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NATIONAL INTELLIGENCE SURVEY

NORWAY

SECTION 23

WEATHER AND CLIMATE

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Section 23 on NIS 10 is issued under the NIS maintenance program. It supersedes the material on Norway in the original Section 23 on NIS 10-11, dated December 1949. Sweden is designated as NIS Area 11, and subsequent revisions of NIS units on that area will be so identified.

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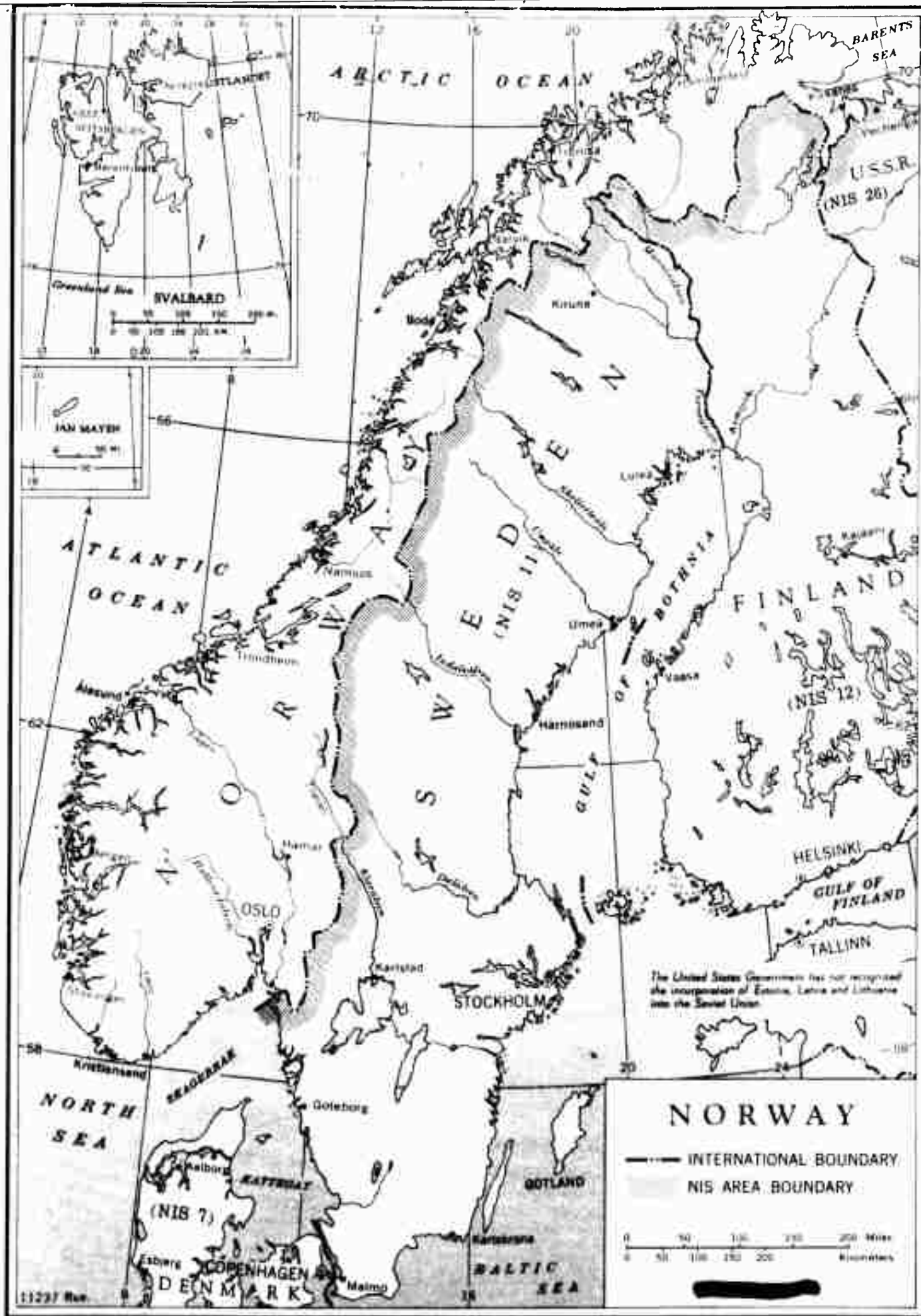
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CENTRAL INTELLIGENCE AGENCY

WASHINGTON, D.C. 20505

3 September 1980

Department of the Air Force
Headquarters 5 Weather Wing (NAF)
Langley Air Force Base, Virginia 23665

ATTN: 10 (Captain Horn, 5901)

SUBJECT: Your Request of 24 August 1979 for Declassification
of a Number of NIS Sections 23, Weather and Climate

Dear Captain Horn:

At last we can reply concerning the remaining Sections 23 listed
in your subject letter, and we very much appreciate your patience while
we set the inter-departmental machinery in motion for the review of these
Sections.

We now have contributor concurrence for the declassification of
those sections noted on the attached list. You may use this letter as
your authority to mark your copies accordingly.

There is one weather and climate section on your list, however,
that we feel must remain classified at the CONFIDENTIAL level. It is:

NIS 3 (France) Sec 23 dated October 1952

Will you please mark this one to indicate that we are extending classi-
fication under paragraph 1-301(b) of Executive Order 12065 (protection
of foreign government information). The next review will be in 1990.

We believe we have now covered all the sections listed in your
letter, and, again, we thank you for your patience. If we can be of
further service to you, please let us know.

Sincerely,

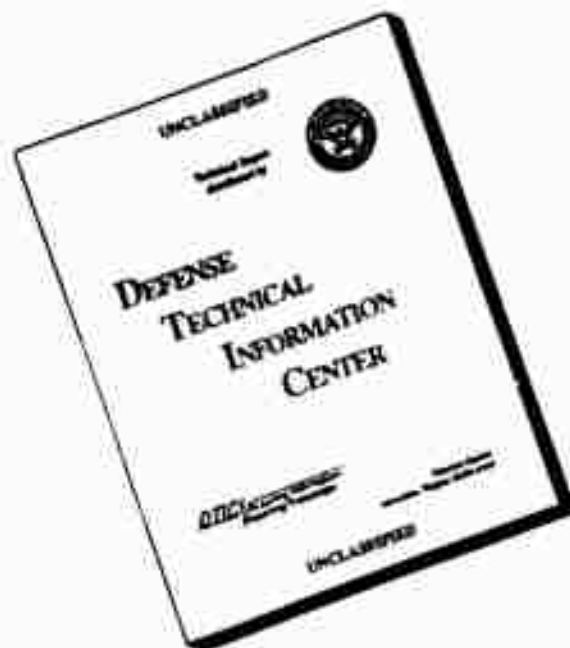
Donald M. Simonds

Donald M. Simonds
Chief, Classification Review Division
Office of Information Services
Central Intelligence Agency

DOCUMENTS PRODUCED AFTER OCTOBER 1959 (Sections 23, Weather and Climate)

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Belgium	5	11/52
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North China	39A-11	5/55
Communist China (Northeast China)	39A-IV	2/59
Communist China (South China, Hong Kong & Macao)	18	7/60
Czechoslovakia	7	1/55
Denmark	13A	4/55
East Germany	55	4/55
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This Section was prepared for the NIS under the general supervision of the Assistant Chief of Staff, Intelligence, USAF, by the Air Weather Service, with contributions on clothing, storage, and shelter from the Office of the Quartermaster General, Department of the Army, and on amphibious operations from the Naval Weather Service Division.

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23. Weather and Climate

The user can supplement the information in this Section by referring to Section 20 for an evaluative summary of the Area's external geographic relationships and its significant internal geographic characteristics, including internal routes, barriers, and strategic areas. Topical treatment of Coasts and Landing Beaches, including some aspects of weather in amphibious operations, is given in Section 22; Topography, including State of the Ground, in Section 24; and Urban Areas in Section 25. Integrated analysis of key aspects of these topical sections by regions is presented in Section 21.

A. General weather and climatic conditions

1. Introduction

The NIS 10 Area consists of three widely separated parts: narrow, rugged mainland Norway; Svalbard, a group of arctic islands north of Norway; and Jan Mayen, a small island northeast of Iceland (FIGURE 23-52). The climate of mainland Norway is determined primarily by the strong moist westerly winds which regularly sweep onto the coasts as low pressure systems from the North Atlantic approach. Considering Norway's location astride the Arctic Circle, the winds are remarkably warm during late autumn and winter, the warmth resulting from contact with the relatively warm waters of the North Atlantic Ocean. The effect of these oceanic winds is most pronounced along the coast and on the exposed western slopes; here in autumn and winter the temperatures are relatively mild, snow and rain are frequently heavy, and cloudiness is extensive and persistent and often coupled with low ceilings and visibilities. Because of the shielding effect of the mountains, interior Norway is less frequently affected by oceanic influences. In addition, higher pressures over the continent tend to block the westerly flow. As a result, autumn and winter temperatures are lower and cloudiness and precipitation less over most of the interior than over the coasts. Occasionally during winter the extremely cold air which overlies northern Europe flows westward across Norway. At such times the interior experiences unusually cold weather, often accompanied by clear skies; however, the mountain chain seldom permits this very cold air to reach the west coast.

In spring both the strength and frequency of the *lows* approaching Norway decrease progressively as temperatures rise. During spring and

early summer, minimum precipitation and cloudiness are recorded in most sections; minimum cloudiness occurs earliest in the arctic regions and latest over the southeast coast and the southern part of interior Norway. The temperatures continue to rise during summer, and a weak low-pressure center develops over the interior; in addition, *lows* from the North Atlantic tend to pass over or south of southern Norway. As a result oceanic winds penetrate the interior with greater frequency, bringing cool and cloudy weather to most of the country. Showers bring to the southeastern coast and to the interior sections some of their heaviest rainfall. Warm dry air from southeastern Europe occasionally reaches interior Norway in summer and causes unusually warm weather. The mountains prevent the warm air from reaching the west coast.

Svalbard and Jan Mayen have cloudy, windy weather all year with frequent precipitation except in summer; however, the precipitation is light all year. Svalbard is generally snow covered from late September through April and glaciers cover large areas; on Jan Mayen the snow cover is less extensive. Winter temperatures are severe on all of Svalbard except on Bear Island (bjørnøya), where mean maximums are seldom below 20° F. At Jan Mayen mean maximums in winter are mostly near freezing. Summers are cold throughout the islands.

These general climatic effects of maritime and continental air masses moving across the NIS 10 Area are determined, to a great extent, by the location and topography of the Area. Norway proper lies between about 58°N. and 71°N. latitudes. Through the northern part of the country runs the Arctic Circle at 66°32'N. Norway's position on the edge of the Arctic approximates that of Alaska, and its area about equals that of New Mexico. Norway is predominantly a rugged highland with extensive mountain masses, long deep fiords, and deep valleys. Icefields and glaciers cover parts of the higher terrain. The high-

NOTE Requests for solutions to specific problems involving the interpretation of the weather factor in the user's unique operational terms should be directed to the Commander, Climatic Center, USAF, Air Weather Service (MATS), Annex 2, 225 D Street, S.E., Washington 25, D.C.

est and most extensive mountains are located in the south where numerous peaks exceed 6,000 feet. Lower but very rugged mountains extend to the northern tip of Norway. East of a line between Hammerfest and the Norway - Sweden - Finland junction is an undulating low plateau with some peaks above 3,000 feet. On the west the mountains reach the Atlantic coast in most sections, with the sea extending into many of the coastal valleys forming fiords. The coastal lowlands are therefore very limited except in the extreme south and to a lesser extent near Trondheim. On the east the mountains extend to the boundary of Sweden except in the northeast and in the southeast.

Svalbard and Jan Mayen are also quite rugged and mountainous. The islands comprising Svalbard are about equal in area to the state of West Virginia, and Jan Mayen is about twice the size of the District of Columbia. The two principal islands of Spitsbergen* contain extensive icefields and glaciers. The largest island, Vestspitsbergen, has many peaks above 3,000 feet. The second largest, Nordaustlandet, is less mountainous, although the inland icefield extends above 2,000 feet. Bear Island, the southernmost of the Svalbard group, is mostly low and flat, with no permanent icefields. Jan Mayen is largely ringed by high cliffs; its northern half is an ice-covered volcanic cone over 8,000 feet high.

For discussion purposes, the NIS 10 Area has been divided into six regions as shown on the map of station locations (FIGURE 23-52): 1) Southeast Coast, 2) Southern Interior, 3) Southwest Coast, 4) Arctic Coast, 5) Arctic Interior, and 6) Arctic Islands.

The Southeast Coast Region is relatively small. Extending from the southernmost tip of Norway northeastward to Oslo and from 20 to 30 miles inland, it includes the coastal lowlands and parts of the lower mountain slopes. This portion of the Norwegian coast is sheltered from the full impact of the strong southwesterly wind. Rainfall is appreciably less and there are fewer gale-force winds than along the exposed western coast. Temperatures, however, differ little from those along the west coast at corresponding latitudes.

The Southern Interior Region comprises all of Norway south of the Arctic Circle except the coastal sections. This region is mountainous and contains many peaks above 6,000 feet. There is,

however, one relatively flat area in the southeast. The Southern Interior is appreciably colder in winter than the coastal regions, and the mountainous portions are also cooler in summer. Rainfall varies across the region with greatest amounts along the slopes which face the North Atlantic. There is also much low-level cloudiness.

The Southwest Coast Region extends from the Arctic Circle to the southern tip of Norway, a distance of approximately 700 miles. The average width is about 25 miles. This region is rugged and deeply indented by fiords which reach far into the interior. Hundreds of islands, most of them mountainous, lie close off the coast except in the extreme south. This is the stormiest region in the Area, with persistent cloudiness, frequent and heavy precipitation, and frequent gales. Temperatures are relatively mild and vary surprisingly little within the region.

The Arctic Coast Region extends about 600 miles northeastward from the Arctic Circle. It too is mountainous with deep fiords and many rugged offshore islands. This region is also relatively warm because of the warmth of the North Atlantic. The frequencies of precipitation, cloudiness, and gales are high. Precipitation amounts in this region are less than those received in the Southwest Coast Region but are considerably more than those received in the Arctic Interior. The number of days with snow is about double that experienced in the Southwest Coast Region.

The Arctic Interior includes all of Norway north of the Arctic Circle not included in the Arctic Coast Region. The elevation of this region is quite varied. Extensive areas, principally in the central and eastern sections, are below 1,000 feet, but the extreme southwest is very mountainous with a number of peaks above 5,000 feet. The Arctic Interior is severely cold during the winter, precipitation is light, and the ground remains snow covered most of the time from October through May. Cloudiness is considerable, and the maximum is recorded during the autumn. Summers are cool with temperatures occasionally approaching the freezing point.

The Arctic Islands, Svalbard and Jan Mayen, are inhospitable and mountainous. Persistent low clouds dominate the skies over these islands. Intense low-pressure systems attended by rain and snow squalls pass through the region in winter. During the summer there are fewer storms, but dense fogs are occasionally present. Temperatures are severely cold in winter and relatively cold in summer over Svalbard; Jan Mayen is much warmer.

* Spitsbergen consists of five major islands (and smaller adjacent islands) within Svalbard, namely, Vestspitsbergen, Nordaustlandet, Edge Island (Edgeøya), Barents Island (Barentsøya), and Prince Charles Foreland (Prins Karls Forland).

The NIS 10 Area is subject to the normal temperature trends which characterize the North Temperate and Arctic Zones, with winter the coldest period and summer generally the warmest period. Throughout this NIS Section the seasons are winter (December, January, February), spring (March, April, May), summer (June, July, August), and autumn (September, October, November).

2. Climatic controls

Norway's unusually mild winter climate, particularly along the coast and in the southern interior, can be traced directly to the relative warmth of the North Atlantic and to the westerly winds which bring this warmth to the mainland. Oceanic influences normally decrease toward the interior, and in Norway this normal decrease is enhanced by the mountains. Thus the central and northern interior of the country is appreciably colder in winter than the coast. Also, the slopes facing the ocean are persistently cloudy and rainy, while the lee slopes are less rainy and somewhat less cloudy.

Continental and arctic influences are also important. During the winter colder air from Northern Europe and the Arctic periodically reaches Norway and counteracts the oceanic influence. The continental influence generated locally over southern Norway and Sweden can be detected on the mean pressure charts as weak low- and high-pressure cells in summer and winter respectively. The high-pressure cell in winter in conjunction with the mountains of central Norway tend to shut out the warm oceanic winds. In summer the low-pressure cell encourages the flow of relatively cool air from the ocean toward the interior.

a. GENERAL CIRCULATION — The most distinguishing feature of the mean pressure map of this NIS Area is the Icelandic *low* which reaches its maximum development in midwinter (FIGURE 23-1). The center of lowest pressure is statistically located between Iceland and southern Greenland. A trough of lower pressure extends from the center towards the Barents Sea. This mean low-pressure regime does not indicate that pressure is always low in this vicinity, but that a sufficient number of low-pressure centers pass over to produce a composite low-pressure picture. The much lower pressures of winter are a reflection of the deeper, more intense low centers passing in that season. The winter pressure distribution results in predominantly southwest winds.

The Icelandic *low* gradually weakens in spring and reaches a minimum in summer and early autumn (FIGURE 23-2), with a corresponding de-

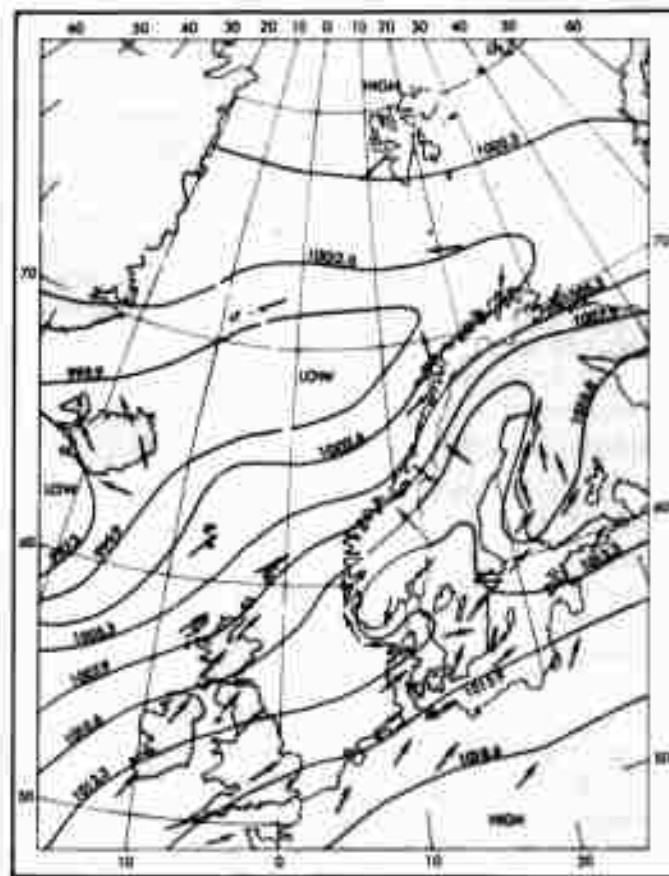


FIGURE 23-1. MEAN SEA LEVEL PRESSURE (MILLIBARS) AND PREVAILING SURFACE WIND, JANUARY

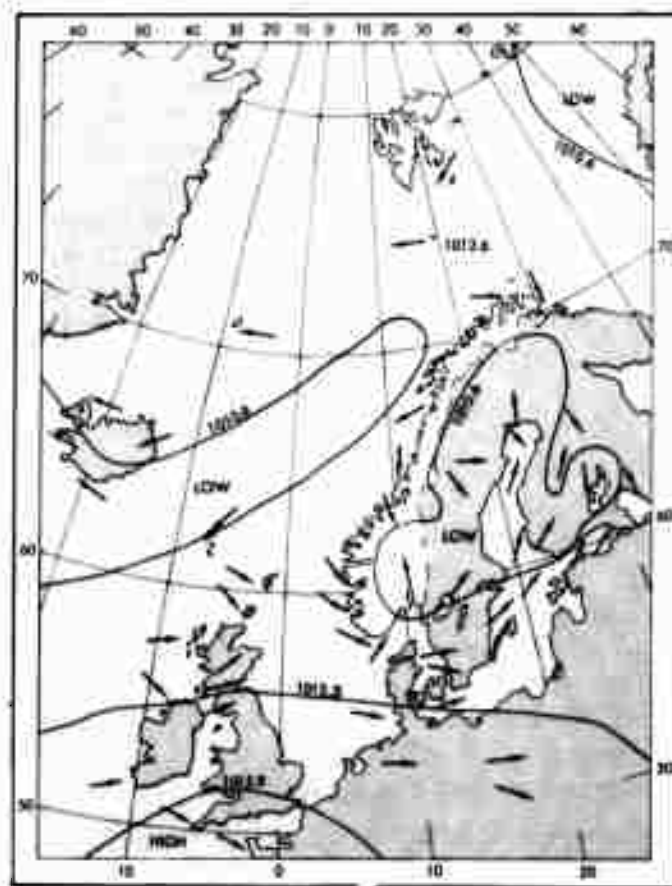


FIGURE 23-2. MEAN SEA LEVEL PRESSURE (MILLIBARS) AND PREVAILING SURFACE WIND, JULY

crease in the overall strength and persistency of the southwesterly wind, particularly along the west coast. The weakening of the Icelandic *low* in summer is accompanied by the establishment of a weak low-pressure center over the southern part of interior Norway. In response to this pressure realignment the prevailing winds are northerly along the west coast in summer. This idealized picture of the Icelandic *low* as it appears on the mean pressure chart is probably never realized at any one time. Normally the isobaric pattern is much more complex and is composed of a number of migratory low- and high-pressure cells with their attendant frontal systems.

b. MIGRATORY PRESSURE SYSTEMS AND FRONTS —

The day to day variations in weather conditions over Norway are associated with the migratory low-pressure centers and their associated fronts which regularly pass through or near the Area. The low-pressure centers are deepest and most intense, and their accompanying fronts most pronounced, during autumn and winter. Most of these low-pressure centers pass northeastward along the coast and bring cloudy and wet weather, especially along the west coast. The winter *lows* generally cause heavy snow in the mountains and light snow in the interior. A relatively small number of *lows* enter Norway or pass close to the south, bringing easterly winds and considerable rain or snow to southern Norway. In spring and summer the number and intensity of *lows* are much reduced, and the principal path appears to be south of Norway or across its southern tip. As a result, maritime air is more frequently carried inland during these seasons. Warm air from southern Europe or more southern portions of the north Atlantic occasionally reaches Norway. A combination of high pressure over central Europe and low pressure over Norway is required for the establishment of such a flow of warm air. It is also necessary that this pressure alignment persist for several days to allow the warm air to reach Norway. This pattern is most likely to occur in summer, with a low-pressure system which has an open warm sector. In most cases, however, the low-pressure center is surrounded by cool air when it is said to be occluded. These occluded low-pressure centers occasionally stagnate in the NIS 10 Area and cause prolonged periods of cloudy and wet weather. On many occasions, the primary *low* will dissipate off the coast and a secondary system will appear over interior Norway.

Frontal passages may be expected once or twice a week during most of the year, except during occasional periods when a *high* remains stationary

over Norway for several days and nonfrontal weather is the rule. The weather accompanying these frontal passages is most severe along the Norwegian coast and over the mountains. Cloud layers are deeper and more extensive when fronts hit the coastal mountains. The frequency and intensity of frontal passages is greatest in autumn and winter. Clear, quiet weather occurs most often in spring and early summer, although some frontal passages still occur.

In the Arctic Islands, there is so much cloudiness of nonfrontal character that frontal passages lose much of their significance. Frontal passages occur throughout the year and are most severe during the winter. Cloudiness, however, is greatest in summer as a result of cooling of the maritime air masses by the sea surface.

c. AIR MASSES — Norway lies in the path of the prevailing westerly wind, which most frequently brings air masses originating as polar continental air over North America. Before reaching Norway these pass over the relatively warm seas of the eastern North Atlantic. The air, warmed from below, becomes unstable and humid and is transformed into polar maritime (*mP*) air. This air mass is the dominant one in Norway and over the Arctic Islands. Along the coasts and exposed slopes of Norway it is characterized by extensive low cloudiness and frequent rain or snow squalls; temperatures are unusually high for the latitude. Some modification occurs as the air crosses the mountains and moves toward the interior. It is less humid and undergoes further modification through foehn effects as it moves downslope. As a result, cloudiness along the lee slopes is less extensive, cloud bases are higher, and there is less rain and snowfall. Next in importance to the polar maritime air masses are the continental air masses. During the winter, dry and extremely cold air occasionally reaches Norway from the continent to the east and the ice-covered Arctic to the north. These air masses often bring clear and very cold weather which may persist for several days. However, on the eastern slopes they may bring extensive cloud layers. In summer, dry air from the continent occasionally reaches Norway and produces a succession of clear warm days. Thus, this type of air mass often produces both the highest and lowest temperatures of the year.

d. TOPOGRAPHY — The most significant topographic feature is the central mountain range of Norway. In fact, except for relatively small sections, Norway is entirely mountainous. The

southwesterly winds of winter and are therefore banked with low clouds a large percentage of the time. The lower portions experience frequent rain squalls in all seasons; the higher slopes often receive heavy snow in winter. In contrast the protected eastern slopes have fewer gales, less cloudiness, and lighter rain and snowfall. There is also a noticeable variation in temperature with height across these mountains. On the windward slope there is a marked drop in temperature with height, about 1.2° F. for every 300 feet compared to the normal rate of 1.0° F.

There are three distinct lowland sections—one in the extreme northeast, a second along the central portion of the west coast, and a third in the southeast. The northeastern section, located in the Arctic north of Finland, experiences extremely low temperatures in winter. The lowland on the west coast near Trondheim has relatively mild winter temperatures, because of its low elevation and sheltered location. The third lowland section in the southeast near Oslo is comparatively cold in winter and warm in summer as a result of intrusions of continental air masses.

The fiords constitute another most interesting and picturesque topographical feature. They are in fact drowned river valleys belonging to the coastal mountains. Many are steep-sided and extend well into the interior. Weather conditions in these fiords depend upon their alignment in respect to the prevailing wind. Those open to the southwest wind have the least desirable weather conditions. Many of the fiords after breaching the coast curve toward the north or south. These protected arms of the fiords experience less stormy weather conditions. Winter climate at the head of a fiord is often very different from that at the mouth, providing the fiord is long enough to have its head sheltered from the sea. Strong cold winds, sometimes exceeding gale force, occasionally blow down the fiords toward the sea during winter. This is especially true along the Arctic Coast where differences in temperature between inland and coastal points may be extreme.

The permanent icefields and glaciers constitute an unusual topographic feature in the Area. There are 49 principal glaciers of 8 square miles or more. The largest, 580 square miles, is located near the 62nd parallel. The southernmost, located near the 60th parallel, is 108 square miles in area. These icefields, which lie for the most

survival to their northerly latitude and high elevation.

e. LATITUDE AND OCEANIC EFFECTS — Because of the warm ocean waters, the effect of latitude in coastal regions of Norway and in the Arctic Islands Region is much less marked than in the interior regions at comparable latitudes. However, the effect of decreasing insolation from south to north across the Area is quite evident in the interior. The marked variation with latitude of the possible number of hours of sunshine is shown graphically in FIGURE 23-3. During winter the northernmost portions of the Area remain in darkness from late October through much of February, while in summer there is continuous daylight from mid-April through August. In southern portions daylight is present for 6 or 7 hours in winter and 18 hours in summer. As a result of the decreased sunshine and the acute angle of the sun's rays, temperatures colder than -50° F. have occurred at many northern stations.

Because the sun is low on the horizon during winter, the intensity of daylight is often very weak on cloudy days. However, the period of useful twilight is often protracted under clear sky conditions. Also, the winter darkness may be greatly ameliorated by moonlight on cloudless nights. The snow cover greatly enhances the effect of moonlight as well as light received from the stars and auroral displays.

The oceanic effect is pronounced over Norway and the Arctic Islands Region. The prevailing westerly wind carries the moisture and relative warmth of the Atlantic Ocean toward the land. This effect is heightened by the fact that the northeastern portion of the North Atlantic is about 9 Fahrenheit degrees warmer than the average for this latitude. The warming effect is of greatest significance in the winter along the immediate coasts and the smaller island groups. This effect decreases rather rapidly inland because of adiabatic cooling as the air flows upslope. The moisture brought in by the westerly wind is deposited as rain or snow along the exposed coasts. Amounts are generally heaviest at the base of or on the faces of those slopes exposed to the westerly wind. Unlike the temperature effect which decreases rapidly inland, the moisture carried by the westerly wind reaches much farther inland. In fact the increased precipitation can be discerned as far inland as the highest ridges in central Norway.

