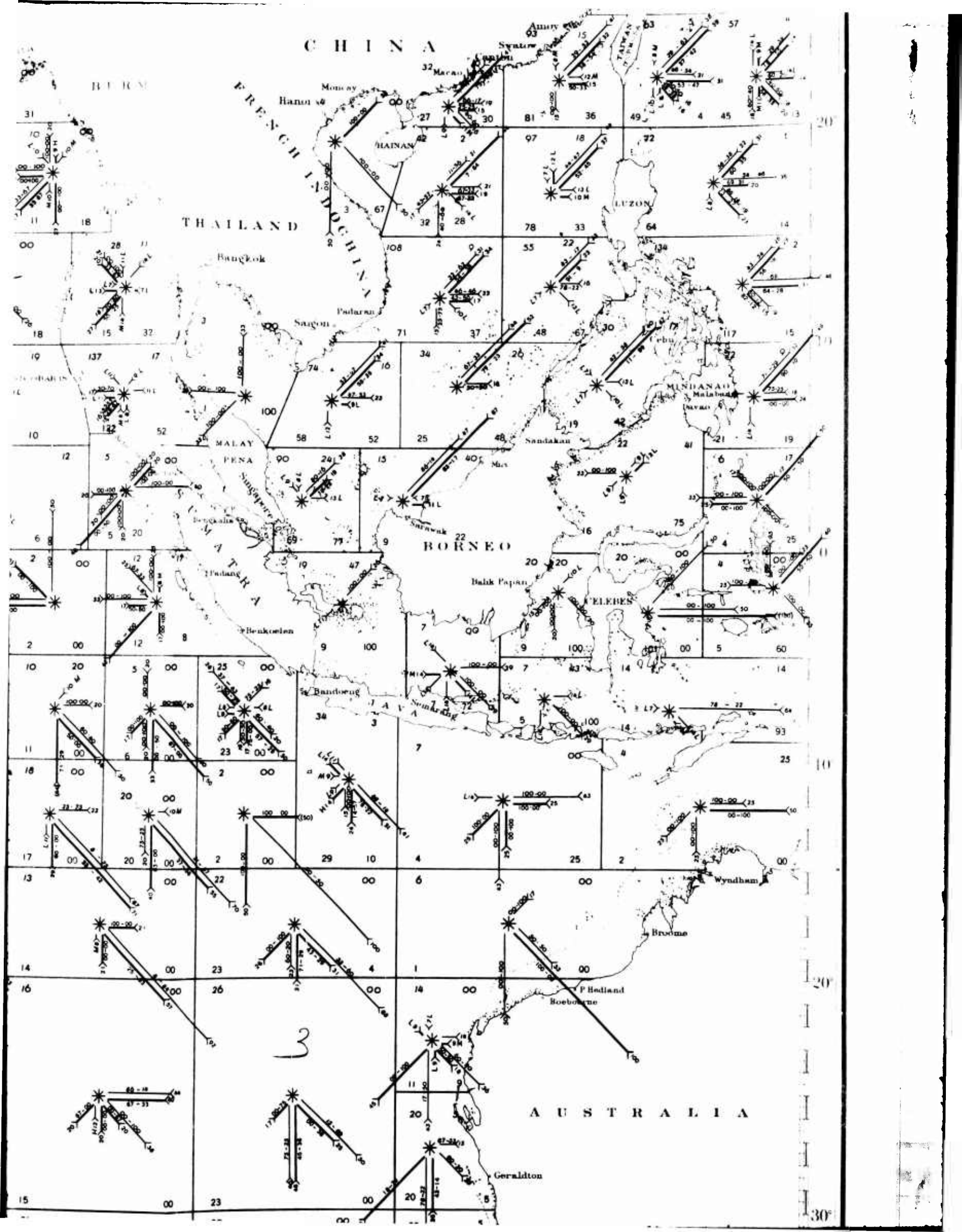
SCALE OF SEA OR SWELL PERCENTAGES



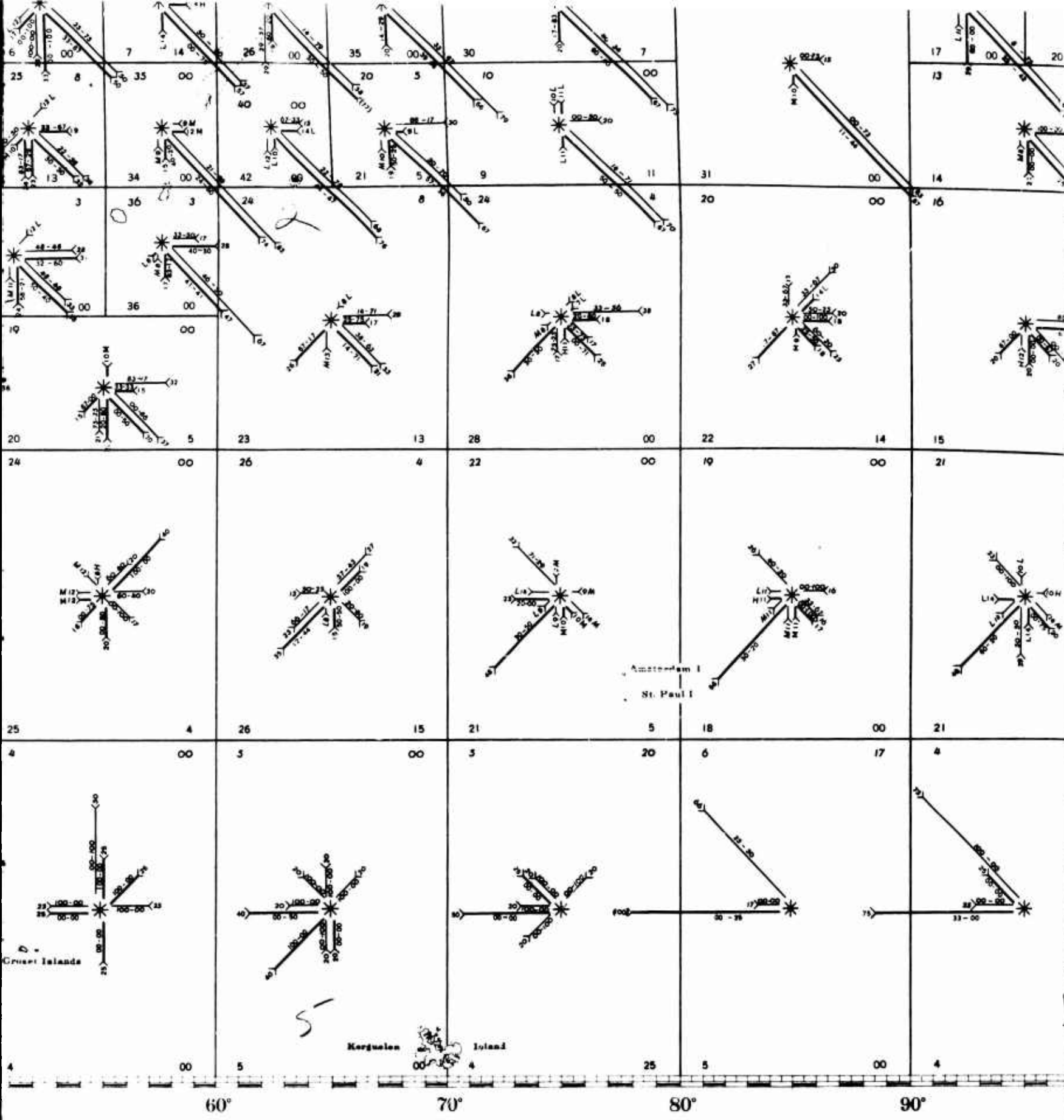
# A F R I C A

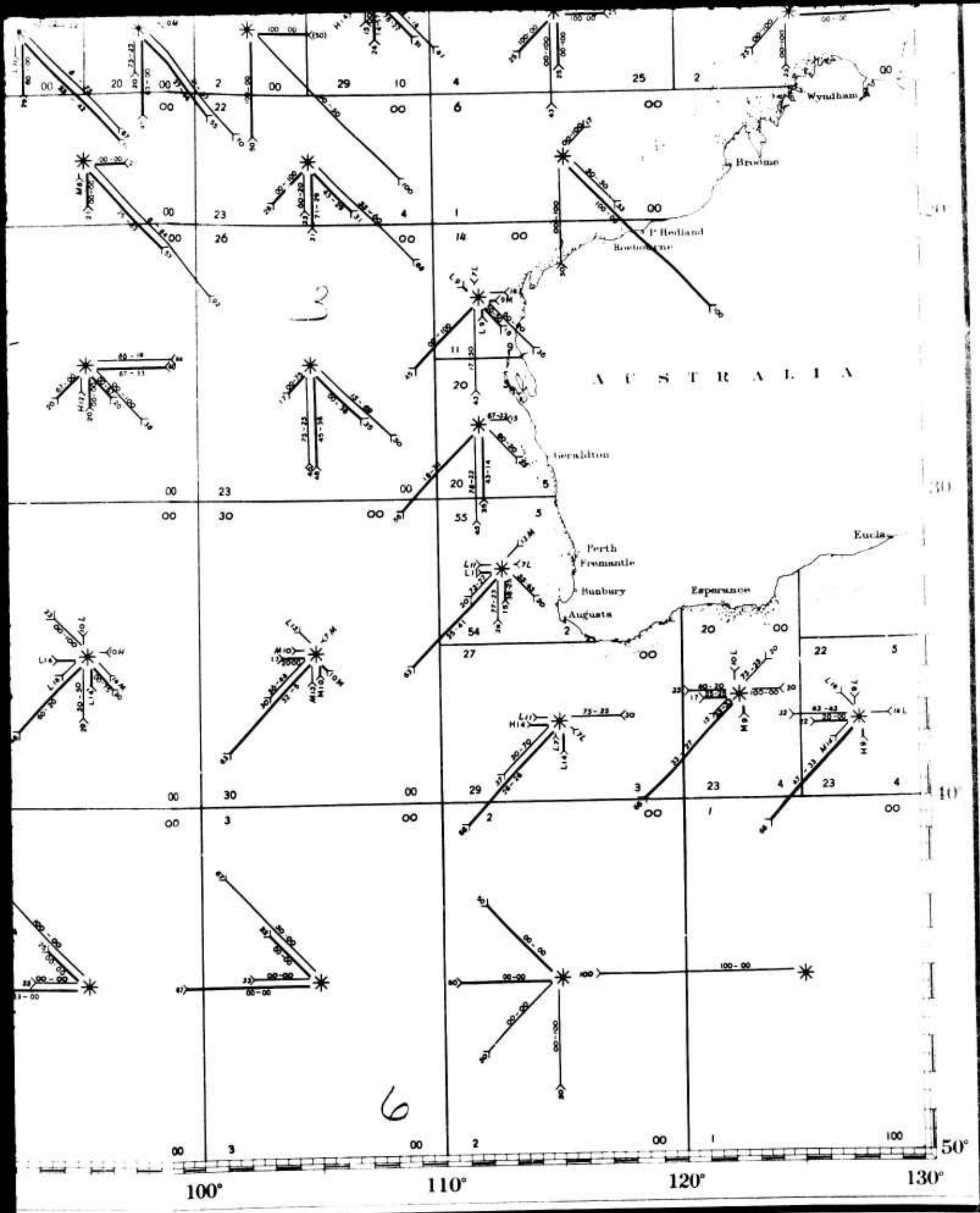












10° 20° 30° 40° 50°



# INDIAN OCEAN SEA AND SWELL CHART

## MAY

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office to and including the year 1942, the majority of the observations having been taken during the years 1932 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent roses. THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE.

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale, and the numeral at the tail of the arrow, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 6, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

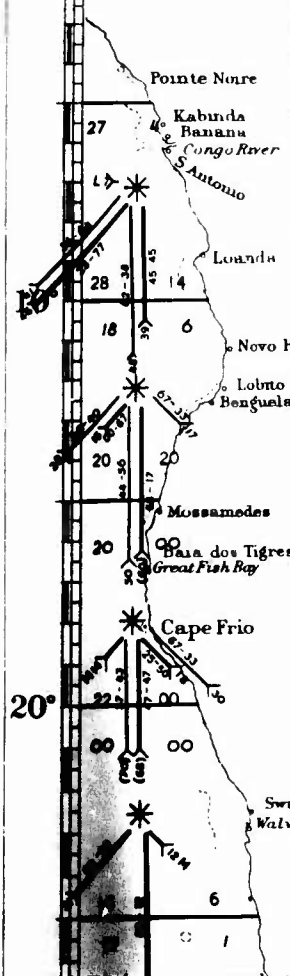
For example—The attached rose should be read as follows:

Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms; 14 percent were from the southwest and predominately medium; 31 percent were from the west, of which 55 percent were low and 36 percent were medium; 17 percent were from the northwest, of which 87 percent were low and 23 percent were medium; 7 percent were from the north and predominately high.

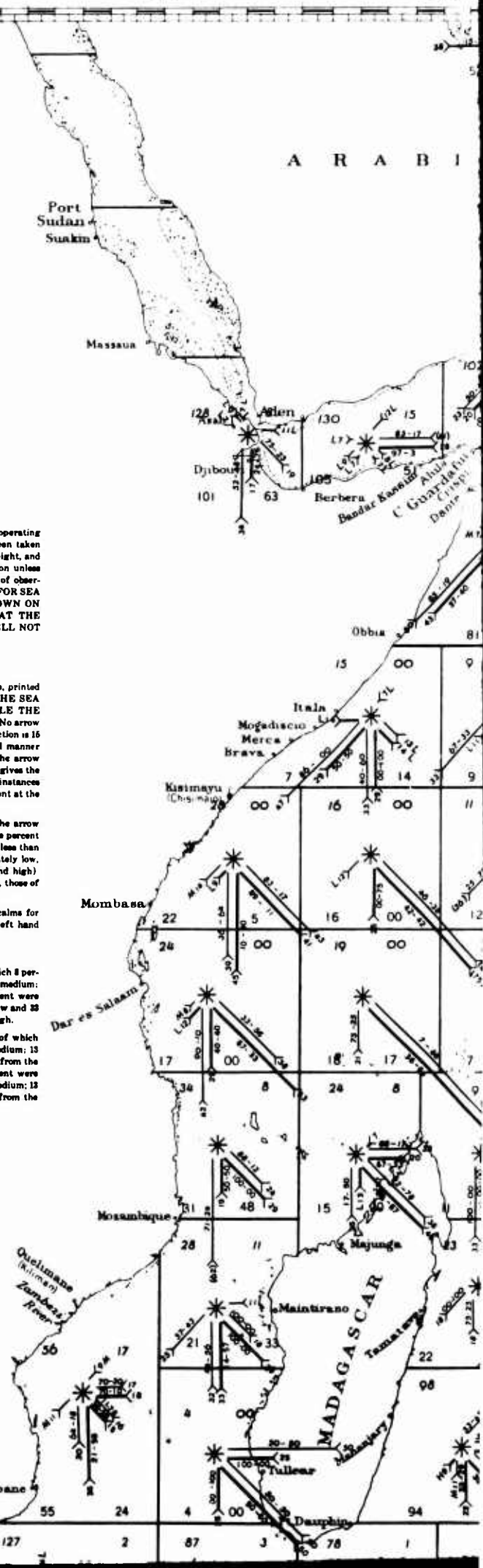
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms; 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 26 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 50 percent were low and 80 percent were medium; 12 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.



SCALE OF SEA OR SWELL PERCENTAGES

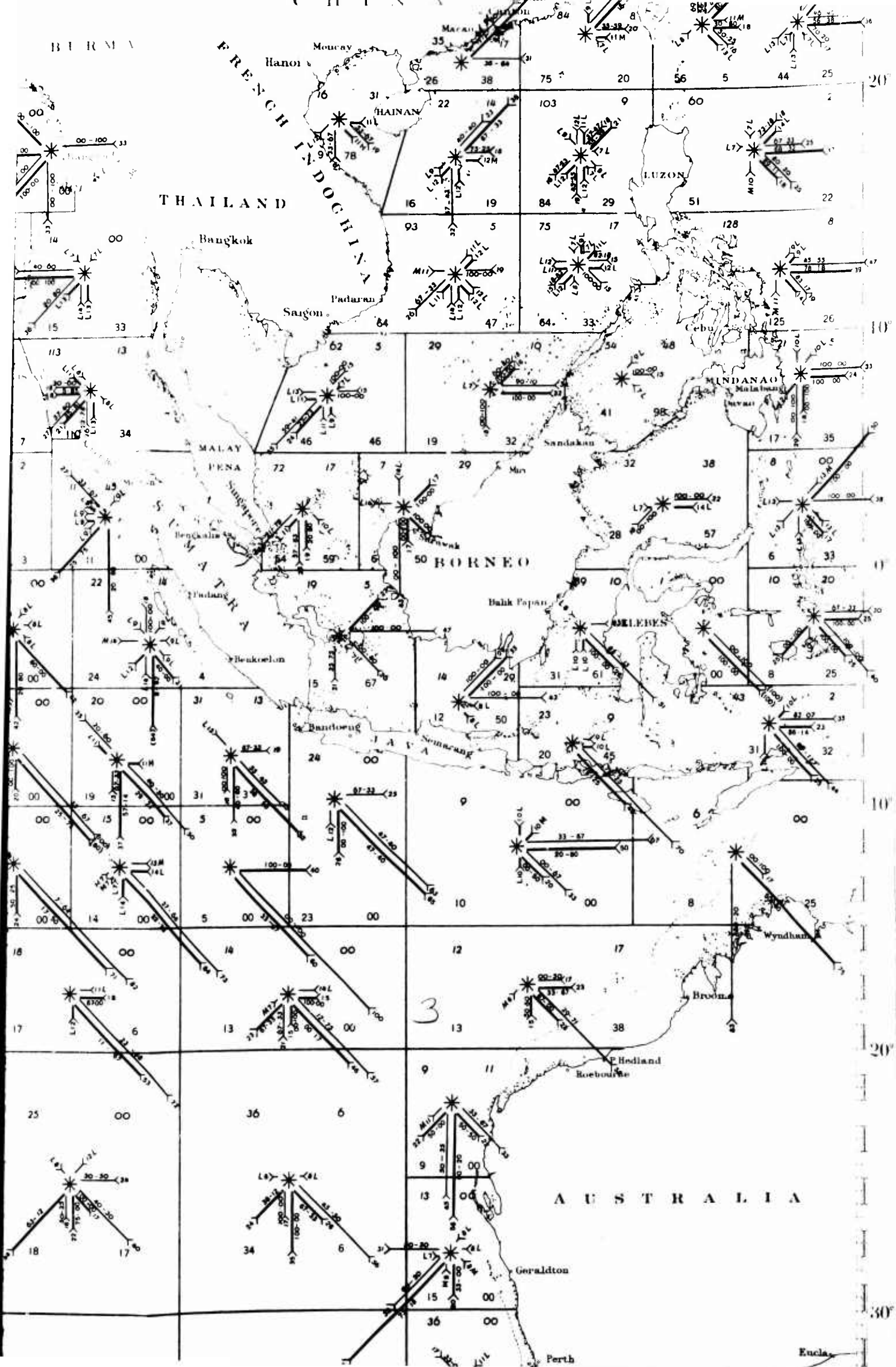


# A F R I C A



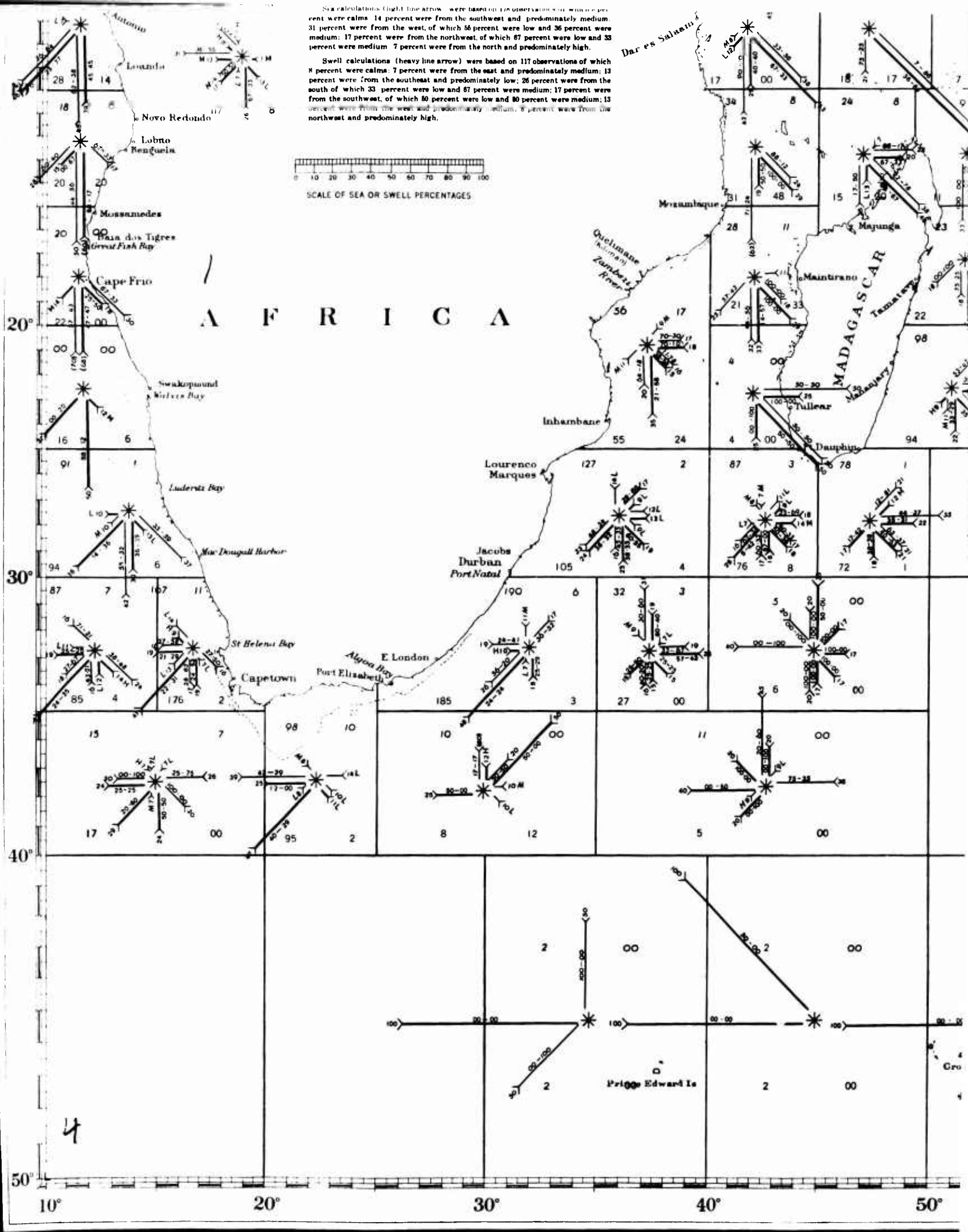
# A R A B I



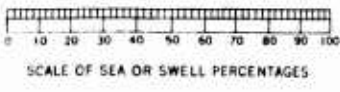


Sea calculations (thick line arrow) were based on 117 observations of which 8 percent were calms, 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 26 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 80 percent were low and 80 percent were medium; 13 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.