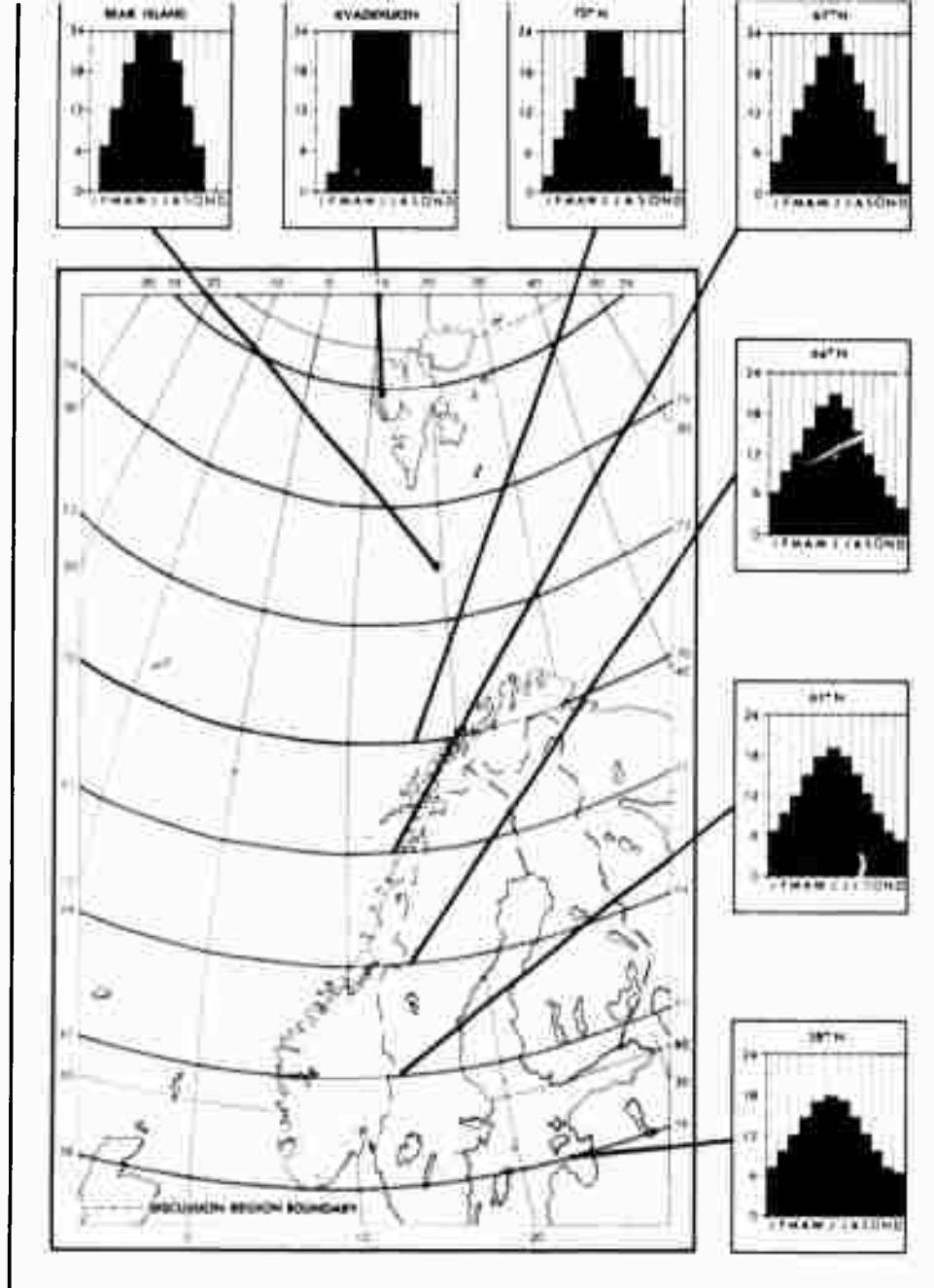


FIGURE 23-3. POSSIBLE SUNSHINE HOURS ON 21ST DAY OF EACH MONTH

The warming effect of the oceans is evident even in the extreme north of Norway where the coast remains practically ice free throughout the winter. The northward drift of warm water is also responsible for keeping the North Atlantic free of ice over most of the Arctic Islands Region. Its influence, however, does not extend north of this region. As a result the Arctic pack ice in winter frequently reaches Svalbard from the north or northeast and Jan Mayen from the north or northeast.

3. Special phenomena

a. **ELVEGUST** — The name *elvegust* or *sno* is given to squalls which occur in the upper parts of the Norwegian fjords. These strong winds are associated with cold air drainage from the surrounding highlands toward the warmer sea. They are principally a winter phenomenon and occur during periods of clear cold weather, which result in increased pressure over the interior. The rush of cold air toward the coast is frequently initiated by the approach of a low-pressure center from the

a menace to navigation in the narrow fiords. Katabatic winds of this nature also occur along the open coast where they are less severe in that the winds are allowed to fan out over a wider area.

b. **GALE WINDS** — Gale-force winds blowing toward the coast are in direct contrast to the offshore katabatic wind. They are associated with the approach of an intense low-pressure system from the North Atlantic. The winds are strongest along the open coast and the exposed slopes. They are most likely to occur in winter when they are occasionally associated with blizzard conditions along the mountain slopes facing the sea. At such times, snow in the passes is deep enough to stall traffic on the roads leading up from the coast. Gale-force winds also occur throughout the Arctic Islands while katabatic winds are mostly limited to Spitsbergen.

B. Weather and military operations

This Subsection is concerned with the effects of the meteorological elements upon military operations, which are here divided into four basic groups: air, air-ground, ground surface, and amphibious. Under each group are discussed the weather elements primarily relevant to the operations in that group. However, weather elements which are considered most applicable to one basic group may also affect operations in others. In such cases, reference should be made to the appropriate Subsection. The meteorological information contained herein is organized to highlight conditions that may be pertinent factors in planning. Discussion of the effects of weather on specific operations is not attempted since the weather factor in an operation is subject to change with the changing requirements of the operation itself.

1. Air operations

a. **CLOUDINESS** — The mean cloudiness throughout the NIS 10 Area is comparatively great, with maximum cloudiness being recorded in winter or autumn except over the Arctic Islands. Averages generally lie between 60% and 80% over the Southeast Coast, Southwest Coast, and Arctic Interior in autumn and winter (FIGURE 23-30); they are

NOTE Air operations are defined as those operations taking place primarily above the frictional influence of the surface terrain on atmospheric circulation. The meteorological elements discussed in this Subsection are those which are of primary importance to such operations as high-level visual bombing, radar bombing, aerial photography, most types of aerial reconnaissance, and fighter support and interception.

Arctic Islands where they are recorded in winter or spring. Cloud cover over most of the Area is between 55% and 75% during the period of minimum cloudiness; it is 45% to 75% in the Southern Interior, which is probably the least cloudy throughout the year. At Jan Mayen and Bear Island the average is mostly 80% to 90% throughout the year, with little seasonal variation.

Norway experiences a wide variety of cloud types with altostratus, stratocumulus, and stratus predominating. Cumuliform clouds, especially towering cumulus, are uncommon and generally limited to the Southern Interior during the summer. The scarcity of cumulonimbus is indicated by the fact that thunderstorms are rare in Norway. Stratocumulus clouds are the predominant type along the coasts and in the Arctic Islands Region. These clouds form in the westerly airflow as it moves across the warmer ocean to the west of Norway. Above the stratocumulus, there is often a layer of altostratus. Stratocumulus are also frequent over the interior of Norway in summer with altostratus and cirrus clouds above. During the winter, particularly along the coasts, the lower clouds completely dominate the sky, although cirrus are usually present at higher levels. Low stratus clouds form over the open sea with the advection of warm air from the south. The clouds form at the sea surface as the warm air moves over the colder water. This type of cloud, which is a form of sea fog, is generally limited to the summer season. The southerly airflow is generally light and the stratus slowly drifts onto the Norwegian coast and into the Arctic Islands Region. As a rule the stratus does not extend far inland. Low stratus are also frequently observed over the interior in winter.

Compared to more southerly latitudes the diurnal variation in cloud amount in this NIS Area is small. FIGURE 23-31, giving mean cloudiness at specified hours, shows that for the hours given the variation is 10% or less at most stations and 5% or less at many. At a majority of the stations the greatest diurnal variations in mean cloudiness occur in late winter or early spring with a second maximum in late summer or autumn. Diurnal variations also appear to be least in the arctic regions and greatest in the Southeast Coast Region. At Kristiansand in the Southeast Coast Region the average cloudiness in August varies from 69% at 1300 LST to 46% at 0100 LST, a range of 23%. For Norway as a whole, cloudiness appears to be greatest during the morning and early afternoon and least during the night.

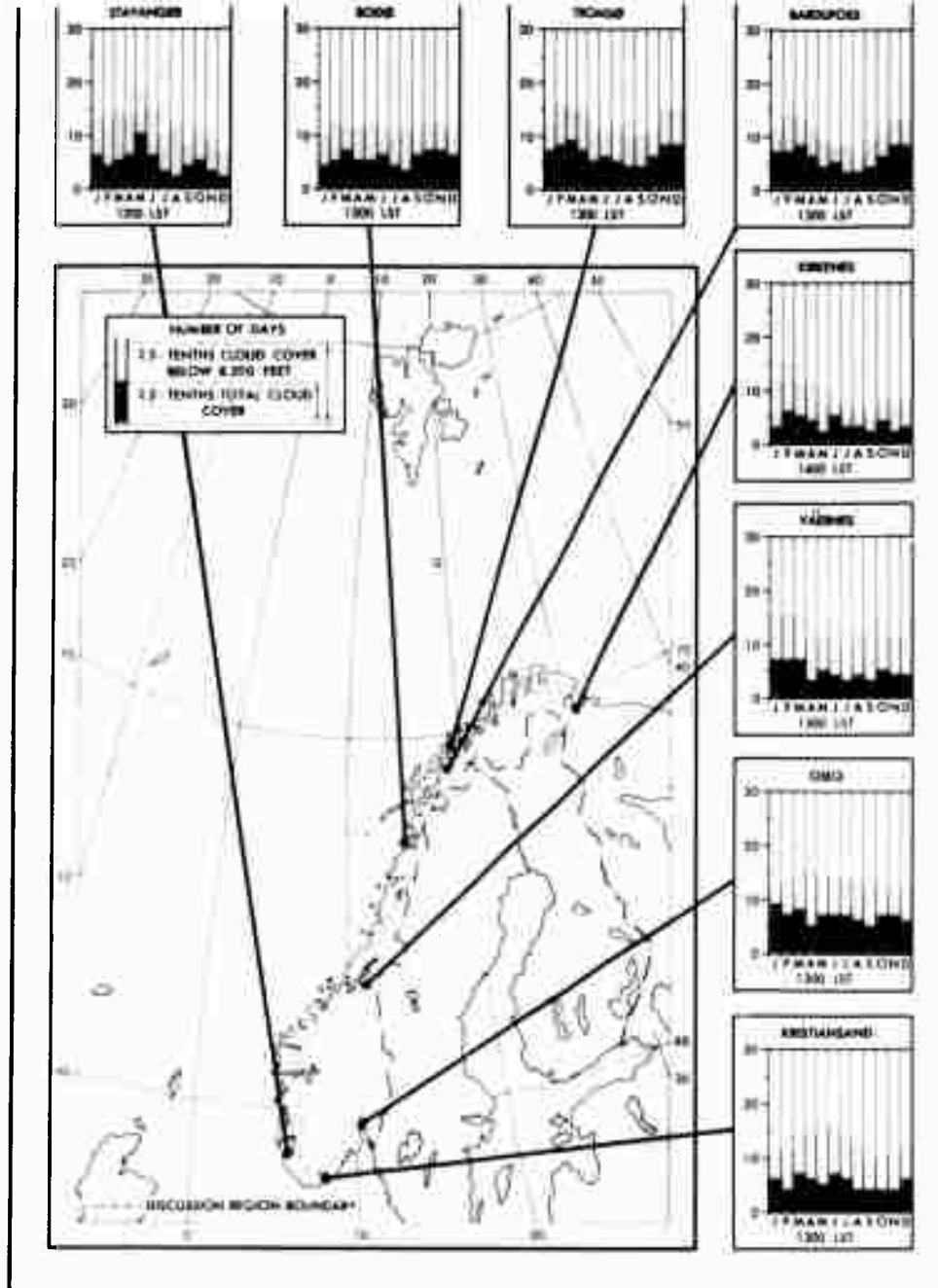


FIGURE 23-4. MEAN NUMBER OF CLEAR DAYS IN EARLY AFTERNOON. (For tabular data see FIGURES 23-32 and 23-34.)

The frequency of clear and cloudy days reveals additional information on the cloud regime over Norway. Although the average cloud cover is relatively great over the Area, there are an appreciable number of clear days, defined as days with 3-tenths or less total cloud cover. Frequencies appear to be highest in the Southeast Coast Region (FIGURE 23-32). The data for Oslo and Kristiansand indicate that clear skies are observed on about one-third of the days at 0100 LST and 1900 LST in most months, while at 0700 LST and 1300 LST clear skies are present on as few as 4 or 5 days in many months. The Arctic Interior Region ap-

pears to have the lowest frequency of clear days. The data for Kirkenes in this region show as few as 2 or 3 clear days per month. Frequencies in the remaining regions lie between these extremes. Over Norway as a whole clear skies are more likely at 0100 LST and 1900 LST than at either 0700 LST or 1300 LST. FIGURE 23-4 shows graphically the overall distribution of clear days in the early afternoon. Cloudy days, defined as days with 7-tenths or more cloud cover, are numerous in Norway as shown by the tabular data in FIGURE 23-33 and by the graphical data in FIGURE 23-5. A comparison of the data in FIGURES 23-32

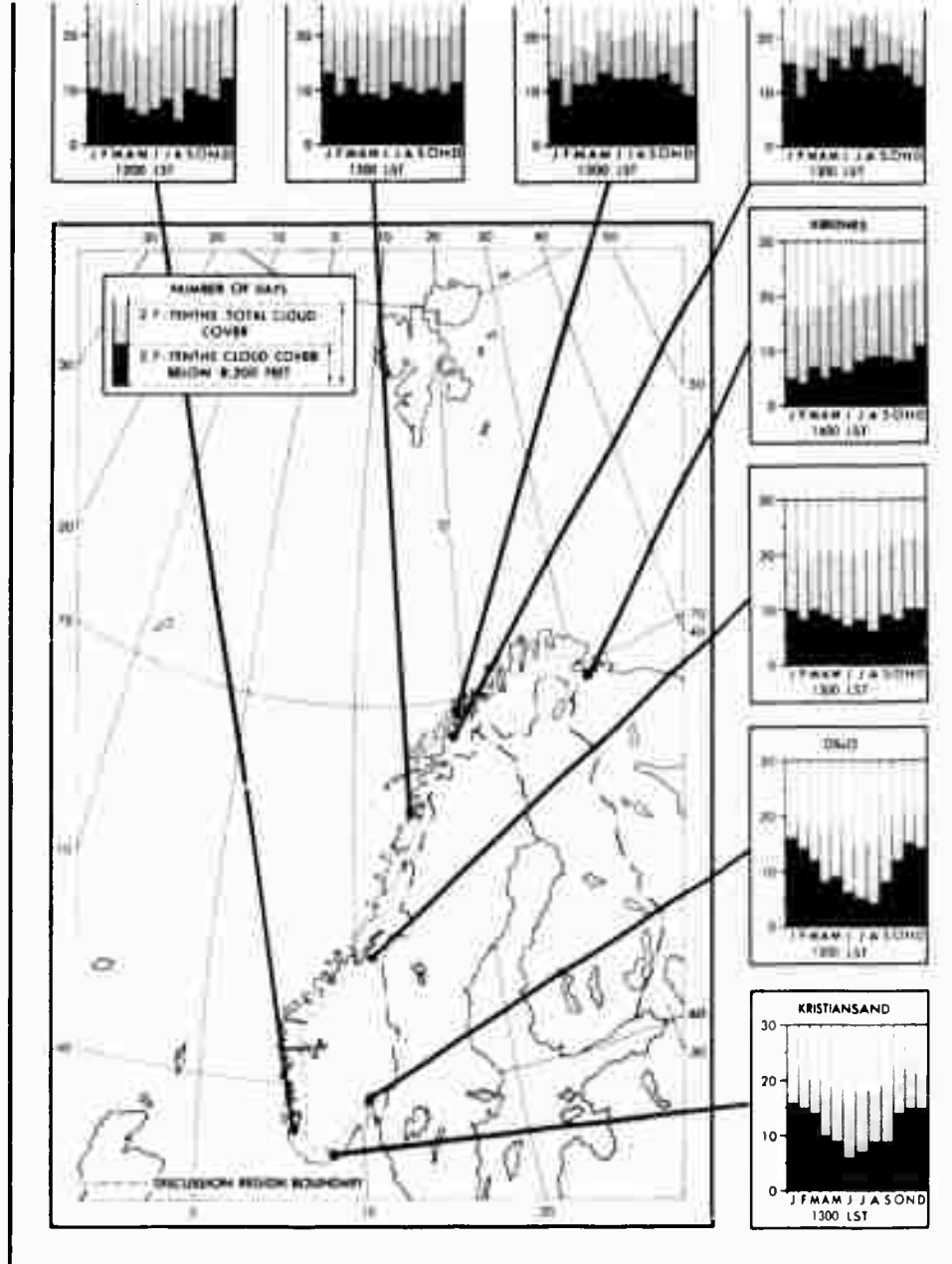


FIGURE 23-5. MEAN NUMBER OF CLOUDY DAYS IN EARLY AFTERNOON. (For tabular data see FIGURES 23-33 and 23-35.)

and 23-33 indicates that most days are either clear or cloudy with relatively few partly cloudy days. Cloudiness equal to or greater than 7-tenths is observed on 200 days or more at most stations at all 4 observation times.

b. THUNDERSTORMS AND TURBULENCE — Thunderstorms are uncommon in Norway. At most places in the arctic regions there are less than 4 days per year on which thunderstorms occur (FIGURE 23-6). Frequencies are somewhat higher in the south. At Sokndal on the southernmost coast there are 18 thunderstorm days annually, and at

Oslo at the head of Oslofjord there are 11; the remaining stations have 8 or less. Most of the thunderstorm activity occurs in May through September. However, at a number of places with relatively few thunderstorm days annually the thunderstorms are fairly evenly distributed throughout the year. Those which occur in winter along the southern portion of the west coast are associated, in all likelihood, with the passage of a cold front from the east. The turbulence connected with thunderstorm activity in Norway is quite severe, especially that which occurs along the coasts in winter. The vertical extent, however,



FIGURE 23-6. MEAN ANNUAL NUMBER OF DAYS WITH THUNDERSTORMS

is probably less than that experienced in more southerly latitudes.

Although thunderstorm turbulence is relatively rare, turbulence associated with migratory low-pressure centers in the North Atlantic is quite common. These *lows* reach their maximum intensity and frequency during the winter. They often bring very turbulent air conditions to the west coast and to the slopes facing the Atlantic. The height to which the turbulence extends is greatest when extremely cold Arctic air advances toward Norway from the north or northwest. At such time it may extend up to the tropopause level near 30,000 feet.

The interior experiences appreciably less turbulent-air conditions than the coasts. The Arctic Interior has comparatively little turbulence throughout the year. Low-pressure centers occasionally pass through the Southern Interior, and turbulent conditions generally accompany the attendant cold front.

c. UPPER-AIR WINDS — Mean upper-air charts indicate that westerly winds are prevalent over most of Norway and the Arctic Islands during all seasons up to at least 50,000 feet. The predominance of westerly winds is also borne out by the upper-air wind rose diagrams. However, the wind roses show an appreciable variability in the pre-

The variability in wind direction is produced by the frequent passage of well-developed low-pressure centers through the Area. The centers of these *lows*, as they appear on the surface pressure chart, can often be followed on the upper-air charts up to the tropopause level. Pressure gradients are tightest and wind speeds are greatest in these *lows* during the winter. An examination of the wind rose charts shows that speeds above 30 knots are not uncommon and that they are normally associated with the prevailing direction.

The upper-air wind rose diagram for Oslo (FIGURE 23-7) is based on a fairly large number of observations and is believed to be representative of southern Norway. The data show that westerly winds are prevalent at practically all levels and in all seasons. Northerly winds are also present, especially in autumn, winter, and spring. Winds from the east although uncommon are occasionally observed, mostly at lower levels during summer, autumn, and winter. Southerly winds, when they occur, appear to be most frequent in the lower levels. The wind rose diagram for Stavanger (FIGURE 23-8), also in southern Norway, shows general characteristics the same as those of Oslo. However, it is based on fewer observations and except in the lower levels shows a greater amount of variation. The wind rose diagrams for Bodø and Tromsø (FIGURES 23-9 and 23-10) shows that southerly winds are much more frequent over northern portions of Norway; in fact, their frequency, especially at lower levels, sometimes exceeds that of the west wind. The data for Tromsø, based on a fairly large number of observations, shows a relatively high frequency of southerly winds at the 4,500- and 9,400-foot levels.

The data for Bear Island in the Arctic (FIGURE 23-11) indicate that here, too, westerly winds predominate at most levels throughout the year. Winds from the south and east are uncommon except at levels below 20,000 feet. The most significant departure appears below 10,000 feet in winter where easterly winds are quite frequent. The data for Murchisonfjorden in Spitsbergen (FIGURE 23-12) show the greatest departures from a westerly wind pattern. The most significant is that which appears in autumn when winds from the south and southeast are unusually frequent below 10,000 feet. Northerly winds predominate above about 30,000 feet. Jan Mayen (FIGURE 23-13), situated close to the mean North Atlantic storm path, has a markedly variable upper-air wind pattern. The maximum variability occurs in spring and summer. Westerly winds reach their maximum persistence above 5,000 feet in autumn and winter.

temperatures near or below freezing and is often severe within regions of rain or snow. These conditions are occasionally present over the NIS Area. Frequencies are highest during the winter along the coasts of Norway and in the Arctic Islands Region. The icing hazard is less pronounced in summer, with lowest frequencies over the interior of Norway.

The amount of icing encountered in a cloud depends primarily upon its temperature. The maximum likelihood occurs at or slightly below the freezing point. At -10° C. the clouds are normally composed of ice crystals and the icing hazard is less severe. At -20° C. the moisture content of the air is too low for all but very light rime icing.

FIGURE 23-14 suggests that generally from late October through mid-April freezing temperatures occur at the ground surface at Oslo. On Spitsbergen this period is somewhat longer, extending from late September through early May. During midsummer the average height of the freezing level is close to 8,000 feet over Oslo and 3,000 feet over Spitsbergen. These figures indicate that during all seasons temperature conditions are favorable for icing at fairly low levels over the entire Area. FIGURE 23-14 also shows that the mean height of the tropopause is close to 33,000 feet at Oslo and 30,000 feet in remaining sections of Norway.

The heaviest icing is most likely to occur when deep low-pressure centers invade the Area. These *lows* are attended by congested masses of stratocumulus, cumulus, and stratus clouds. Conditions are usually favorable for icing in these clouds which consist of supercooled water droplets at temperatures below freezing. A flight through or near these storms is therefore almost certain to encounter icing unless conducted at a height where the temperature is -20° C. or less. At lower levels, particularly along the westward-facing slopes of Norway, icing is likely to be severe.

The frequency of intensity of these *lows* is greatest in winter and least in summer. It is difficult to estimate the number of *lows* which affect the Area in a given month. An examination of the daily weather charts indicates that at any given time a *low* is either approaching close to or receding from the Area. The periods of clear weather between *lows* are generally short. An exception to this rule occurs in winter when clear cold air from the continent invades Norway and produces fair weather over the interior.

OSLO

ELEVATION
(FEET)

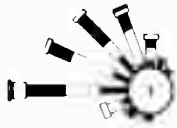
DEC-JAN-FEB

MAR-APR-MAY

JUN-JUL-AUG

SEP-OCT-NOV

53,000



172



159



152



148

38,000



271



261



248



223

30,000



321



328



329

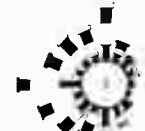


258

18,000



392



403



393



328

9,600



440



465



465



379

4,600



430



496



370



386

WIND SPEED SCALE

CALM 1-9 10-19 20-29 30-49 50-74 75-75 KNOTS
<1NUMBER OF OBSERVATIONS INDICATED
BELOW EACH ROSE

PERCENTAGE FREQUENCY SCALE

10 0 10 20 30 40 50

FIGURE 23-7. UPPER-AIR WIND ROSES, OSLO

STAVANGER

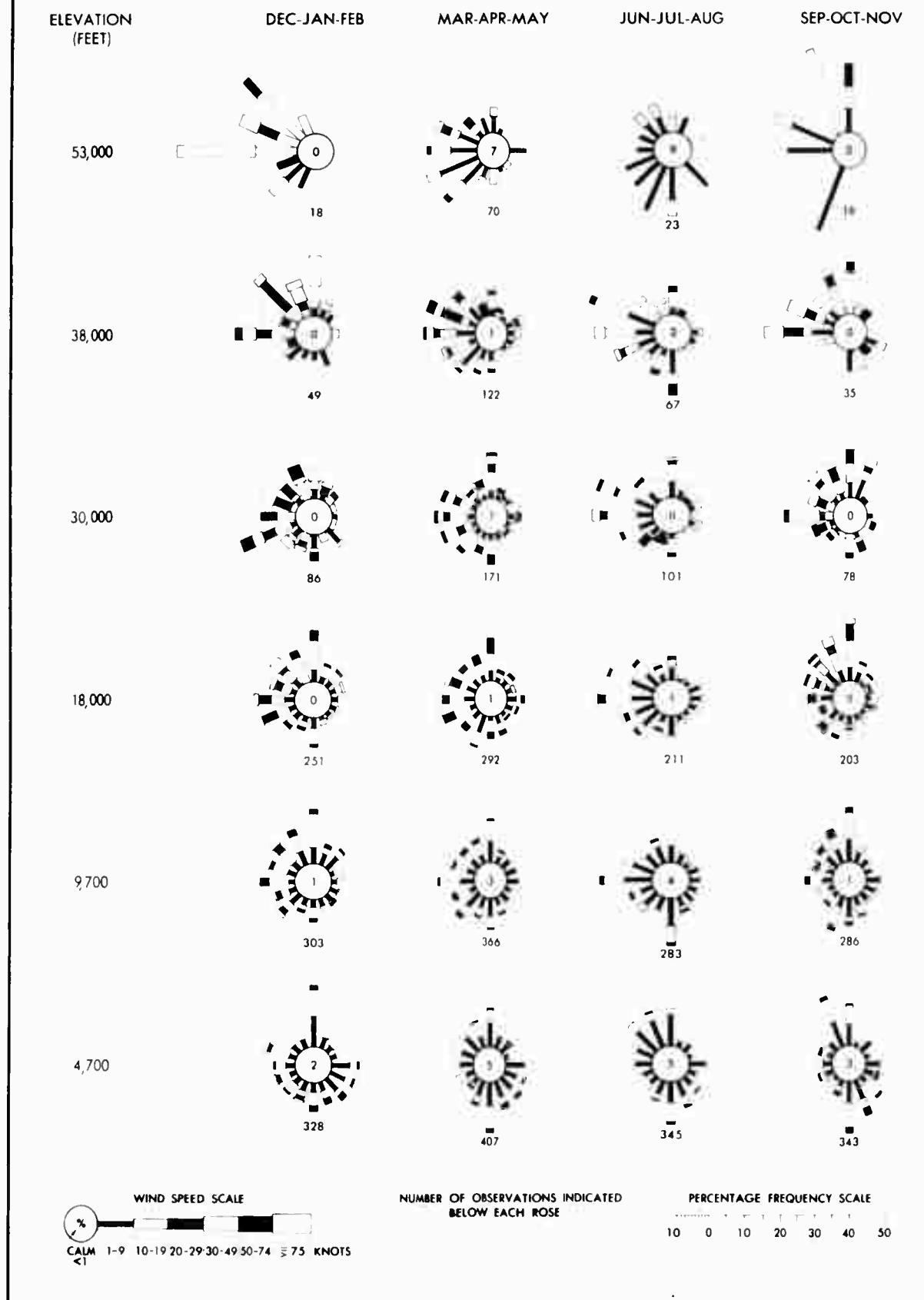


FIGURE 23-8. UPPER-AIR WIND ROSES, STAVANGER

CONFIDENTIAL

UPPER-AIR WIND ROSES

BODØ

ELEVATION
(FEET)

DEC-JAN-FEB

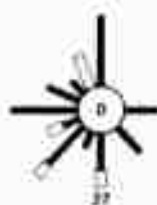
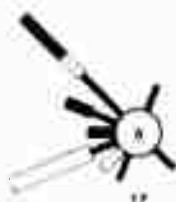
MAR-APR-MAY

JUN-JUL-AUG

SEP-OCT-NOV

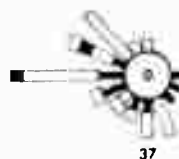
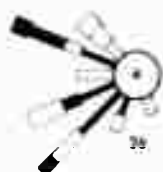
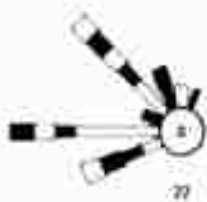
52,000

DATA NOT AVAILABLE



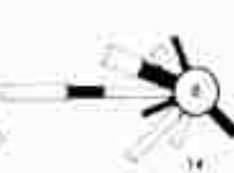
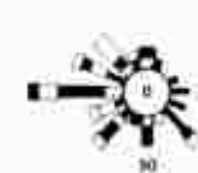
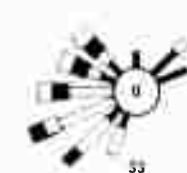
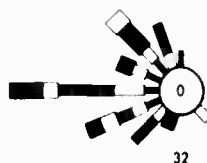
DATA NOT AVAILABLE

37,000

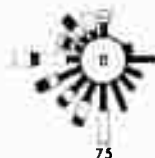
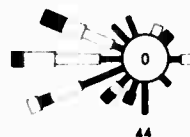
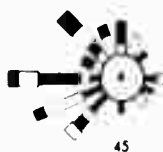


DATA NOT AVAILABLE

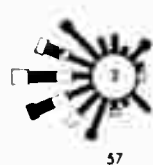
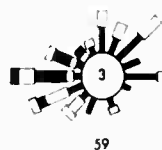
29,000



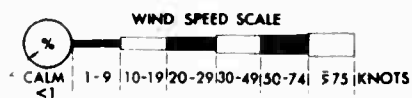
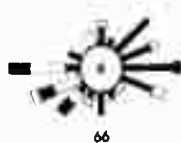
18,000