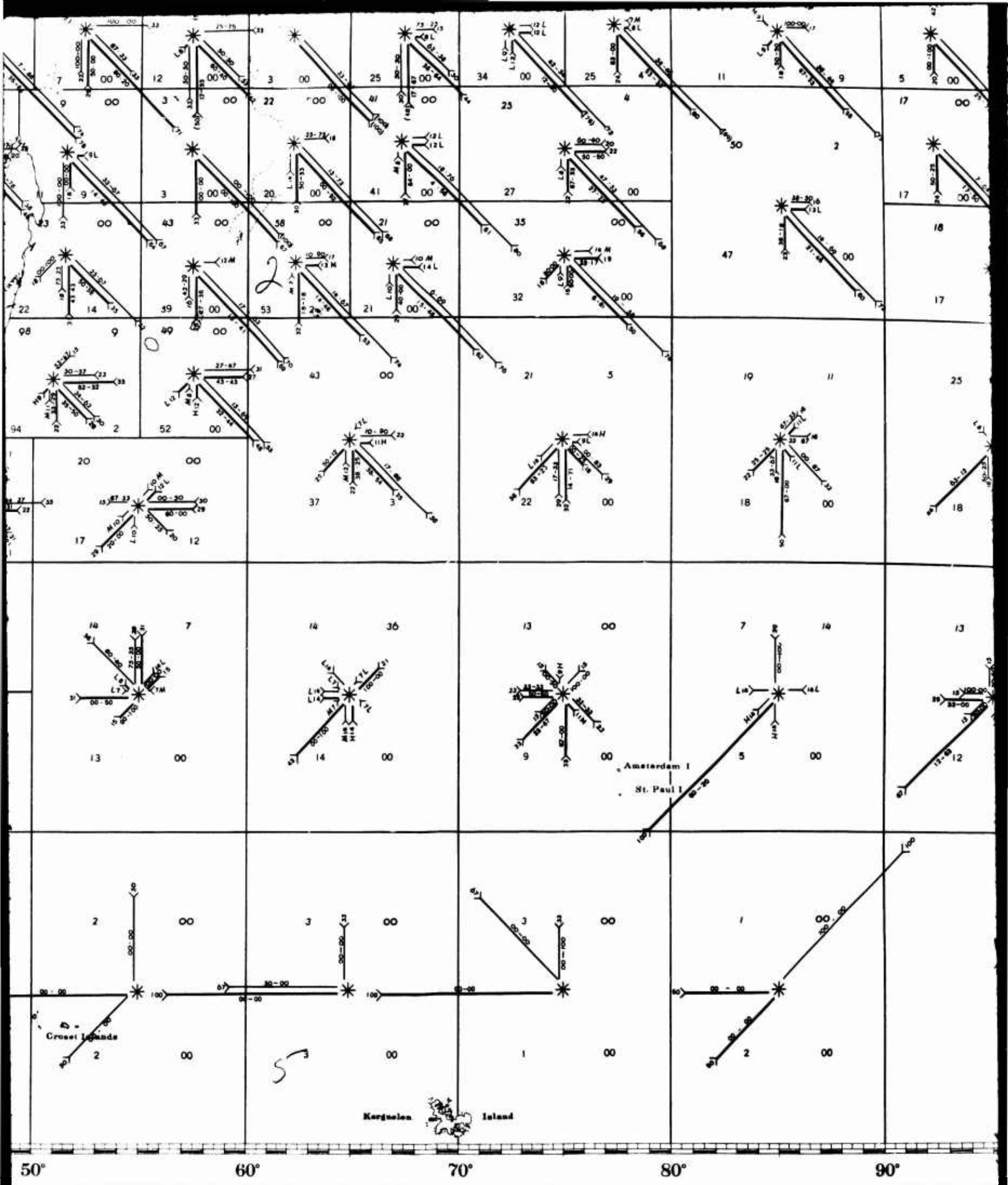
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms, 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 26 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 80 percent were low and 80 percent were medium; 13 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.



# A F R I C A



4



50° 60° 70° 80° 90°



10° 20° 30° 40° 50°



# INDIAN OCEAN SEA AND SWELL CHART

## JUNE

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office to and including the year 1942, the majority of the observations having been taken during the years 1932 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent roses. THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE.

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale, and the numeral at the tail of the arrow, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

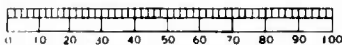
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 6, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for seas is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

For example: The attached rose should be read as follows:

Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms, 14 percent were from the southwest and predominately medium, 31 percent were from the west, of which 56 percent were low and 36 percent were medium, 17 percent were from the northwest, of which 67 percent were low and 33 percent were medium, 7 percent were from the north and predominately high.

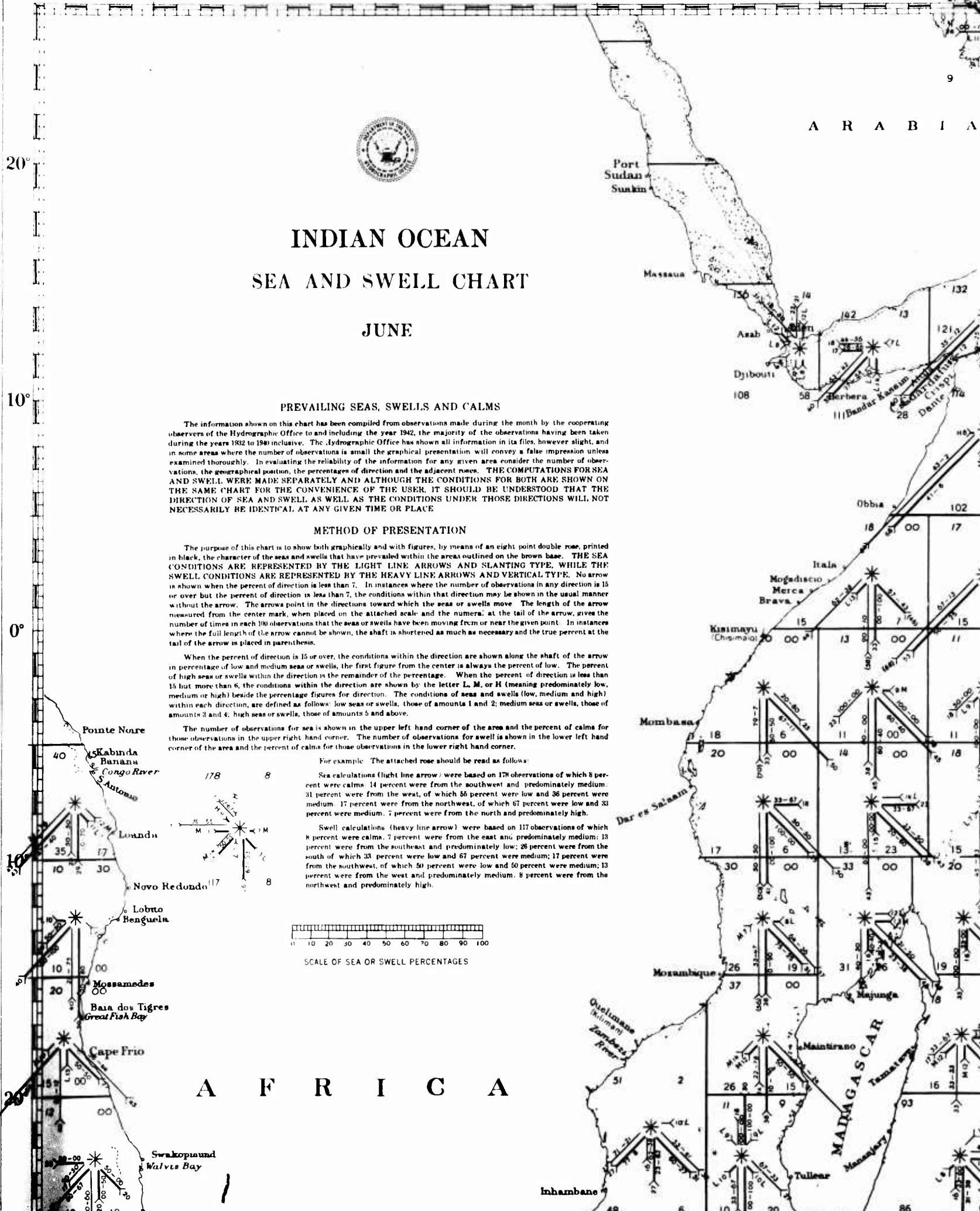
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms, 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 28 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 50 percent were low and 50 percent were medium; 13 percent were from the west and predominately medium, 8 percent were from the northwest and predominately high.

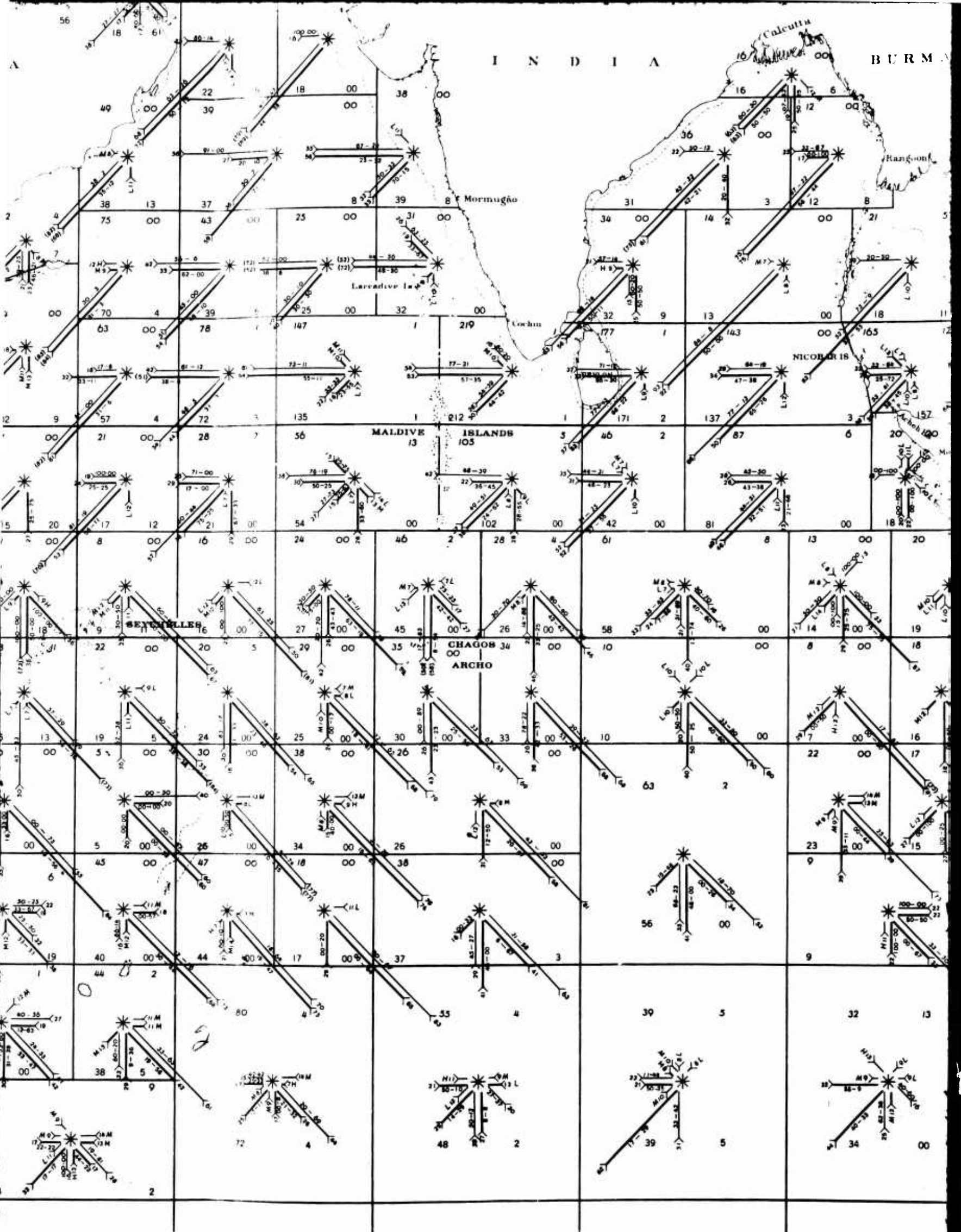


SCALE OF SEA OR SWELL PERCENTAGES

# A F R I C A

# A R A B I A



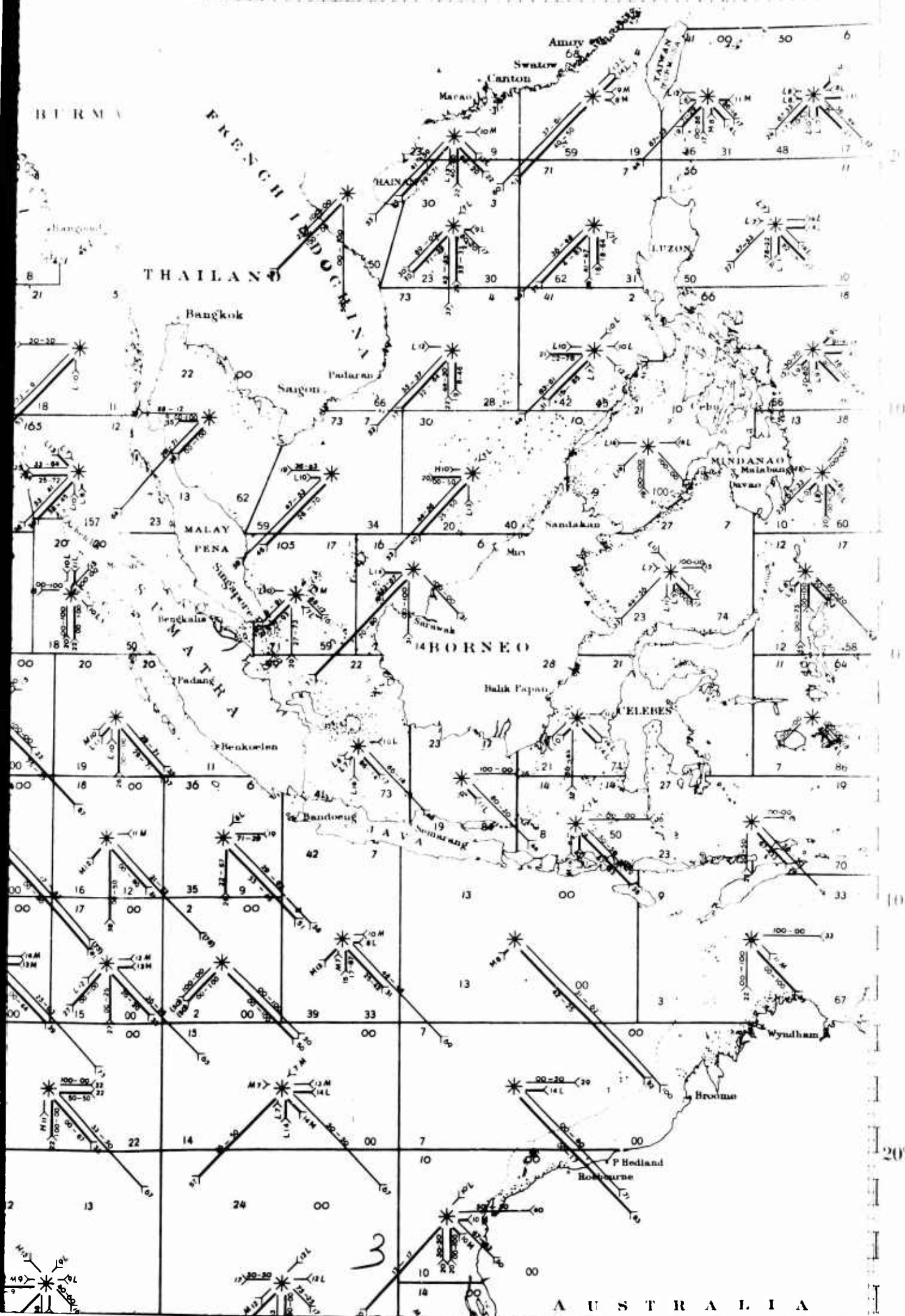


100°

110°

120°

130°

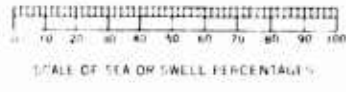


20°

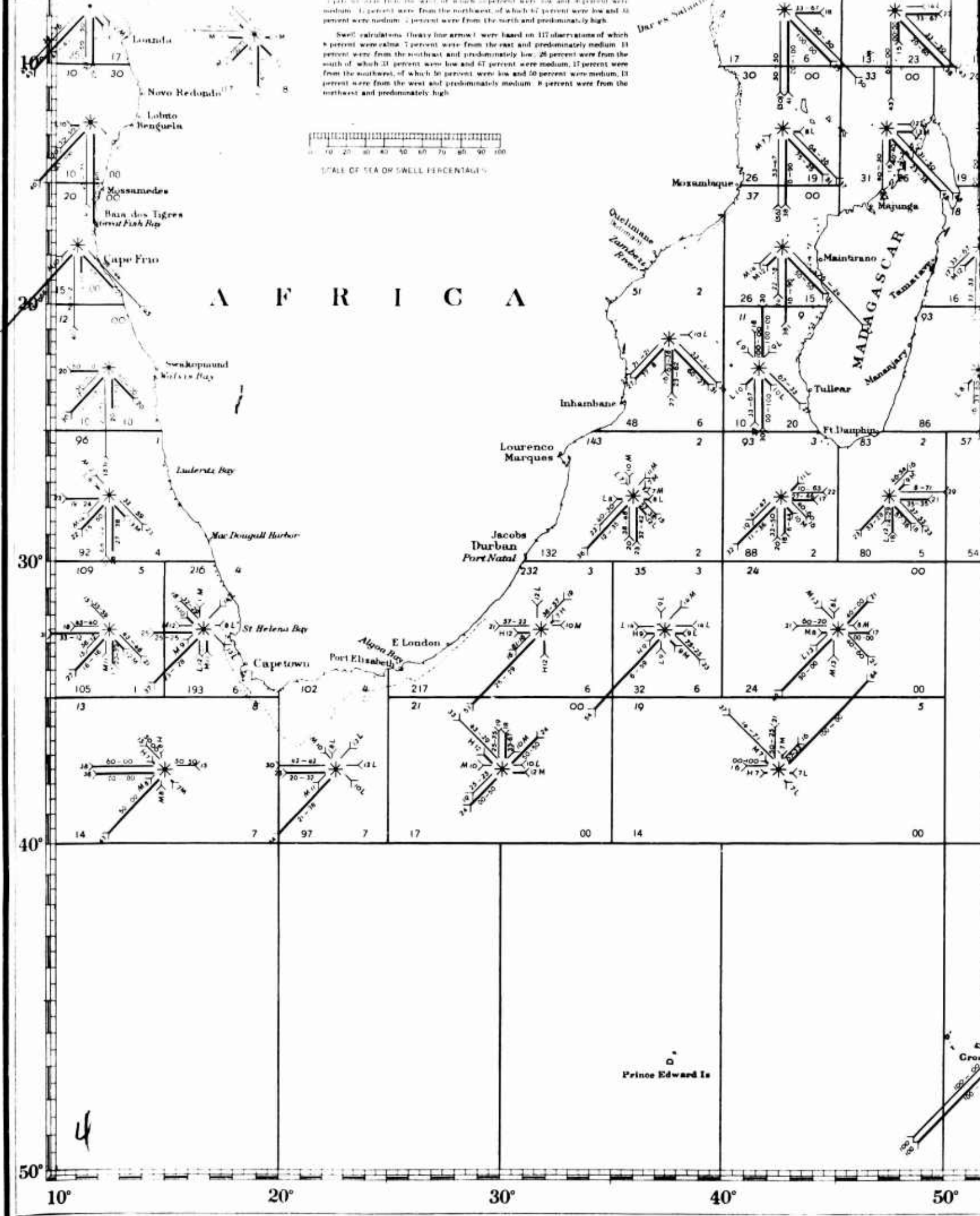
A U S T R A L I A

1. 10 percent were from the west, of which 6 percent were low and 4 percent were medium. 1 percent were from the northwest, of which 67 percent were low and 33 percent were medium. 2 percent were from the north and predominately high.

2. 5 percent were from the east and predominately medium. 11 percent were from the southwest and predominately low. 25 percent were from the south, of which 33 percent were low and 67 percent were medium. 17 percent were from the southwest, of which 36 percent were low and 64 percent were medium. 13 percent were from the west and predominately medium. 8 percent were from the northwest and predominately high.