9,500



4,500



NUMBER OF OBSERVATIONS INDICATED
BELOW EACH ROSE

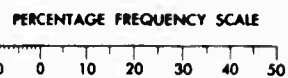
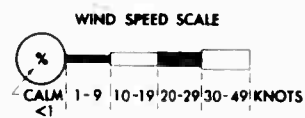
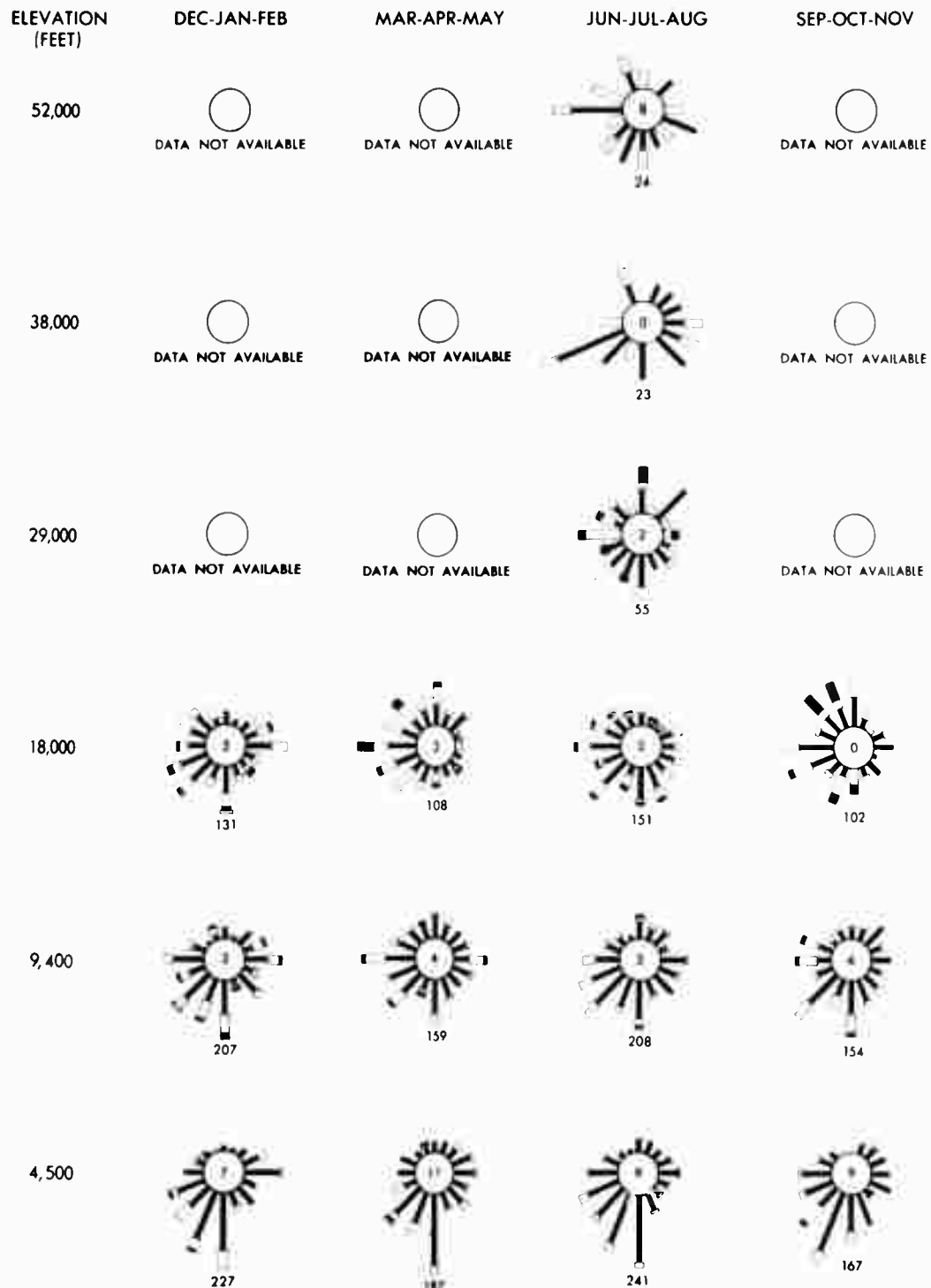


FIGURE 23-9. UPPER-AIR WIND ROSES, BODØ

UPPER-AIR WIND ROSES

TROMSØ



NUMBER OF OBSERVATIONS INDICATED
BELOW EACH ROSE

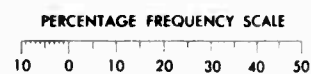


FIGURE 23-10. UPPER-AIR WIND ROSES, TROMSØ

UPPER-AIR WIND ROSES

BEAR ISLAND

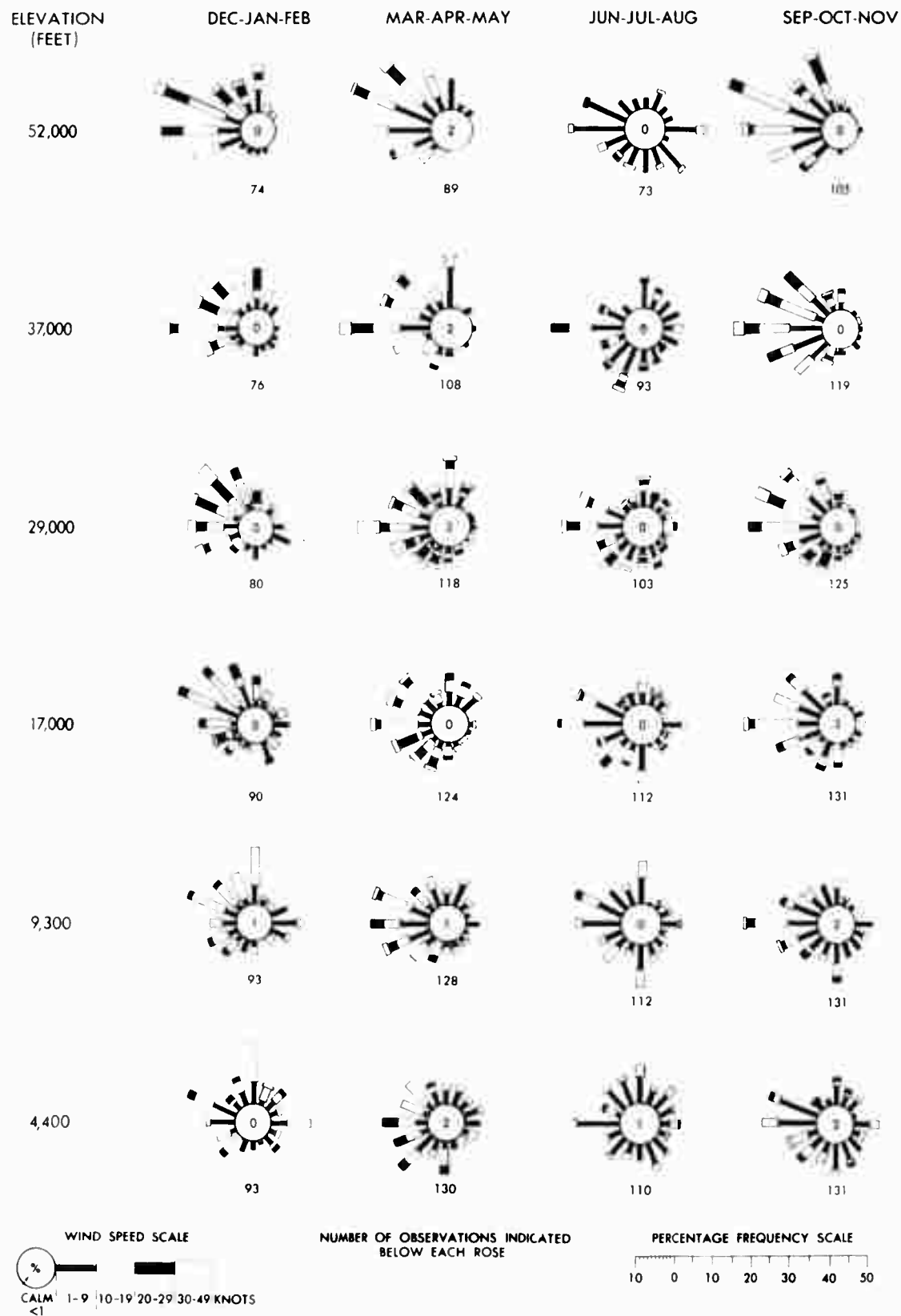
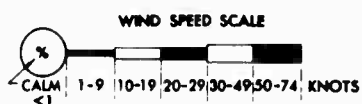
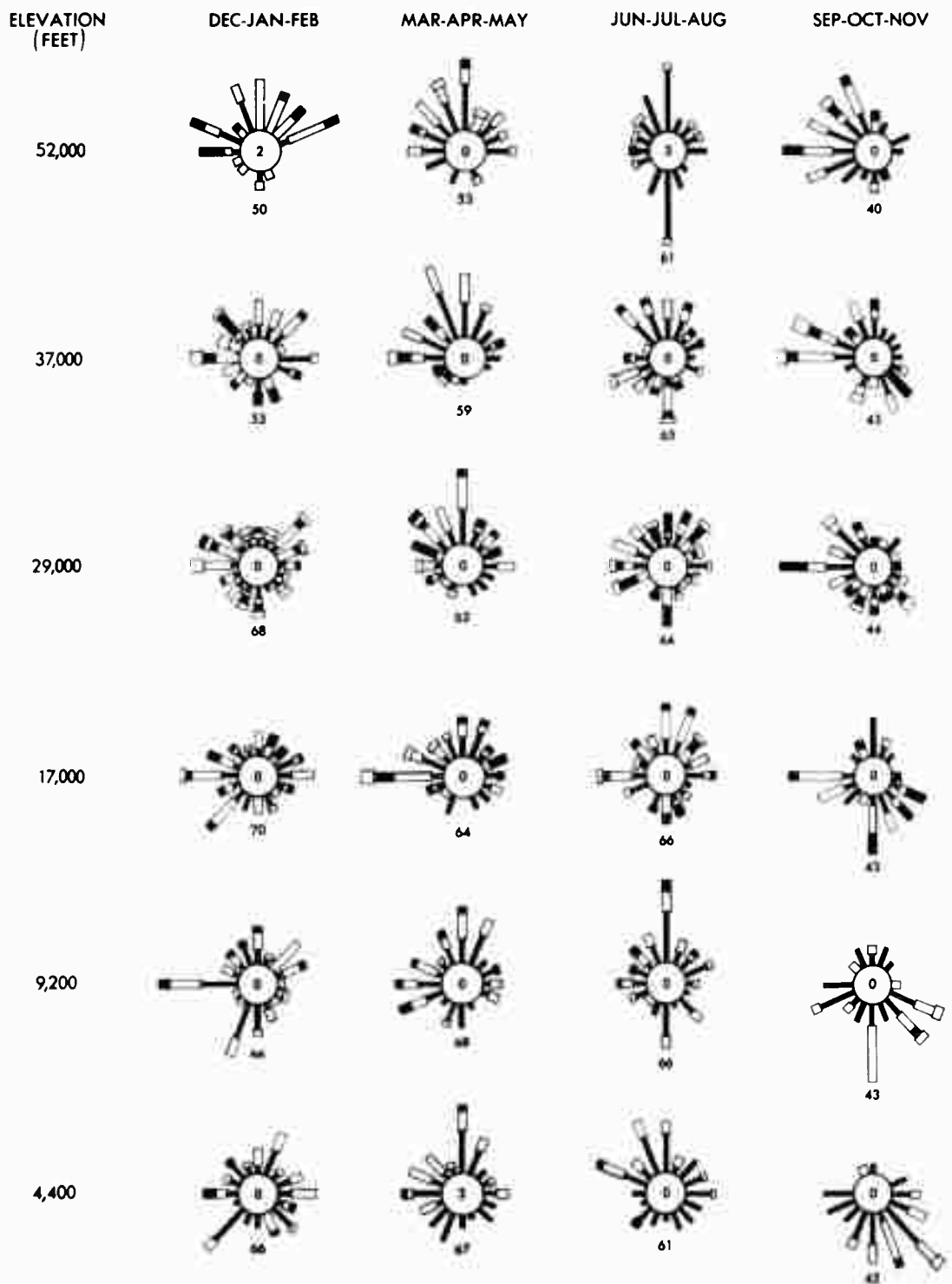


FIGURE 23-11. UPPER-AIR WIND ROSES, BEAR ISLAND

UPPER-AIR WIND ROSES

MURCHISONFJORDEN



NUMBER OF OBSERVATIONS INDICATED
BELOW EACH ROSE

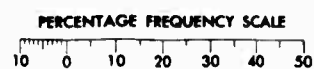
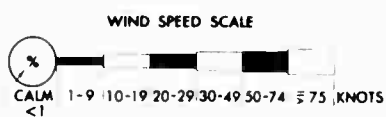
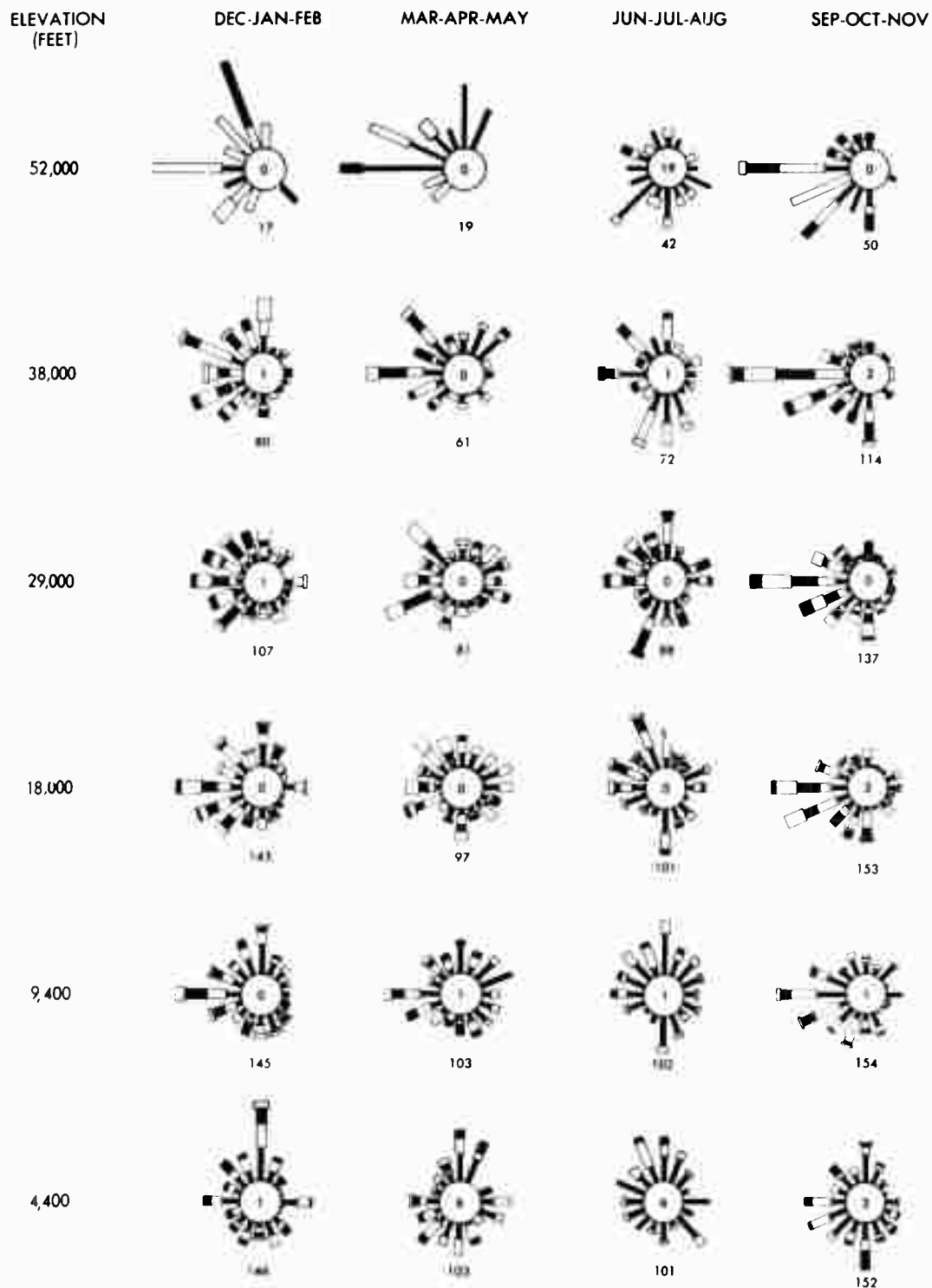


FIGURE 23-12. UPPER-AIR WIND ROSES, MURCHISONFJORDEN

UPPER-AIR WIND ROSES

JAN MAYEN



NUMBER OF OBSERVATIONS INDICATED
BELOW EACH ROSE

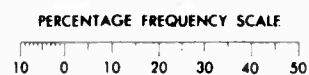


FIGURE 23-13. UPPER-AIR WIND ROSES, JAN MAYEN

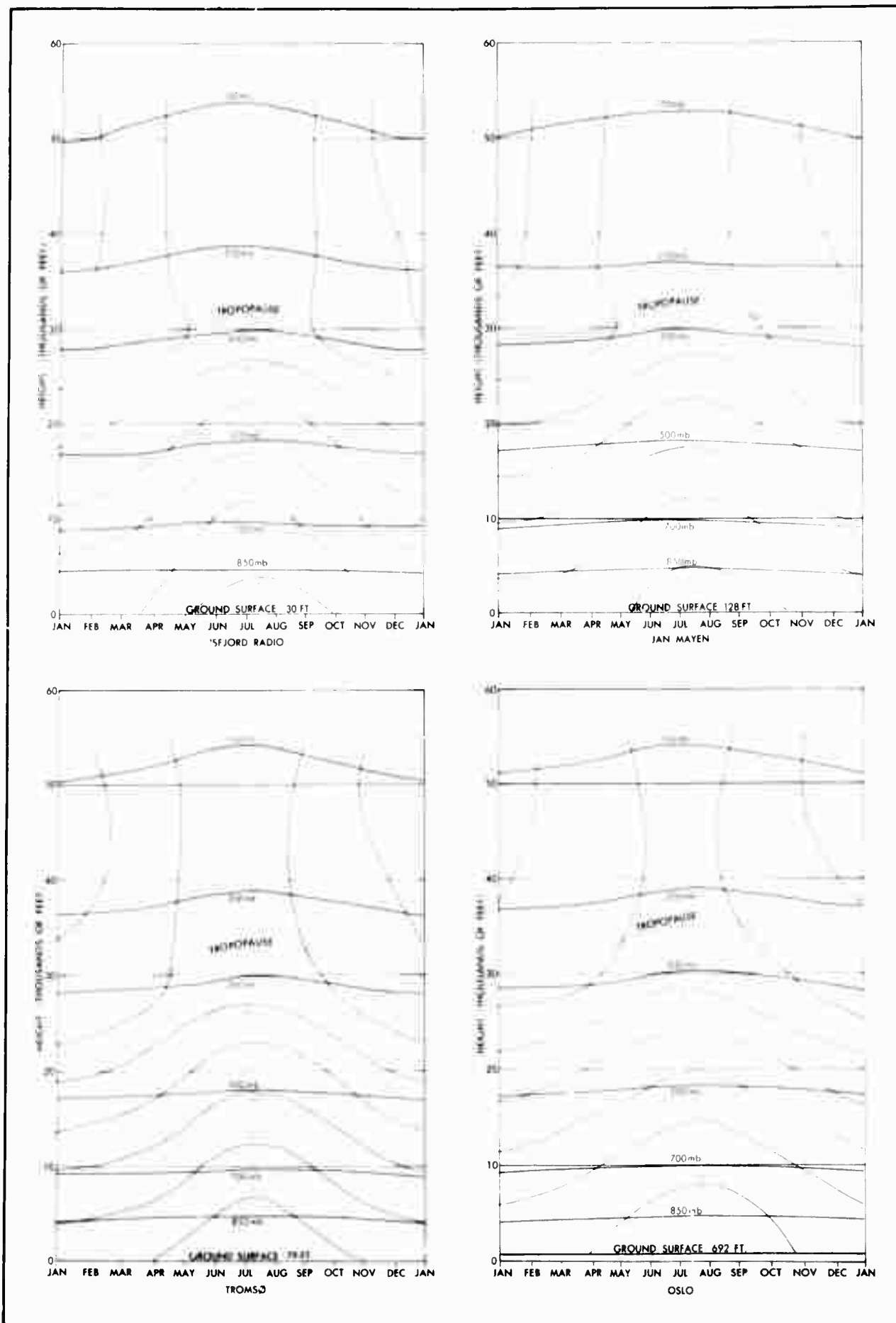


FIGURE 23-14. MEAN MONTHLY UPPER-AIR TEMPERATURES AND PRESSURES AT SELECTED STATIONS

a. **LOW CLOUDINESS AND CEILINGS** — Low clouds within the friction layer are among the chief obstacles to air-ground operations in Norway. Their frequency is highest along the westward-facing mountain slopes where they often reach the ground surface and obscure the peaks. Low clouds are also present along the west coast, where their frequency varies with exposure and elevation. Sections exposed to the west wind at elevations above 1,000 feet are more likely to experience low clouds than sheltered sections near sea level.

FIGURE 23-5 along with the tabular data in FIGURES 23-34 and 23-35 gives some indication of the seasonal and areal distribution of ceilings below 8,200 feet. The data suggest that a pronounced seasonal variation exists in the Southeast Coast and Southern Interior Regions with maximum frequencies in winter and minimum frequencies in summer. At Oslo ceilings below 8,200 feet are observed about one-half the time from October through March, and on many occasions the ceiling drops to less than 1,000 feet (FIGURE 23-36). During summer ceilings below 8,200 feet are uncommon and those below 1,000 feet are rare at Oslo. Seasonal variations in the Arctic Interior are not as clearly defined. The data for Kirkenes in the interior show that ceilings below 8,200 feet reach a minimum frequency in late winter and spring when they occur on 4 to 8 days per month. During the remaining seasons they occur on as many as 13 days per month. Ceilings below 1,000 feet are quite rare at Kirkenes and most likely to occur in summer.

In the Arctic Coast Region ceilings less than 8,200 feet reach their lowest frequencies in February when they occur on about one-third of the days. During the remaining months frequencies are somewhat higher, as much as one-half of the days in many cases. No data are available for the Arctic Islands Region although there are indications that low clouds reach a maximum frequency in summer when conditions are favorable for sea fog and low stratus clouds.

NOTE Air-ground operations are defined as those operations taking place in, or primarily influenced by, the meteorological conditions existing within the friction layer above the earth's surface. The meteorological elements discussed in this Subsection are those which are of primary importance to such operations as parachute drops, chemical and biological warfare, tactical support, low-level reconnaissance, and air rescue. The success or failure of many of these operations may also depend to a large degree upon the behavior of elements above the friction layer or near the surface. A detailed discussion of such elements may be found in Subsections B, 1 and B, 3.

mally associated with the diurnal variations in the amount of heat received from the sun. During the winter there is very little diurnal variation in temperature or low cloudiness. During the summer, with increased insolation from the sun, diurnal variations in temperature and low cloudiness again become apparent. At most stations low cloudiness reaches a minimum in the afternoon and evening. The data for Oslo are more or less typical. Here the annual number of days with ceiling below 8,200 feet is close to 150 at 0100 LST and 0700 LST and 120 days at 1300 LST and 1900 LST.

b. **VISIBILITY** — Four types of fog are observed in this NIS Area, each normally associated with a particular region and time of year. The first of these occurs along the windward- or westward-facing mountains and ridges and is in fact low cloudiness which reaches the ground. It is quite frequent throughout the year, reaching a maximum during the winter. The graphical presentation in FIGURE 23-15 shows that at 1400 LST visibilities less than $2\frac{1}{2}$ miles are present on 228 days annually at Fanaråken and 184 days at Gausta. Fanaråken lies at 6,972 feet, at a point where the highest ridge is relatively close to the Atlantic. Gausta on the other hand lies at 6,001 feet on a ridge which is much farther inland. At Fanaråken the diurnal variation is small (FIGURE 23-37). At Gausta, however, the diurnal variation in the frequency of visibilities less than $1\frac{1}{4}$ miles is quite pronounced, with an annual frequency of 198 days at 0800 LST, 28 at 1400 LST, and 24 at 1900 LST. Data for other mountain stations indicate that this type of fog is present along many of the slopes and ridges across Norway.

The second type of fog is that which occurs during the summer along the coasts of Norway and over the Arctic Islands Region. It appears whenever warmer air from the south drifts northward across the increasingly cooler sea surface toward the Area. The graphical presentation in FIGURE 23-16, supported by tabular data in FIGURE 23-38, shows the frequency of this type of fog at Bear Island. It occurs on 82 days annually, with a maximum frequency of 19 days in July. The frequency is also relatively high, 58 days annually, at Jan Mayen. Along the west coast of Norway it is much less frequent, generally less than 20 days per year except in the south where both winter and summer fog are present. The summer coastal fogs tend to thin out during the day. The coastal fogs of winter are normally associated with the frontal zones attending migratory low-pressure centers. No data are available on the diurnal variation of these winter fogs.

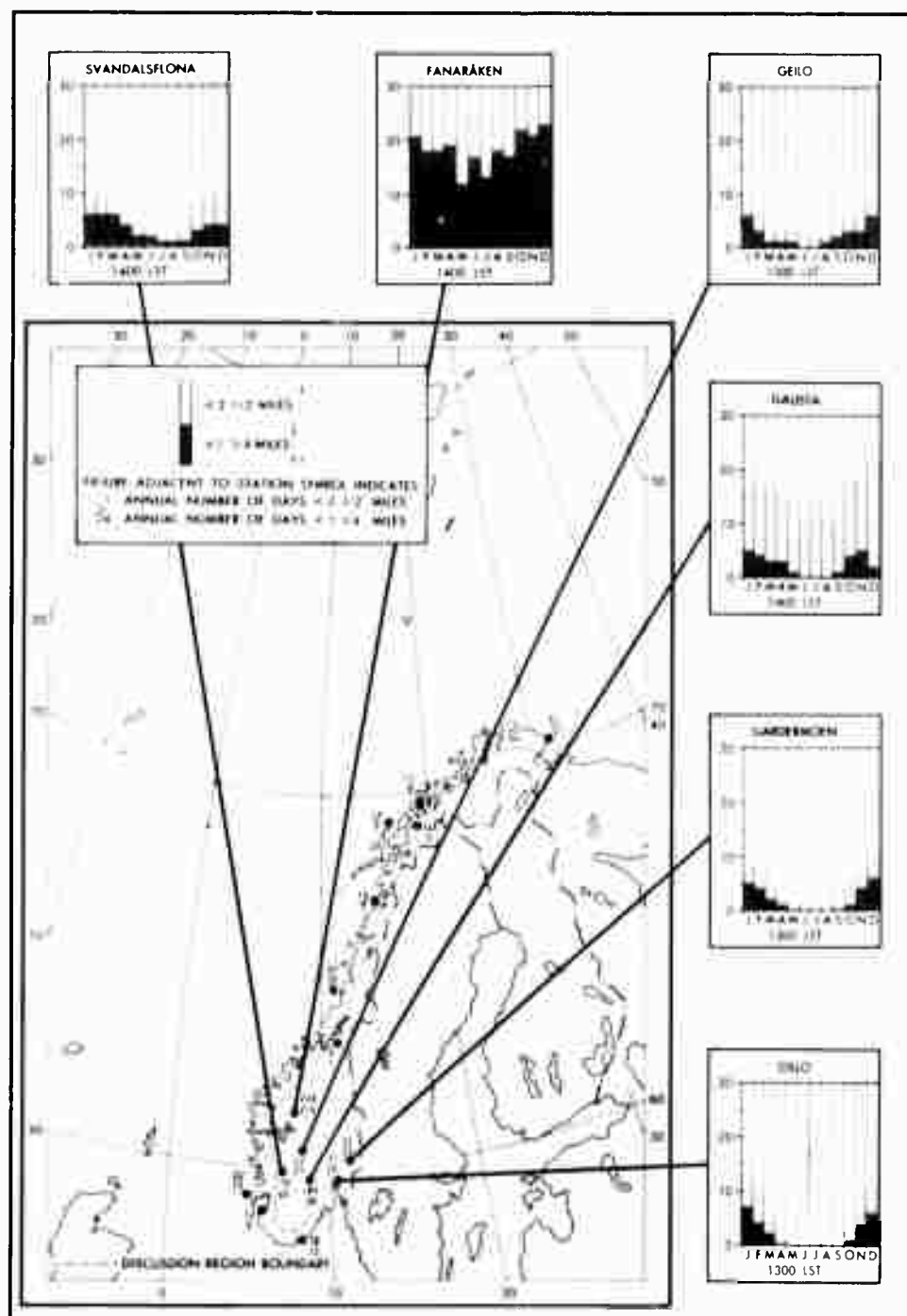


FIGURE 23-15. MEAN NUMBER OF DAYS WITH SPECIFIED VISIBILITIES IN EARLY AFTERNOON

The third type of fog is associated with the southern interior and is principally a winter phenomenon. It frequently occurs after the passage of a low pressure system when moist oceanic air reaches the interior from the south or southwest. The moist air is cooled by radiation and by contact with the colder ground, producing a low fog similar to that which occurs over the coastal sections in summer. This type of fog has only a small diurnal variation in that reduction during the short daytime period is relatively minor. Its dispersal usually coincides with the arrival of drier air from

the west or north, when foehn effects tend to dissipate the fog.

The fourth type of fog, which is also characteristic of the interior, occurs near the frontal zones of low-pressure centers and the attendant precipitation regions. This type of fog is generally not as persistent as that produced by radiation and cooling. In most cases the frontal fog is dispersed by the same mechanism which disperses the radiation fog, namely downslope winds from the north or west. In those instances where winds from the south follow its formation, the frontal

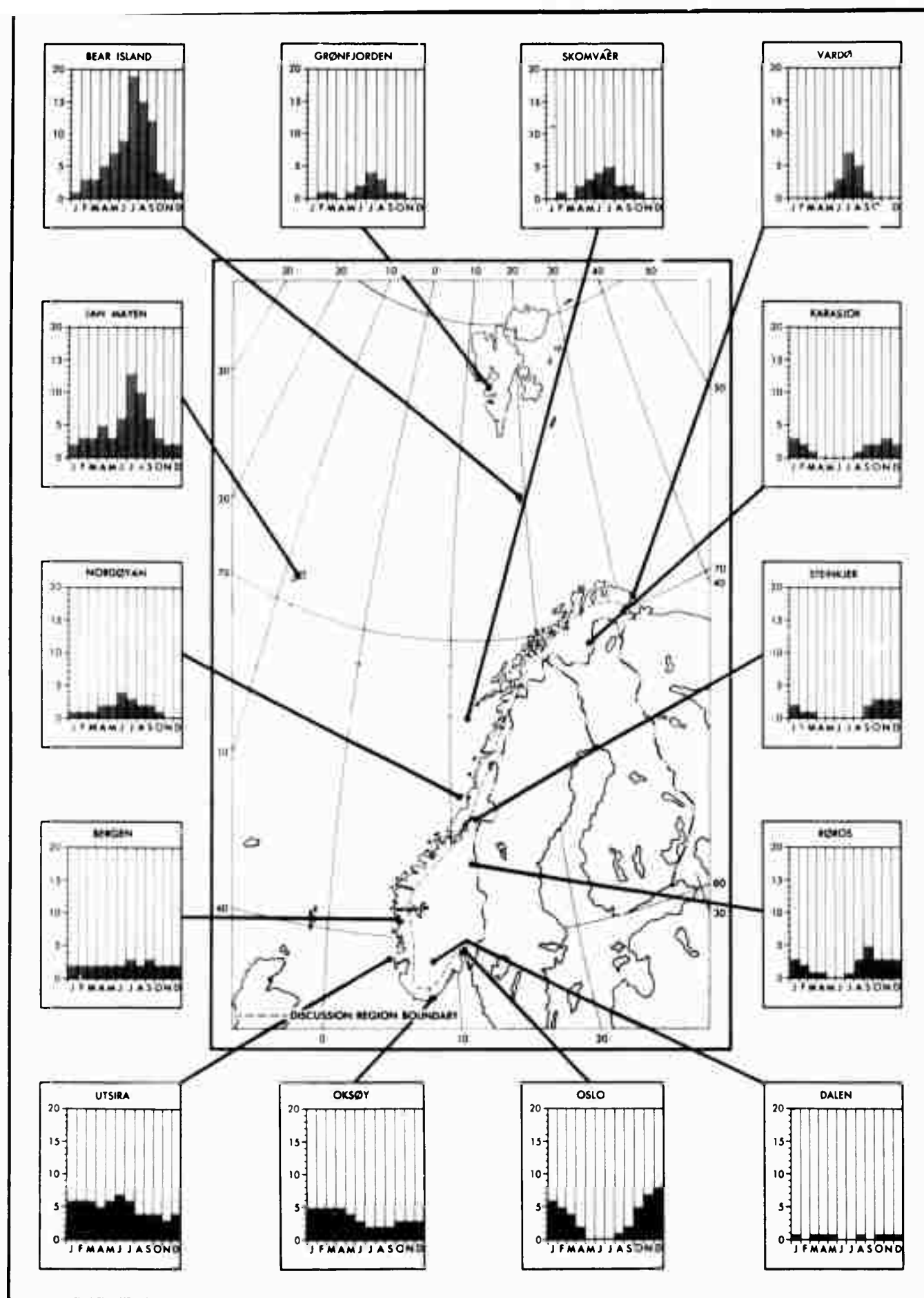


FIGURE 23-16. MEAN NUMBER OF DAYS WITH FOG. (For tabular data see FIGURE 23-38.)

fog may continue as a dense radiational type of fog. The data given in FIGURE 23-38 show that fog is recorded at Oslo on 40 days annually with the highest monthly frequency, 8 days, in December. The data given in FIGURE 23-37 show that visibilities below 2½ miles are most likely to occur in December and January and that the diurnal variations are not pronounced.

Rain, snow, and blowing snow also restrict the visibility at times. Although the frequency of rainy and snowy days is high, the data given in FIGURE 23-15 suggest that these limiting factors do not as a rule reduce the visibility below 1¼ miles. Haze and smoke are also limiting factors in populated valley areas during the winter.

c. COMBINED CEILING AND VISIBILITY — The most favorable conditions for air-ground operations occur when both ceiling height and visibility are above selected limits. Most air-ground operations including landing and take-off can be accomplished with ceiling 1,000 feet or more and visibility 2½ miles or more. FIGURE 23-39 shows that this condition is frequently present at all stations. During the summer in Norway there are relatively few days which do not have at least 1,000-foot ceilings and 2½-mile visibilities. Data are not available for the Arctic Islands Region; however, the relatively high frequency of summer fog suggests that in this region the frequency of favorable conditions falls below that of Norway. The data also show that winter is generally the least desirable season. Even during this season favorable combinations are present more than 50% of the time at all stations listed in FIGURE 23-39.

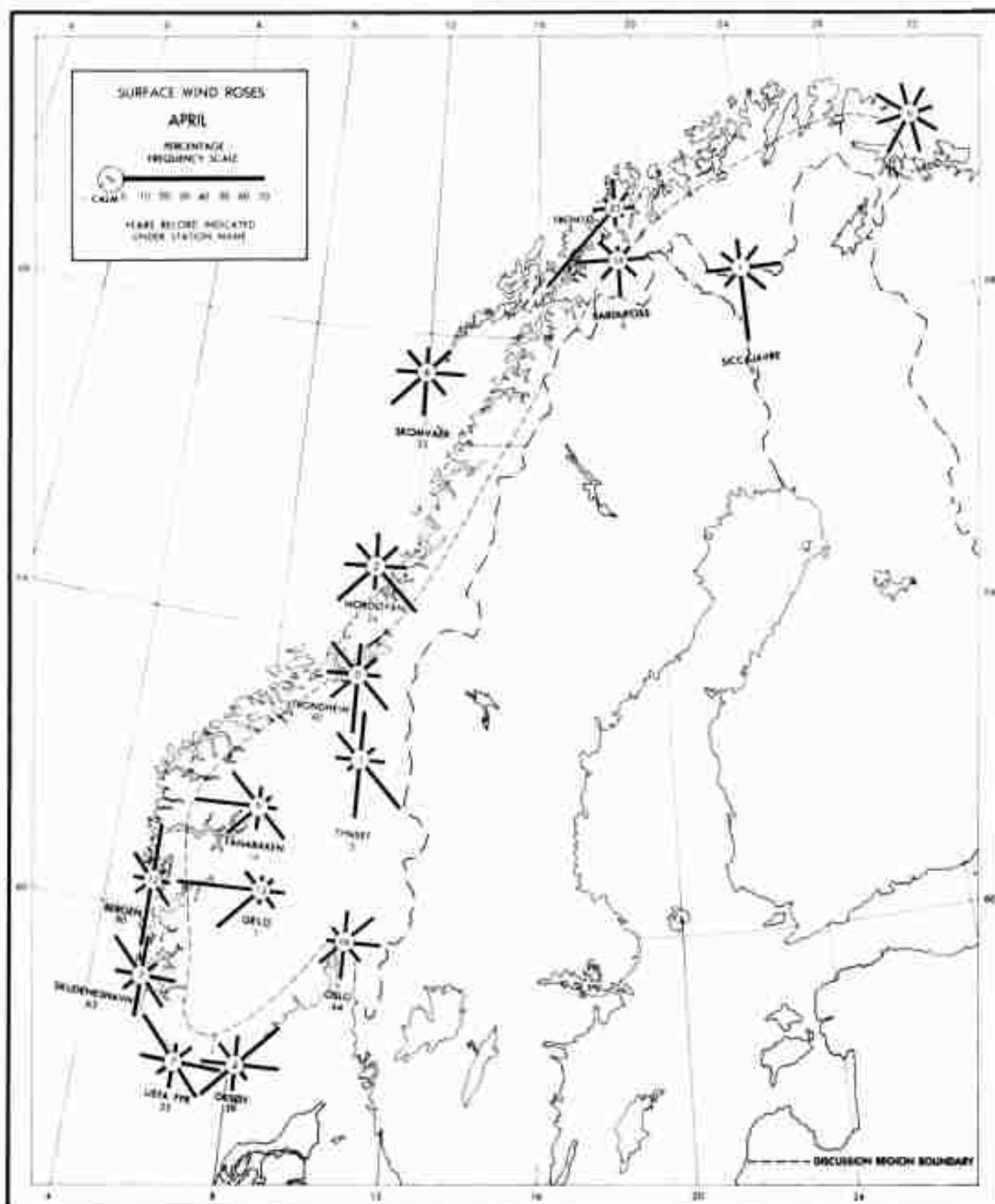
No data are available for the exposed mountain stations where in all likelihood both ceiling and visibility frequently fall below the required limits. At sheltered mountain stations the favorable combination is believed to be present on a majority of the days; however, rugged terrain may make many sheltered locations unusable for air-ground operations.

d. SURFACE WINDS — Air-ground operations are subject to a wide variety of wind conditions over Norway. Along the coasts and over the Arctic Islands Region winds are frequently strong in winter. Strong winds also blow across the mountain ridges and through the passes. For example, wind speeds of 41 knots or more occur on 72 days annually at the exposed mountain station of Fannaråken (FIGURE 23-40). Along the coast a number of stations experience over 30 and a few over 40 days annually. In contrast the interior is comparatively quiet. Many stations have 3 days or less per year with wind speeds of 41 knots or more, and calm wind conditions are frequently recorded.

Surface wind directions are greatly influenced by topography. In spite of these local effects definite seasonal trends in wind direction can be identified. During the winter (FIGURES 23-1 and 23-17) a small-scale anticyclonic circulation can be detected over southern Norway. The flow across the eastern portion is from the north. Over the western portion, including most of the west coast, the winds are from the southwest. The wind pattern in spring (FIGURE 23-18) is in many respects similar to that of winter. During the summer (FIGURES 23-2 and 23-19) a weak *low* appears over southern Norway, and the winds are then from the north along the coast and from the south over the eastern interior. The general patterns of summer and winter are masked by local topographic effects in many localities, since the winds tend to be channeled through the valleys, mountain passes, and fiords. These summer and winter patterns are also frequently interrupted by the passage of low-pressure centers along the coast or across Norway. The data presented in FIGURE 23-20 suggest that in autumn the purely local characteristics of the wind successfully mask any overall pattern which may be present.

e. STABILITY AND LOW-LEVEL TEMPERATURE INVERSIONS — The stability of the lower atmosphere is frequently of major concern during air-ground operations. As a rule quiet-air conditions are desirable during operations involving chemical and biological agents. Such conditions are frequently present over the interior during the winter. Low-level temperature inversions usually accompany the calm-wind conditions. At such times a shallow layer of cold air resting on the ground is overlain by a warmer layer which acts as a lid preventing smoke, fog, and any other aerosols from escaping into the upper atmosphere. Inversions of this nature may be present during all seasons over the interior. Their strength, persistency, and frequency are greatest during the winter when in the absence of daytime warming they may persist for several days at a time. They are broken up by the approach of a low-pressure center from the Atlantic and the attendant winds.

This type of stability is also present at times over the North Atlantic during the summer when the coastal areas of Norway and the Arctic Islands Region are affected. The summer inversion is caused by the northward drift of warmer air across the North Atlantic. At such times the lowest layer is cooled by the ocean while the upper layer remains warm. This type of inversion is limited to the immediate coast and does not as a rule extend more than a mile or two inland.



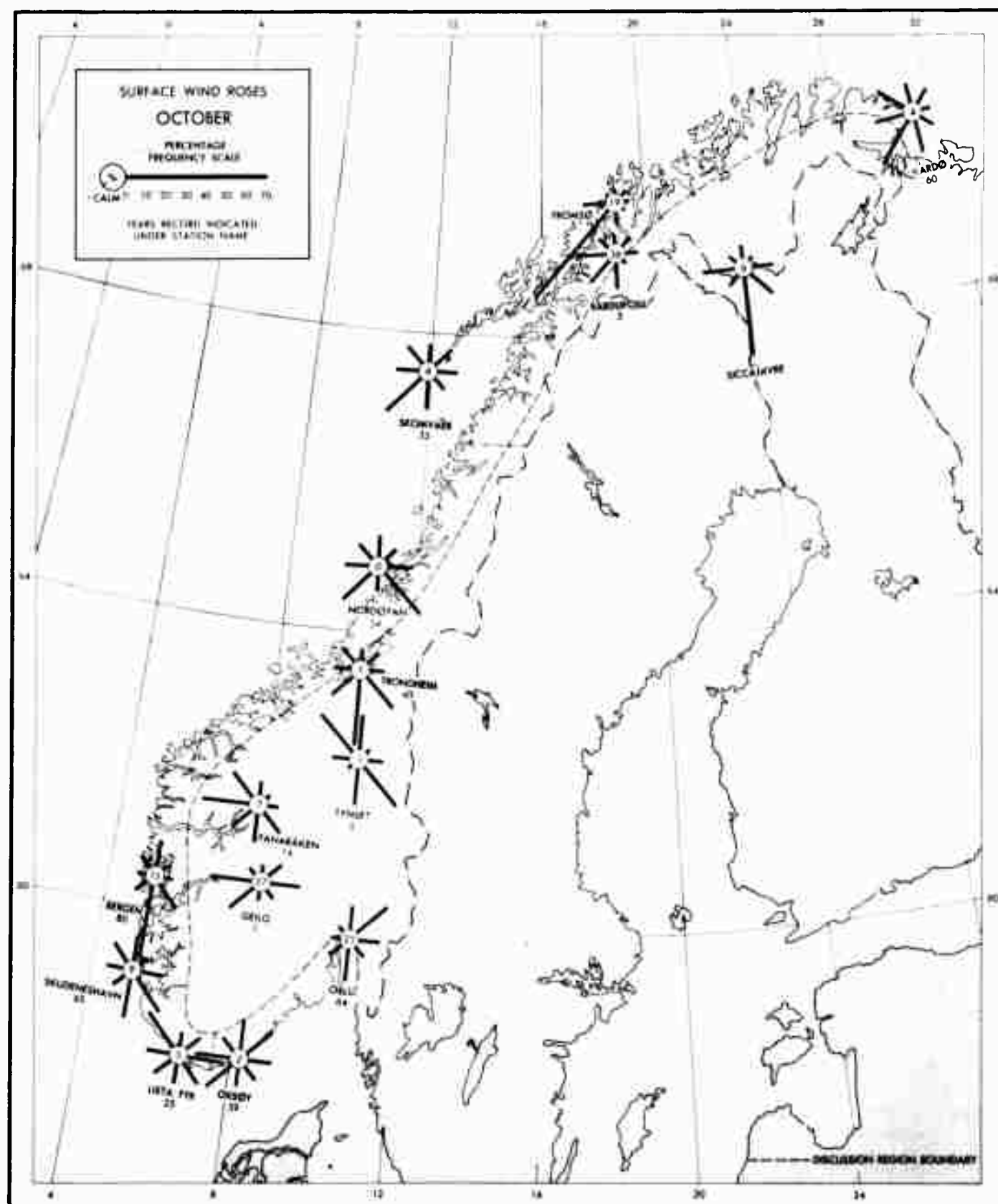


FIGURE 23-20. SURFACE WIND ROSES, OCTOBER

3. Ground surface operations

Weather conditions in Norway are frequently unfavorable for outdoor activity. During the winter there are protracted periods of cold windy weather accompanied by rain or snow along the coasts. Over the interior it is extremely cold at times, particularly in the arctic regions. Then too, the ground is snow covered most of the time in winter. The snow cover along with the extreme cold, generally rough terrain, and the shortness or absence of daylight make cross-country movement difficult or impossible except along the established road systems.

Conditions are much more favorable for ground surface operations during the summer, especially in the interior where the air is comfortably cool much of the time. Along the coast and over the Arctic Islands Region cloudy skies with occasional showers alternate with periods of fair weather. In contrast to the darkness of winter, summer is a season of prolonged daylight.

a. TEMPERATURE — The most unusual feature of the temperature regime in Norway occurs in winter when westerly winds carry the warmth of the North Atlantic to northern Europe. Coastal sections in particular are unusually warm for their latitudes. A second feature also associated with winter is the wide point-to-point variation in temperature. Thus, in winter, while temperatures in the Southwest Coast Region generally remain close to freezing, the Southern Interior may be severely cold. Points along the deeply indented coast also show a wide variation in temperature, depending on their degree of exposure to the warm Atlantic winds. During summer the Southeastern Lowlands are pleasantly warm at times and the coasts generally cool, while temperatures in the Arctic Interior occasionally approach the freezing point.

These features are brought out graphically in FIGURE 23-21 and by tabular data in FIGURES 23-41 and 23-42. The data show that the warmest summer temperatures are experienced in southeastern Norway where the mean maximum temperature is close to 70° F. in July at many low-lying stations. A number of sheltered points on the southern part of the west coast have equally high

NOTE Ground surface operations are defined as those operations taking place primarily at or very near the earth's surface. The meteorological elements discussed in this Subsection are those which are of primary importance to such operations as movement of troops and vehicles, selection of clothing and equipment, storage of supplies, and maintenance of armament and equipment. Some meteorological elements which may also have an effect upon this type of operation are discussed in Subsections B, 1 and B, 2.

averages. Lowest temperatures in summer are experienced in the Arctic Islands Region where the mean daily maximum is close to 45° F. in July and August.

The variation in temperature across the Area in winter is even more striking than in summer. At coastal stations south of the Arctic Circle the mean daily maximum and sometimes even the mean daily minimum at exposed locations remain above freezing all winter. At coastal stations north of the circle the mean daily minimum everywhere falls below freezing. The mean daily maximum, however, at a number of exposed locations remains close to or only slightly below freezing. In contrast the interior of Norway is extremely cold in winter. Coldest temperatures are experienced in the Arctic Interior where the mean daily minimum temperature falls below 0° F. at many places in January, February, and March. Over the lowlands in the southeast the mean daily minimums range from about 10° F. to 20° F. in winter. Spitsbergen in the Arctic Islands Region experiences winter temperatures which are as low as those of the Arctic Interior Region of Norway. Bear Island and Jan Mayen, however, are not as cold, with averages about equal to those found at exposed stations in the Arctic Coast Region.

Diurnal ranges in temperature are not excessive in Norway. In general, maximum ranges are recorded over the interior lowlands in spring or early summer when the average daily range between maximum and minimum temperature may reach 18 to 20 Fahrenheit degrees. In unprotected coastal areas and in the highlands as well as over the Arctic Islands Region the range is mostly 8 to 12 degrees in summer. The diurnal variation in temperature is normally in phase with the sun, the maximum temperature occurring in late afternoon and the minimum in early morning. During winter, however, the sun has little or no direct effect on the diurnal temperature range; most of the variation is caused by air mass changes associated with migratory low-pressure systems. The average diurnal range in winter is generally below that of summer except in the Arctic Islands Region and in part of the Arctic Interior. In this NIS Area the range in winter varies from a low of about 5 Fahrenheit degrees at a number of coastal stations to over 20 Fahrenheit degrees in the lowlands of the Arctic Interior. Day-to-day variations are greatest during the winter when each passing low-pressure center brings with it a change in air mass. Abrupt decreases in temperature are also associated with katabatic winds along the coasts and fiords. The arrival of the cold air has been known to cause a fall of 20 to 30 Fahrenheit degrees.

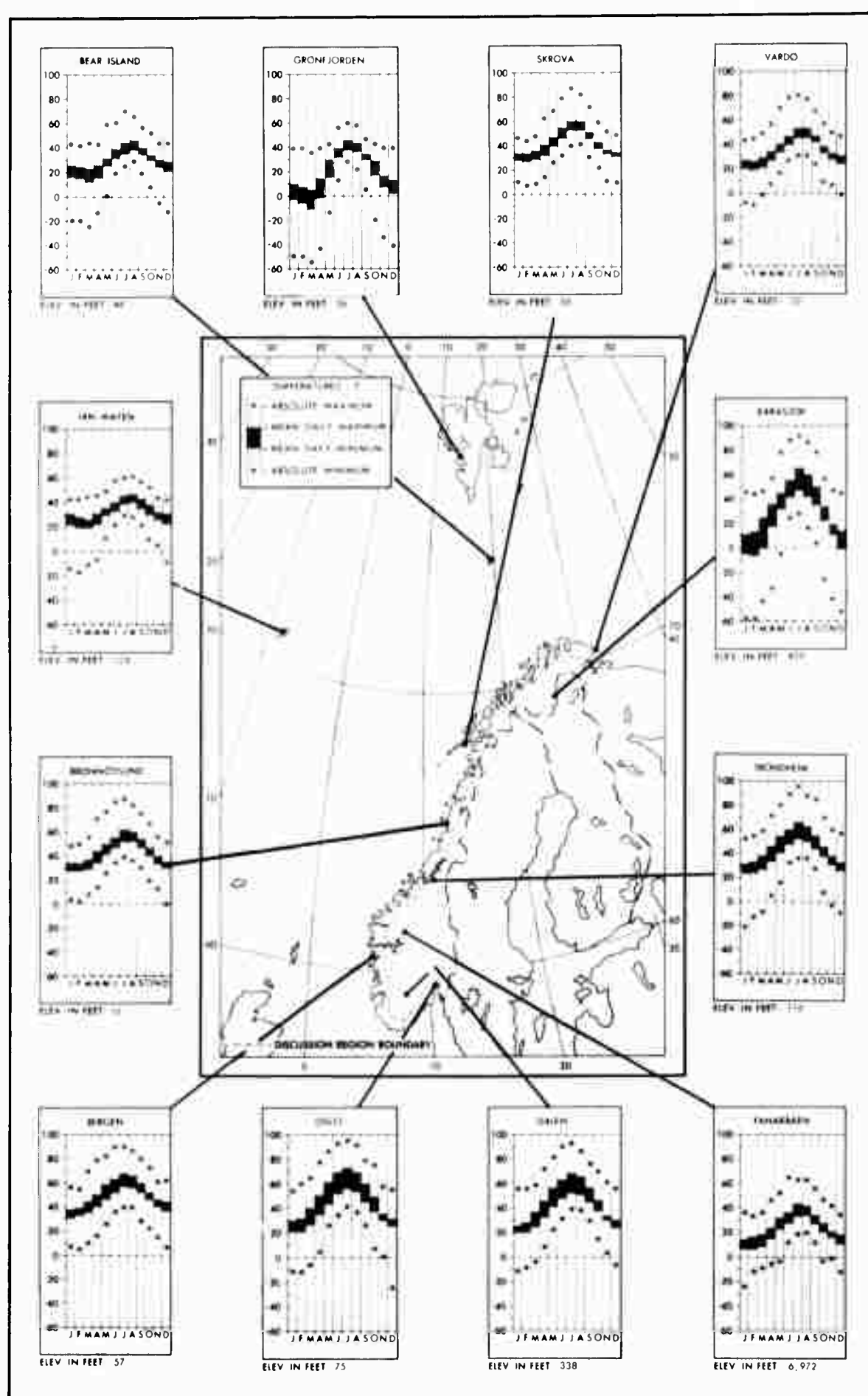


FIGURE 23-21. TEMPERATURES (°F.). (For tabular data see FIGURES 23-41 and 23-42.)

way, although readings above 90° F. have occurred in the lowlands of the interior, including the Arctic Interior. Along the coast temperatures above 80° F. are infrequent, particularly along the Arctic portion of the coast. In the Arctic Islands Region temperatures above 55° F. are rare, although the record shows 60° F. on Spitsbergen and Jan Mayen and as high as 71° F. on Bear Island.

Extremely low temperatures, on the other hand, are not uncommon in Norway. In the Southern Interior temperatures below -30° F. have been recorded. In the Arctic Interior readings occasionally reach -40° F. and temperatures below -50° F. have been recorded. Equally low temperatures occur on the larger islands of Spitsbergen, while on Jan Mayen and Bear Island they occasionally fall below -10° F., with recorded extremes below -20° F. in several months on Bear Island.

The data presented in FIGURES 23-43 and 23-44 are also valuable in assessing temperature conditions in Norway. They show the frequency of days with maximum and minimum temperatures below freezing. The data show that the frequency of days with the minimum less than 32° F. is lowest along the southern portion of the west coast, averaging about 50 days annually at exposed stations. Frequencies generally increase northward, reaching 150 to 200 days along Arctic portions of the coast. Highest frequencies of minimums below 32° F. occur in the Arctic Interior, where they occur on 200 to 250 days annually. In the Southern Interior frequencies vary from slightly over 200 days at many places in the highlands to roughly 100 days at the heads of fjords projecting into the interior. Frequencies in the Arctic Islands Region probably compare with the Arctic Coast and Interior Regions.

The data given in FIGURE 23-44 show the average number of days with the maximum temperature below freezing. Lowest frequencies occur along exposed southern portions of the west coast where there are about 10 days annually in this category. Frequencies increase northward along the coast where they occur on about 50 to 100 days. In the Arctic Interior the number generally exceeds 100 days. Over the Southern Interior there are between 40 and 100 days in the lowlands and probably between 100 and 150 days at elevations above about 2,000 feet.

D. RELATIVE HUMIDITY — Norway is well exposed to moisture-laden winds from the North Atlantic and relative humidities are therefore quite high along the coast, over the exposed slopes, and in the Arctic Islands Region. Averages in these areas are close to 80% throughout the year. Only a small seasonal variation can be detected in the

there is a slight rise. This increase is associated with the northward drift of warm air across the cooler ocean and is reflected in the frequency of fog. The relative humidity is quite high over the interior in winter with averages close to 80%. With the advent of spring and an increase in sunshine, the relative humidity decreases 10% to 30% over the interior. The minimum is generally reached in May over southern parts of Norway and a month or two later over northern parts.

Diurnal variations, as shown by the data in FIGURES 23-22 and 23-45, are relatively small except over the interior during late spring or summer. In the Arctic Islands the diurnal variation is generally less than 5% in all seasons. Largest diurnal variations occur over the Southern Interior Region in late spring or summer, amounting to as much as 25% at some locations.

C. PRECIPITATION — Moisture-bearing winds from the North Atlantic sweep across Norway with marked regularity. Precipitation is quite heavy along the coasts and on slopes exposed to these winds. The interior lies for the most part in the rain shadow of the central mountain range and precipitation is light. It is also light in the Arctic Islands Region.

During the winter much of the precipitation occurs as snow. Heaviest snows occur along the westward-facing mountain slopes in the south. In the Arctic Interior the total snowfall is relatively light, but as none of this melts, the total accumulation by the end of the season is appreciable. In most areas the first snows are observed in early autumn, the last in early summer, except in the Southwest Coast and Southeast Coast Regions and interior lowlands sections where the season is much shorter.