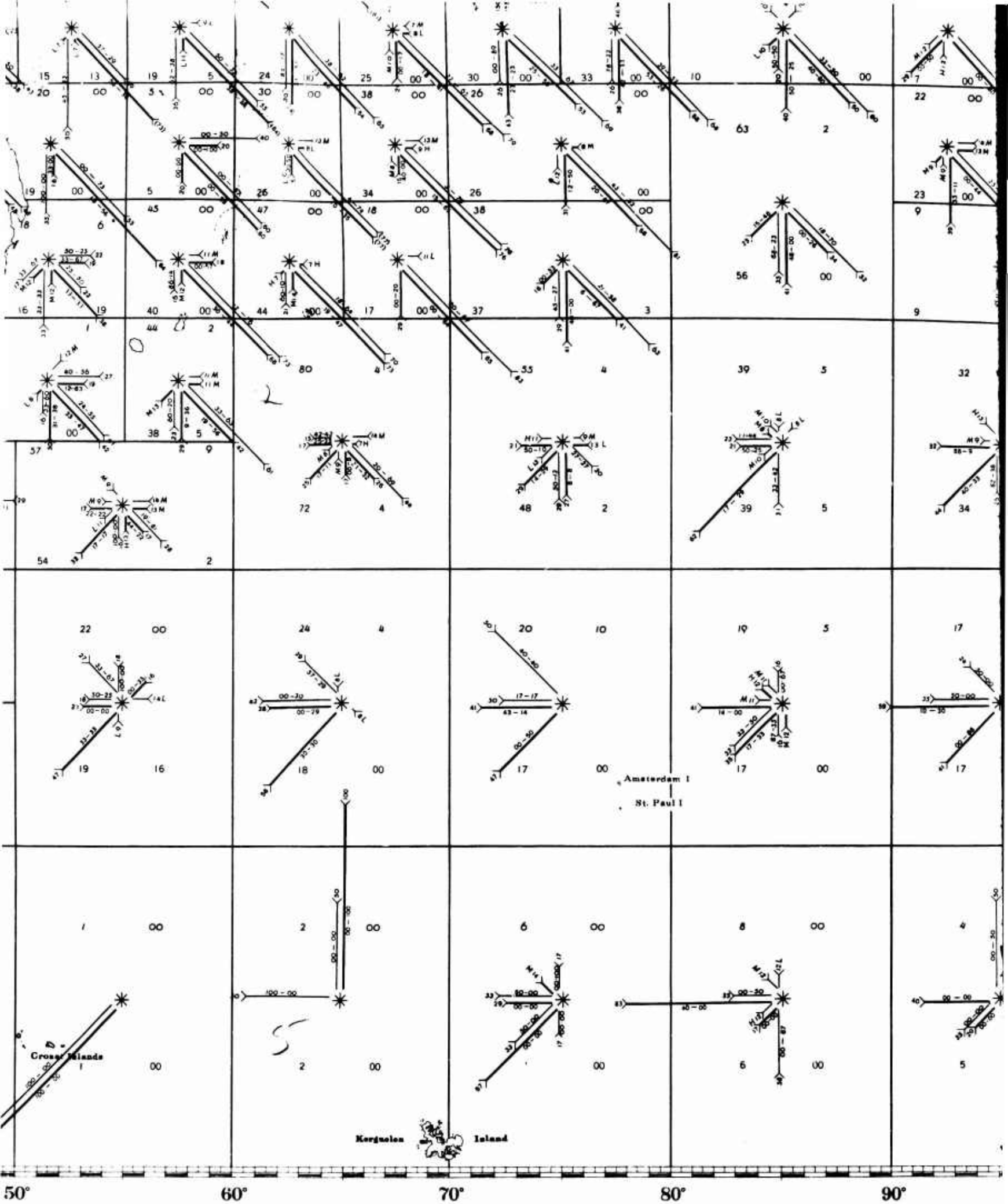


# A F R I C A

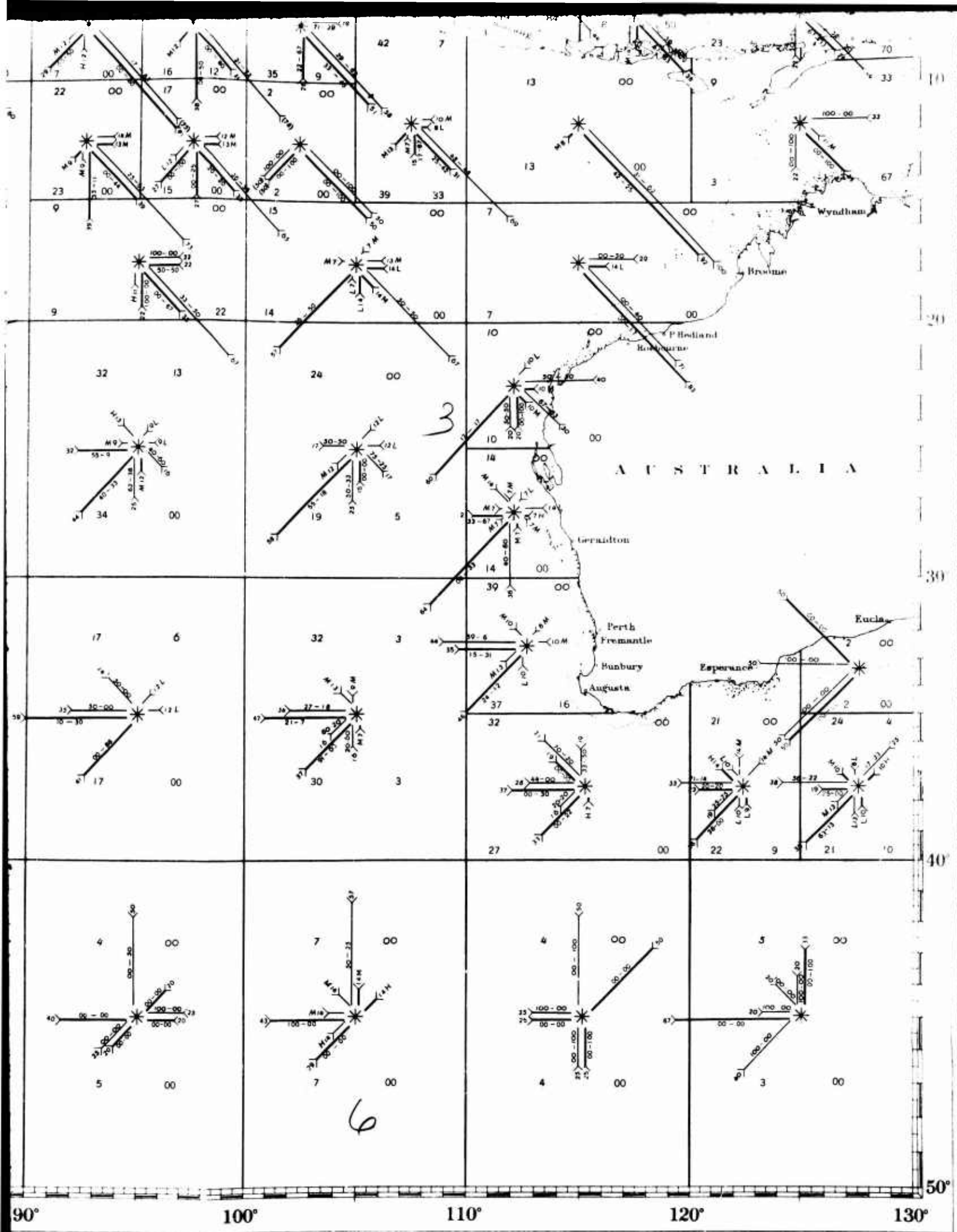


4

Gro...



50° 60° 70° 80° 90°



10° 20° 30° 40° 50°



# INDIAN OCEAN SEA AND SWELL CHART

## JULY

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office to and including the year 1942, the majority of the observations having been taken during the years 1932 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent roses. THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale and the numeral at the tail of the arrow, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 6, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

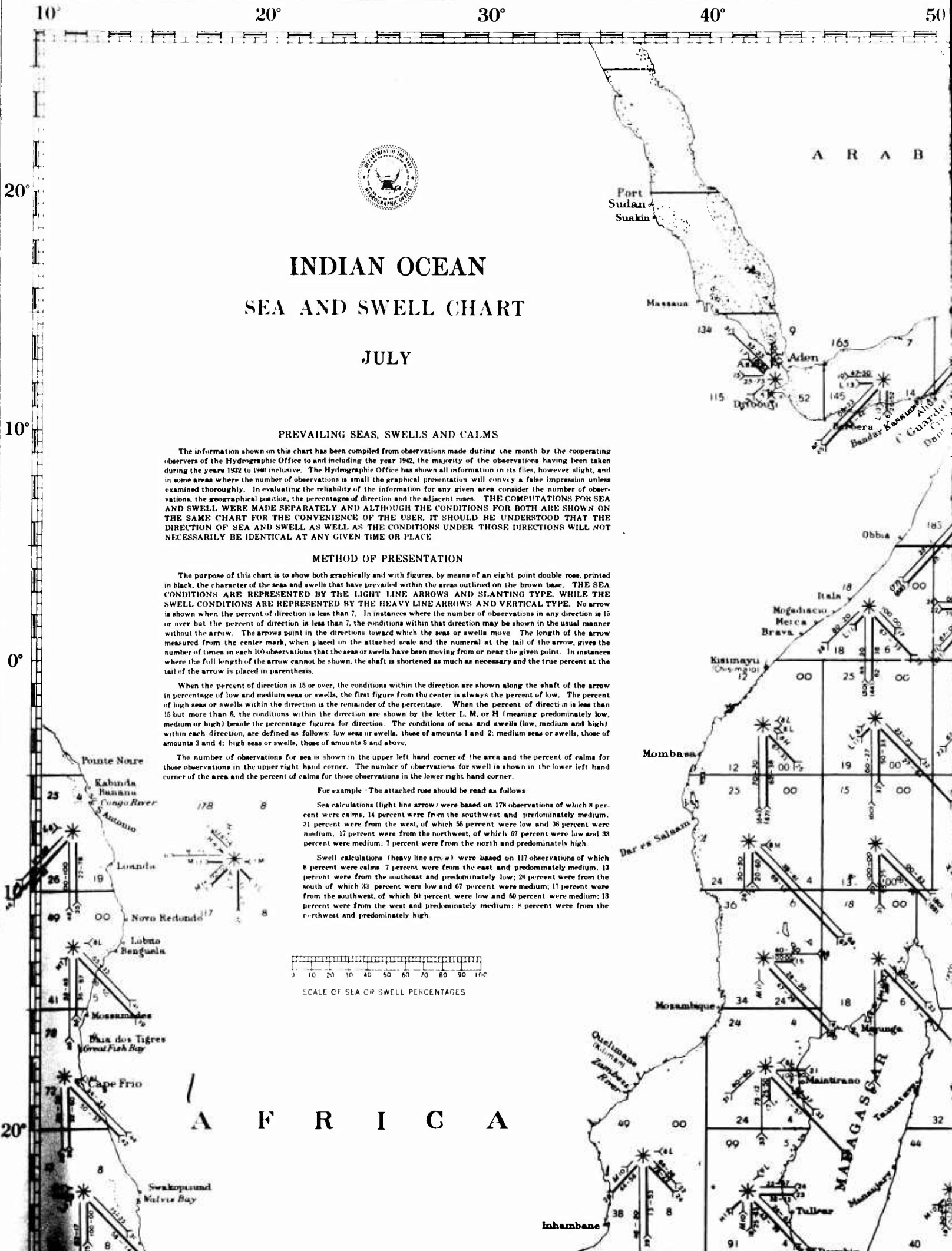
For example - The attached rose should be read as follows

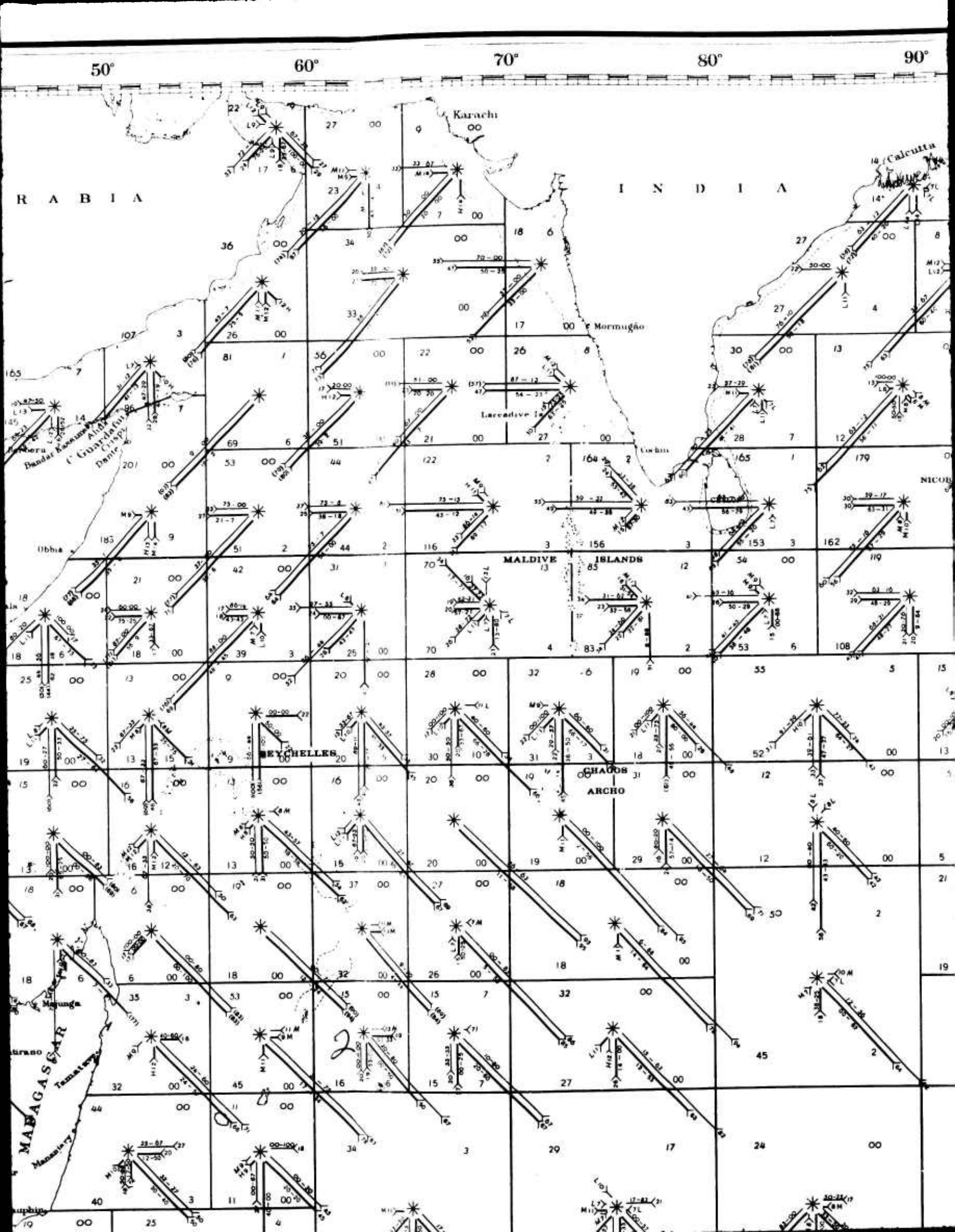
Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms, 14 percent were from the southwest and predominately medium, 31 percent were from the west, of which 55 percent were low and 36 percent were medium, 17 percent were from the northwest, of which 67 percent were low and 33 percent were medium; 7 percent were from the north and predominately high

Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms, 7 percent were from the east and predominately medium, 13 percent were from the southeast and predominately low; 26 percent were from the south of which 31 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 50 percent were low and 50 percent were medium; 13 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high



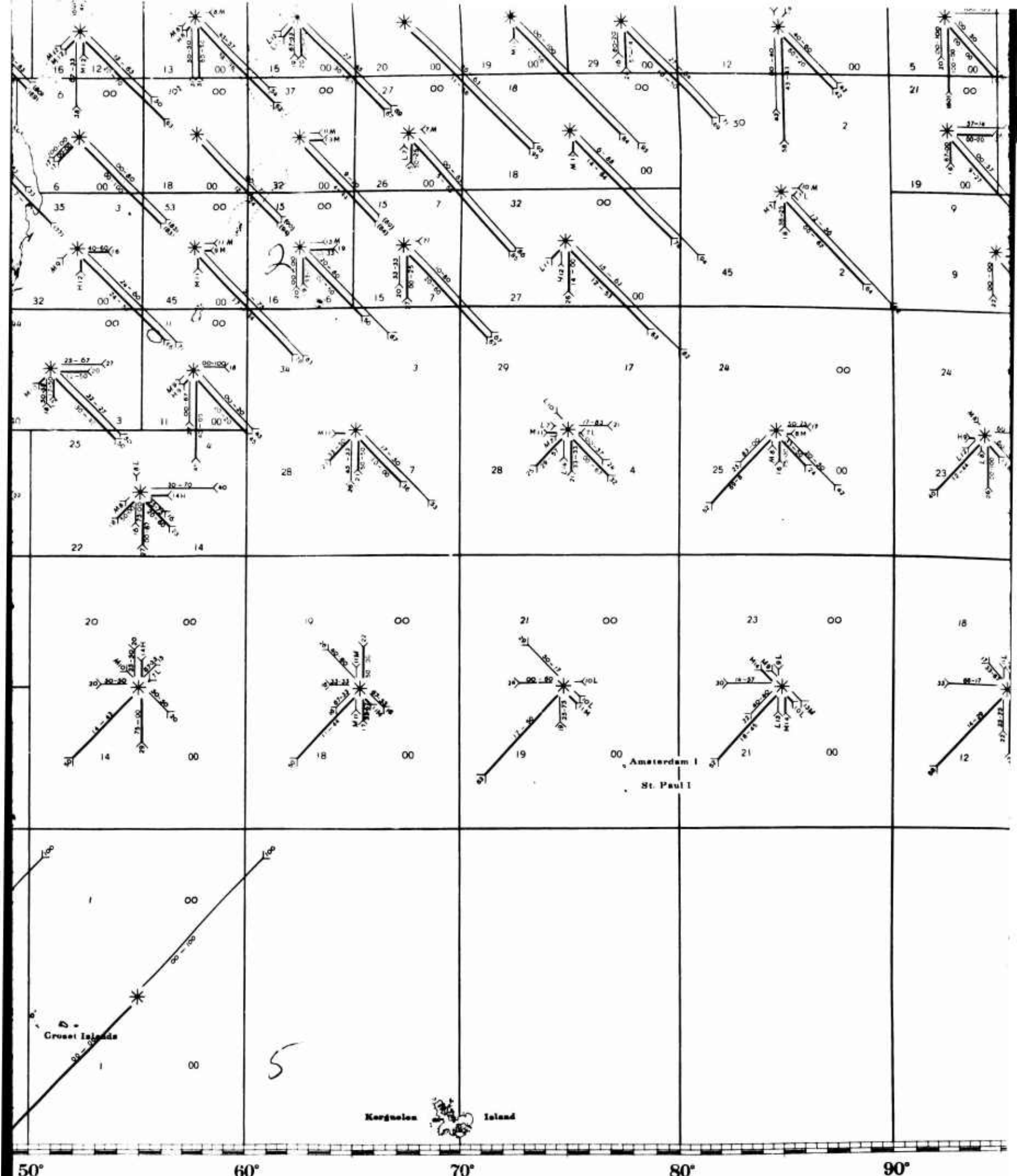
SCALE OF SEA OR SWELL PERCENTAGES



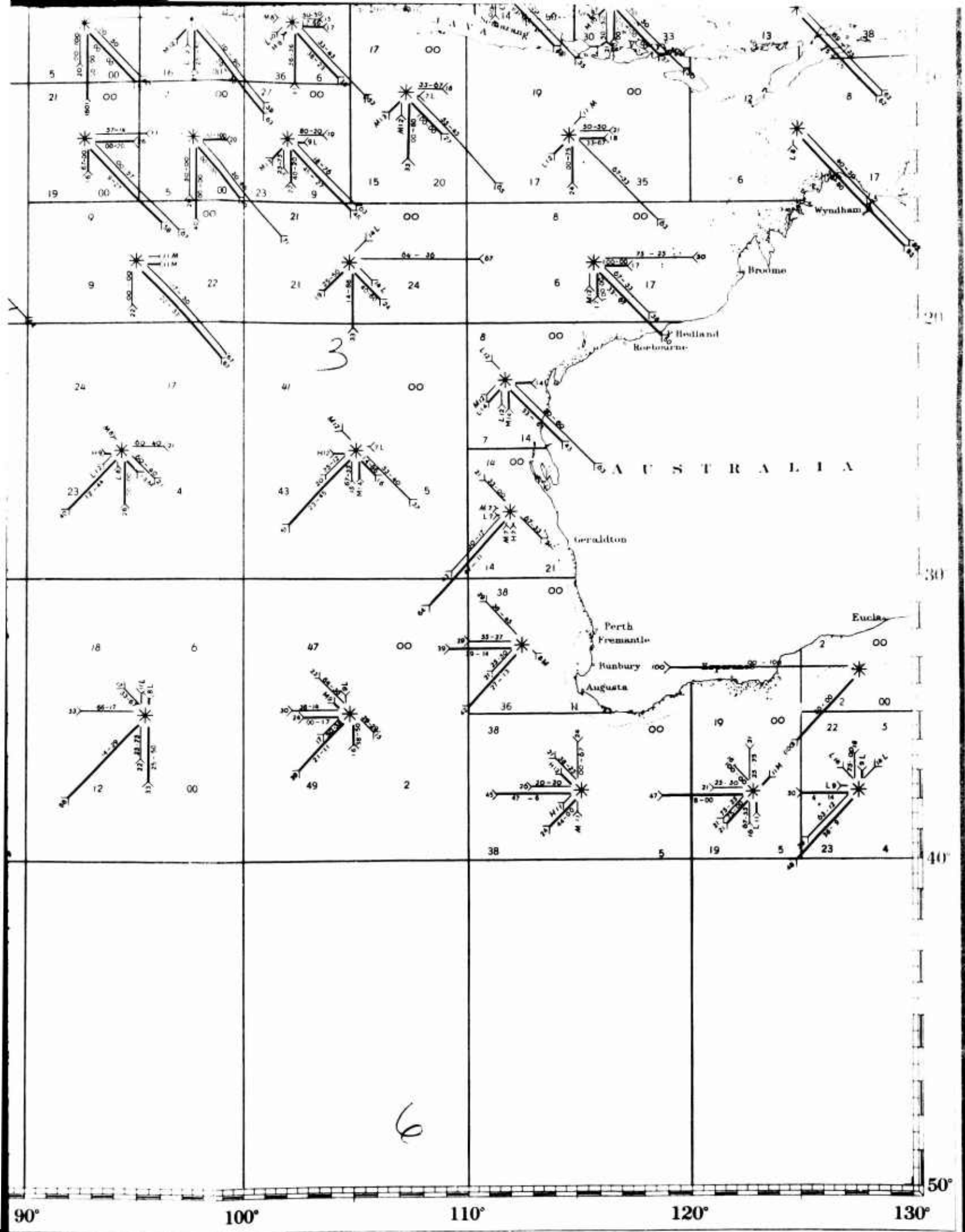








50° 60° 70° 80° 90°



10° 20° 30° 40° 50°



# INDIAN OCEAN SEA AND SWELL CHART

## AUGUST

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office to and including the year 1942, the majority of the observations having been taken during the years 1882 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent roses. THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE.

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale and the numeral at the tail of the arrow, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

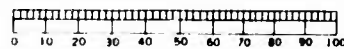
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 5, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

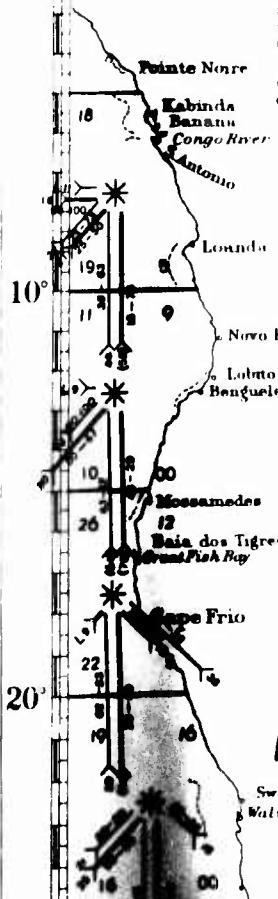
For example: The attached rose should be read as follows:

Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms 14 percent were from the southwest and predominately medium; 31 percent were from the west, of which 55 percent were low and 36 percent were medium; 17 percent were from the northwest, of which 67 percent were low and 33 percent were medium; 7 percent were from the north and predominately high.