Three precipitation patterns can be identified over Norway. The first of these is present in the Southwest Coast Region where the average annual amount reaches a high of 80 inches or more at a few locations. In this region of heavy precipitation the maximum occurs in autumn and winter. The second pattern is identified with the Arctic Interior Region where the precipitation is less than 15 inches annually. Here the maximum occurs in late summer or early autumn. A similar pattern is found at a number of places in the Southern Interior. The annual average at most places in the Southern Interior lies in the 15- to 35-inch range, except at stations exposed to the westerly flow in the western part of the region, where the annual average is higher. The third pattern is associated with the Arctic Islands Region where the precipitation is light through-

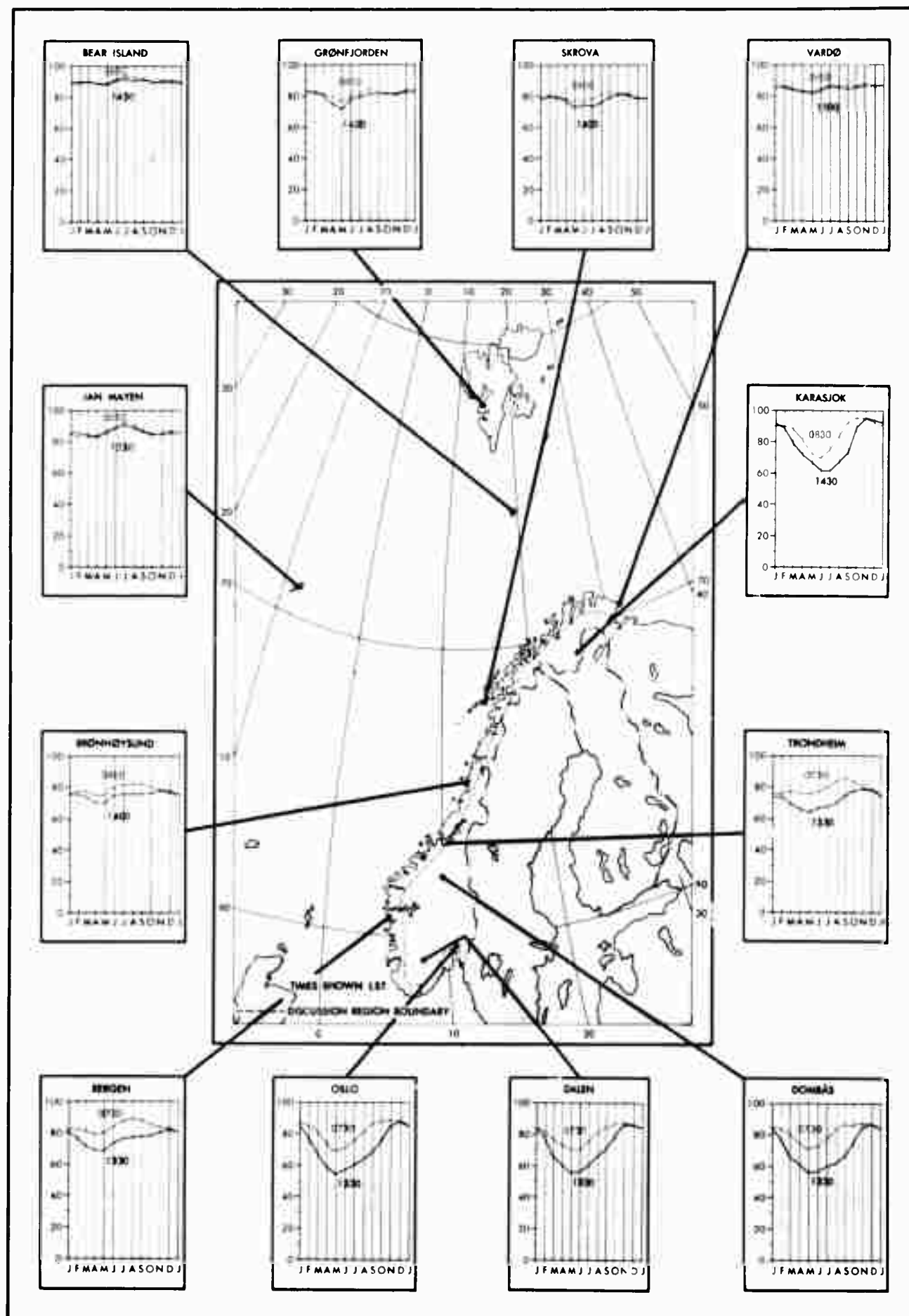


FIGURE 23-22. MEAN RELATIVE HUMIDITY (%). (For tabular data see FIGURE 23-45.)

out the year, less than 15 inches annually at most locations. In this region there is a suggestion of a double maximum similar to that at some locations in the Southern Interior. These principal variations are brought out graphically in FIGURE 23-23 and by the tabular data in FIGURE 23-46.

The regional distribution of precipitation varies appreciably from season to season (FIGURE 23-24). The data for January show average monthly amounts of 8 inches or more along the exposed western coast and slopes of southern Norway while averages over the eastern or lee slopes are generally less than 3 inches. Averages generally range between 2 and 4 inches along the Arctic Coast compared to less than 1 inch in the Arctic Interior. Averages in the Arctic Islands Region are also close to 1 inch. In April, the average monthly precipitation is noticeably below that of January, particularly along the exposed slopes in southern Norway where average amounts lie between 2.5 and 4.5 inches. Over the Southern Interior averages fall below 2 inches. In the Arctic Coast Region, averages generally range between 1.5 and 2.5 inches, as compared to less than 1 inch in the Arctic Interior and the Arctic Islands Regions. Summer is the only season in which precipitation in the interior is for the most part equal to that along the coast. Over southern Norway averages in July are close to 3 inches except at a few exposed places along the coast where they reach 5 inches. Over arctic regions of Norway, July averages are mostly 1.5 to 3.0 inches while in the Arctic Islands Region they are below 1 inch. During autumn, precipitation decreases over the interior and increases along the coast. In southern Norway, October averages to the east of the central ridge are mostly 2 to 4 inches, but along the slopes exposed to the Atlantic they reach 4 to 10 inches. Over northern portions amounts are generally below 1.5 inches in the interior and mostly 2 to 6 inches along the coast. Averages in the Arctic Islands Region are close to 1 inch except at Jan Mayen where they are twice that amount.

Pronounced topographical influences are evident in the precipitation patterns of the NIS 10 Area. The North Atlantic is the principal source of moisture for Europe, and the prevailing westerly winds are the principal carrier of this moisture onto the continent. The mountains of Norway lie across the moisture bearing current, and precipitation is heavy along slopes facing the ocean. This effect is most pronounced in winter when the westerly wind reaches its maximum persistency and strength. That portion of the

Southern Interior to the east of the divide lies in the rain shadow of the mountains and precipitation is comparatively light. Occasionally the prevailing westerlies weaken, and moisture bearing winds reach Norway from the south or southeast. At such times the slopes facing these directions receive heavy precipitation while lee slopes experience a dry period which is generally of short duration.

In addition to topographical influences, Norway experiences large-scale variations in the general weather pattern. Due to these variations the amount of precipitation received in any given month varies appreciably from year to year. In some years the total in one month may be negligible, while in others it may be 2 or even 3 times the average. The total amount received during the course of an individual year, however, rarely exceeds twice the annual average.

Short-period precipitation amounts are occasionally heavy. A comparison of the data given in FIGURE 23-47 with those in FIGURE 23-46 shows that in a given month the maximum 24-hour amount over a period of years at many stations tends to equal or exceed the average monthly amount. This tendency suggests that the 24-hour amounts will be greatest in regions of maximum precipitation. This is borne out by the data in FIGURES 23-25 and 23-47, which show that the greatest 24-hour amounts are most likely to occur in the Southwest Coast Region where they have exceeded 3 inches on numerous occasions. The highest recorded amount, 5.2 inches, occurred at Bergen in November. Lowest 24-hour amounts occur in the Arctic Interior and Arctic Islands Regions where they seldom exceed 2 inches.

Another indication of the frequency of heavy precipitation is given in FIGURE 23-26 which shows the average number of days with specified precipitation amounts. The data show the frequency of days with 4-tenths of an inch or more of precipitation. The highest frequencies of days in this category occur along the Southwest Coast and Arctic Coast Regions, with a seasonal maximum in autumn and winter. The highest annual frequency, 74 days, occurs at Florø. Lowest frequencies are reported in the Arctic and at sheltered points in the Southern Interior, where there are less than 10 days annually with precipitation equal to or greater than 4-tenths inches.

Norway has a relatively high frequency of days with precipitation (FIGURE 23-48). The Southwest Coast and Arctic Coast Regions have the

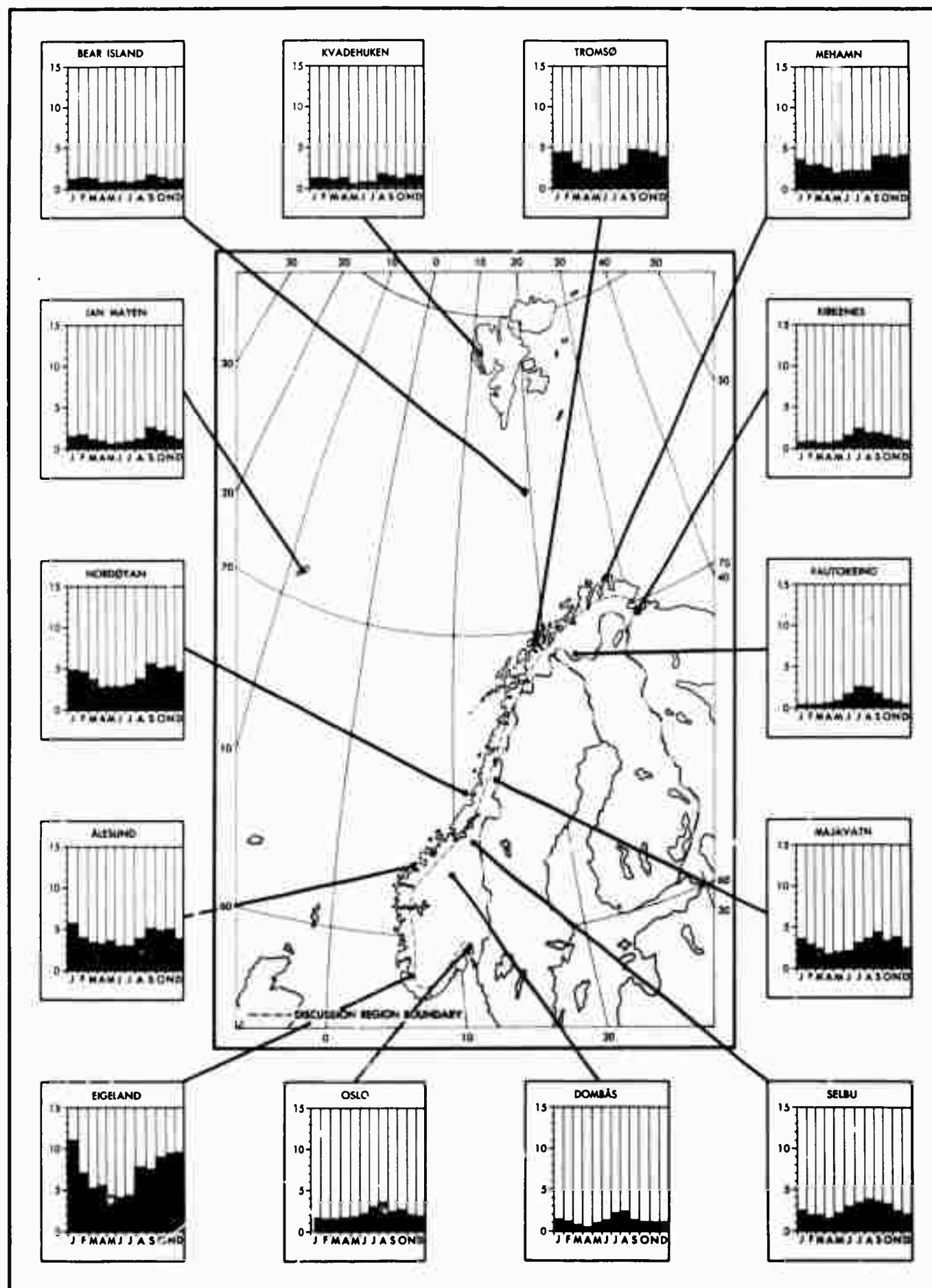


FIGURE 23-23. MEAN PRECIPITATION (INCHES). (For tabular data see FIGURE 23-46.)

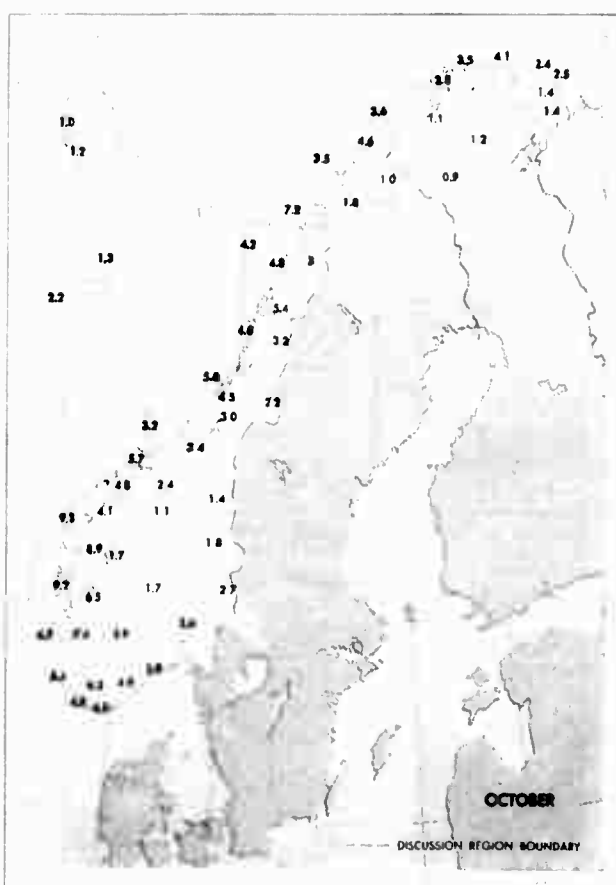
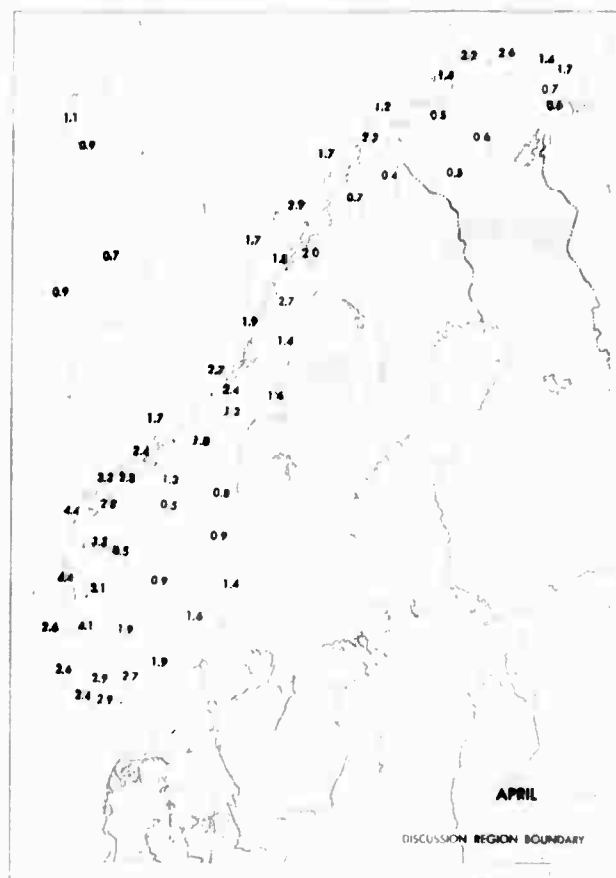
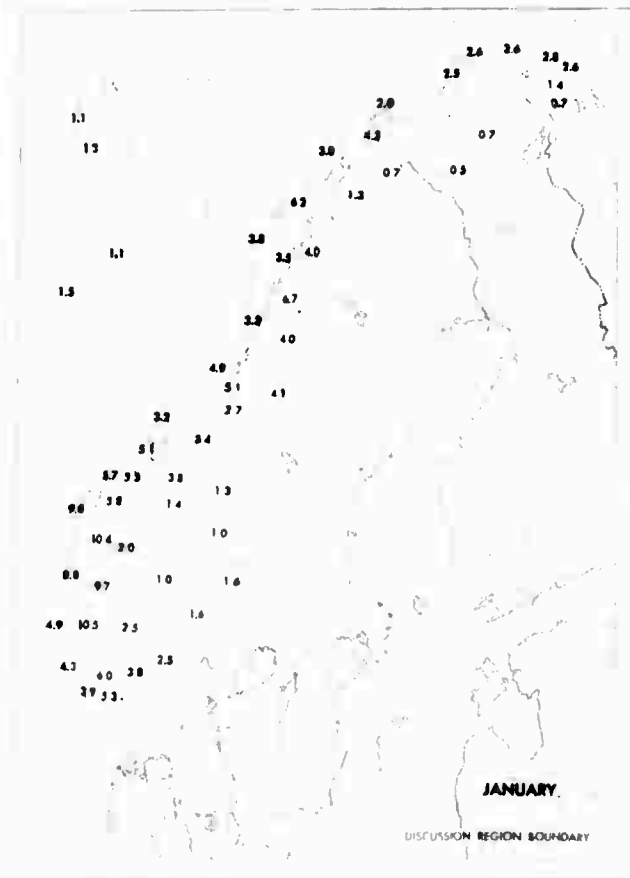


FIGURE 23-24. MEAN MONTHLY PRECIPITATION (INCHES). (For tabular data see FIGURE 23-46.)

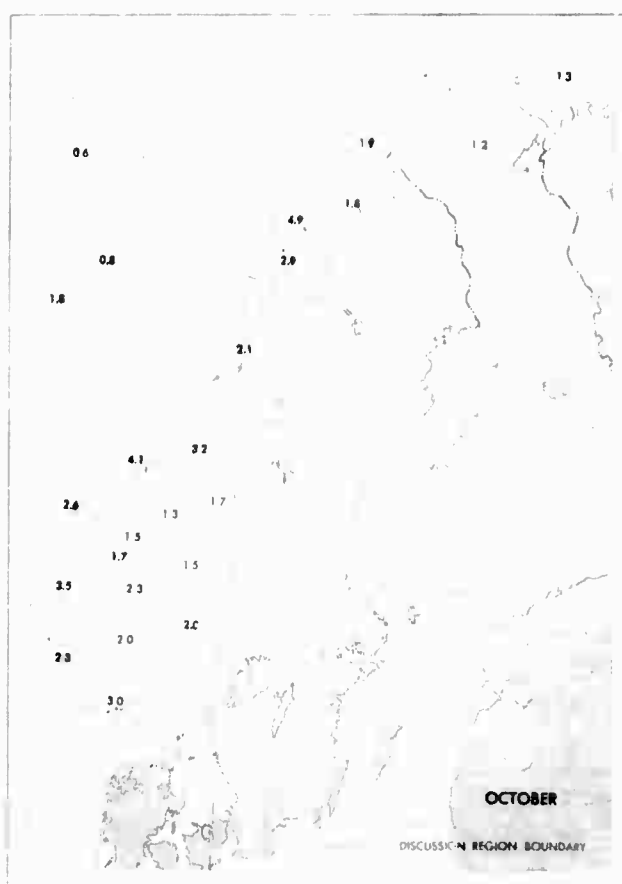
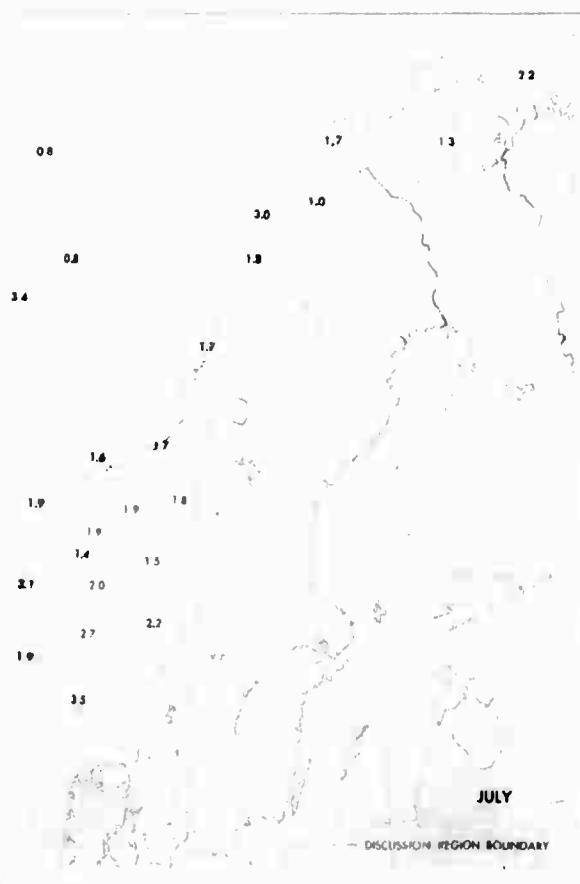
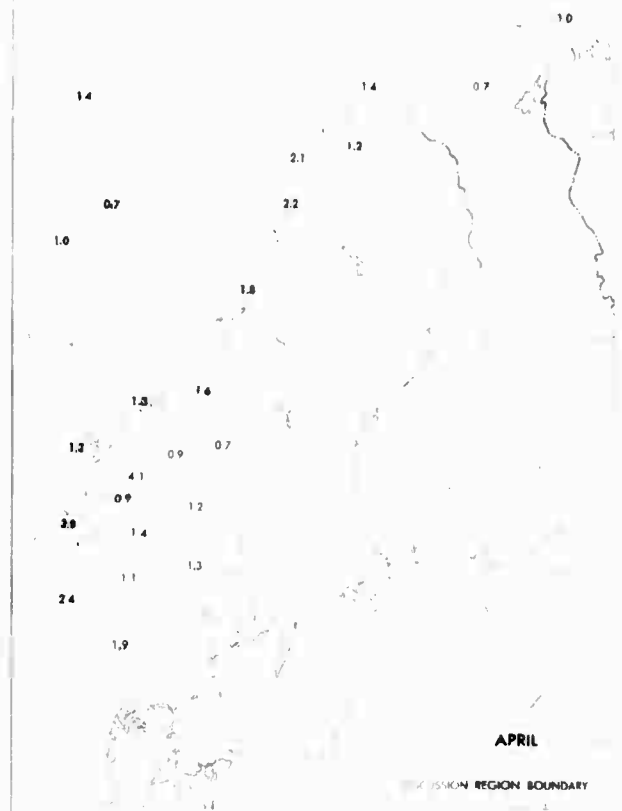
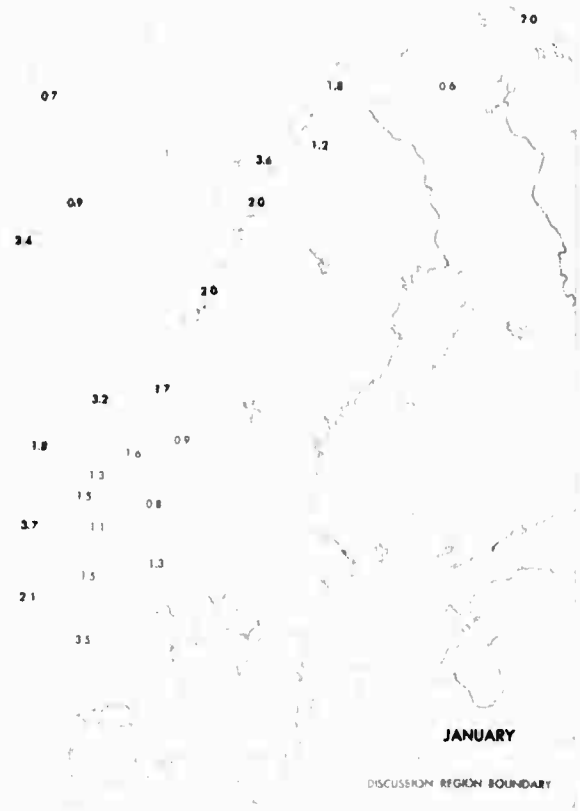


FIGURE 23-25. MAXIMUM 24-HOUR PRECIPITATION (INCHES). (For tabular data see FIGURE 23-47.)

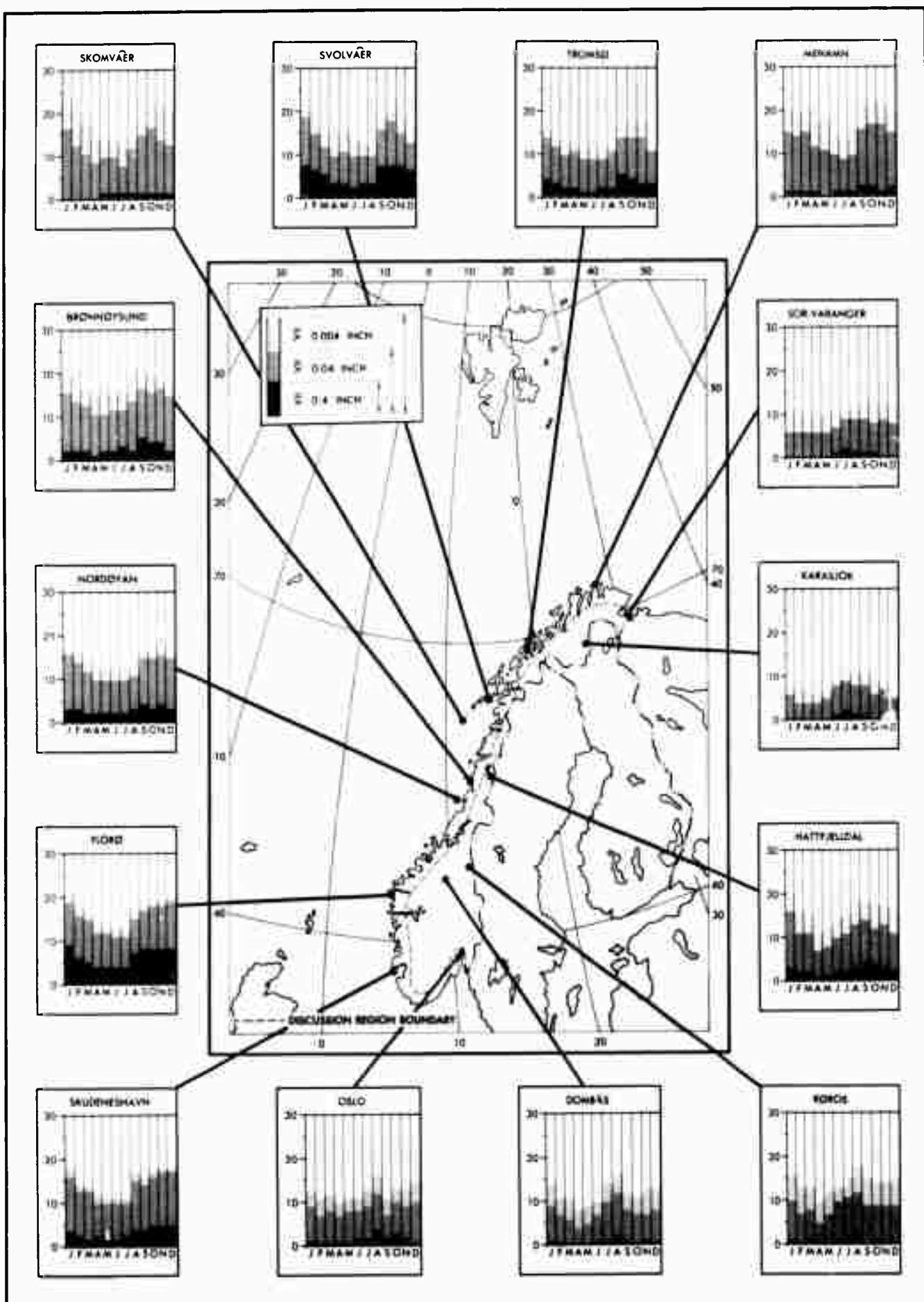


FIGURE 23-26. MEAN NUMBER OF DAYS WITH SPECIFIED PRECIPITATION AMOUNTS

ably close to 200 days with precipitation annually. The average daily amount of precipitation, however, is greatest in the Southwest Coast Region, where the total fall exceeds that of the Arctic Coast Region. Rainfall frequencies are appreciably less along the Southeast Coast Region where there are close to 150 days annually with precipitation. Frequencies in the Southern Interior are below the general average. Here the overall average is close to 150 days with values ranging from 190 days at the heads of fiords opening onto the North Atlantic to 110 to 125 days at sheltered places to the east of the central mountain range. The Arctic Interior has the lowest frequency of any region. The annual average drops to around 100 days except at the heads of fiords where the frequency is appreciably greater. A limited amount of data for the Arctic Islands Region suggests that frequencies decrease northward across this region, with an overall average close to 140 days.

The average number of days with snowfall is given in FIGURES 23-27 and 23-49. Lowest frequencies occur in the Southwest Coast Region at exposed locations near sea level where the annual average may drop below 30 days. Here the first snows occur in October, the last in early May. Highest snowfall frequencies occur on the mountains of the Southern Interior and along the northern portion of the Arctic Coast Region where the average exceeds 100 days annually. In the highest mountain sections of southern Norway snow is reported in all seasons, although in July and August there are only one or two such days. July and August are also relatively free of snow in the remaining regions of Norway.

Average monthly snowfall data are not available for Norway. However, the precipitation figures include the water equivalent of the snowfall. In all but the lowlands of the Southwest and Southeast Coast Regions most of the winter precipitation occurs as snow. The winter precipitation data therefore give some measure of the monthly snowfall, since it has been estimated that each inch of precipitation is roughly the equivalent of 10 inches of snowfall. The precipitation data as a result indicate an average monthly snowfall of 30 to 40 inches in winter at a number of locations in the higher mountains of southern Norway. Precipitation data for the Arctic Interior Region indicate that the average monthly snowfall ranges between 10 and 20 inches. These data indicate that heavy snows occur in many parts of Norway.

a better picture of the impact of snow on ground operations. Fortunately such data are available for Norway. The mean and extreme snow depths for a number of locations are given in FIGURE 23-50. The mean number of days with snow cover at a selected number of locations is shown graphically in FIGURE 23-28; tabular data for a greater number of places are presented in FIGURE 23-51. The data show that lowest snow-cover frequencies occur in the Southwest Coast Region at exposed locations near sea level. The average annual number of days with a snow cover is 50 or less at most stations, the lowest frequency occurring at Stord. Frequencies increase with distance from the coast; at higher elevations there are 100 days or more annually with a snow cover in this region. The data also suggest that in the Southwest Coast Region the snow cover comes and goes. When present the average depth is seldom more than an inch or two along the coast. At interior locations it may amount to a foot or more. The maximum recorded depth after a particularly bad storm was 76 inches at Eigeland, elevation 820 feet. Snow-cover frequencies are also relatively low in the Southeast Coast Region where a snow cover is recorded about 60 to 120 days annually. Here, too, the snow cover comes and goes during the course of the winter. At Oslo the mean depth reaches 6 inches in January and February. The extreme maximum recorded at Oslo in 37 years equaled 31 inches.

Highest snow-cover frequencies, 200 or more days per year, occur in the Arctic Interior Region. The cover becomes established in October and persists through most of May except at the heads of fiords where the season is shorter. The snow cover reaches its greatest mean depth in March when depths at many locations approach 3 feet. At the heads of fiords depths are generally less than 2 feet.

At lower elevations in the Southern Interior Region the ground is less frequently snow covered, the average number of days showing a wide range depending on exposure and elevation. The lowest number of days, 61, occurs at Haugen in the extreme south, at an elevation of 633 feet. The highest frequency, about 240 days, occurs at Grjotruste in the west. A number of fiords extend into the Southern Interior Region from the west; snow-cover frequencies at their heads are below the general average. Specific information is unavailable for the Arctic Islands Region. However, Spitsbergen is in general snow covered most of the year, except along the coastal areas in summer. Jan Mayen and Bear Island lie farther south, and the snow-free period along the coasts extends from June through August.

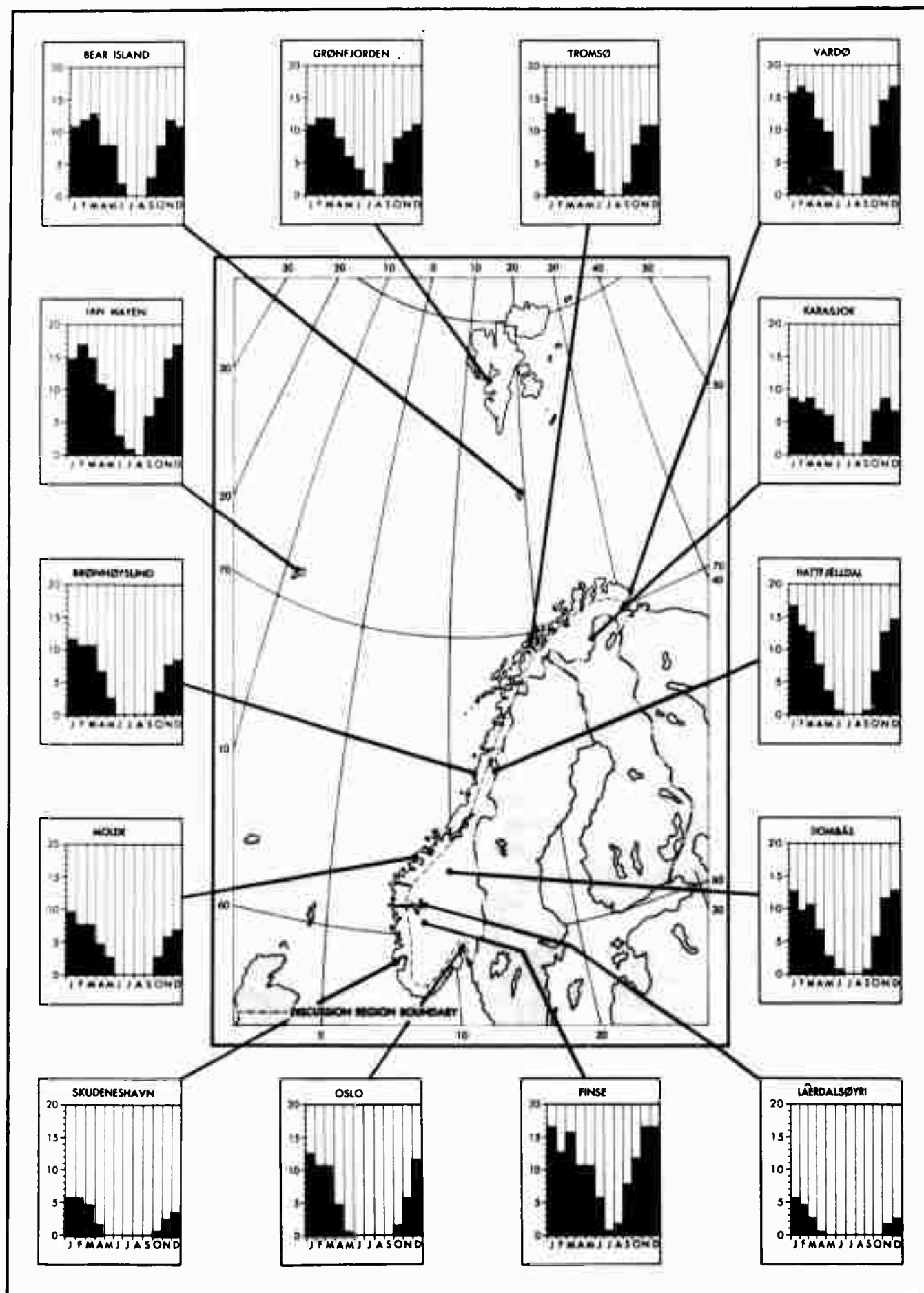


FIGURE 23-27. MEAN NUMBER OF DAYS WITH SNOWFALL. (For tabular data see FIGURE 23-49.)

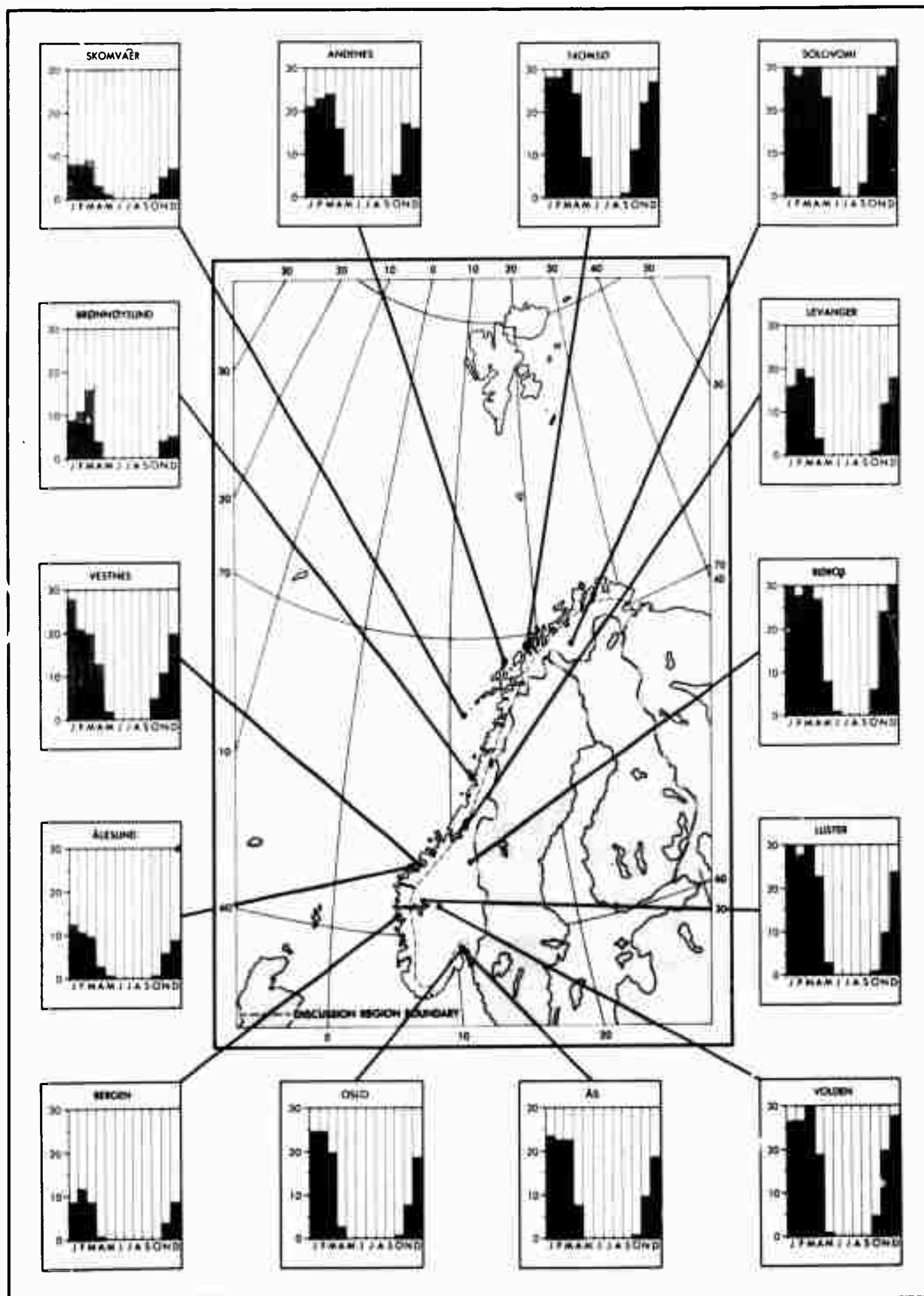


FIGURE 23-28. MEAN NUMBER OF DAYS WITH SNOW COVER. (For tabular data see FIGURE 23-51.)

(1) Clothing

(a) MAJOR INFLUENCES — Clothing requirements for the NIS 10 Area are determined primarily by temperature, precipitation, and wind. During winter extremely low temperatures are experienced in the three arctic regions. They are also quite low in the Southern Interior Region. Along the Southwest Coast, however, winter temperatures are comparatively mild. The Southwest Coast and the exposed slopes in other regions experience heavy precipitation. The season of falling snow and snow on the ground extends from early autumn to late spring in the arctic regions. Snowy weather is least frequent in the Southwest Coast and Southeast Coast Regions. Gale-force winds are relatively frequent along the entire west coast and the westward-facing mountain slopes.

(b) REGIONAL REQUIREMENTS — Clothing requirements are expressed in terms of clothing assemblies (FIGURE 23-29) that have been prescribed for worldwide military use depending upon the occurrence of mean monthly temperatures as follows:

CLOTHING ASSEMBLY	MEAN MONTHLY TEMPERATURES
Cool-weather	50° to 68° F.
Cold-weather	14° to 50° F.
Ultra-cold-weather	Below 14° F.

Appropriate service regulations list the exact nomenclature and the basis for issue of various components of these clothing assemblies. For planning purposes, however, the clothing assembly components are described in general terms. Also listed are special items which are necessary because of varying climatic factors.

The cool-weather assembly consists of a cotton visored cap, shirt, trousers, and underwear, supplemented with a hooded water-repellent wind-resistant coat. It also includes leather combat

equipment for use with this assembly.

The cold-weather clothing assembly consists of a wool shirt, wool trousers, wool-and-cotton underwear, and insulated rubber boots. A coat liner is added to the coat used with the cool-weather assembly. A cotton field cap or a field cap with wool pile lining is worn, depending on the degree of coldness. Woolen glove inserts or woolen mitten inserts, worn with the appropriate leather shells, are also components of the cold-weather assembly. A mountain-type sleeping bag (down and feather filled) with a water-repellent case is adequate sleeping equipment for use with this assembly.

The components of the cold-weather assembly also comprise the inner insulating garments for the ultra-cold-weather clothing assembly, except for the substitution of a trousers liner in lieu of the wool trousers. The outer garments consist of an additional pair of cotton, water-repellent wind-resistant trousers with a trouser liner, a parka with liner, and arctic-type mittens. Boots with additional insulated layers are substituted for the insulated boots used with the cold-weather assembly. An arctic-type sleeping bag, consisting of two down- and feather-filled bags with a water-repellent case, is substituted for the mountain-type sleeping bag.

(c) EXCEPTIONS AND ADDITIONS FOR INDIVIDUALS IN A PROTECTED ENVIRONMENT — The clothing assemblies, as previously described, are based on the assumption that the individuals wearing them will be living in the open 24 hours a day. Clothing requirements at permanent installations may be modified; for example, a raincoat may be more practical than a poncho.

(d) SPECIAL REQUIREMENTS — The abundant rain and snowfall of the Area should be considered when determining clothing requirements. During the limited periods of sunshine, tinted

FIGURE 23-29. CLOTHING REQUIREMENTS

REGION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Southeast Coast.....	D	D	D	D	C	C	C	C	C	D	D	D
Southern Interior:												
Below 2,000 feet.....	D	D	D	D	D	C	C	C	D	D	D	D
Between 2,000 and 6,000 feet....	U	U	U	D	D	D	D	D	D	D	D	U
Above 6,000 feet.....	U	U	U	D	D	D	D	D	D	D	U	U
Southwest Coast.....	D	D	D	D	D	C	C	C	C	D	D	D
Arctic Coast.....	D	D	D	D	D	D	C	C	D	D	D	D
Arctic Interior.....	U	U	U	D	D	D	C	C	D	D	U	U
Arctic Islands:												
Bear Island.....	D	D	D	D	D	D	D	D	D	D	D	D
Jan Mayen.....	D	D	D	D	D	D	D	D	D	D	D	D
Svalbard.....	U	U	U	U	D	D	D	D	D	D	U	U

C - cool-weather clothing assembly; D - cold-weather clothing assembly; U - ultra-cold-weather clothing assembly.

February, the minimum from May to August, except for great variability on the Arctic Coast. Due to orographic lifting of the air masses, precipitation frequency over the coastal regions is about twice as high as it is over the adjacent sea areas. The annual precipitation pattern is quite uniform over the sea, with precipitation observed about 23% of the time throughout the year. The predominant type of precipitation is light showers except from December through March when snow accounts for about 65% of the precipitation. Thunderstorms are rare. In winter, restricted visibility over the shores is due chiefly to falling snow. Fog is the predominant restricting factor in summer. Visibility less than 2 miles is observed about 8% of the time throughout the year with little difference between seasons. Visibility less than 1 mile is observed about 3% of the time annually.

Norway's climate is very mild for its latitude. The north and northwest coasts have higher average winter air temperatures than any other region in the Northern Hemisphere at this latitude. The North Atlantic drift current that flows in a general northeasterly direction off the northwest coast of Norway is the principal cause of the moderate maritime climate along the coast. The mean annual temperature is about 44° F., and the extremes range along the coast from about -15° F. to near 90° F. North of about 65°N. mean temperatures are mostly below freezing in winter. For the coast as a whole, the mean annual sea temperature averages about 46° F. The range is from about 40° F. along the north coast to 55° F. along the south coast, except along the extreme northeast coast where it is less than 32° F. from December to March. The mean relative humidity is in the 70's.

Drift ice is rarely encountered off the west or north coasts of Norway. During severe winters, the inner branches of the larger fiords are frozen over, but the outer coast is accessible throughout the year. Along the south coast in the vicinity of Oslo, the fiords are usually frozen over from mid-December until mid-March. This ice normally extends several miles seaward, and, except during extreme winters, reinforced vessels with icebreaker assistance can penetrate it.

b. ARCTIC ISLANDS

(1) *Svalbard*—The major climatic controls of this region in autumn, winter, and spring are the Icelandic *low* and the polar high-pressure area situated to the north of Svalbard. In summer, both the polar *high* and the Icelandic *low* weaken greatly; as a result, the pressure gradient over Svalbard is much weaker in summer. Sur-

dominance of northeasterly winds in winter and westerly in summer. In winter, there are abrupt changes in wind conditions; calms occur frequently, but are interrupted by sudden storms. The mean annual wind speed is about 13 knots. Lighter winds are observed along the west coasts than along the east coasts.

Gales occur about 5% to 10% of the time in winter, but only about 1% in summer. Sudden squalls occasionally occur when the wind sweeps from the interior down through the fiords, producing gale-force winds at the mouth of the fiords.

The sea and swell conditions are often favorable for conducting amphibious operations in July and August. During the remainder of the year, amphibious operations will be extremely limited, at times impossible, owing to the sea and swell conditions.

In general, cloudiness decreases from west to east and from south to north over Svalbard. The average annual cloud amount is about 7-tenths. The ocean area surrounding Bear Island is one of the cloudiest parts of the world; the mean annual cloud amount is about 8-tenths. The minimum cloudiness over Spitsbergen occurs in spring and the maximum in summer or autumn, although the variation is slight. Cloudiness varies little over Bear Island.

Snow accounts for about 75% of the annual precipitation. Between October and May, nearly all the precipitation is snow; during July and August, snow is infrequent; and in June and September, rain and snow occur about equally. Precipitation is observed about 30% of the time with a maximum in winter and a minimum in summer. Along the coasts, precipitation occurs more frequently than over the adjacent sea areas.

Over Bear Island coasts visibility less than 5 miles occurs about 30% of the time in spring, summer, and autumn, and 25% of the time in winter. Over Spitsbergen visibility is slightly better, averaging less than 5 miles about 30% of the time in summer and autumn, and 20% in winter and spring. In summer, the chief cause of restricted visibility is fog; in winter it is snow.

The average temperature in winter ranges from the low 20's at Bear Island to about 0° F. to 10° F. along the coast of central Vestspitsbergen. In July and August, the mean temperature averages about 40° F. throughout Svalbard. The mean temperature is usually below freezing from October through May. The mean monthly seawater temperature in the Svalbard area ranges from about 38° F. in August to less than 32° F. in November and June; in December through May

sea ice is present. The sea-surface temperature is slightly warmer in the vicinity of Bear Island, ranging from about 40° F. in August to less than 32° F. in February through May; here also, sea ice is present during March and April. Relative humidity averages in the 80's most of the year.

The sea ice varies considerably from year to year in the Svalbard area. Generally, the west coast of Vestspitsbergen is ice free from June through November, and in August and September all coasts are ice free except the east coast. Normally, ice surrounds Nordaustlandet the entire year; however, it is thin and can be penetrated by reinforced vessels with icebreaker assistance from June through October. By mid-December, a narrow belt of coastal ice has formed along the entire west coast of Vestspitsbergen, the coast with the latest freezing-over date. This ice belt remains until June, varying in width from 10 to 30 miles. The ice along the west coast usually is thin and normally can be penetrated by reinforced vessels with ice breaker assistance during most of the winter. Ice usually is observed around Bear Island during March and April; the ice field, never completely blocking the island, is seldom thick and can be navigated at all times. Over all of Svalbard, prolonged easterly winds may bring ice down from the Barents Sea at any season of the year, while westerly winds drive it away.

(2) *Jan Mayen*—The surface winds in the vicinity of Jan Mayen are variable a large percentage of the time; however, the prevailing wind direction is northwesterly from October through April and easterly from May through September. The mean wind speed is about 14 knots. Gales occur about 15% to 20% of the time in autumn and winter, and 3% in spring and summer. The stormiest weather, and therefore the greatest frequency of gales, occurs during the winter half of the year. In July through September, sea and swell conditions are predominantly favorable for conducting amphibious operations. During the remainder of the year they are generally unfavorable.

There are very few clear days at Jan Mayen; the average is 2 days per year. The mean annual cloud amount is about 8-tenths with very little difference in mean cloud amount between seasons. The amount of precipitation is not large; however, it is observed about 20% of the time. In general, precipitation over the sea area is less frequent than over the island. Thunderstorms are rare. Visibility less than 5 miles occurs about 35% of the time in summer and autumn and 30% of the time in winter and spring. Visibility less than ½ mile occurs about 20% of the time in July and August and about 10% in other months.

Visibility is restricted mainly by fog and snow. The mean annual temperature is about 30° F. The mean monthly temperature ranges from 42° F. in August to 21° F. in March. The mean monthly sea-water temperature ranges from about 40° F. in August to about 32° F. in February through May. The relative humidity averages about 84%.

Jan Mayen is usually surrounded by sea ice during most of March and April. During the remainder of the year the coasts are usually ice free. Reinforced vessels with icebreaker assistance normally would be able to navigate in this ice.

C. Meteorological facilities and organization

1. Organization

The Norwegian Meteorological Institute, a civilian organization with headquarters in Oslo, administers the weather service; meteorological services for both civil and military needs are provided. Forecasts and current weather information for the benefit of air and ground transport as well as warnings to shipping, agriculture, and the general public are broadcasted by radio and other means. The Norwegian meteorologists are among the most competent in Europe. Their forecasting capability, as a whole, is above the usual European standard, and their ability to forecast the weather for northern latitudes is particularly noteworthy. Weather observations received from Norway are quite reliable.

Dr. Ragnar Fjortoft, Director of the Norwegian Meteorological Institute since November 1955, earned the Doctor of Philosophy Degree from Oslo University in 1951 in the field of Hydro-Dynamic Meteorology. He reads, writes, and speaks English fluently. The institute maintains a training program for its observers and forecasters.

2. Weather observing and forecasting facilities

The Norwegian weather service is composed of about 164 weather stations (including those in Svalbard) which were originally located so that observations would be evenly distributed over the greatest possible area and thereby best serve the goal of synoptic meteorology.

In Norway there are 7 weather stations from which operational meteorological information is available for aeronautical use. These are located at the following airports: Bodø, Flesland (near Bergen), Fornebu (near Oslo), Gardermoen (near Oslo), Kjevik (near Kristiansand), Sola (near Stavanger), and Værnes (near Trondheim). Of these Bodø, Fornebu, Sola, and Værnes are Flight Information Centers. In ad-

on, weather observations are taken at 8 other ports—a total of 15 airport stations.

A network of radiosonde stations was completed during the early part of 1958; these stations contribute to more accurate weather forecasting within the Scandinavian area. This network is comprised of 8 strategically located stations, in addition to the regular weather-reporting ships stationed at sea. Readings are taken every 12 hours and have been recorded to an average altitude of 60,000 feet. Upper-air wind observations are taken with radio equipment at 5 of the radiosonde stations and supplemented by pilot balloon observations at 4 of the radiosonde stations.

Of the 164 Norwegian weather stations, regular synoptic observations are taken at all except one. Hourly surface observations are made regularly at 10 of the weather stations, and 16 stations make hourly observations on demand.

For complete information on content, broadcast name, call letters, and frequencies of meteorological broadcasts, reference should be made to World

Meteorological Organization Publication Number 9, Volume C, *Transmissions*, to the U.S. Navy Hydrographic Office Publication Number 206, *Radio Weather Aids*, and to the appropriate Air Force and Navy radio facility charts and supplements.

D. Climatic data tables

This Subsection contains the various climatic data tables referred to in Subsections A and B. The stations in each table are listed alphabetically by regions. The data are believed to be representative, although in many cases they are based on only 5 years of recent observational material, taken between 1949 and 1955. The more recent material includes observations on ceiling and visibility conditions. A map of station locations (FIGURE 23-52), with an accompanying list giving latitude, longitude, and elevation of stations mentioned in Subsections A, B, and D, appears at the end of the Section. The annual values in some tables are slightly different from the sums or means of the monthly values because of the rounding-off of fractions.

FIGURE 23-30. MEAN CLOUDINESS (%)

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:														
Ås.....	68	62	62	57	51	44	49	58	56	64	66	70	59	40
Færder.....	70	66	64	61	54	48	53	59	55	67	67	72	61	40
Kristiansand.....	69	72	67	66	64	61	61	65	68	73	72	68	67	5
Øksøy.....	72	73	67	61	54	52	57	62	62	72	73	75	65	40
Oslo.....	69	66	63	60	57	53	58	62	61	68	69	73	63	40
Sandnessund.....	67	69	57	56	57	52	55	54	61	64	67	74	61	40
Ytre Torungen.....	68	67	62	60	56	50	53	58	58	69	67	71	62	40
Northern Interior:														
Austad.....	63	63	62	58	54	48	54	58	56	66	82	88	63	40
Balestrand.....	73	73	68	63	61	58	67	75	73	74	79	80	70	40
Dalen.....	60	59	63	59	57	54	58	65	57	67	63	65	61	40
Dombås.....	60	59	59	60	61	59	67	69	64	66	66	62	63	40
Eidsvoll.....	75	69	65	61	59	56	61	65	64	71	75	81	67	40
Finse.....	62	63	60	54	54	54	56	64	64	64	71	69	61	14
Gardermoen.....	70	69	66	66	63	62	61	66	68	73	75	76	68	5
Hamar.....	64	58	59	55	54	50	55	60	55	66	66	70	59	40
Hattfjelldal.....	64	62	63	60	61	59	68	70	73	71	71	68	66	40
Krappeto.....	56	51	50	44	39	35	38	45	44	54	54	66	48	40
Lærdalsøyri.....	68	68	67	63	64	59	67	77	71	71	72	70	68	40
Lillihammer.....	63	60	63	60	59	60	61	65	60	66	66	66	62	44
Luster.....	60	63	55	49	49	47	51	59	54	61	66	68	57	40
Nesbyen.....	50	55	55	56	55	49	55	60	54	62	55	61	56	40
Rena.....	63	58	61	60	58	56	57	66	59	69	69	69	62	40
Røldal.....	64	56	57	54	53	45	57	67	69	63	61	64	59	40
Røros.....	67	66	66	65	66	69	71	77	73	73	74	74	70	44
Steinkjer.....	66	61	59	55	58	58	62	63	67	66	67	69	63	40
Sunndal.....	66	70	63	65	67	64	71	75	68	65	70	66	67	40
Trondheim.....	77	76	73	71	73	73	77	79	79	77	77	75	76	44
Ulefoss.....	58	53	57	50	49	44	48	59	52	58	58	66	54	40
Ullensvang.....	73	69	67	63	63	61	69	74	72	72	72	73	69	40
Værnes.....	67	65	69	75	69	73	76	72	73	72	71	71	71	5
Veggli.....	58	61	63	60	62	57	60	66	57	66	61	61	61	40
Volden.....	61	57	56	58	57	56	62	65	61	66	68	67	61	40

FIGURE 23-30 (Continued)

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southwest Coast:														
Ålesund.....	72	68	64	60	61	62	69	71	73	71	73	69	68	40
Båsmo.....	76	72	65	58	60	58	63	67	72	76	73	67	67	40
Bergen.....	74	73	69	64	64	61	70	73	71	71	73	73	70	44
Brønnøysund.....	72	71	68	65	66	68	70	70	75	71	71	68	70	44
Florø.....	74	72	68	61	59	55	65	68	71	77	74	73	68	40
Hellesøy.....	74	70	66	55	54	53	60	64	68	70	73	74	65	40
Kristiansund.....	66	62	59	56	56	56	63	64	67	64	66	63	62	40
Mandal.....	71	68	63	56	52	46	49	57	57	67	70	73	61	44
Molde.....	67	73	56	58	57	56	66	66	69	62	68	65	64	40
Nordøyen.....	83	82	77	74	75	75	76	77	82	81	83	81	79	40
Ona.....	78	73	71	67	69	67	73	74	78	75	77	76	73	40
Skudeneshavn.....	78	76	72	66	65	63	69	74	73	77	78	79	73	40
Sokndal.....	74	71	68	64	61	55	60	65	63	70	69	72	66	40
Stavanger.....	71	71	71	68	61	70	75	74	73	72	74	76	71	5
Utsira.....	69	66	62	56	53	55	61	62	62	66	67	70	62	40
Vestnes.....	66	75	59	59	61	63	70	76	70	67	70	69	67	40
Arctic Coast:														
Andenes.....	66	64	60	58	60	57	59	51	55	66	67	61	61	40
Bardufoss.....	51	46	52	55	58	58	61	60	58	53	47	47	54	5
Bodø.....	56	55	57	56	56	55	59	61	57	54	53	56	56	5
Gjesvær.....	70	71	69	72	75	73	70	69	77	74	73	65	72	40
Lødingen.....	65	59	56	61	62	56	53	61	63	60	64	58	60	40
Mehamn.....	71	73	73	72	78	78	74	72	80	75	77	69	74	40
Narvik.....	70	67	64	70	73	75	72	73	78	72	72	65	71	40
Røst.....	73	68	61	61	55	56	60	59	67	61	62	67	62	40
Skomvær.....	77	77	68	67	66	68	71	68	74	76	78	75	72	40
Svolvær.....	71	69	64	59	61	61	64	65	72	68	68	62	65	40
Tromsø.....	52	44	52	53	54	58	58	59	56	54	48	48	53	5
Vardø.....	75	74	70	72	76	75	73	75	77	77	80	75	75	40
Arctic Interior:														
Alta.....	62	61	56	63	70	66	64	70	73	68	67	59	65	40
Karasjok.....	66	63	61	64	70	66	66	71	73	71	70	66	67	44
Kautokeino.....	74	70	63	68	76	73	79	82	83	79	75	74	75	40
Kirkenes.....	57	52	55	58	63	55	61	60	63	59	63	60	59	5
Kistrand.....	65	64	59	65	67	65	63	69	71	69	69	63	66	40
Sør-Varanger.....	62	58	55	60	67	63	63	67	66	69	69	64	64	40
Arctic Islands:														
Bear Island.....	78	76	87	81	89	86	87	87	90	84	83	78	84	na
Grønfjorden.....	62	61	58	55	66	73	70	73	75	72	62	58	65	na
Jan Mayen.....	84	83	79	83	82	84	90	85	81	83	83	81	83	na

na Data not available.