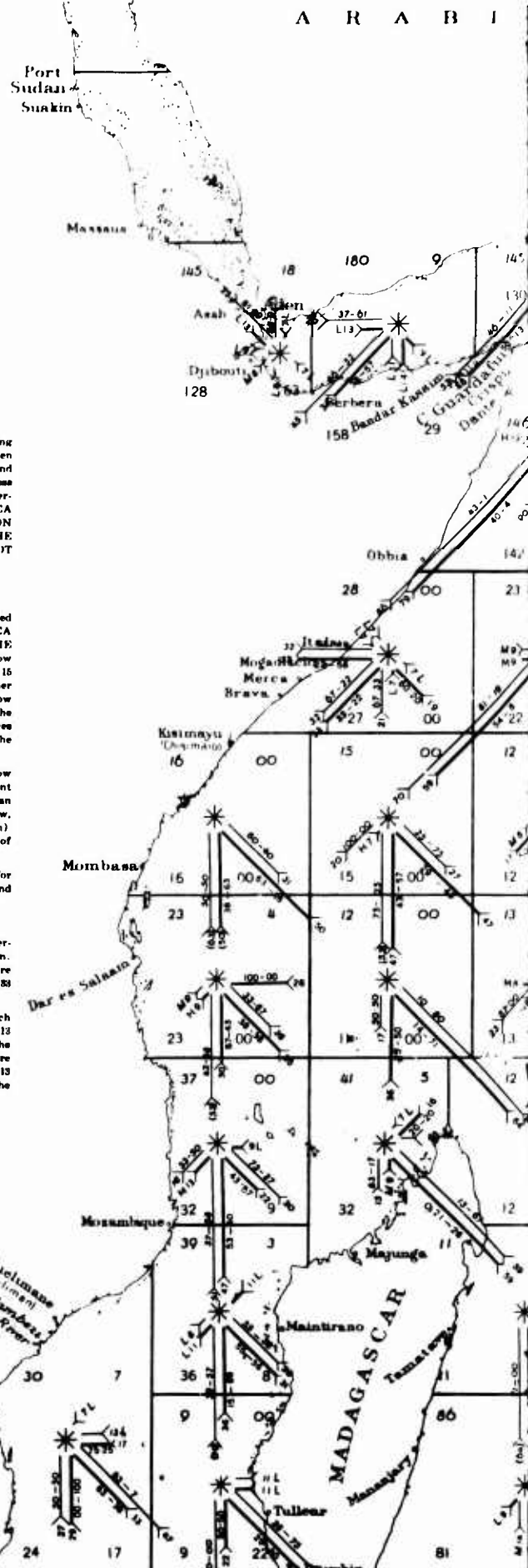
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 26 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 50 percent were low and 50 percent were medium; 13 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.



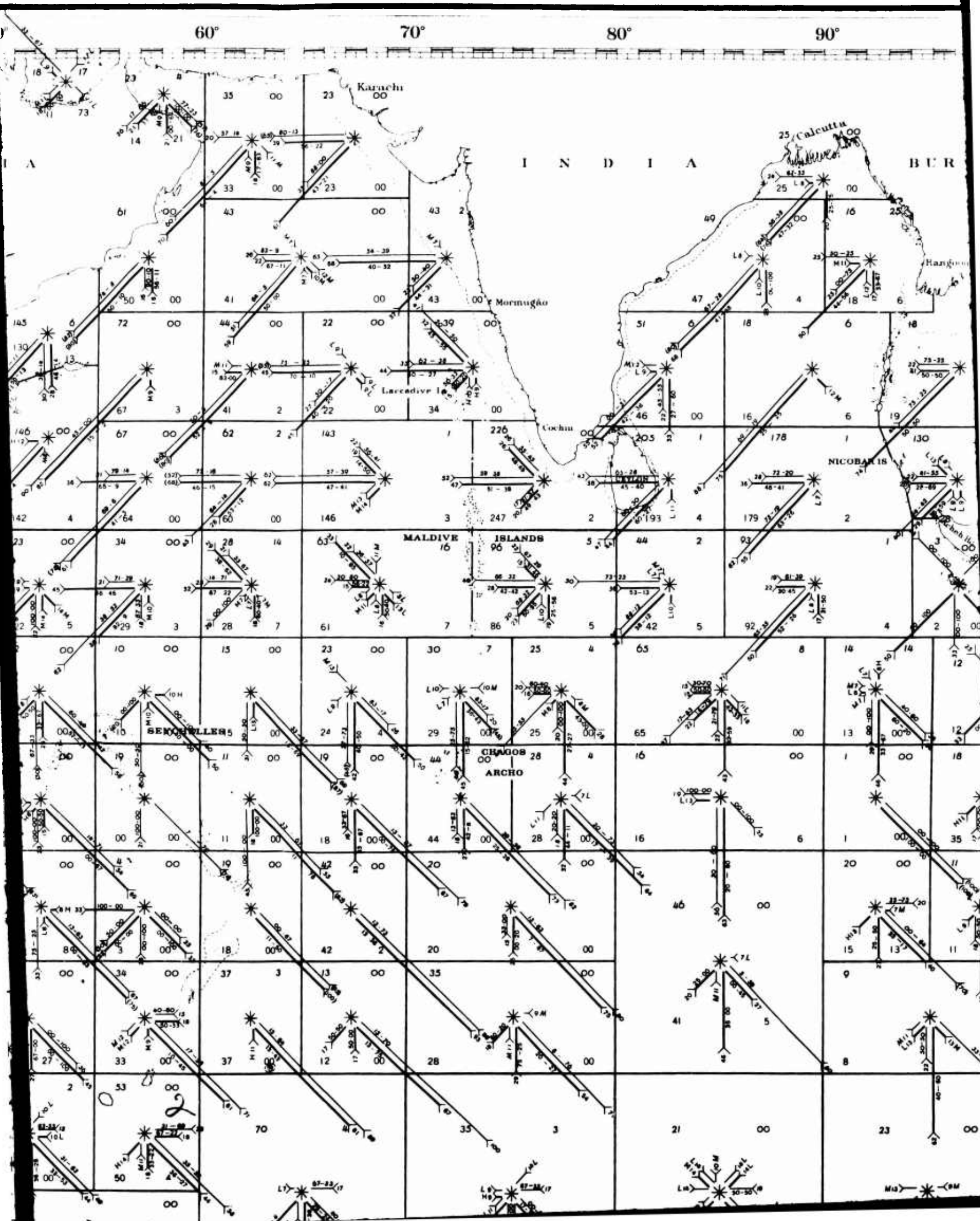
SCALE OF SEA OR SWELL PERCENTAGES



# A F R I C A



# A R A B I A



100°

110°

120°

130°

CHINA

BURMA

FRENCH INDOCHINA

THAILAND

LUZON

MINDANAO

MALAY PENINSULA

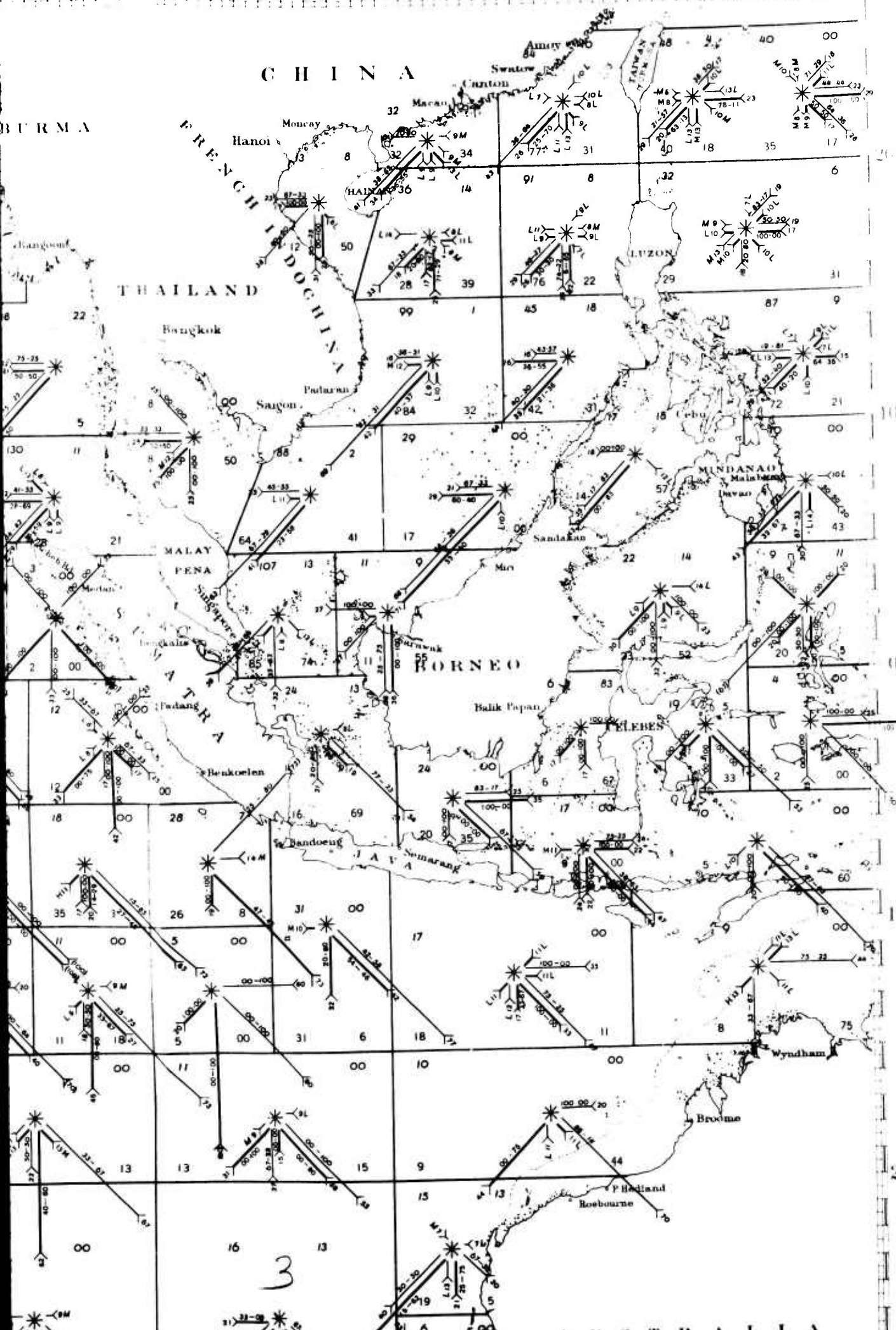
BORNEO

SUMATRA

CELEBES

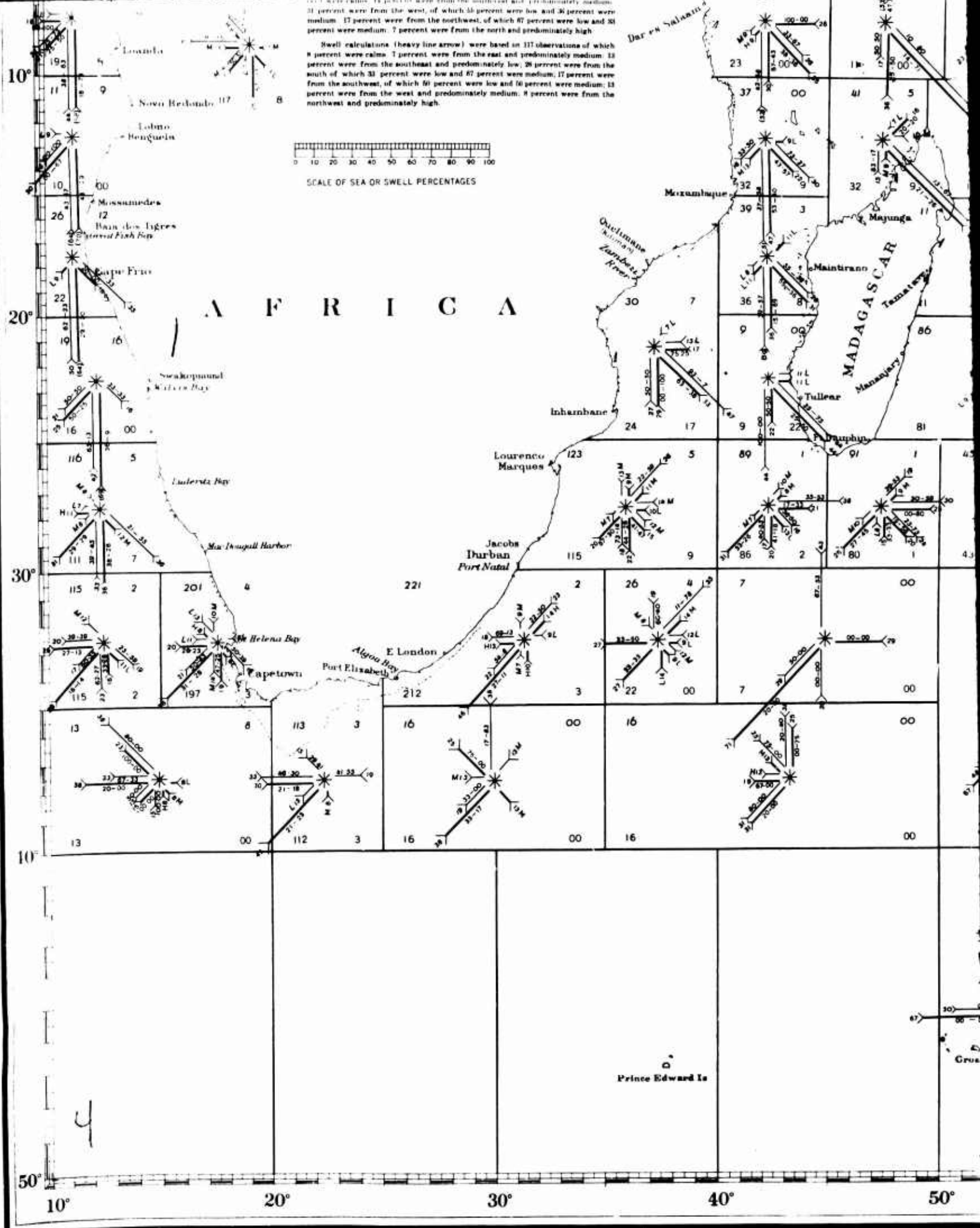
JAVA

AUSTRALIA



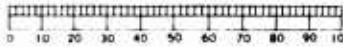
3

20°



... were calm. 13 percent were from the southwest and predominately medium. 31 percent were from the west, of which 16 percent were low and 20 percent were medium. 17 percent were from the southwest, of which 67 percent were low and 33 percent were medium. 7 percent were from the north and predominately high.

Swell calculations (heavy line arrow) were based on 317 observations of which 8 percent were calm. 7 percent were from the east and predominately medium. 13 percent were from the southeast and predominately low, 20 percent were from the south of which 33 percent were low and 67 percent were medium, 17 percent were from the southwest, of which 61 percent were low and 39 percent were medium; 13 percent were from the west and predominately medium. 8 percent were from the northwest and predominately high.



SCALE OF SEA OR SWELL PERCENTAGES

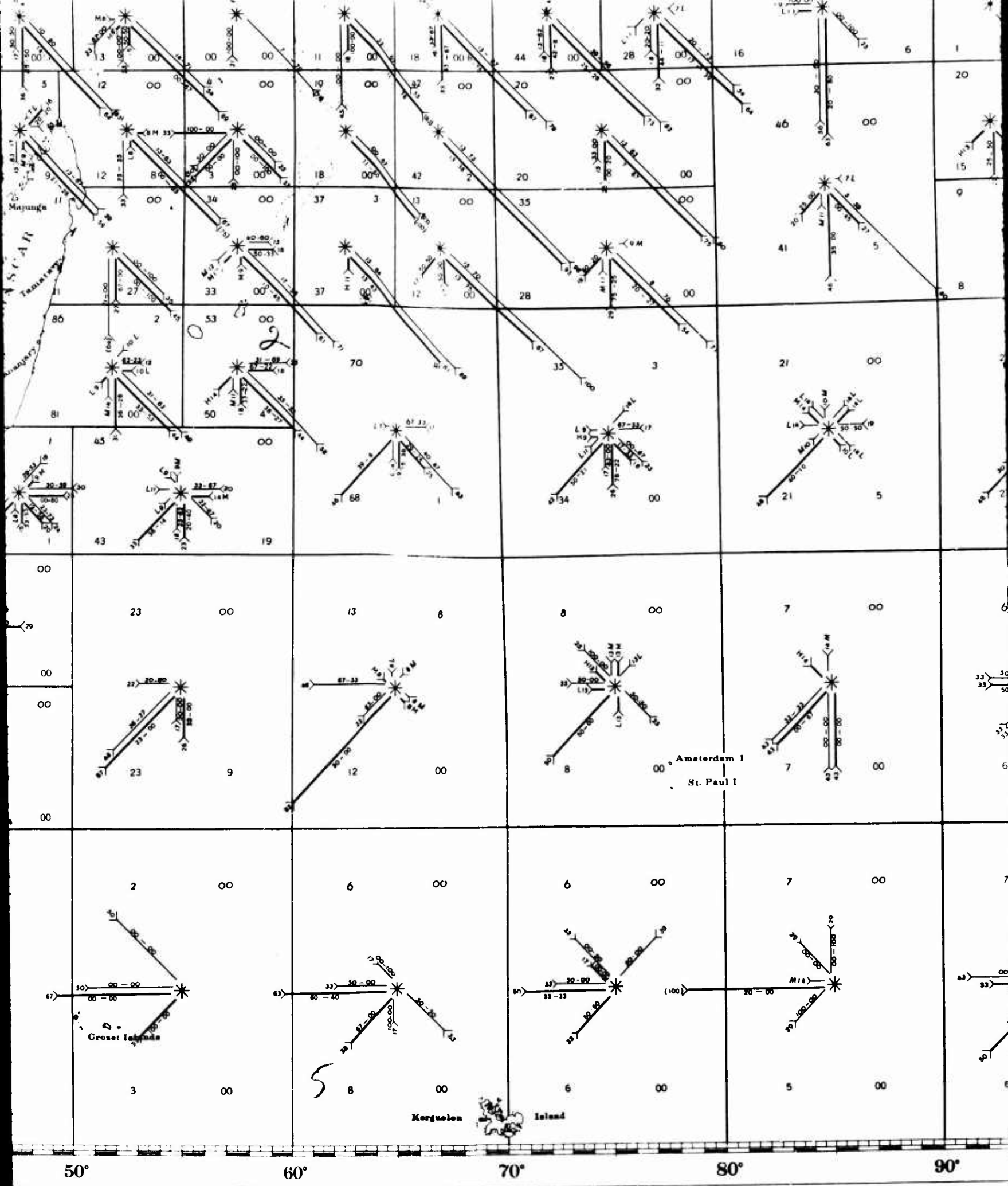
# A F R I C A

# MADAGASCAR

Prince Edward Is

4

30  
67  
80  
Grass



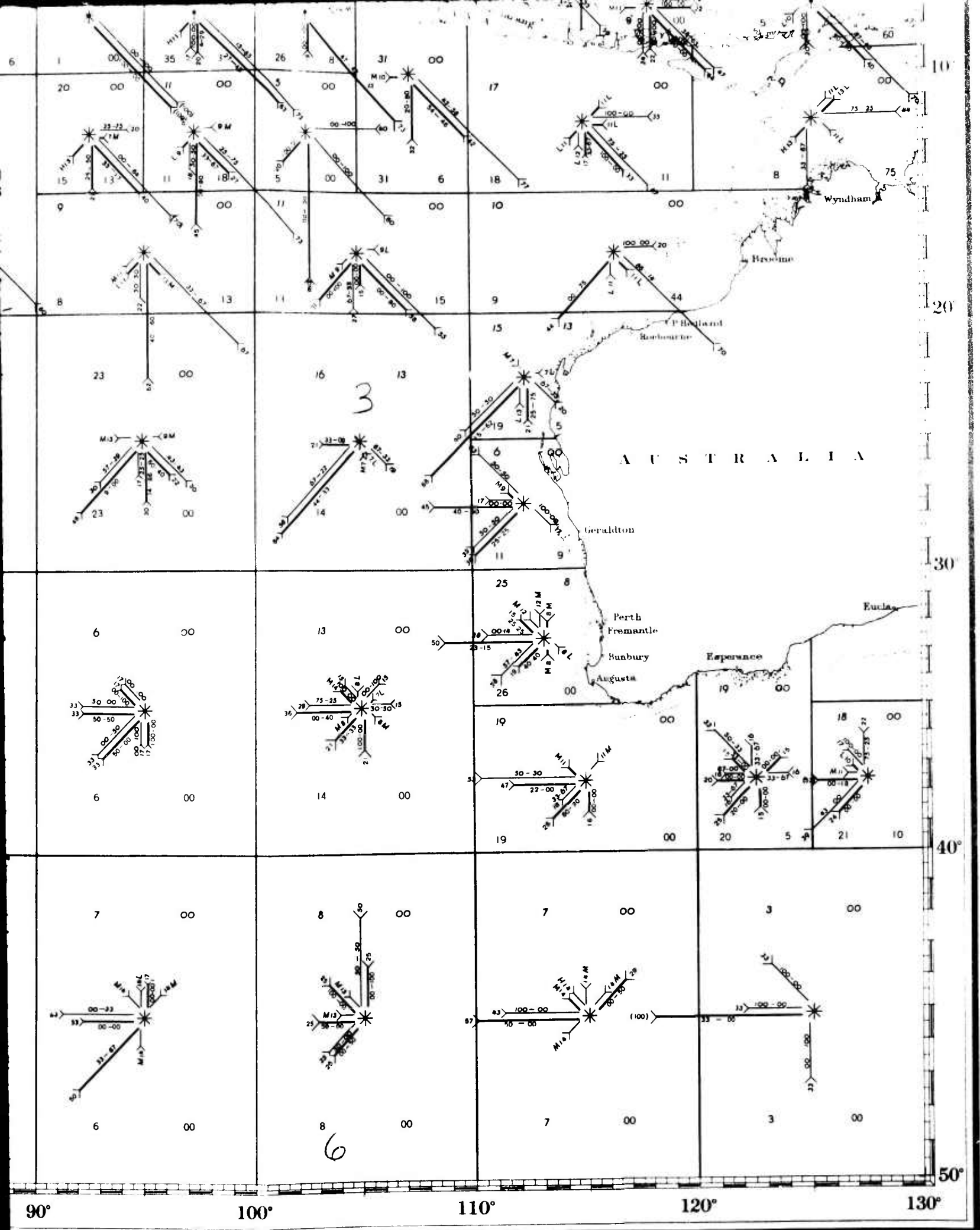
50°

60°

70°

80°

90°



3

6

10° 20° 30° 40° 50°

A R A B I A



# INDIAN OCEAN SEA AND SWELL CHART

## SEPTEMBER

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office to and including the year 1942, the majority of the observations having been taken during the years 1932 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentage of direction and the adjacent roses. THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow, given the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

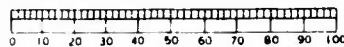
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 6, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

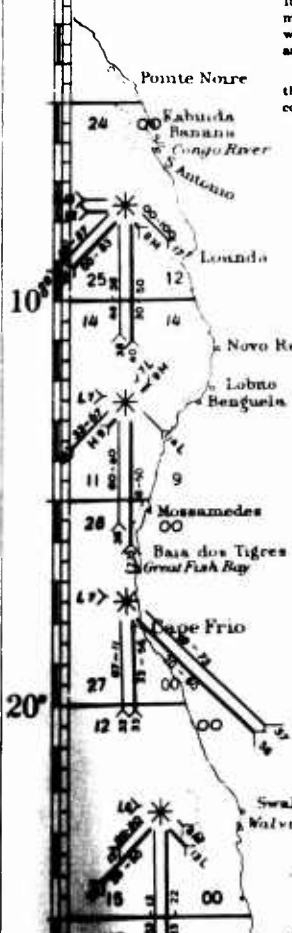
For example—The attached rose should be read as follows

Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms, 14 percent were from the southwest and predominately medium; 31 percent were from the west, of which 56 percent were low and 36 percent were medium; 17 percent were from the northwest, of which 67 percent were low and 33 percent were medium; 7 percent were from the north and predominately high

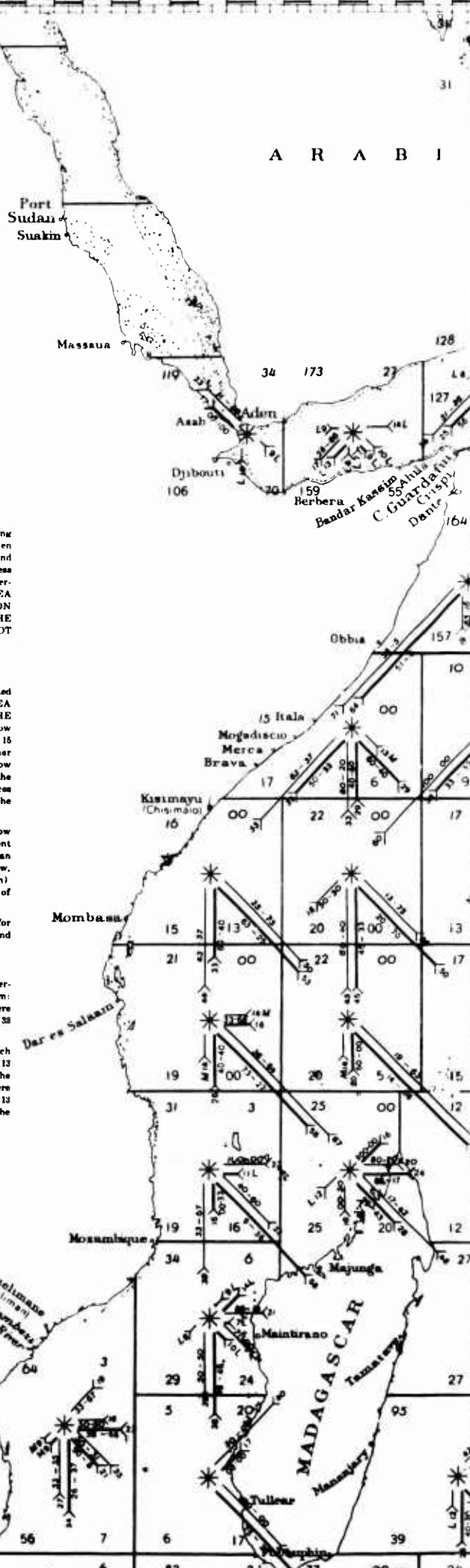
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms, 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 26 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 50 percent were low and 50 percent were medium; 13 percent were from the west and predominately medium 8 percent were from the northwest and predominately high.



SCALE OF SEA OR SWELL PERCENTAGES



A F R I C A



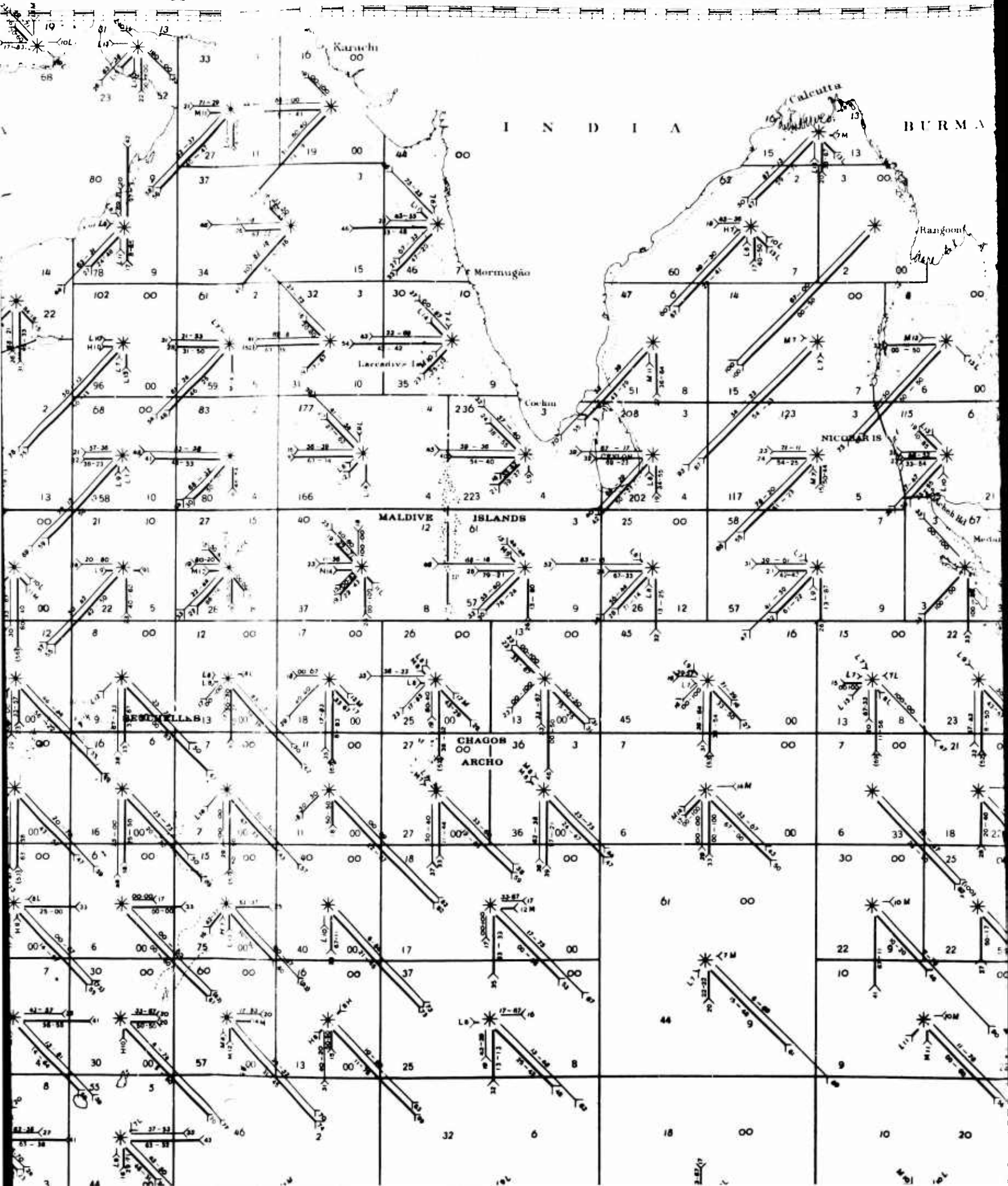
Lourenco

60°

70°

80°

90°



INDIA

BURMA

MALDIVES ISLANDS

CHAGOS ARCH

NICOBAR IS

SEYHELLES

Karachi

00

Mormugao

Cochin

Calcutta

Rangoon

SEYHELLES

CHAGOS ARCH

NICOBAR IS

33

37

34

96

21

16

6

6

30

8

11

15

2

102

10

12

16

6

30

8

19

32

15

83

27

11

15

7

40

13

48

3

30

177

40

17

27

40

17

25

44

7

10

236

61

26

36

17

37

25

46

10

35

166

4

26

36

17

37

25

48

10

35

223

4

26

36

17

37

25

51

3

208

202

3

45

7

61

44

8

57

7

123

117

58

16

7

61

44

8

60

7

60

15

57

16

7

61

44

8

62

2

14

15

57

16

7

61

44

8

65

3

14

15

57

16

7

61

44

8

67

3

14

15

57

16

7

61

44

8

68

3

14

15

57

16

7

61

44

8

70

3

14

15

57

16

7

61

44

8

73

3

14

15

57

16

7

61

44

8

76

3

14

15

57

16

7

61

44

8

81

3

14

15

57

16

7

61

44

8

81

100°

110°

120°

130°

CHINA

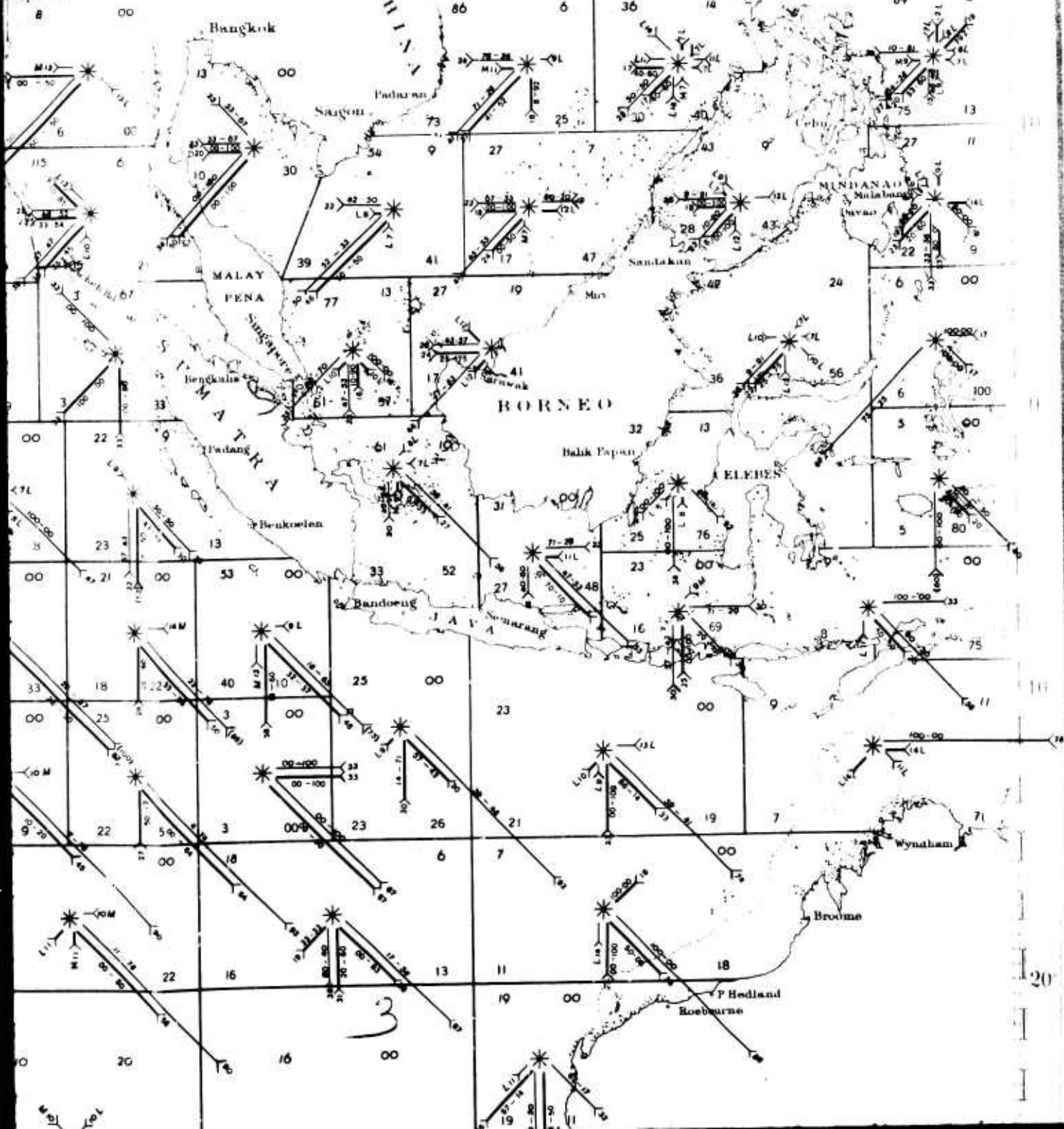
BURMA

FRENCH INDOCHINA

THAILAND

Bangkok

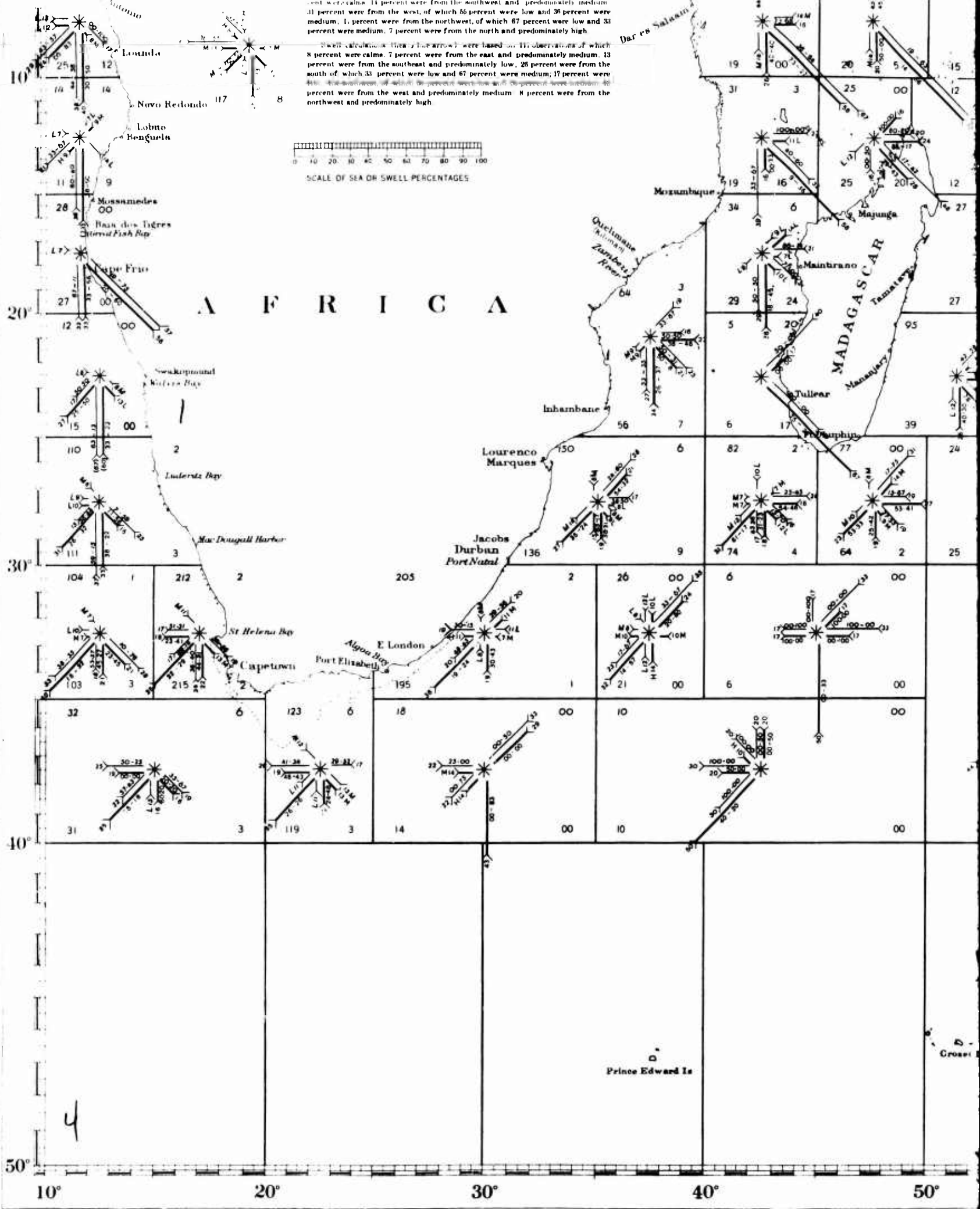
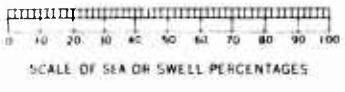
Saigon



20

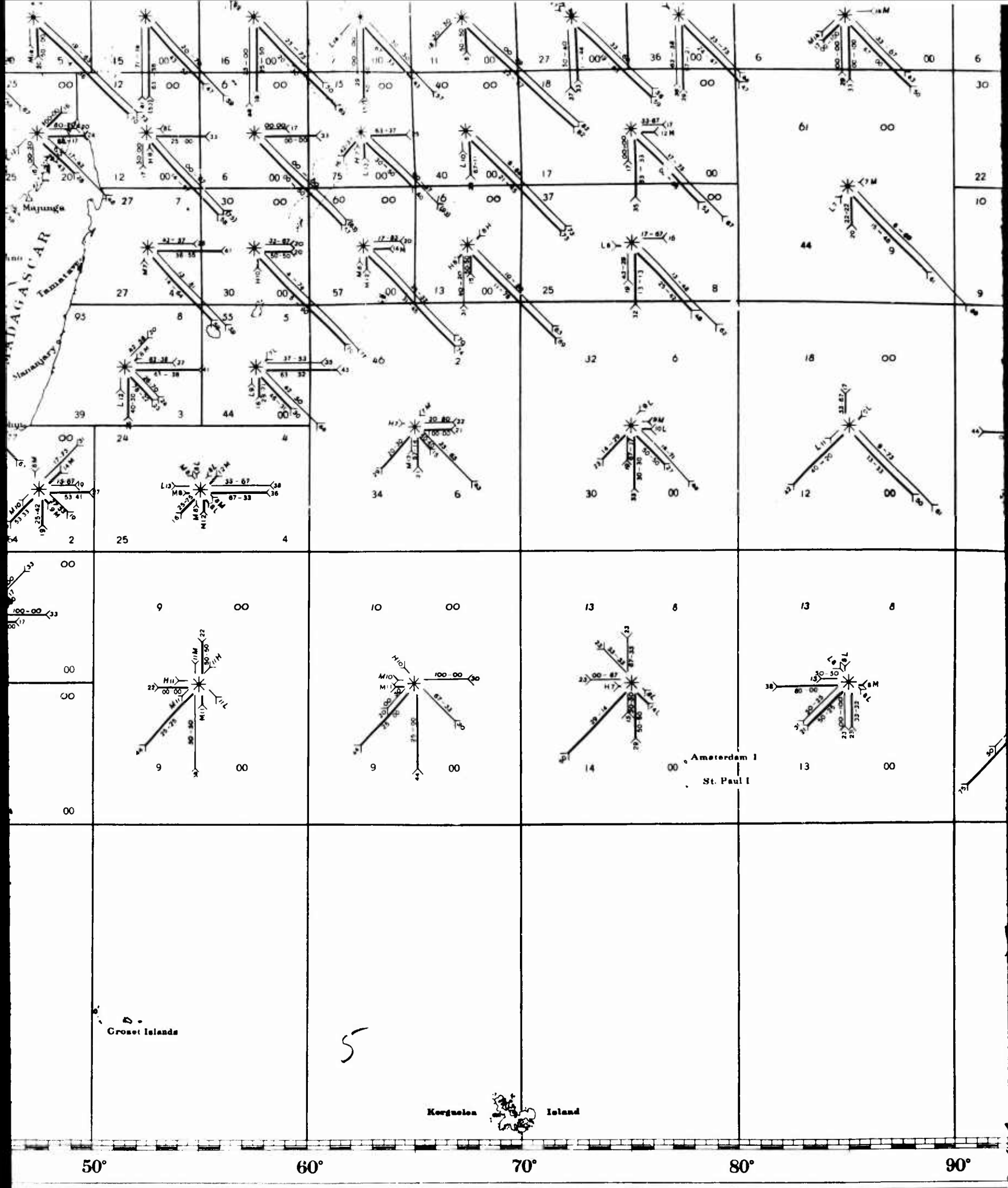
...ent were calm, 11 percent were from the southwest and predominately medium, 31 percent were from the west, of which 56 percent were low and 36 percent were medium, 1 percent were from the northwest, of which 67 percent were low and 33 percent were medium, 7 percent were from the north and predominately high.

...well calculations (the y for arrow) were based on 11 observations of which 8 percent were calm, 7 percent were from the east and predominately medium, 13 percent were from the southeast and predominately low, 26 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 56 percent were low and 36 percent were medium; 48 percent were from the west and predominately medium, 8 percent were from the northwest and predominately high.



4

Prince Edward Is





10° 20° 30° 40° 50°



# INDIAN OCEAN SEA AND SWELL CHART

## OCTOBER

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office and including the year 1948, the majority of the observations having been taken during the years 1932 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent roses. THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE.

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale and the numeral at the tail of the arrow, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

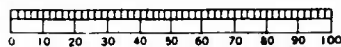
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 4, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (l.v., medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

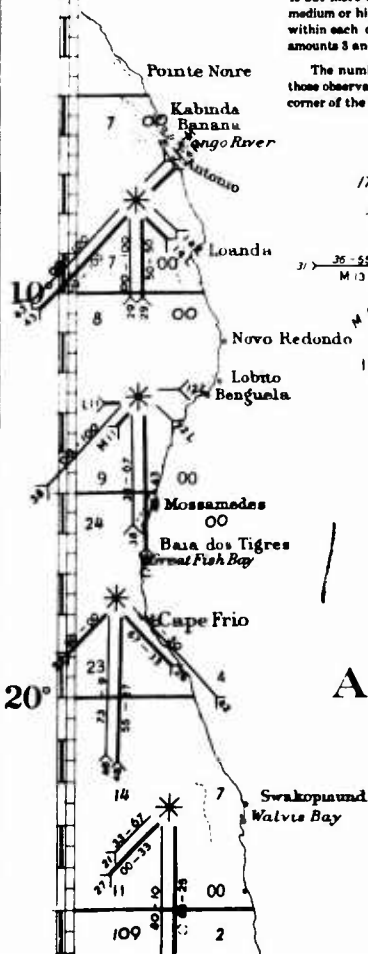
For example—The attached rose should be read as follows:

Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms; 14 percent were from the southwest and predominately medium; 31 percent were from the west, of which 56 percent were low and 36 percent were medium; 17 percent were from the northwest, of which 87 percent were low and 28 percent were medium; 7 percent were from the north and predominately high.