FIGURE 23-31. MEAN CLOUDINESS (%) AT SPECIFIED HOURS

REGION AND STATION	HOURL (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Kristiansand.....	0100	68	63	54	48	53	53	49	46	52	64	72	66	57	5
	0700	65	71	65	66	63	58	59	66	66	74	65	67	65	5
	1300	74	75	69	68	67	64	66	69	71	76	78	72	71	5
	1900	68	70	68	65	62	60	58	61	67	70	72	65	65	5
Oslo.....	0100	64	65	60	54	57	57	56	58	60	65	71	70	61	5
	0700	66	68	71	63	65	56	60	67	70	71	69	69	66	5
	1300	69	69	64	69	67	60	61	63	68	71	73	74	67	5
	1900	64	69	62	62	56	63	54	61	65	69	75	71	64	5
Southern Interior:															
Finse.....	0800	62	66	62	55	56	54	58	66	64	65	73	71	63	14
	1400	64	64	58	54	52	55	55	63	64	64	72	71	61	14
	2000	59	59	61	54	54	54	55	64	65	63	68	66	60	14
Gardermoen.....	0100	66	66	58	52	59	60	57	56	58	65	73	73	62	5
	0700	70	71	70	63	66	56	59	68	70	73	74	74	68	5
	1300	71	68	64	71	66	65	66	66	68	75	75	78	69	5
	1900	68	67	64	65	57	64	59	63	65	72	75	75	66	5
Lillhammer.....	0800	65	63	65	60	68	56	60	65	62	69	67	66	63	44
	1400	64	62	64	62	64	65	65	67	63	68	68	70	65	44
	2100	59	55	60	57	56	58	59	63	56	62	62	63	59	44
Rorøs.....	0800	72	73	69	67	67	68	72	79	80	79	78	76	73	44
	1400	70	68	67	65	68	72	73	78	72	74	77	77	72	44
	2100	60	58	62	64	64	68	68	73	67	67	67	68	66	44
Trondheim.....	0800	77	78	74	71	73	75	79	80	81	79	78	74	77	44
	1400	79	77	74	72	74	73	76	78	79	78	78	77	76	44
	2100	75	72	71	71	72	72	76	78	77	74	76	74	74	44
Værnes.....	0100	66	56	63	68	65	75	75	66	64	63	66	71	66	5
	0700	68	63	69	75	69	74	78	73	73	71	68	66	71	5
	1300	70	67	69	75	70	72	74	71	75	74	72	76	73	5
	1900	63	64	70	75	69	73	75	72	72	70	67	71	70	5
Southwest Coast:															
Bergen.....	0800	75	76	70	62	65	65	75	75	71	74	76	75	72	44
	1400	76	74	70	67	67	60	69	73	73	73	75	76	71	44
	2000	70	68	67	63	61	57	65	72	69	67	67	68	66	44
Brønnøysund.....	0800	72	73	69	65	69	71	74	72	77	73	72	66	71	44
	1400	75	72	68	65	64	66	68	69	74	72	74	72	70	44
	2000	69	68	66	64	64	66	67	69	74	69	68	66	68	44
Mandal.....	0800	70	69	64	57	53	49	51	58	58	68	72	73	62	44
	1400	73	68	64	56	52	45	47	56	58	68	71	74	61	44
	2100	70	67	62	54	51	45	48	57	54	64	68	71	59	44
Stavanger.....	0000	70	71	64	54	55	70	72	69	66	64	69	71	66	5
	0600	69	71	72	69	63	74	77	75	73	71	71	76	72	5
	1200	73	74	72	68	60	67	76	75	76	73	79	81	73	5
	1800	70	69	69	68	58	68	73	72	71	72	72	70	69	5
Arctic Coast:															
Bardufoss.....	0100	50	37	48	52	54	58	59	62	53	50	43	40	51	5
	0700	51	46	53	55	56	58	63	61	60	56	46	44	54	5
	1300	55	49	51	54	60	59	62	62	59	55	51	53	56	5
	1900	46	42	52	56	57	56	59	58	56	48	43	45	52	5
Bodø.....	0100	55	51	52	53	56	56	60	62	54	53	49	55	55	5
	0700	56	54	60	59	56	55	60	62	60	54	51	55	57	5
	1300	59	58	57	58	57	55	59	60	56	55	56	59	57	5
	1900	56	53	58	56	54	54	58	61	57	55	55	55	56	5
Tromsø.....	0100	51	40	49	51	51	58	57	60	53	51	46	45	51	5
	0700	54	46	54	53	54	59	60	61	57	58	48	47	54	5
	1300	56	48	50	52	58	57	57	58	57	56	51	52	54	5
	1900	49	43	53	57	54	56	56	58	56	53	49	47	53	5
Arctic Interior:															
Karasjok.....	0800	69	71	67	65	71	67	67	74	77	75	74	69	70	44
	1400	70	62	60	62	69	68	66	70	72	72	74	69	68	44
	2000	60	57	56	65	69	64	64	70	71	65	63	61	64	44
Kirkenes.....	0200	54	44	55	57	63	57	62	63	61	59	64	59	58	5
	0800	57	60	56	59	64	57	64	60	64	63	66	58	61	5
	1400	58	51	54	56	63	55	60	61	63	60	64	65	59	5
	2000	56	44	54	58	63	52	59	60	63	55	59	58	57	5

FIGURE 23-32. MEAN NUMBER OF CLEAR DAYS (≥ 3 -TENTHS CLOUD COVER) AT SPECIFIED HOURS

REGION AND STATION	HOURL (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast: Kristiansand.....	0100	8	10	13	15	13	12	14	15	12	10	6	9	137	5
	0700	9	7	9	9	8	10	9	7	7	5	9	8	97	5
	1300	6	4	7	6	5	7	6	4	4	4	4	6	63	5
	1900	8	7	8	7	8	8	8	8	7	7	8	9	93	5
Oslo.....	0100	10	9	11	12	12	11	10	11	10	9	8	8	121	5
	0700	9	9	7	9	8	10	9	6	6	7	9	9	98	5
	1300	9	7	8	5	7	7	7	6	5	7	7	6	81	5
	1900	10	7	10	9	10	7	10	8	7	8	6	7	99	5
Southern Interior: Gardermoen.....	0100	10	9	12	13	10	9	9	12	11	9	7	8	119	5
	0700	8	8	8	9	7	11	10	6	6	7	8	7	95	5
	1300	7	7	8	4	6	5	5	5	5	5	6	5	68	5
	1900	9	8	8	7	8	6	8	7	7	6	6	6	86	5
Værnes.....	0100	9	10	10	6	8	3	4	7	8	10	8	7	90	5
	0700	8	8	8	4	6	4	3	5	3	6	7	9	71	5
	1300	7	7	7	3	5	4	3	4	3	5	4	4	56	5
	1900	9	8	7	3	6	4	3	6	5	6	6	7	70	5
Southwest Coast: Stavanger.....	0000	8	6	10	12	12	5	5	7	8	7	6	6	92	5
	0600	8	6	6	6	8	5	3	3	5	6	4	5	65	5
	1200	6	4	5	6	10	6	3	2	4	5	3	2	56	5
	1800	7	7	8	7	10	5	4	4	4	7	6	6	75	5
Arctic Coast: Bardufoss.....	0100	10	13	10	8	8	6	6	3	8	9	12	13	106	5
	0700	9	10	7	6	6	5	4	4	4	7	9	12	83	5
	1300	7	7	8	6	4	5	3	3	4	6	8	8	69	5
	1900	12	11	9	6	6	5	5	5	6	9	11	11	96	5
Bodø.....	0100	5	7	9	7	5	6	5	4	7	7	9	7	79	5
	0700	6	6	6	5	5	7	4	4	4	8	8	6	69	5
	1300	4	5	7	5	5	6	4	3	6	7	7	6	65	5
	1900	6	6	6	5	6	7	5	4	6	8	7	6	72	5
Tromsø.....	0100	9	12	10	8	8	5	4	4	8	9	11	11	99	5
	0700	7	9	6	7	7	5	4	3	5	7	10	10	80	5
	1300	7	8	9	7	5	6	5	4	4	6	8	8	77	5
	1900	10	11	8	5	7	5	6	5	6	8	9	12	92	5
Arctic Interior: Kirkenes.....	0200	6	11	6	5	3	4	3	2	4	5	3	5	57	5
	0800	4	5	5	4	2	5	3	5	1	3	3	6	46	5
	1400	3	6	5	4	2	5	3	3	2	4	2	3	42	5
	2000	6	11	6	4	2	6	4	3	2	6	5	5	60	5

FIGURE 23-33. MEAN NUMBER OF CLOUDY DAYS (≥ 7 -TENTHS CLOUD COVER) AT SPECIFIED HOURS

REGION AND STATION	HOOR (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Kristiansand.....	0100	20	17	16	13	15	13	12	12	14	18	21	19	190	5
	0700	19	18	18	18	17	15	16	18	18	21	17	19	214	5
	1300	22	20	20	17	18	16	18	18	19	22	21	21	232	5
	1900	19	18	19	18	17	14	15	15	18	19	20	18	210	5
Oslo.....	0100	19	17	18	15	15	14	14	15	16	19	20	21	203	5
	0700	19	18	21	18	18	13	16	19	20	21	20	19	222	5
	1300	20	18	18	17	19	15	15	17	20	21	21	21	216	5
	1900	18	18	16	16	15	16	13	15	17	19	21	20	204	5
Southern Interior:															
Gardermoen.....	0100	19	17	16	13	16	15	14	15	15	18	20	21	199	5
	0700	21	18	21	16	18	14	16	18	19	21	20	21	223	5
	1300	20	17	16	18	17	15	19	17	18	22	22	22	223	5
	1900	19	17	17	16	13	15	14	15	16	19	21	22	204	5
Værnes.....	0100	18	13	18	19	19	21	22	18	16	19	18	21	222	5
	0700	20	16	20	22	21	21	23	21	21	21	19	19	244	5
	1300	22	18	20	21	21	20	21	20	22	23	23	23	254	5
	1900	18	16	20	22	20	21	23	22	20	21	18	20	241	5
Southwest Coast:															
Stavanger.....	0000	21	18	18	13	15	19	22	19	18	17	18	20	218	5
	0600	20	19	21	19	19	22	23	23	22	20	20	22	250	5
	1200	23	20	21	17	16	18	24	22	23	22	23	25	254	5
	1800	21	17	20	18	16	19	21	20	19	22	20	20	233	5
Arctic Coast:															
Bardufoss.....	0100	18	12	17	17	19	21	22	24	19	18	14	13	214	5
	0700	19	16	19	19	21	21	24	24	21	21	15	14	234	5
	1300	19	15	18	18	22	22	24	24	21	20	18	18	239	5
	1900	16	13	18	20	21	20	22	22	19	17	14	16	218	5
Bodø.....	0100	19	16	19	18	19	19	22	23	19	19	16	19	228	5
	0700	19	17	21	21	20	20	21	24	23	19	17	18	240	5
	1300	21	19	21	20	21	19	22	21	20	20	20	22	246	5
	1900	20	15	20	20	19	19	22	23	20	19	18	18	233	5
Tromsø.....	0100	18	13	17	17	19	21	20	21	19	18	15	15	213	5
	0700	20	15	19	18	19	22	21	21	20	21	16	16	228	5
	1300	20	15	18	17	21	19	20	21	19	21	18	19	228	5
	1900	17	13	19	20	20	20	20	22	19	19	16	17	222	5
Arctic Interior:															
Kirkenes.....	0200	18	12	17	20	22	19	22	23	21	21	22	10	237	5
	0800	19	20	19	21	23	19	23	22	22	23	23	19	253	5
	1400	18	15	19	18	23	19	20	21	22	21	22	23	241	5
	2000	18	13	18	19	23	16	20	21	22	18	20	20	228	5

FIGURE 23-34. MEAN NUMBER OF DAYS WITH ≥ 3 -TENTHS CLOUD COVER BELOW 8,200 FEET AT SPECIFIED HOURS

REGION AND STATION	HOURL (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Kristiansand.....	0100	11	12	16	17	17	16	19	18	15	11	10	10	172	5
	0700	12	10	15	15	14	16	17	13	13	9	11	10	155	5
	1300	11	11	14	14	16	15	13	12	9	10	11	12	148	5
	1900	12	13	15	18	17	18	19	18	15	12	11	14	182	5
Oslo.....	0100	14	10	16	16	17	16	16	15	13	12	11	11	167	5
	0700	13	11	14	15	15	18	16	13	14	12	12	11	164	5
	1300	13	11	15	15	14	14	13	14	12	13	11	12	157	5
	1900	14	11	17	17	17	17	20	17	15	14	10	12	181	5
Southern Interior:															
Gardermoen.....	0100	12	11	16	18	14	12	15	15	14	13	10	10	162	5
	0700	11	10	12	16	15	15	17	13	12	12	10	10	153	5
	1300	12	11	16	12	11	9	11	1	14	12	10	10	139	5
	1900	12	11	15	15	17	15	16	17	14	12	9	10	163	5
Værnes.....	0100	14	15	14	12	12	9	10	12	12	14	14	12	150	5
	0700	14	14	13	12	13	10	10	12	11	12	14	14	149	5
	1300	14	15	15	10	12	10	9	12	11	15	11	14	148	5
	1900	14	13	15	13	11	10	11	13	12	13	13	13	151	5
Southwest Coast:															
Kråkenes.....	0800	13	11	20	19	19	17	15	16	15	13	13	16	187	8
	1400	14	13	21	22	20	19	19	18	18	15	15	16	210	8
	1900	14	12	20	19	20	18	19	20	15	12	16	16	201	8
Stavanger.....	0000	12	13	14	17	19	13	11	15	12	12	12	12	162	5
	0600	12	12	13	14	17	12	12	11	11	11	12	10	147	5
	1200	13	12	14	13	18	14	10	12	8	11	9	7	141	5
	1800	12	12	14	14	19	15	12	12	12	11	12	11	156	5
Arctic Coast:															
Andenes.....	0800	14	11	12	14	13	11	13	12	10	11	12	11	144	7
	1400	14	11	13	14	14	13	15	12	9	9	11	11	146	7
	1900	14	12	12	14	15	13	14	13	9	13	12	11	152	7
Bardufoss.....	0100	13	15	13	11	12	11	11	8	10	11	14	16	145	5
	0700	11	12	12	12	12	10	10	9	9	10	13	15	135	5
	1300	11	14	13	11	9	8	8	6	9	11	13	13	126	5
	1900	14	13	12	11	9	11	9	10	11	12	13	13	138	5
Bodø.....	0100	10	12	12	11	14	10	10	7	8	11	13	9	127	5
	0700	10	11	10	10	12	11	11	9	8	12	12	9	125	5
	1300	10	12	11	11	11	11	9	11	10	12	12	11	131	5
	1900	10	11	12	11	13	11	10	10	9	12	12	8	129	5
Tromsø.....	0100	13	16	13	13	13	10	12	12	10	13	15	16	156	5
	0700	12	14	13	13	13	10	12	10	10	11	15	15	148	5
	1300	12	16	15	14	12	10	12	10	10	11	15	15	152	5
	1900	14	15	13	11	12	11	13	12	9	12	14	17	153	5
Arctic Interior:															
Kirkenes.....	0200	10	14	10	9	7	6	8	5	7	8	6	8	98	5
	0800	8	9	11	10	7	9	7	8	6	8	5	10	98	5
	1400	11	15	11	10	7	9	7	7	5	9	6	8	105	5
	2000	9	15	12	11	6	10	10	6	7	11	8	9	114	5

FIGURE 23-35. MEAN NUMBER OF DAYS WITH ≥ 7 -TEN THS CLOUD COVER BELOW 8,200 FEET AT SPECIFIED HOURS

REGION AND STATION	HOURL (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Kristiansand.....	0100	17	15	14	11	10	8	7	9	11	16	16	18	152	5
	0700	17	16	14	11	11	8	7	9	11	18	14	17	153	5
	1300	16	15	14	10	9	6	7	9	9	14	15	15	139	5
	1900	16	13	14	9	6	6	6	6	9	14	16	14	129	5
Oslo.....	0100	15	16	14	11	10	7	8	10	12	15	17	17	152	5
	0700	16	15	14	11	9	8	6	9	10	15	17	17	147	5
	1300	16	14	12	8	9	6	5	4	8	12	15	14	123	5
	1900	15	14	10	7	5	4	3	4	7	13	17	16	115	5
Southern Interior:															
Gardermoen.....	0100	17	15	13	10	12	10	8	10	11	15	17	18	156	5
	0700	18	17	15	11	12	8	8	11	12	16	18	19	165	5
	1300	16	13	12	11	10	7	5	5	9	14	17	17	136	5
	1900	15	13	12	8	7	6	3	4	8	15	18	18	127	5
Værnes.....	0100	12	9	12	10	12	10	12	9	10	11	12	14	133	5
	0700	11	7	11	10	11	10	12	10	8	11	11	12	124	5
	1300	10	8	10	9	8	7	8	6	9	8	10	10	103	5
	1900	10	11	10	9	9	9	8	7	9	9	10	12	113	5
Southwest Coast:															
Stavanger.....	0000	10	10	11	7	7	9	9	6	8	9	8	10	104	5
	0600	10	10	11	7	6	8	7	9	8	9	8	12	105	5
	1200	10	9	9	6	5	6	8	4	10	9	8	12	96	5
	1800	9	8	8	7	6	7	5	6	6	10	9	8	89	5
Arctic Coast:															
Bardufoss.....	0100	14	9	15	14	14	12	15	17	14	15	12	10	161	5
	0700	16	12	13	13	15	13	15	15	15	16	11	12	166	5
	1300	15	9	14	12	16	14	18	14	15	15	13	11	166	5
	1900	14	9	15	13	16	13	15	15	13	14	11	13	161	5
Bodø.....	0100	13	10	15	11	11	11	13	15	13	14	11	13	150	5
	0700	14	10	12	9	11	10	12	12	12	12	11	14	139	5
	1300	13	9	12	9	9	8	11	10	9	10	9	11	120	5
	1900	12	8	13	11	8	8	11	13	10	13	11	11	129	5
Tromsø.....	0100	13	8	14	13	12	14	13	14	13	14	11	10	149	5
	0700	14	9	13	11	13	14	14	13	11	14	11	11	149	5
	1300	12	7	11	11	13	12	12	12	12	13	11	9	135	5
	1900	13	9	12	15	12	13	12	11	13	14	11	9	144	5
Arctic Interior:															
Kirkenes.....	0200	9	5	8	6	7	12	13	12	10	9	13	13	117	5
	0800	6	5	6	6	5	10	13	10	6	8	11	11	97	5
	1400	5	4	7	5	7	6	8	9	9	8	8	11	87	5
	2000	8	4	6	5	7	6	8	9	9	7	9	11	89	5

FIGURE 23-36. MEAN NUMBER OF DAYS WITH CEILING* < 1,000 FEET AT SPECIFIED HOURS

REGION AND STATION	HOURL (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Færder.....	0800	2	2	3	2	2	**	**	1	1	**	1	1	15	8
	1400	2	1	2	1	**	**	**	0	**	**	1	2	9	8
	1900	4	4	3	1	1	**	0	0	1	1	1	2	18	8
Kristiansand.....	0100	4	7	6	5	5	4	2	2	3	4	5	6	53	5
	0700	4	6	4	6	5	3	1	2	5	6	4	7	53	5
	1300	7	7	5	4	3	2	2	2	4	7	6	9	58	5
	1900	5	9	5	4	3	3	2	3	4	4	5	6	53	5
Oslo.....	0100	9	6	6	4	2	2	1	2	2	3	6	7	50	5
	0700	7	6	6	6	3	2	1	3	3	5	6	7	55	5
	1300	7	6	5	3	1	1	1	0	**	3	6	7	40	5
	1900	7	6	3	2	1	1	**	0	1	3	5	6	35	5

See footnotes at end of table.

FIGURE 23-37. MEAN NUMBER OF DAYS WITH VISIBILITY $<2\frac{1}{2}$ MILES AT SPECIFIED HOURS

REGION AND STATION	HOOR (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Færder.....	0800	2	2	3	1	1	*	*	*	1	*	1	2	13	8
	1400	3	2	3	1	1	0	*	*	*	*	1	3	14	8
	1900	3	2	3	1	1	*	0	*	*	*	*	1	11	8
Kristiansand.....	0100	2	4	4	2	1	1	1	1	2	2	*	2	22	5
	0700	2	3	4	4	2	2	1	2	2	4	2	3	31	5
	1300	5	5	4	2	2	1	*	1	1	4	2	4	31	5
Oksøy.....	1900	4	6	5	2	2	1	1	1	2	3	1	4	32	5
	0700	3	3	3	3	2	1	*	1	*	2	1	1	20	5
	1300	5	3	2	1	2	0	*	*	1	2	1	1	18	5
Oslo.....	1900	2	4	3	2	2	1	*	0	1	*	1	1	17	5
	0100	8	7	5	3	1	1	*	*	1	2	6	7	41	5
	0700	7	6	6	4	1	1	1	1	2	4	4	7	44	5
	1300	14	10	5	1	*	*	*	0	*	3	7	11	51	5
	1900	12	7	4	1	*	0	0	0	1	4	6	10	45	5
Southern Interior:															
Fanaråken.....	0800	23	19	20	19	15	18	19	21	20	23	23	23	243	5
	1400	21	18	19	20	12	17	16	19	18	23	22	23	228	5
	1900	20	17	18	18	12	19	18	19	17	24	22	20	224	5
Gardermoen.....	0100	8	6	5	3	2	2	1	2	2	5	8	11	55	5
	0700	8	8	6	5	3	2	1	5	6	8	8	12	72	5
	1300	9	8	4	2	1	1	*	1	1	5	7	11	50	5
	1900	9	7	3	3	2	0	*	1	2	5	7	11	50	5
Gausta.....	0800	20	15	15	18	11	15	19	12	15	20	19	23	202	5
	1400	20	17	15	16	8	11	14	10	14	18	19	22	184	5
	1900	21	17	17	15	10	11	16	12	18	20	20	22	199	5
Geilo.....	0700	10	11	6	4	3	3	4	5	6	7	5	7	71	5
	1300	9	6	3	3	3	1	2	2	3	6	6	8	52	5
	1900	9	7	5	4	1	1	1	2	3	7	8	8	56	5
Svandalsflona.....	0800	11	9	8	7	5	4	3	2	5	8	7	8	77	7
	1400	11	10	8	5	4	3	2	1	3	8	9	10	74	7
	1900	12	10	8	6	4	2	2	2	4	8	8	10	76	7
Tynset.....	0700	4	2	3	*	1	1	1	5	9	4	2	3	35	5
	1300	2	2	1	*	*	*	0	*	*	2	3	5	15	5
	1900	3	1	1	1	*	*	0	*	*	1	2	5	14	5
Viernes.....	0100	1	*	*	*	*	0	*	0	0	1	0	1	3	5
	0700	*	*	*	1	*	0	*	1	*	*	*	*	3	5
	1300	*	1	1	0	*	0	*	0	0	*	*	1	4	5
	1900	*	1	*	1	*	0	0	*	*	0	0	1	3	5
Southwest Coast:															
Kråkenes.....	0800	2	3	1	2	1	1	2	1	1	1	*	1	16	8
	1400	2	3	2	1	1	1	1	1	1	1	1	1	16	8
	1900	2	3	1	1	1	1	2	1	*	1	1	1	15	8
Lista Fyr.....	0800	2	2	3	2	2	1	1	1	1	1	1	1	18	8
	1400	3	3	2	1	2	2	1	1	1	1	1	2	20	8
	1900	2	3	2	2	2	1	1	*	1	1	1	1	17	8
Nordøyen.....	0800	4	5	3	3	3	3	4	3	2	2	1	4	37	8
	1400	6	4	6	2	3	2	3	2	2	2	2	3	37	8
	1900	5	4	4	2	3	2	3	2	2	1	3	3	34	8
Stavanger.....	0000	1	2	3	1	2	1	1	1	*	2	1	1	16	5
	0600	2	1	4	2	1	1	1	1	1	2	1	2	19	5
	1200	2	3	2	*	*	*	1	0	1	*	1	2	12	5
	1800	3	2	3	1	1	1	1	1	2	1	*	2	18	5
Utsira.....	0800	2	3	3	2	3	3	2	2	1	1	1	2	25	8
	1400	2	2	3	2	3	2	2	1	1	*	1	3	22	8
	1900	2	3	3	2	4	2	2	1	1	1	*	2	23	8

See footnote at end of table.

FIGURE 23-37 (Continued)

REGION AND STATION	HOUR (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Arctic Coast:															
Andenes.....	0800	1	3	3	2	1	1	3	1	1	*	1	1	18	7
	1400	2	3	2	2	1	1	3	1	*	*	1	1	17	7
	1900	2	3	4	2	2	1	3	1	1	*	*	1	20	7
Bardufoss.....	0100	2	2	2	1	*	1	1	*	0	1	1	1	12	5
	0700	2	1	2	2	1	1	*	1	1	1	*	1	13	5
	1300	3	1	2	2	1	0	0	0	0	1	2	2	14	5
Bodø.....	1900	3	1	2	2	*	0	0	*	*	*	1	1	10	5
	0100	2	1	2	*	1	1	1	1	*	*	1	1	11	5
	0700	2	2	3	1	1	1	2	1	1	1	1	1	17	5
Ingøy.....	1300	2	2	2	1	*	*	*	*	0	1	1	1	10	5
	1900	1	1	2	1	1	1	*	1	*	*	1	2	11	5
	0800	4	4	6	5	3	2	5	3	3	2	3	4	44	8
Røst.....	1400	4	5	6	4	3	2	5	3	3	2	4	5	46	8
	1900	4	6	7	6	2	3	5	3	2	3	3	5	49	8
	0800	1	1	2	1	1	3	3	2	*	1	1	1	17	8
Tromsø.....	1400	2	2	1	1	1	2	2	2	1	1	1	1	17	8
	1900	2	1	2	1	1	1	3	2	1	*	1	1	16	8
	0100	3	1	1	1	1	1	*	1	0	*	0	2	11	5
Vardø.....	0700	2	2	2	1	1	1	1	1	1	1	*	1	14	5
	1300	3	1	2	1	*	*	*	*	*	1	2	1	11	5
	1900	2	1	2	3	1	0	*	0	1	*	*	1	11	5
Arctic Interior:	0800	3	3	4	2	2	4	6	3	1	1	1	2	32	8
	1400	3	3	4	2	2	4	5	2	2	1	2	1	31	8
	1900	3	3	3	3	2	3	5	3	2	1	1	1	30	8
Kirkenes.....	0200	2	2	1	1	*	1	1	0	*	*	1	1	10	5
	0800	1	2	1	1	*	*	1	*	*	1	1	1	9	5
	1400	2	1	1	1	*	0	0	0	0	0	1	2	8	5
	2000	1	*	1	1	1	*	*	0	0	*	1	1	6	5

* <0.5 day.

FIGURE 23-38. MEAN NUMBER OF DAYS WITH FOG

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:														
Ås.....	5	4	4	2	1	*	1	1	4	5	5	5	37	40
Færder.....	5	4	4	4	1	1	1	*	1	2	3	4	30	40
Oksøy.....	5	5	5	5	4	3	2	2	2	3	3	3	42	40
Oslo.....	6	5	4	2	*	*	*	1	2	5	7	8	40	44
Sandøysund.....	5	5	5	4	2	1	*	1	2	1	3	4	33	40
Ytre Torungen.....	3	3	4	3	2	2	1	1	1	1	2	2	25	40
Southern Interior:														
Austad.....	1	1	1	*	0	0	0	1	1	3	2	2	12	40
Balestrand.....	*	0	0	0	0	*	*	*	1	1	*	*	4	40
Dalen.....	1	*	1	1	1	*	*	1	*	1	1	1	8	40
Dombås.....	1	*	*	*	*	0	*	*	1	2	1	1	6	40
Eidsvoll.....	3	3	3	2	1	1	1	*	5	6	6	7	38	40
Hamar.....	5	3	2	1	*	0	0	*	3	4	4	4	26	40
Hattfjellidal.....	0	0	*	*	*	*	*	*	1	1	1	*	5	40
Krappeto.....	2	2	1	1	*	*	*	1	3	4	3	2	19	40
Lærdalsøyri.....	*	*	1	*	1	*	1	*	1	1	*	*	5	40
Lillihammer.....	1	1	1	1	*	*	*	1	2	2	3	2	14	44
Luster.....	*	1	1	*	2	1	2	3	3	1	1	1	16	40
Nesbyen.....	*	0	0	*	0	0	0	*	1	1	1	*	4	40
Rena.....	1	1	*	1	*	*	1	2	4	5	4	2	21	40
Røldal.....	1	1	1	1	1	1	1	1	1	1	2	1	13	40
Røros.....	3	2	1	1	*	*	1	3	5	3	3	3	25	44
Steinkjer.....	2	1	1	0	*	0	0	*	2	3	3	3	15	40

See footnotes at end of table.

FIGURE 23-38 (Continued)

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southern Interior (Continued):														
Sunnadal	0	0	0	0	*	0	*	*	*	*	0	0	1	40
Trondheim	3	2	2	2	2	1	2	3	5	6	4	4	36	44
Ulefoss	1	*	*	*	*	0	0	0	1	2	2	1	8	40
Ullensvang	1	1	1	*	1	*	1	1	1	1	1	1	10	40
Veggli	0	*	0	0	*	0	0	0	*	1	*	*	2	40
Volden	1	1	1	1	1	*	1	1	3	3	3	2	18	40
Southwest Coast:														
Ålesund	*	*	*	1	2	3	3	2	1	1	*	*	13	40
Båsmo	*	0	0	0	0	0	0	0	0	0	0	0	*	40
Bergen	2	2	2	2	2	2	3	2	3	2	2	2	26	44
Brønnøysund	*	*	1	1	2	3	3	2	1	1	*	*	14	44
Florø	*	1	1	1	1	2	2	1	1	1	1	*	12	40
Hellesøy	2	2	3	3	4	5	4	3	2	1	1	2	32	40
Kristiansund	*	*	*	1	3	5	6	4	2	1	*	*	23	40
Lista Fyr	4	4	6	5	5	3	3	1	2	2	1	3	39	na
Mandal	2	2	2	2	1	1	*	1	1	1	1	1	15	44
Molde	*	*	0	0	*	1	1	1	1	1	*	*	5	40
Nordøyan	1	1	1	2	2	4	3	2	2	1	*	*	19	40
Ona	*	*	1	1	2	3	3	2	1	*	*	*	14	40
Skudeneshavn	5	5	5	5	6	6	5	4	4	4	4	4	57	na
Sokndal	3	3	3	4	5	6	6	4	4	5	4	3	50	40
Utsira	6	6	6	5	6	7	6	4	4	4	3	4	61	40
Vestnes	*	*	*	*	1	*	*	*	1	*	*	*	3	40
Arctic Coast:														
Andenes	0	0	0	*	2	4	6	4	1	1	*	*	18	40
Bodø	*	*	0	*	*	*	1	*	*	*	0	*	1	44
Gjesvær	0	0	0	*	*	2	5	3	1	*	0	1	12	40
Lødingen	*	1	1	2	5	5	6	4	4	2	2	*	32	40
Mehamn	0	0	0	0	*	1	2	1	*	*	0	0	5	40
Narvik	0	0	0	*	1	1	1	1	1	*	0	0	5	40
Røst	*	0	0	0	1	1	3	1	*	*	*	0	7	40
Skomvær	*	1	*	2	3	4	5	2	2	1	*	*	20	40
Svolvær	*	0	*	*	*	1	1	1	1	*	0	0	4	40
Tromsø	*	*	*	*	*	*	1	*	*	*	*	*	2	44
Vardø	*	*	0	*	1	3	7	5	1	*	*	*	17	44
Arctic Interior:														
Alta	0	*	*	*	*	*	1	1	1	*	0	0	3	40
Karasjok	3	2	1	*	*	*	*	1	2	2	3	2	16	44
Kautokeino	1	1	1	1	1	0	0	0	1	2	2	1	11	40
Kistrand	0	0	0	0	1	1	3	3	1	*	0	0	9	40
Sor-Varanger	1	*	*	*	*	*	1	1	1	1	1	*	6	40
Arctic Islands:														
Bear Island	1	3	3	5	7	9	19	15	12	4	3	1	82	na
Grønfyorden	*	1	1	*	1	2	4	3	1	1	*	*	14	na
Jan Mayen	2	3	3	5	3	6	13	10	6	3	2	2	58	na

NOTE Definition of day with fog unknown.

na Data not available.