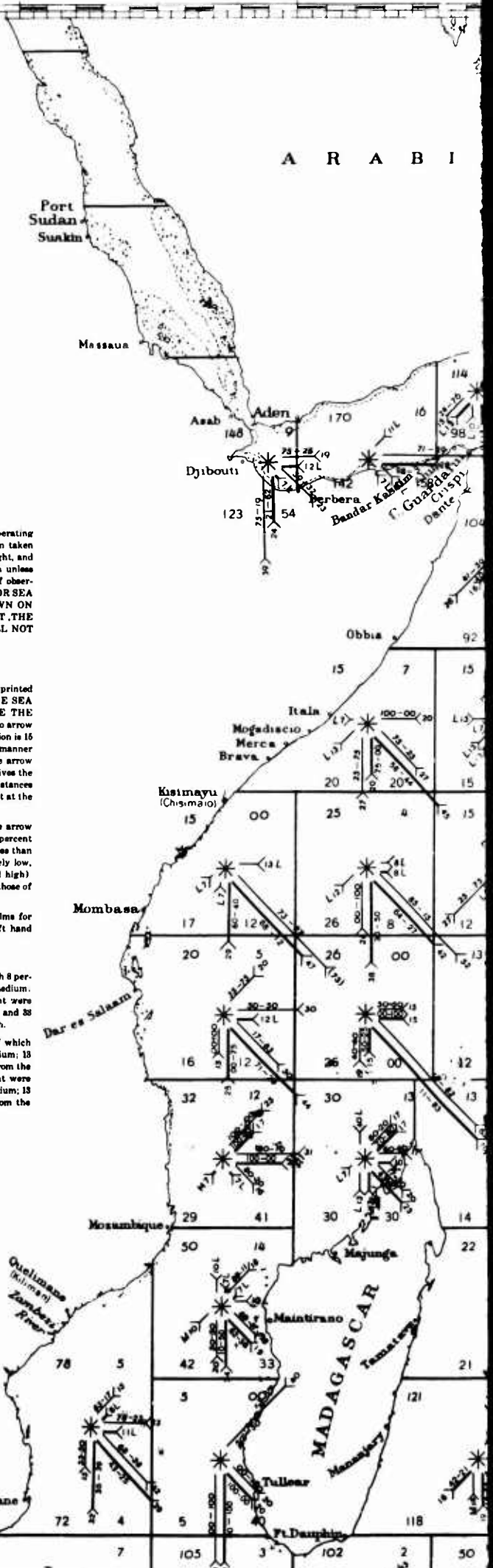
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms; 7 percent were from the east and predominately medium; 18 percent were from the southeast and predominately low; 26 percent were from the south of which 23 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 60 percent were low and 60 percent were medium; 13 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.



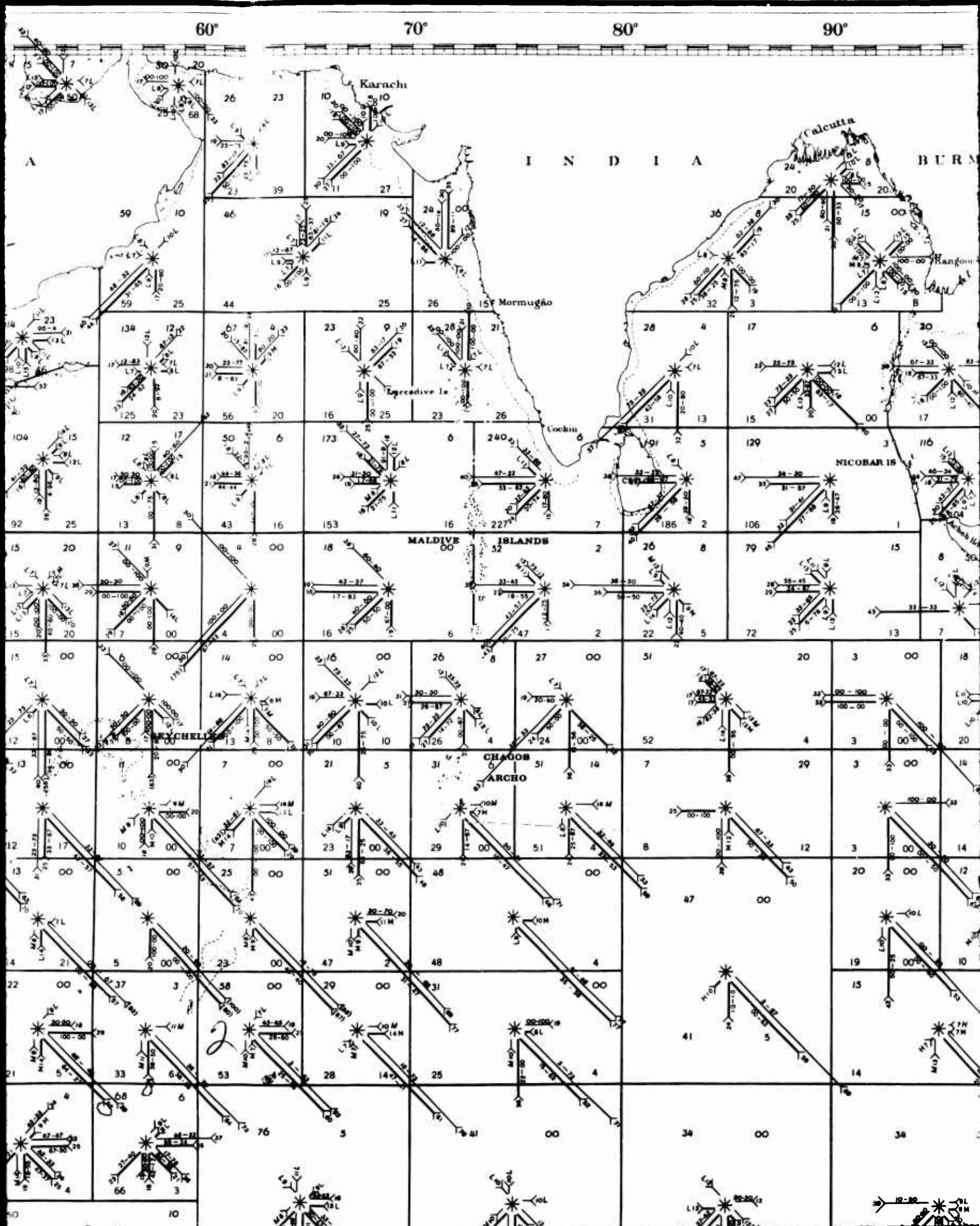
SCALE OF SEA OR SWELL PERCENTAGES



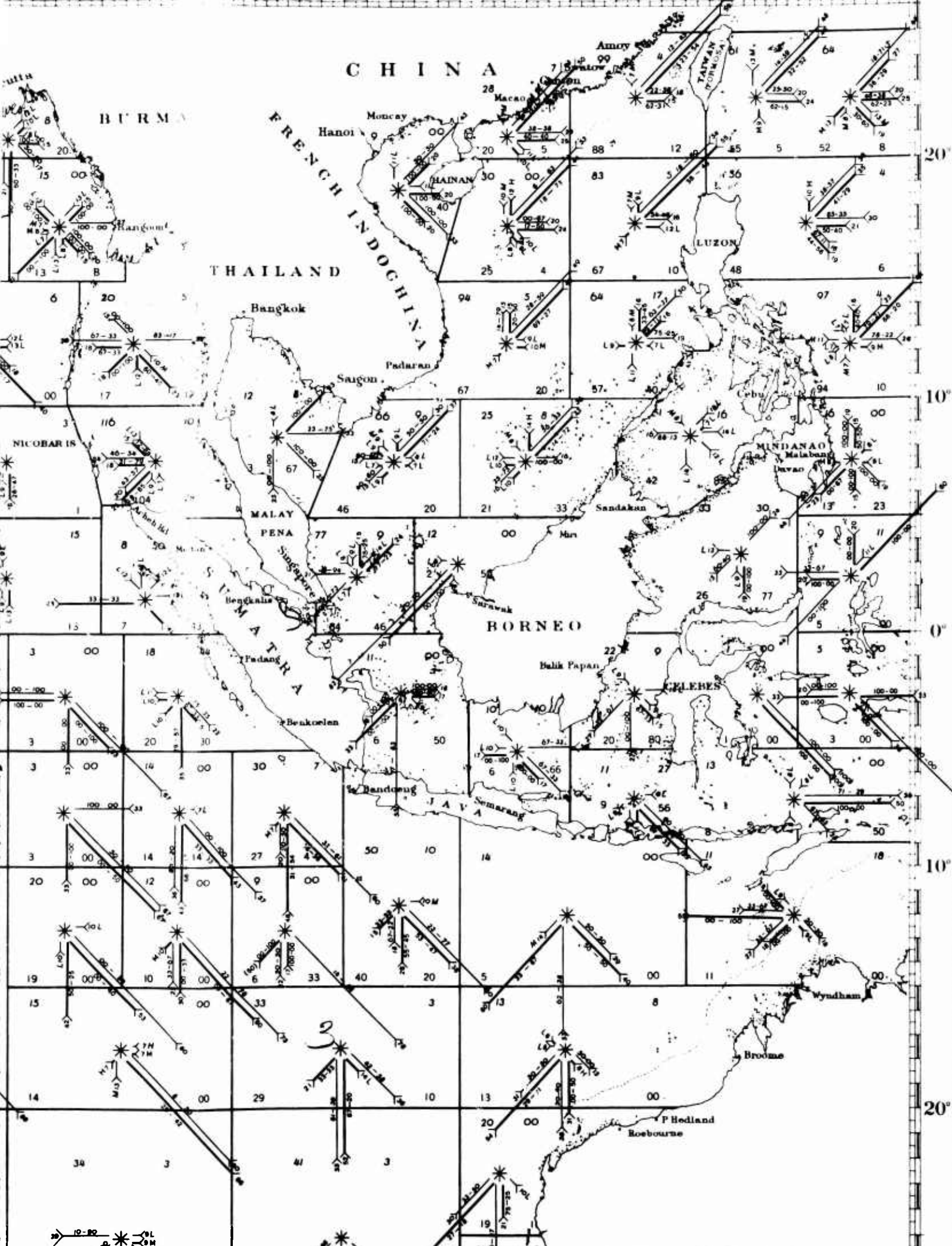
# A F R I C A



# A R A B I



90° 100° 110° 120° 130°

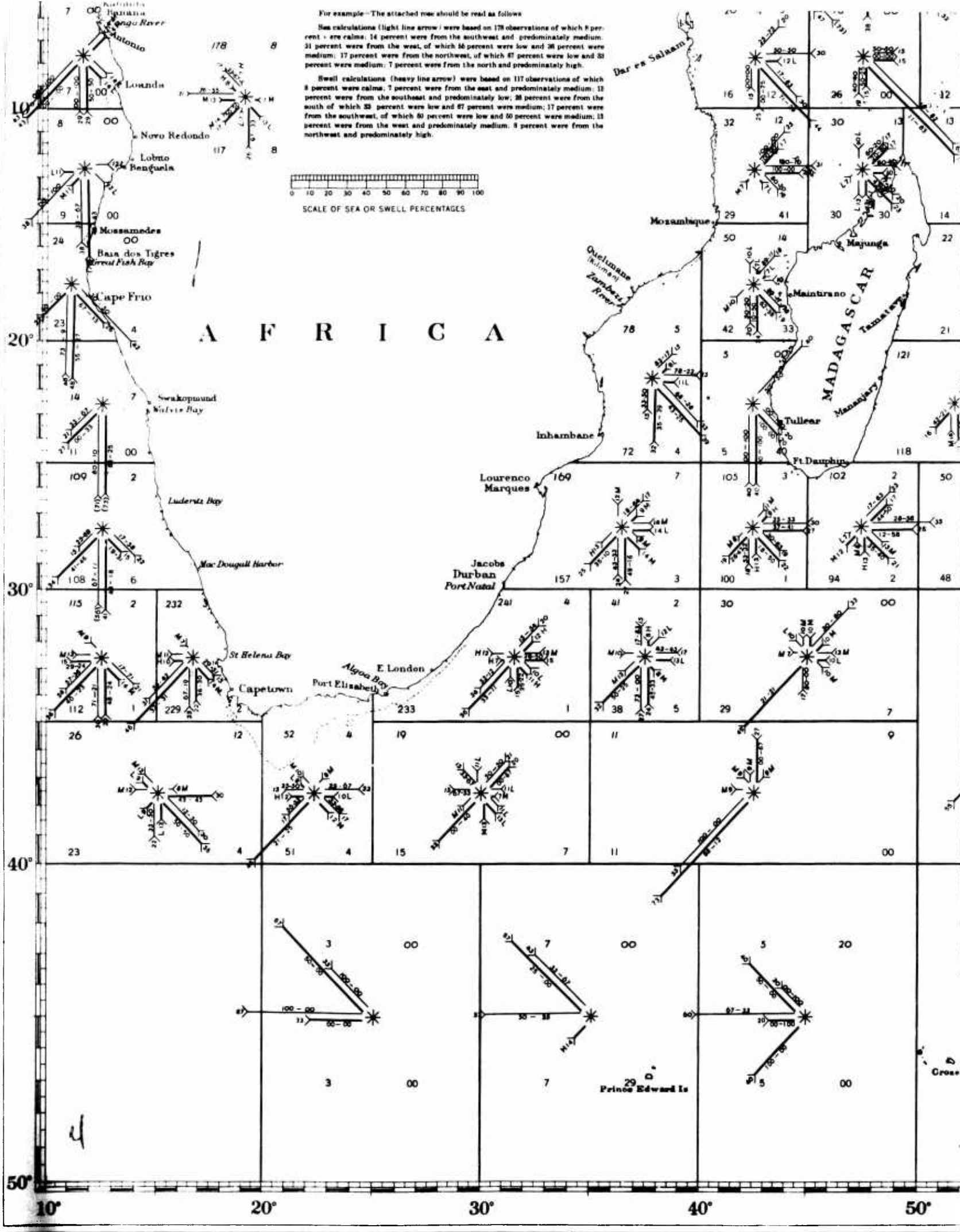
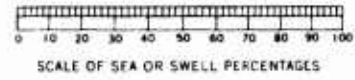


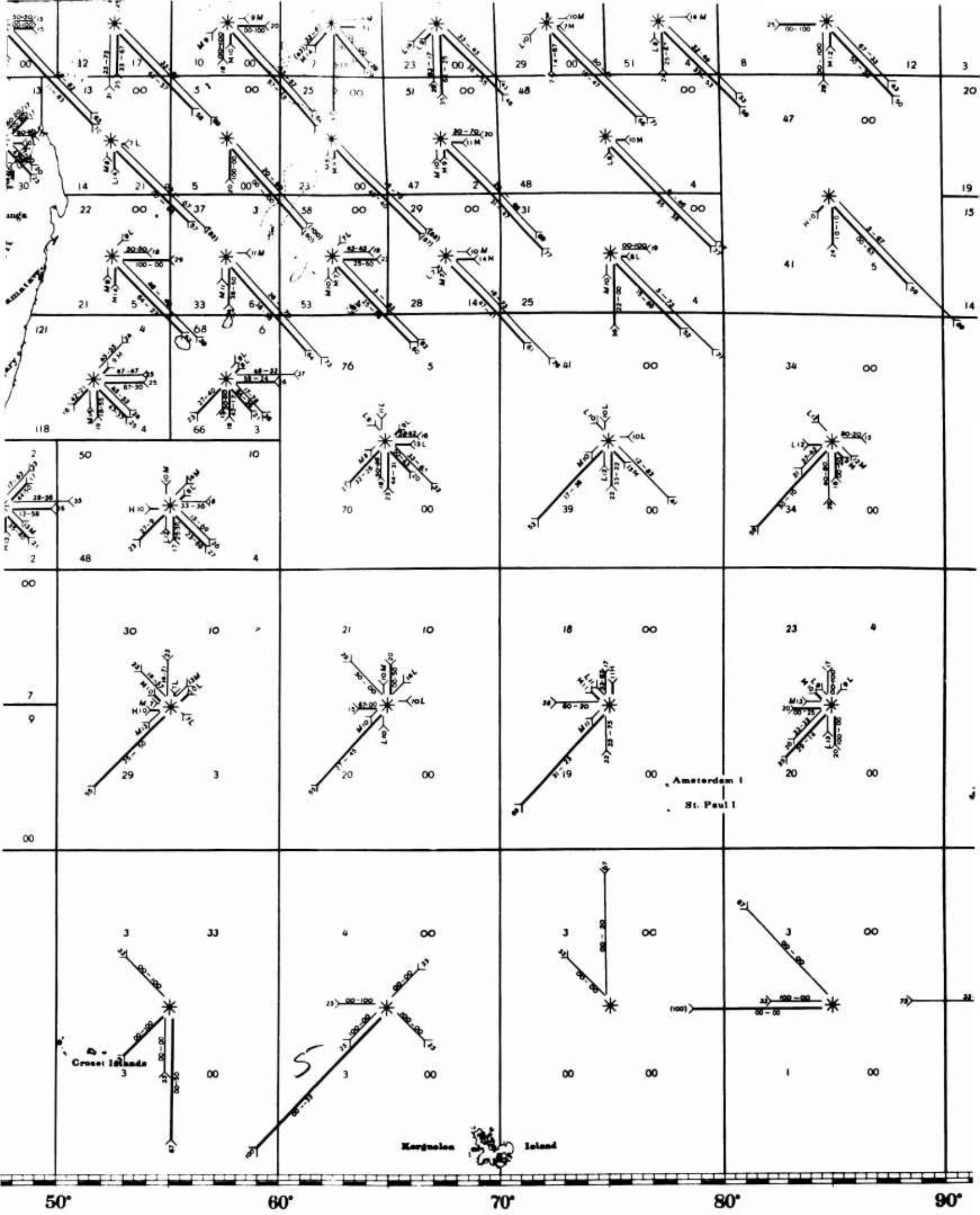
A U S T R A L I A

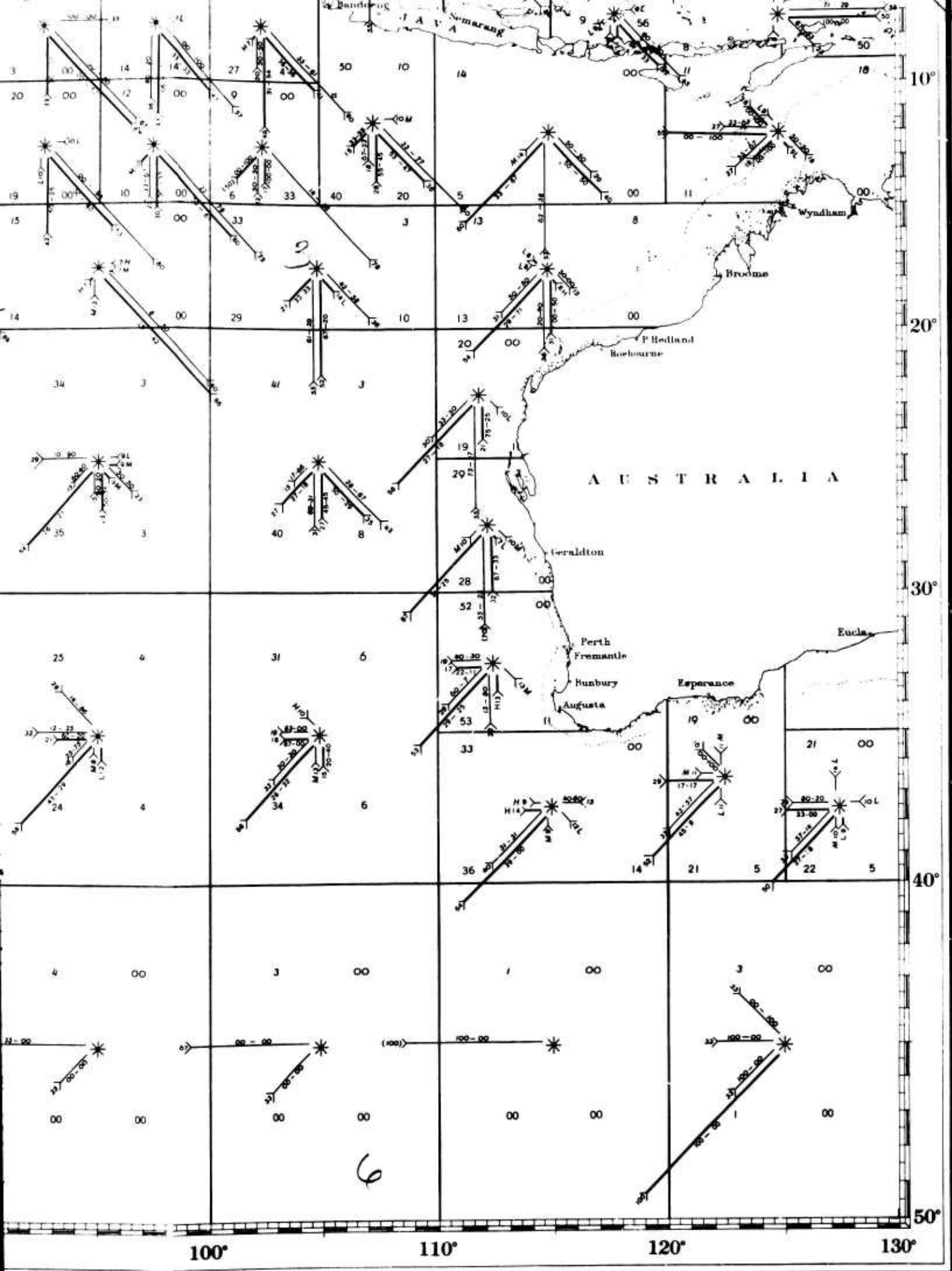
For example—The attached rose should be read as follows

Sea calculations (light line arrow) were based on 178 observations of which 8 percent are calms, 34 percent were from the southwest and predominately medium; 31 percent were from the west, of which 56 percent were low and 26 percent were medium; 17 percent were from the northwest, of which 87 percent were low and 23 percent were medium; 7 percent were from the north and predominately high.

Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms, 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 28 percent were from the south of which 33 percent were low and 87 percent were medium; 17 percent were from the southwest, of which 80 percent were low and 80 percent were medium; 13 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.







10° 20° 30° 40° 50°



# INDIAN OCEAN SEA AND SWELL CHART

## NOVEMBER

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office to and including the year 1942, the majority of the observations having been taken during the years 1932 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent roses. THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE.

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale, gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

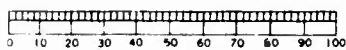
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 6, the conditions within the direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

For example—The attached rose should be read as follows:

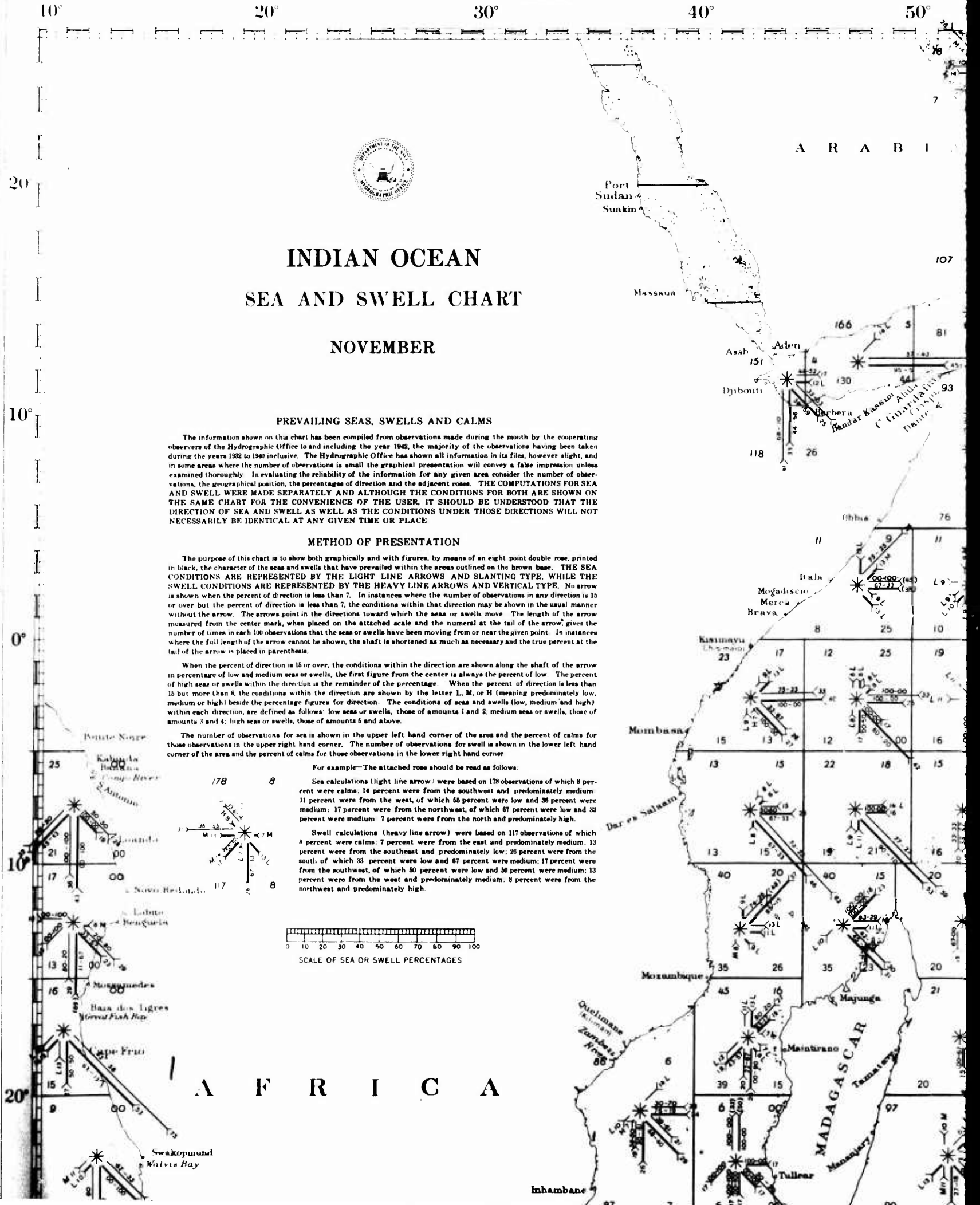
Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms, 14 percent were from the southwest and predominately medium, 31 percent were from the west, of which 56 percent were low and 36 percent were medium; 17 percent were from the northwest, of which 87 percent were low and 33 percent were medium; 7 percent were from the north and predominately high.

Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms; 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 26 percent were from the south, of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 50 percent were low and 50 percent were medium; 13 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.



# A F R I C A

# A R A B I A



60°

70°

80°

90°

I N D I A

B U R M A

MALDIVE ISLANDS

CHAGOS ARCH

SICOBAR IS

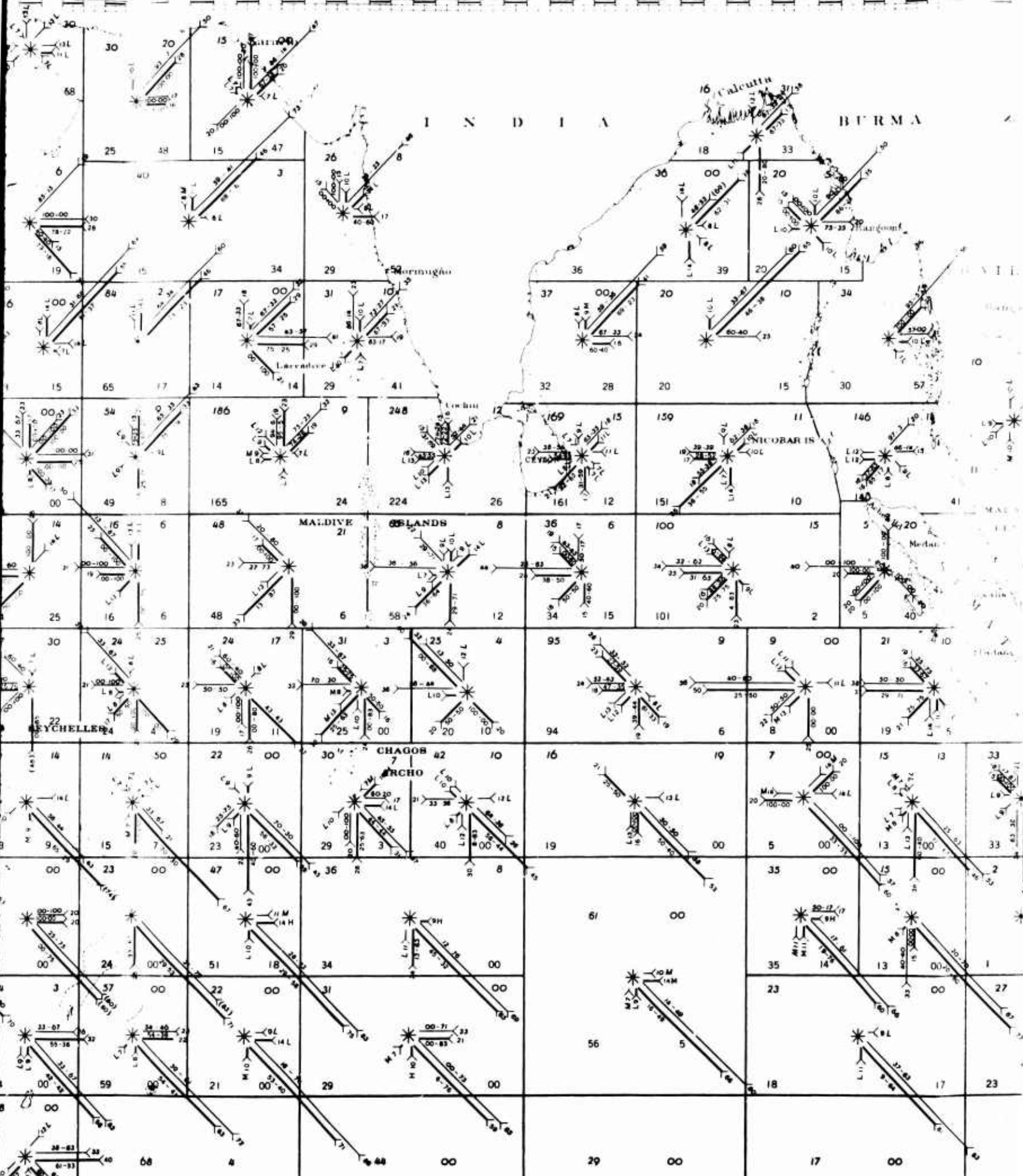
Calcutta

Madras

Ceylon

Maldiv

SEYCHELLES



100°

110°

120°

CHINA

FRENCH INDOCHINA

THAILAND

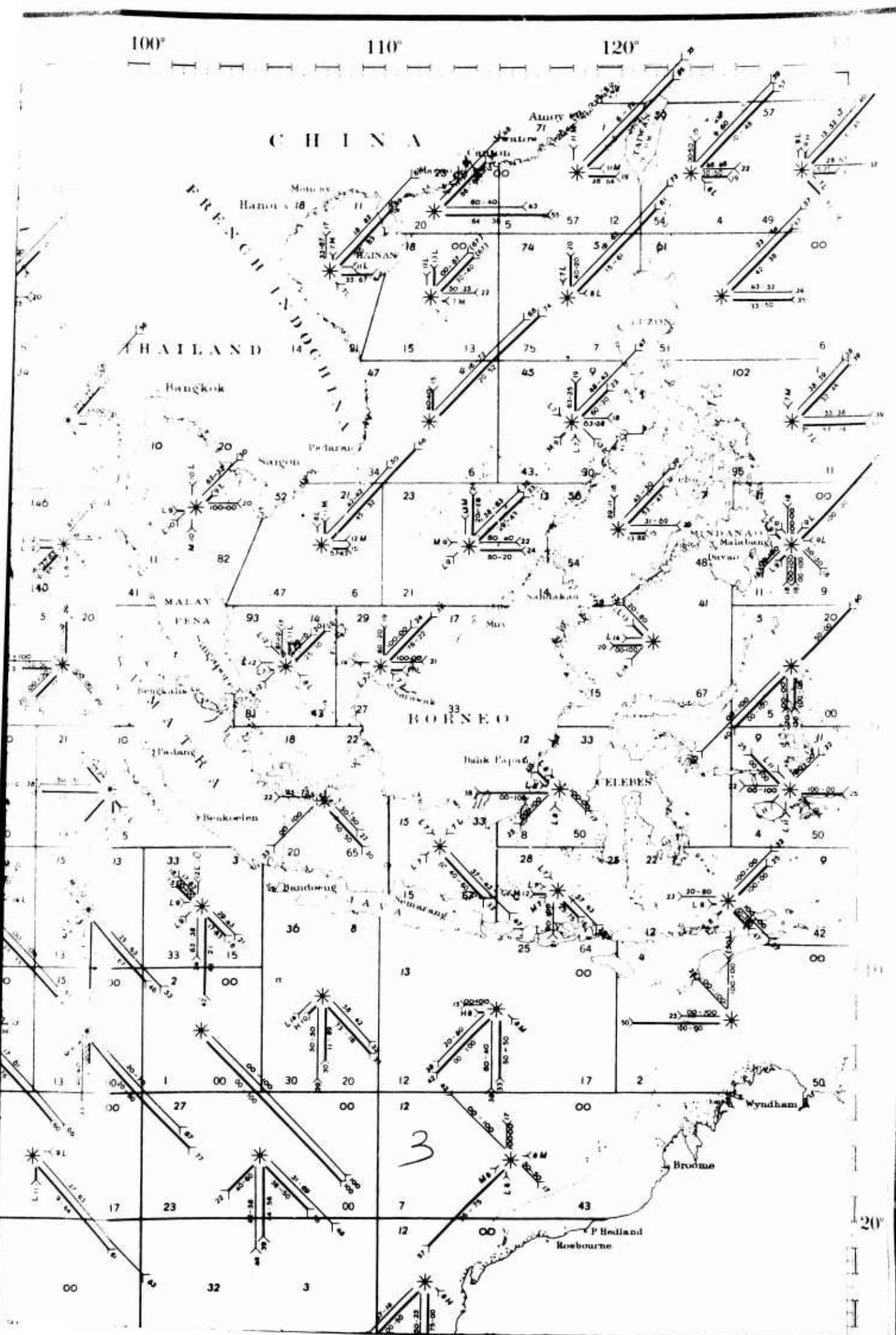
MALAY PENINSULA

BORNEO

CELEBES

BROUHA

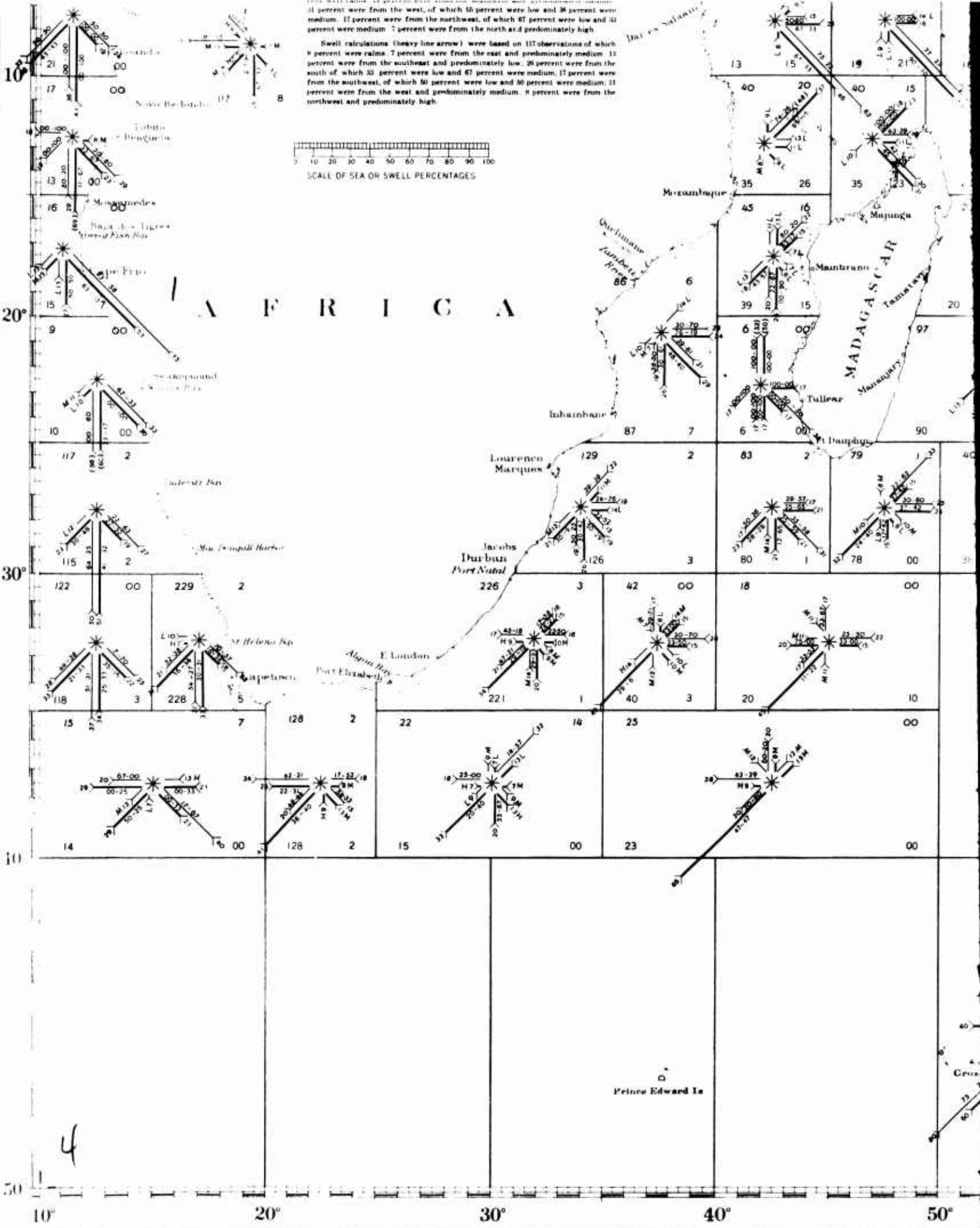
P. HOLLAND ROEBOURNE



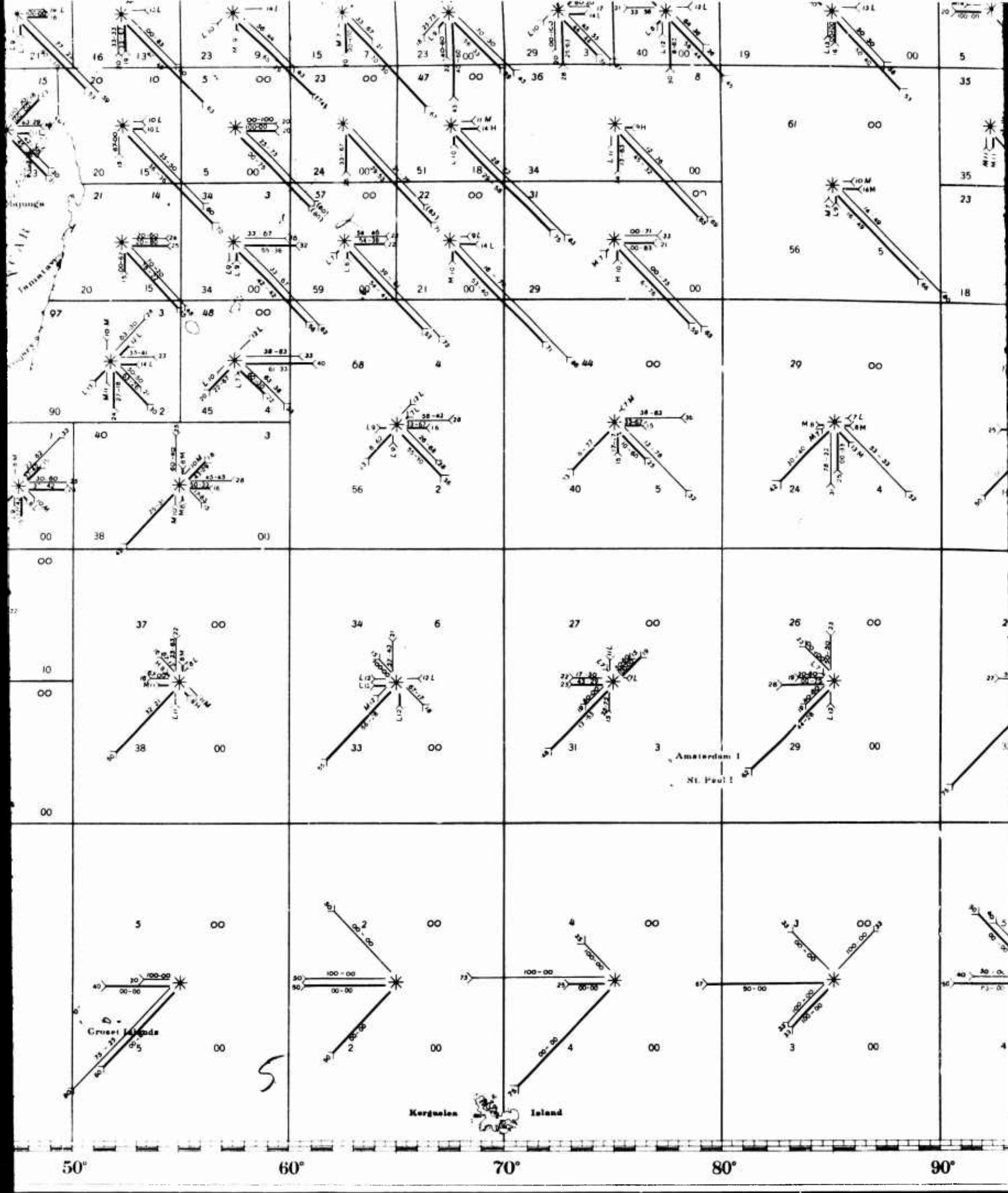
20°

21 percent were from the west, of which 15 percent were low and 36 percent were medium. 17 percent were from the northwest, of which 67 percent were low and 33 percent were medium. 7 percent were from the north and predominately high.

Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms, 7 percent were from the east and predominately medium. 13 percent were from the southeast and predominately low. 26 percent were from the south of which 33 percent were low and 67 percent were medium. 17 percent were from the southwest, of which 50 percent were low and 50 percent were medium. 11 percent were from the west and predominately medium. 8 percent were from the northwest and predominately high.



4



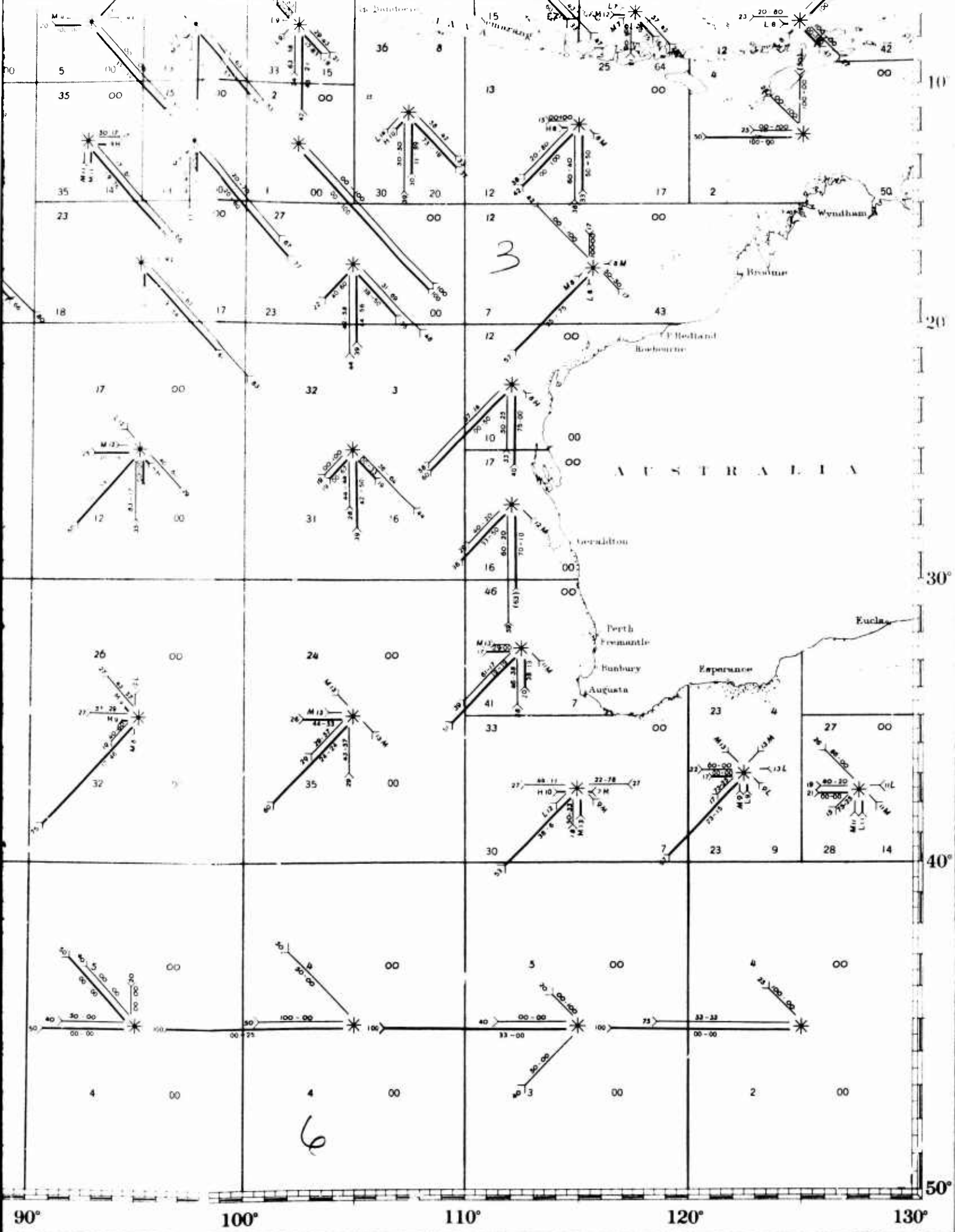
50°

60°

70°

80°

90°



10° 20° 30° 40° 50°



A R A B I A

# INDIAN OCEAN SEA AND SWELL CHART

## DECEMBER

### PREVAILING SEAS, SWELLS AND CALMS

The information shown on this chart has been compiled from observations made during the month by the cooperating observers of the Hydrographic Office to and including the year 1942, the majority of the observations having been taken during the years 1932 to 1940 inclusive. The Hydrographic Office has shown all information in its files, however slight, and in some areas where the number of observations is small the graphical presentation will convey a false impression unless examined thoroughly. In evaluating the reliability of the information for any given area consider the number of observations, the geographical position, the percentages of direction and the adjacent seas. THE COMPUTATIONS FOR SEA AND SWELL WERE MADE SEPARATELY AND ALTHOUGH THE CONDITIONS FOR BOTH ARE SHOWN ON THE SAME CHART FOR THE CONVENIENCE OF THE USER, IT SHOULD BE UNDERSTOOD THAT THE DIRECTION OF SEA AND SWELL AS WELL AS THE CONDITIONS UNDER THOSE DIRECTIONS WILL NOT NECESSARILY BE IDENTICAL AT ANY GIVEN TIME OR PLACE.

### METHOD OF PRESENTATION

The purpose of this chart is to show both graphically and with figures, by means of an eight point double rose, printed in black, the character of the seas and swells that have prevailed within the areas outlined on the brown base. THE SEA CONDITIONS ARE REPRESENTED BY THE LIGHT LINE ARROWS AND SLANTING TYPE, WHILE THE SWELL CONDITIONS ARE REPRESENTED BY THE HEAVY LINE ARROWS AND VERTICAL TYPE. No arrow is shown when the percent of direction is less than 7. In instances where the number of observations in any direction is 15 or over but the percent of direction is less than 7, the conditions within that direction may be shown in the usual manner without the arrow. The arrows point in the directions toward which the seas or swells move. The length of the arrow measured from the center mark, when placed on the attached scale and the numeral at the tail of the arrow gives the number of times in each 100 observations that the seas or swells have been moving from or near the given point. In instances where the full length of the arrow cannot be shown, the shaft is shortened as much as necessary and the true percent at the tail of the arrow is placed in parenthesis.

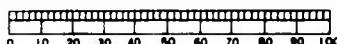
When the percent of direction is 15 or over, the conditions within the direction are shown along the shaft of the arrow in percentage of low and medium seas or swells, the first figure from the center is always the percent of low. The percent of high seas or swells within the direction is the remainder of the percentage. When the percent of direction is less than 15 but more than 6, the conditions within that direction are shown by the letter L, M, or H (meaning predominately low, medium or high) beside the percentage figures for direction. The conditions of seas and swells (low, medium and high) within each direction, are defined as follows: low seas or swells, those of amounts 1 and 2; medium seas or swells, those of amounts 3 and 4; high seas or swells, those of amounts 5 and above.

The number of observations for sea is shown in the upper left hand corner of the area and the percent of calms for those observations in the upper right hand corner. The number of observations for swell is shown in the lower left hand corner of the area and the percent of calms for those observations in the lower right hand corner.

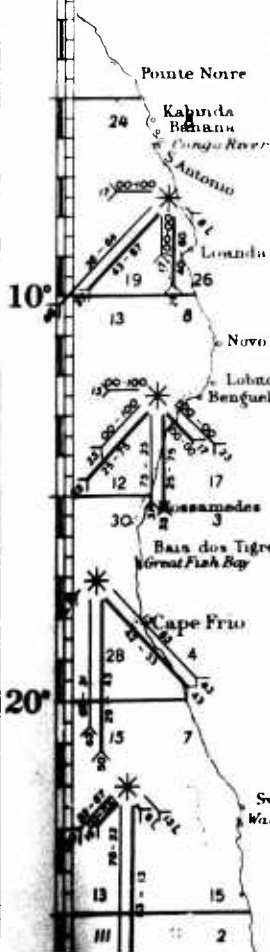
For example—The attached rose should be read as follows:

Sea calculations (light line arrow) were based on 178 observations of which 8 percent were calms; 14 percent were from the southwest and predominately medium; 31 percent were from the west, of which 56 percent were low and 36 percent were medium; 17 percent were from the northwest, of which 67 percent were low and 33 percent were medium; 7 percent were from the north and predominately high.

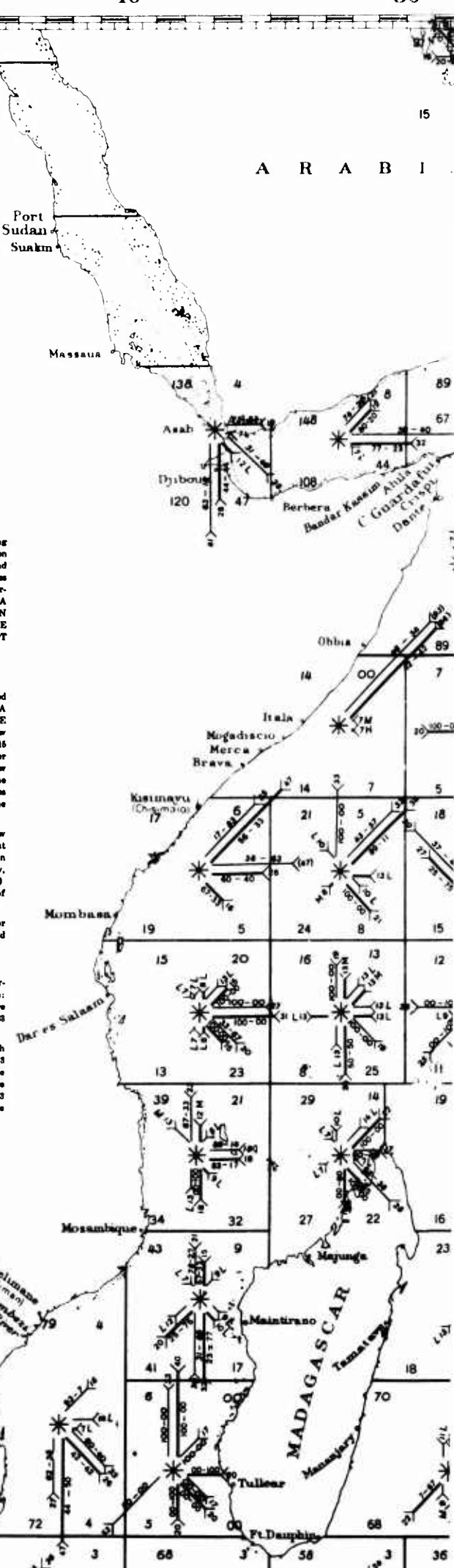
Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calms; 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 36 percent were from the south of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 80 percent were low and 50 percent were medium; 13 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.



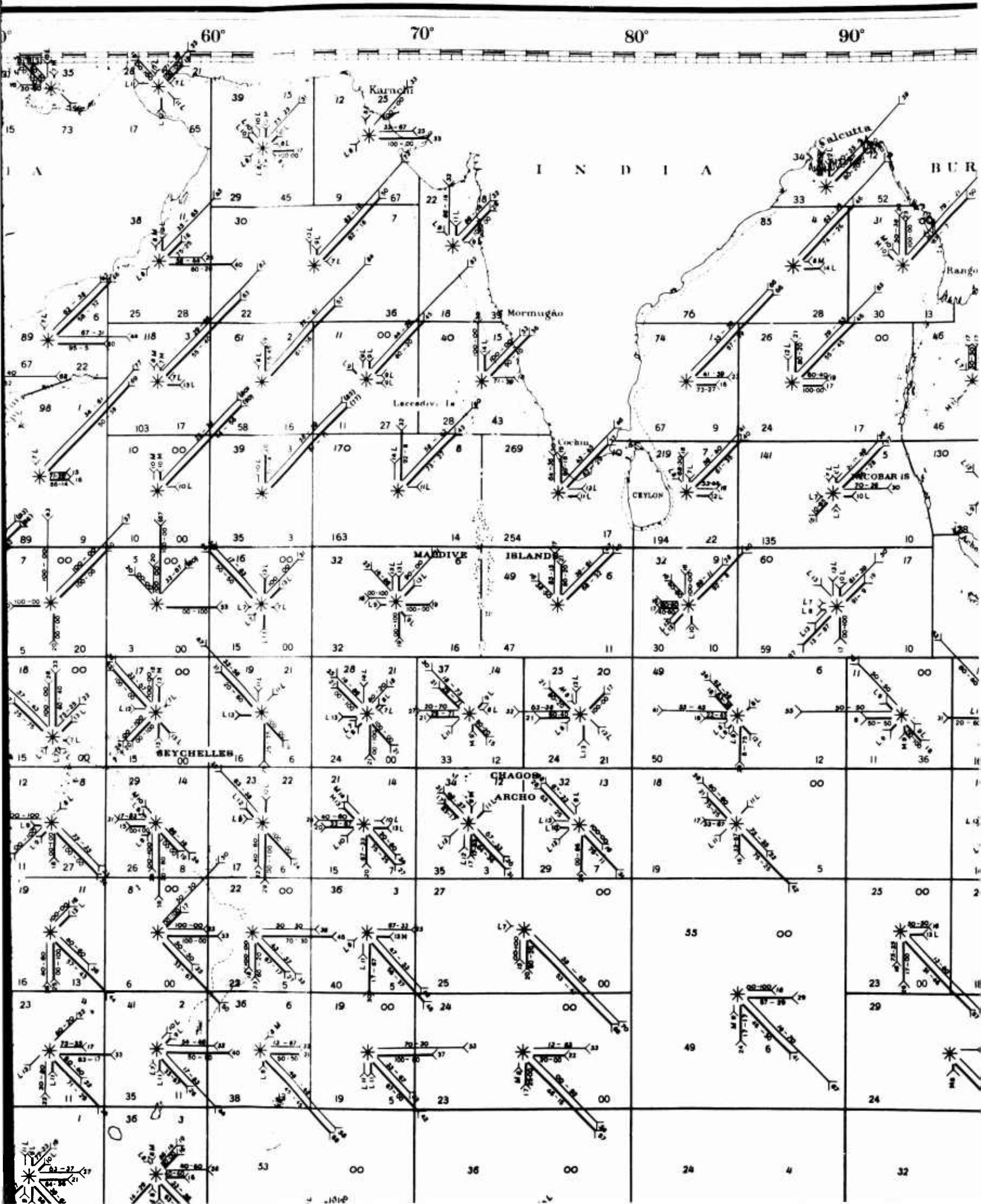
SCALE OF SEA OR SWELL PERCENTAGES

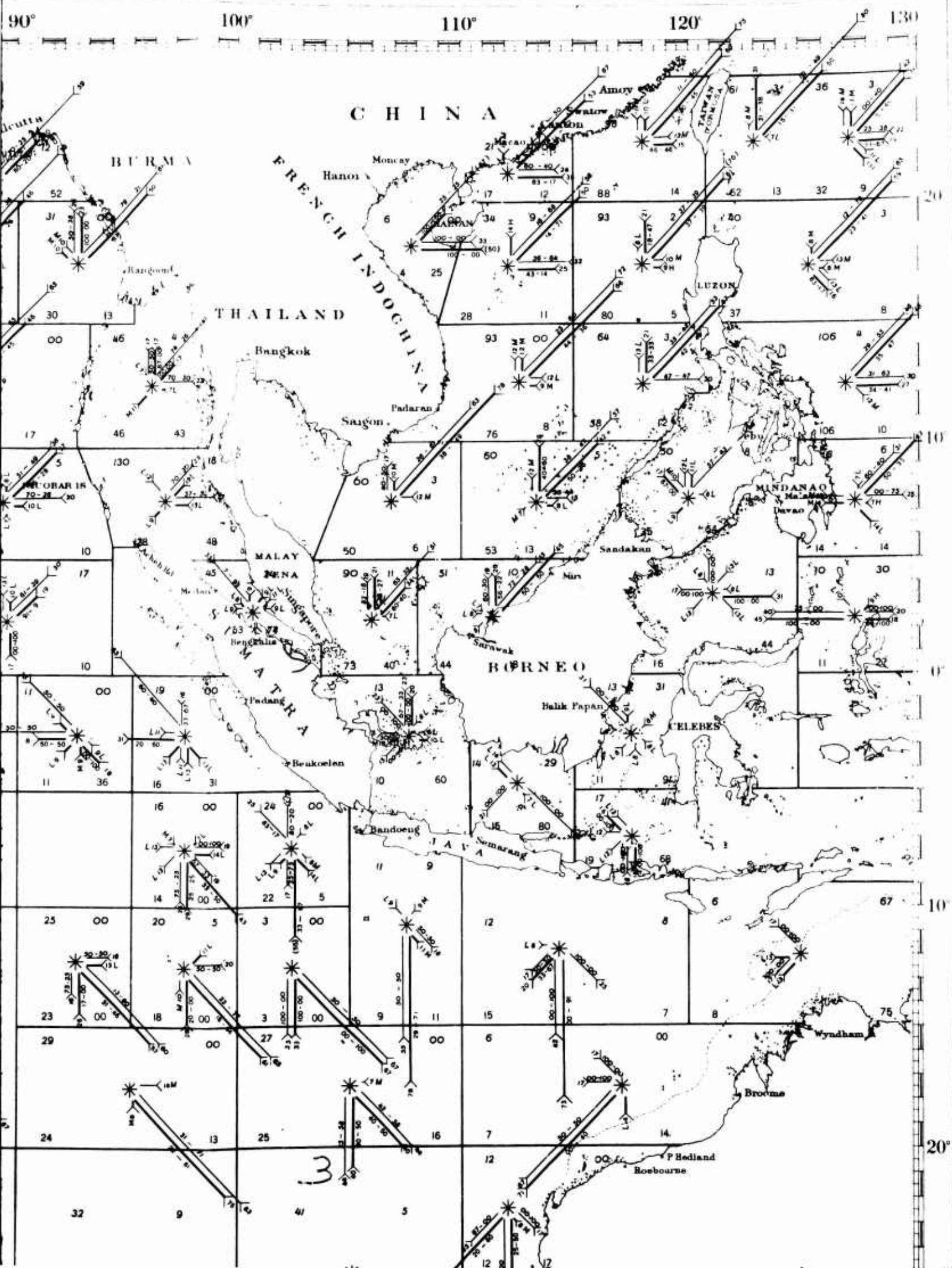


A F R I C A



MADAGASCAR





CHINA

BURMA

FRENCH INDOCHINA

THAILAND

MALAYA

BORNEO

CELEBES

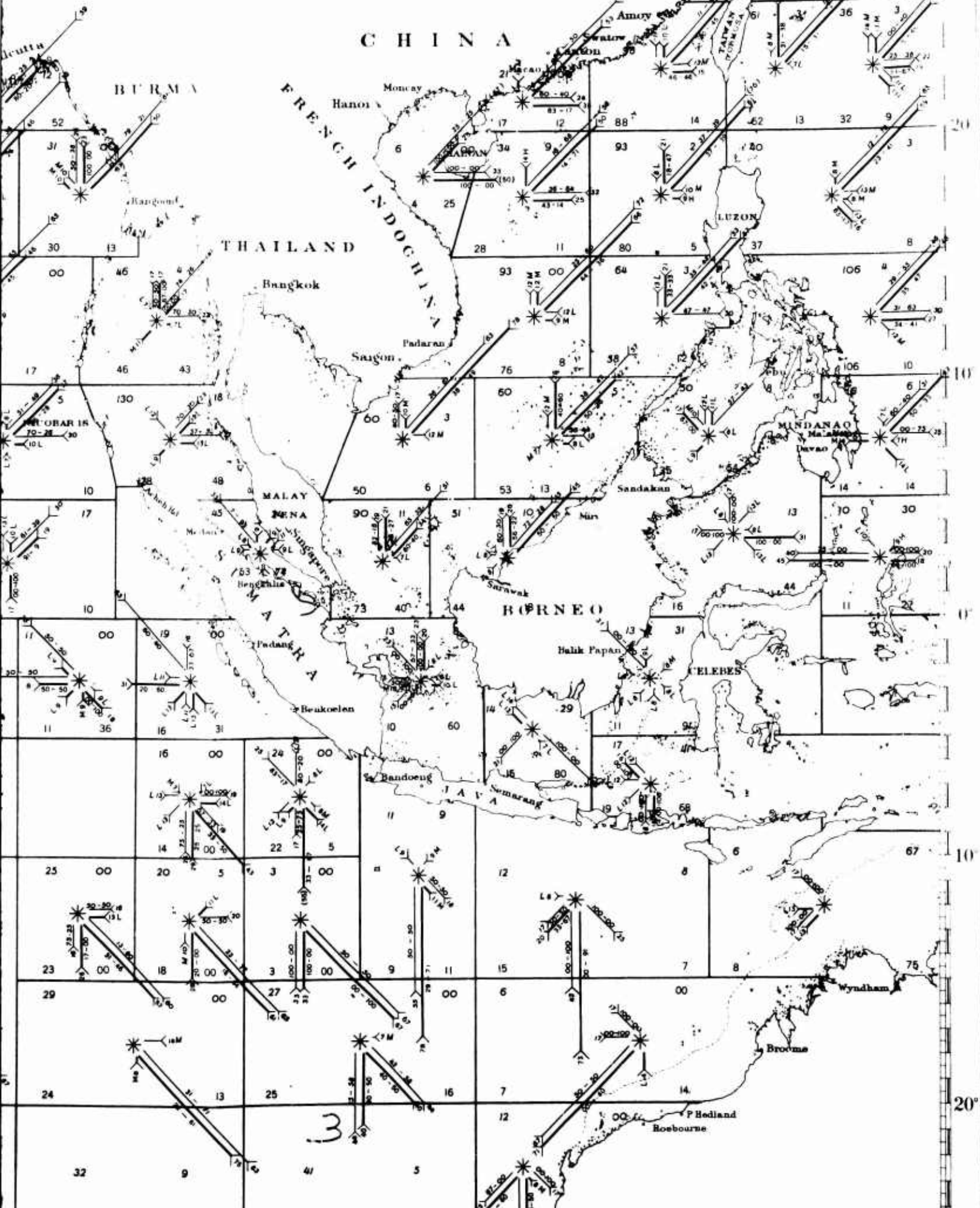
MINDANAO

LUZON

3

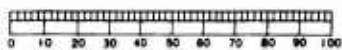
90° 100° 110° 120° 130°

20°



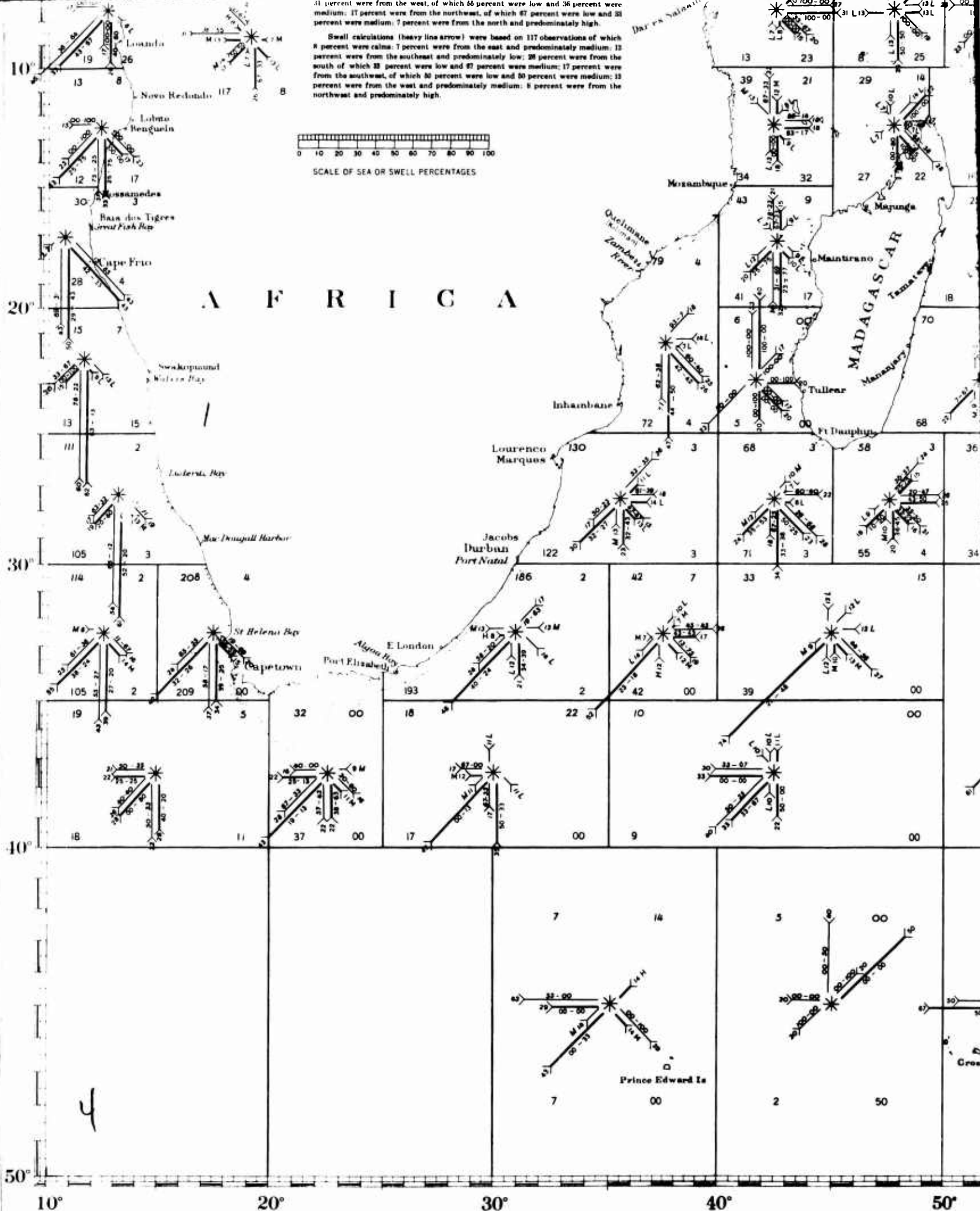
... were calm; 13 percent were from the southwest and predominately medium; 31 percent were from the west, of which 66 percent were low and 36 percent were medium; 17 percent were from the northwest, of which 67 percent were low and 33 percent were medium; 7 percent were from the north and predominately high.

Swell calculations (heavy line arrow) were based on 117 observations of which 8 percent were calm; 7 percent were from the east and predominately medium; 13 percent were from the southeast and predominately low; 28 percent were from the south, of which 33 percent were low and 67 percent were medium; 17 percent were from the southwest, of which 50 percent were low and 50 percent were medium; 13 percent were from the west and predominately medium; 8 percent were from the northwest and predominately high.



SCALE OF SEA OR SWELL PERCENTAGES

# A F R I C A



4

Green