* <0.5 day.

FIGURE 23-39. MEAN NUMBER OF DAYS WITH CEILING $\geq 1,000$ FEET AND SPECIFIED HOURS

REGION AND STATION	HOURL (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Kristiansand.....	0100	26	21	24	25	26	26	29	29	26	26	25	25	308	5
	0700	27	21	25	23	26	27	29	27	24	23	24	23	299	5
	1300	23	20	24	26	27	27	29	29	26	23	24	22	300	5
	1900	24	19	25	25	28	27	29	27	25	25	25	24	303	5
Oslo.....	0100	19	19	24	25	29	28	30	29	27	27	22	22	301	5
	0700	22	21	23	24	27	28	29	28	26	25	23	21	297	5
	1300	16	18	24	27	30	29	30	31	29	26	21	18	299	5
	1900	18	20	26	28	30	29	31	31	28	25	22	19	307	5
Southern Interior:															
Gardermoen.....	0100	20	19	24	24	27	27	29	28	25	23	19	16	281	5
	0700	19	18	23	23	26	27	28	24	23	20	18	16	265	5
	1300	20	19	25	25	29	28	30	29	27	23	19	18	292	5
	1900	19	20	26	25	28	28	31	29	27	24	21	16	294	5
Værnes.....	0100	30	27	30	29	31	30	30	31	30	30	30	30	358	5
	0700	30	27	30	28	30	30	30	30	30	31	30	31	357	5
	1300	31	27	30	30	31	30	31	31	30	31	30	30	362	5
	1900	31	27	30	29	31	30	31	31	30	31	30	30	361	5
Southwest Coast:															
Kråkenes.....	0800	23	20	26	25	25	26	24	25	24	22	24	26	290	8
	1400	21	19	24	23	24	25	25	27	24	24	23	24	283	8
	1900	21	20	24	24	24	26	24	27	24	22	24	24	284	8
Stavanger.....	0000	28	26	27	28	29	27	29	30	29	29	29	29	340	5
	0600	28	25	27	27	29	27	28	29	27	29	29	28	333	5
	1200	27	24	28	28	29	29	29	30	28	31	29	28	340	5
	1800	27	25	27	28	29	27	29	29	28	29	29	29	336	5
Arctic Coast:															
Andenes.....	0800	30	24	28	28	29	28	25	28	29	31	28	30	338	7
	1400	29	26	29	28	29	28	25	28	29	30	28	29	338	7
	1900	29	24	28	28	29	28	26	29	28	30	29	30	338	7
Bardufoss.....	0100	29	25	29	29	31	28	30	29	30	30	29	30	349	5
	0700	29	27	30	28	29	29	30	30	29	30	29	30	350	5
	1300	28	27	28	28	30	30	31	31	30	30	28	29	350	5
Bodø.....	1900	28	27	29	28	31	30	30	31	30	31	29	30	354	5
	0100	29	26	28	29	29	26	27	28	29	29	28	29	337	5
	0700	29	25	27	28	30	28	27	28	28	28	29	29	336	5
Tromsø.....	1300	29	25	28	29	30	29	29	30	29	30	29	29	346	5
	1900	29	26	27	28	30	29	29	29	30	30	28	28	343	5
	0100	28	27	30	29	29	28	29	30	30	31	30	29	350	5
Arctic Interior:	0700	29	26	29	28	30	28	29	29	29	29	29	30	345	5
	1300	28	26	29	28	30	29	30	30	30	30	28	30	348	5
	1900	29	27	28	27	30	30	30	31	29	30	30	30	351	5
Kirkenes.....	0200	28	26	30	29	30	27	26	29	30	30	28	30	343	5
	0800	30	26	29	29	30	29	28	29	29	29	28	30	346	5
	1400	29	27	29	29	30	29	29	29	30	30	28	29	348	5
	2000	30	28	30	29	30	29	29	29	29	30	27	30	350	5

* Ceiling herein defined as ≥ 7 -tenths cloud cover.

FIGURE 23-40. MEAN NUMBER OF DAYS WITH SURFACE WIND SPEED ≥ 41 KNOTS

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:														
Ås.....	1	*	*	*	*	*	0	0	*	0	*	*	2	40
Færder.....	1	1	*	*	*	0	*	*	*	1	1	1	5	40
Øksøy.....	1	2	1	*	*	*	*	*	1	2	1	2	10	40
Oslo.....	*	*	*	*	*	*	*	*	*	*	*	*	2	40
Sandø Sund.....	2	1	1	*	*	1	*	1	1	3	2	2	14	40
Ytre Torungen.....	1	1	2	1	*	*	*	1	1	2	2	2	13	40

See footnotes at end of table.

FIGURE 23-40 (Continued)

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southern Interior:														
Austad.....	1	1	*	*	*	0	*	*	*	*	1	1	4	40
Balestrand.....	1	1	1	*	*	*	*	*	0	*	*	1	4	40
Dalen.....	*	*	*	0	*	0	*	0	*	0	*	*	2	40
Dombås.....	1	1	*	*	*	*	*	*	*	1	1	1	7	40
Eidsvoll.....	*	*	*	*	*	*	0	*	*	*	*	*	2	40
Fanaråken.....	10	9	7	6	4	4	2	3	4	7	8	8	72	14
Gausta.....	4	4	3	2	*	1	1	1	1	4	3	4	28	12
Hamar.....	*	0	*	*	*	*	0	*	*	*	0	0	1	40
Hattfjelldal.....	1	*	*	*	*	*	*	0	*	*	*	*	3	40
Krappeto.....	*	*	*	*	*	*	0	*	*	*	*	*	2	40
Lærdalsøyri.....	1	1	1	*	0	0	0	*	*	*	1	1	5	40
Lillihammer.....	*	0	*	0	0	0	0	0	0	0	0	*	*	40
Luster.....	1	*	*	0	0	0	*	*	*	0	*	*	3	40
Nesbyen.....	*	*	*	0	0	0	0	0	0	0	0	*	*	40
Rena.....	0	*	0	0	0	0	0	0	*	0	0	0	*	40
Røldal.....	1	1	1	*	1	*	*	*	*	1	1	1	7	40
Røros.....	*	0	*	0	*	0	0	0	*	0	*	*	1	40
Steinkjer.....	1	1	*	*	0	*	*	*	*	*	*	1	3	40
Trondheim.....	5	5	4	3	2	1	1	2	2	3	5	5	38	40
Ulefoss.....	*	0	*	0	0	0	0	0	0	0	0	0	*	40
Ullensvang.....	1	*	*	*	*	0	0	*	*	*	*	*	3	40
Veggli.....	0	0	0	0	0	0	0	*	0	0	0	0	*	40
Volden.....	1	1	1	1	*	*	*	1	1	1	1	1	9	40
Southwest Coast:														
Ålesund.....	3	2	1	1	*	*	*	*	1	2	2	2	14	40
Båsmo.....	*	*	0	0	*	*	0	0	*	0	0	*	1	40
Bergen.....	2	2	1	1	*	*	*	*	1	1	2	2	12	35
Brønnøysund.....	3	3	2	1	*	*	*	*	1	1	2	2	15	40
Florø.....	4	3	2	1	1	*	*	1	1	2	3	3	21	40
Hellesøy.....	7	5	4	2	3	2	2	1	3	4	5	5	43	40
Kristiansund.....	5	4	3	2	1	1	*	1	2	3	3	4	29	40
Mandal.....	1	2	2	2	1	*	*	*	*	2	2	2	14	40
Molde.....	1	*	*	*	0	0	0	*	0	*	1	*	3	40
Nordøyen.....	5	3	2	1	*	*	*	1	2	1	3	4	22	40
Ona.....	7	5	5	3	2	2	1	1	3	5	6	5	45	40
Skudeneshavn.....	4	3	2	1	1	*	*	1	1	3	3	4	23	40
Sokndal.....	7	5	7	5	3	3	3	4	4	5	7	11	64	40
Utsira.....	5	4	3	1	1	1	1	1	2	4	5	6	34	40
Vestnes.....	1	1	1	*	0	0	0	*	*	*	1	*	4	40
Arctic Coast:														
Andenes.....	3	3	2	1	*	1	*	1	2	2	3	3	21	40
Bodø.....	2	1	1	*	*	*	*	*	1	1	1	2	9	40
Gjesvær.....	5	5	4	3	2	1	1	1	2	3	4	4	35	40
Lødingen.....	6	2	2	1	*	1	*	1	2	3	3	3	24	40
Mehamn.....	1	1	1	1	*	*	*	*	1	1	1	1	8	40
Røst.....	8	5	4	2	2	2	1	1	3	4	6	6	44	40
Skomvær.....	3	3	2	1	1	*	*	*	1	1	2	3	17	40
Svolvær.....	2	2	1	*	0	0	0	*	1	1	1	1	9	40
Tromsø.....	1	1	1	*	*	*	0	0	*	*	1	1	5	40
Vardø.....	5	4	4	3	2	2	1	1	2	4	4	4	36	40
Arctic Interior:														
Alta.....	2	1	1	1	*	1	*	*	*	1	1	1	9	40
Karasjok.....	*	*	*	*	*	*	0	*	*	*	1	*	3	40
Kautokeino.....	0	*	*	0	0	0	0	0	*	0	0	*	1	40
Kistrand.....	3	3	2	1	1	*	*	*	1	1	2	2	16	40
Sør-Varanger.....	1	*	*	*	*	*	*	*	*	*	*	*	3	40
Arctic Islands:														
Bear Island.....	3	3	3	2	0	*	0	*	2	1	2	3	19	na
Grøn fjorden.....	1	1	1	*	*	*	*	*	1	1	1	1	7	na
Jan Mayen.....	5	4	4	3	2	1	*	*	2	3	5	4	33	na

na Data not available.

* <0.5 day.

FIGURE 23-41. MEAN DAILY MAXIMUM AND MINIMUM TEMPERATURES (°F.)

REGION AND STATION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Kristiansand.....	Max	32	36	42	50	61	67	71	68	61	53	43	39	52	11
	Min	25	25	28	35	42	48	53	52	46	39	33	28	38	43
Oksøy.....	Max	38	39	40	46	55	61	65	64	60	52	45	41	50	5
	Min	30	31	31	38	46	52	56	56	52	46	38	34	43	5
Oslo.....	Max	30	32	40	50	62	69	73	69	60	49	37	31	51	44
	Min	20	20	25	34	43	51	56	53	45	37	29	24	36	60
Southern Interior:															
Dalen.....	Max*	26	28	37	46	57	63	68	65	57	45	34	29	46	40
	Min	19	19	24	32	40	47	52	50	44	36	28	23	35	60
Dombås.....	Max	22	25	33	41	51	59	65	61	52	42	29	25	42	44
	Min	10	11	16	25	34	41	46	44	37	29	19	14	27	60
Fanaråken.....	Max	13	15	17	23	31	35	42	41	33	27	20	17	26	14
	Min	5	5	7	13	21	27	31	32	26	19	13	9	17	19
Finse.....	Max	17	20	23	29	37	44	51	48	41	33	24	20	32	14
	Min	8	10	11	17	27	33	40	39	33	24	17	12	23	14
Gardermoen.....	Max	24	25	35	45	57	65	69	67	57	46	35	29	46	5
	Min	14	14	20	29	39	47	52	50	43	36	28	22	33	5
Geilo.....	Max	19	24	30	38	48	54	60	59	50	41	30	24	40	10
	Min	11	12	17	26	33	40	45	44	39	31	22	17	28	10
Lærdalsøyri.....	Max	35	36	39	48	57	63	65	63	55	47	39	37	49	30
	Min	24	25	29	36	44	50	55	52	45	38	32	27	38	59
Lillhammer.....	Max	24	29	38	47	58	67	71	66	57	45	33	26	47	30
	Min	11	13	19	29	38	47	52	49	41	33	24	14	31	60
Røros.....	Max	19	19	30	38	48	56	62	58	50	39	27	21	39	30
	Min	3	4	9	21	31	39	44	42	35	27	16	8	23	60
Trondheim.....	Max	31	33	38	45	54	60	66	63	55	46	37	33	47	44
	Min	22	22	25	32	39	46	51	49	43	36	29	24	35	56
Tynset.....	Max	16	24	34	44	53	61	63	62	53	43	30	23	42	4
	Min	-1	5	10	26	32	42	43	44	36	29	18	7	24	5
Værnes.....	Max	29	31	38	45	54	61	64	64	56	48	38	34	47	5
	Min	20	21	25	33	39	47	51	50	43	37	31	26	35	5
Southwest Coast:															
Bergen.....	Max	37	38	42	49	58	62	67	65	59	51	45	42	51	10
	Min	29	31	33	38	44	50	55	54	50	43	38	35	42	10
Brønnøysund.....	Max	35	35	38	44	50	56	62	61	55	47	40	36	47	43
	Min	27	27	28	34	40	46	51	51	46	39	33	29	38	60
Kråknes.....	Max	39	39	40	45	51	55	60	60	56	51	46	42	49	13
	Min	34	33	34	38	44	48	53	44	50	54	40	37	42	21
Kristiansund.....	Max	37	38	40	44	51	55	60	60	55	47	42	38	47	22
	Min	32	31	32	36	42	47	52	52	47	41	36	33	40	37
Mandal.....	Max	34	35	39	46	54	60	66	63	58	49	41	36	48	20
	Min	28	27	30	36	42	48	54	52	47	40	36	30	39	20
Ona.....	Max	39	39	41	45	49	54	58	59	57	51	46	43	48	10
	Min	33	33	34	38	42	47	53	54	51	45	40	39	42	10
Stavanger.....	Max	38	38	42	48	58	61	65	65	59	52	45	41	51	10
	Min	31	31	33	38	44	49	54	54	50	44	39	35	42	10
Utsira.....	Max	38	38	40	46	53	56	62	62	59	52	46	43	50	10
	Min	31	32	34	38	44	49	54	55	52	46	40	37	43	10
Arctic Coast:															
Bardufoss.....	Max	20	19	30	39	45	57	63	60	51	40	25	22	39	5
	Min	10	5	12	22	32	43	48	46	38	29	15	11	26	5
Bodø.....	Max	33	33	35	42	49	55	61	60	53	43	37	33	44	33
	Min	25	23	25	31	38	44	50	49	43	36	30	26	35	60
Gjesvær.....	Max	26	25	28	34	40	49	55	54	46	37	31	27	38	20
	Min	21	20	23	27	33	41	46	46	40	32	26	22	31	20
Narvik.....	Max	25	26	30	38	45	55	61	58	50	41	33	29	41	18
	Min	20	20	21	29	36	45	51	49	43	35	28	25	33	19
Skrova.....	Max	33	33	35	40	46	53	60	60	51	43	37	34	44	30
	Min	27	26	27	31	38	45	51	51	45	37	32	29	37	60
Tromsø.....	Max	30	29	32	37	44	53	59	57	49	40	34	31	41	47
	Min	22	21	21	27	34	42	48	46	40	33	27	24	32	60
Vardø.....	Max	27	26	29	34	40	47	53	53	47	38	33	30	38	40
	Min	19	18	20	26	32	38	44	44	40	32	26	22	30	59

See footnote at end of table.

FIGURE 23-41 (Continued)

REGION AND STATION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Arctic Interior:															
Karasjok.....	Max	11	13	25	36	44	56	65	60	50	35	19	13	36	30
	Min	-6	-8	-1	15	30	40	45	41	34	21	8	-1	18	59
Kirkenes.....	Max	21	14	25	36	43	55	60	57	49	38	26	21	37	5
	Min	12	6	13	24	34	44	49	47	40	32	20	14	28	5
Siccejavre.....	Max	Data not available													
	Min	-3	0	2	18	27	41	44	43	35	25	12	3	21	5
Arctic Islands:															
Bear Island.....	Max	26	25	24	27	33	39	44	46	41	36	31	29	33	10
	Min	17	15	12	16	26	32	36	38	35	29	23	20	25	25
Grøn fjorden.....	Max	10	8	5	15	30	40	46	44	35	25	17	14	24	19
	Min	-4	-7	-12	-3	15	31	38	37	29	17	6	1	12	19
Jan Mayen.....	Max	31	28	27	31	36	41	46	48	43	39	33	32	36	5
	Min	21	19	19	22	28	33	38	39	35	29	25	22	28	29

* Mean at 1300 LST.

FIGURE 23-42. ABSOLUTE MAXIMUM AND MINIMUM TEMPERATURES (°F.)

REGION AND STATION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southern Coast:															
Kristiansand.....	Max	56	54	65	72	82	86	90	89	82	72	56	52	90	43
	Min	-14	-5	-7	5	25	33	40	37	28	20	10	-2	-14	43
Oksøy.....	Max	48	50	54	61	68	75	77	72	68	61	55	52	77	5
	Min	16	7	18	25	36	41	48	45	41	36	21	16	7	5
Oslo.....	Max	54	59	64	77	86	93	95	91	78	74	58	55	95	55
	Min	-12	-13	-6	3	25	33	40	36	25	7	0	-26	-26	55
Southern Interior:															
Dalen.....	Max	55	55	58	71	81	89	92	85	75	69	60	55	92	55
	Min	-12	-10	-5	7	22	30	38	37	29	13	3	-8	-12	55
Dombås.....	Max	48	49	54	63	77	84	86	83	74	62	52	48	86	40
	Min	-33	-36	-18	-5	10	23	31	28	14	-9	-17	-33	-36	40
Fanaråken.....	Max	35	32	35	43	51	63	62	62	54	45	40	33	63	19
	Min	-26	-14	-11	-7	-6	10	17	18	10	-4	-2	-14	-26	19
Finse.....	Max	37	37	39	50	55	62	67	67	58	54	42	37	67	14
	Min	-23	-26	-17	-13	-3	14	28	28	14	-2	-18	-24	-26	14
Gardermoen.....	Max	46	46	55	64	81	84	86	84	72	63	50	50	86	5
	Min	-11	-15	-4	10	27	32	37	37	25	14	3	-17	-17	5
Geilo.....	Max	46	45	52	54	72	79	84	82	68	60	48	45	84	10
	Min	-17	-27	-17	-3	14	28	32	23	21	7	-8	-13	-27	15
Lærdalsøyri.....	Max	58	59	58	67	75	81	90	86	74	69	58	55	90	39
	Min	-7	0	5	16	29	35	41	39	29	14	6	-1	-7	39
Lillihammer.....	Max	51	51	59	72	81	89	89	85	74	64	59	49	89	40
	Min	-34	-19	-10	3	19	29	37	30	19	4	-6	-24	-34	40
Røros.....	Max	43	46	49	61	75	86	86	83	73	60	51	46	86	55
	Min	-59	-46	-42	-26	-2	23	26	23	14	-19	-33	-46	-59	55
Trondheim.....	Max	52	53	57	70	79	87	95	86	84	69	59	56	95	50
	Min	-22	-15	-10	4	14	31	35	35	27	7	-3	-10	-22	50
Tynset.....	Max	46	52	54	57	70	81	82	75	66	63	46	50	82	4
	Min	-44	-47	-35	1	18	23	28	27	16	9	-20	-31	-47	5
Værnes.....	Max	48	54	52	64	75	84	84	82	73	61	54	52	84	5
	Min	-8	-11	3	18	27	32	37	37	25	18	3	-9	-11	5
Southwest Coast:															
Ålesund.....	Max	58	56	56	69	74	80	83	83	76	67	58	56	83	16
	Min	17	15	11	24	31	33	41	41	35	25	19	13	11	15
Bergen.....	Max	56	54	68	77	81	89	89	85	79	72	61	62	89	130
	Min	7	3	10	15	25	35	39	39	28	22	13	6	3	130
Brønnøysund.....	Max	48	50	55	70	76	84	87	81	74	66	55	51	87	55
	Min	3	2	8	14	25	33	38	36	30	19	12	0	0	55
Krakenes.....	Max	53	51	59	61	72	80	77	82	76	64	59	59	82	21
	Min	11	19	21	27	30	35	45	43	37	29	28	19	11	21

FIGURE 23-42 (Continued)

REGION AND STATION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southwest Coast (Con.):															
Kristiansund.....	Max	54	51	59	66	76	81	83	87	76	65	59	56	87	37
	Min	9	8	9	19	28	33	39	40	34	25	10	9	8	37
Mandal.....	Max	50	50	59	68	75	87	86	83	75	67	55	50	87	55
	Min	-4	-6	5	12	26	36	41	40	31	19	10	-1	-6	55
Skudeneshavn.....	Max	49	47	55	69	76	84	82	83	75	66	55	51	84	60
	Min	6	6	13	17	29	33	41	41	35	27	20	6	6	60
Stavanger.....	Max	48	50	65	71	78	85	84	84	76	64	57	52	85	10
	Min	10	12	12	23	32	34	41	39	32	27	12	12	10	10
Arctic Coast:															
Bardufoss.....	Max	45	45	46	59	70	82	88	81	72	63	46	46	88	5
	Min	-20	-20	-18	-8	18	30	37	30	19	1	-11	-22	-22	5
Bodø.....	Max	49	49	51	64	74	82	85	82	73	65	52	51	85	60
	Min	0	-4	3	11	20	30	35	33	25	10	5	-4	-4	60
Gjesvær.....	Max	45	50	48	60	73	83	86	83	68	56	50	47	86	49
	Min	1	-2	-3	9	15	27	33	31	26	14	7	2	-3	49
Narvik.....	Max	48	48	48	55	70	83	82	80	73	61	53	52	83	19
	Min	-4	-2	0	9	20	31	39	36	26	16	11	2	-4	19
Skrova.....	Max	46	44	47	61	69	79	86	81	72	58	50	48	86	40
	Min	9	6	7	13	25	30	39	40	30	21	10	9	6	40
Tromsø.....	Max	45	47	47	57	69	82	83	80	72	60	52	47	83	75
	Min	0	-1	3	6	16	23	34	30	24	8	3	2	-1	75
Vardø.....	Max	42	43	47	56	69	78	80	77	68	56	49	44	80	110
	Min	-9	-11	-3	6	14	25	30	30	23	8	5	-3	-11	110
Arctic Interior:															
Karasjok.....	Max	44	43	46	57	78	88	90	85	77	57	46	44	90	50
	Min	-59	-59	-46	-34	-6	23	27	15	3	-27	-43	-53	-59	50
Kirkenes.....	Max	39	36	43	52	73	77	84	84	63	57	41	41	84	5
	Min	-24	-26	-17	-4	21	32	32	34	30	5	-17	-20	-26	5
Siccajavre.....	Max	Data not available													
	Min	-44	-35	-33	-15	3	23	30	27	21	-8	-24	-29	-44	5
Arctic Islands:															
Bear Island.....	Max	42	41	43	42	59	60	71	67	57	51	43	43	71	25
	Min	-20	-20	-25	-14	0	19	26	29	19	8	-6	-13	-25	25
Grønfjorden.....	Max	39	39	36	39	42	55	60	58	47	42	39	39	60	19
	Min	-50	-50	-57	-45	-15	13	29	21	6	-20	-36	-42	-57	19
Jan Mayen.....	Max	42	42	44	45	49	57	59	60	56	52	44	42	60	29
	Min	-16	-18	-13	-7	11	23	29	28	23	8	5	-9	-18	29

FIGURE 23-43. MEAN NUMBER OF DAYS WITH MINIMUM TEMPERATURE <32°F.

REGION AND STATION		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Ås.....		28	26	26	16	4	*	0	0	2	11	22	25	160	30
Færder.....		20	20	18	4	*	0	0	0	0	1	8	17	88	30
Oksøy.....		18	18	17	5	0	0	0	0	0	1	7	14	80	30
Oslo.....		28	25	25	10	1	0	0	0	*	7	19	25	140	30
Sandø Sund.....		22	20	22	8	1	0	0	0	0	3	13	22	111	30
Ytre Torungen.....		20	20	18	5	0	0	0	0	0	1	9	16	89	30
Southern Interior:															
Austad.....		27	25	26	17	5	*	0	0	2	11	20	24	157	30
Balestrand.....		21	20	19	6	1	0	0	0	0	3	11	18	99	30
Dalen.....		29	26	27	15	2	0	0	0	*	9	22	28	158	30
Dombås.....		30	28	30	26	12	2	*	1	7	21	28	30	215	30
Eidsvoll.....		30	27	28	20	6	*	0	*	3	14	24	29	181	30
Hamar.....		30	27	29	19	4	0	0	0	2	13	24	28	176	30
Hattfjelldal.....		30	27	30	24	15	4	1	2	8	21	25	29	216	30
Krappeto.....		28	25	25	18	5	*	0	0	2	10	19	24	156	30
Lærdalsøyri.....		22	22	18	6	*	0	0	0	*	7	15	21	111	30
Lillihammer.....		30	28	28	19	4	*	0	0	2	13	26	29	179	30
Luster.....		28	27	27	17	3	*	0	0	*	9	21	26	158	30
Mesnali Kappell.....		31	28	30	25	11	1	0	*	5	19	29	31	210	30
Nesbyen.....		30	28	29	23	9	1	0	1	7	20	28	30	206	30

See footnotes at end of table.

FIGURE 23-43 (Continued)

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southern Interior (Continued):														
Nordli.....	31	28	28	28	15	6	*	1	8	20	28	29	222	30
Rena.....	30	28	29	23	10	1	0	*	6	17	27	30	201	30
Røros.....	31	28	30	27	15	4	1	2	10	24	29	31	232	30
Steinkjer.....	27	25	26	15	4	*	0	0	1	10	19	27	154	30
Sunddal.....	29	27	27	19	6	*	0	0	1	14	26	29	178	30
Trondheim.....	26	24	24	13	3	*	0	0	*	9	19	25	143	30
Ul-foss.....	30	26	27	16	4	*	0	0	1	9	21	27	161	30
Ullensvang.....	20	19	17	5	*	0	0	0	0	4	11	18	94	30
Veggli.....	30	27	30	25	13	2	*	1	10	20	28	30	216	30
Volden.....	30	28	29	25	11	1	0	*	4	16	27	30	201	30
Southwest Coast:														
Ålesund.....	14	15	15	6	1	0	0	0	0	2	6	12	71	30
Båsmo.....	27	26	28	18	7	*	0	0	2	12	23	29	172	30
Brønnøysund.....	21	20	20	11	2	0	0	0	0	6	13	19	112	30
Florø.....	14	14	13	5	1	0	0	0	0	1	7	10	65	30
Hellesøy.....	10	11	9	3	*	0	0	0	0	*	4	8	45	30
Kristiansund.....	16	16	16	6	1	0	0	0	0	2	7	13	77	30
Mandal.....	20	20	18	7	1	0	0	0	*	3	12	17	98	30
Molde.....	20	19	19	9	2	0	0	0	0	4	13	18	104	30
Nordøyen.....	17	17	16	7	1	0	0	0	0	2	10	16	86	30
Ona.....	10	10	9	4	*	0	0	0	0	1	4	7	45	30
Skudeneshavn.....	13	13	11	3	*	0	0	0	0	1	6	9	56	30
Utsira.....	12	12	10	3	*	0	0	0	0	*	3	8	48	30
Vestnes.....	22	19	23	13	3	*	0	0	1	10	17	21	129	30
Arctic Coast:														
Andenes.....	23	23	25	16	5	0	0	0	*	8	17	24	141	30
Bodø.....	24	24	25	16	4	0	0	0	*	9	18	24	144	30
Gjesvær.....	29	26	28	23	12	1	0	0	1	14	24	29	187	30
Lødingen.....	25	22	27	18	5	0	0	0	1	11	20	23	152	30
Mehamn.....	29	27	30	25	15	1	0	0	1	17	26	29	200	30
Røst.....	16	16	17	9	3	*	0	0	*	2	8	15	86	30
Skomvær.....	15	16	17	9	2	0	0	0	*	2	9	14	84	30
Svolvær.....	23	23	24	15	4	*	0	0	*	8	16	22	135	30
Tromsø.....	27	26	28	21	10	*	0	*	2	15	23	28	180	30
Vardø.....	30	28	29	26	16	2	0	0	1	16	26	30	204	30
Arctic Interior:														
Alta.....	30	27	30	25	13	*	0	*	4	20	28	30	207	30
Karasjok.....	31	28	31	28	19	3	*	3	12	26	30	31	242	30
Kautokeino.....	31	28	31	29	20	4	1	2	11	26	30	31	244	30
Kistrand.....	30	27	30	25	11	1	0	0	2	19	28	30	203	30
Siccajavre.....	31	28	31	29	23	5	*	3	12	27	29	31	249	30
Sør-Varanger.....	31	28	31	26	17	2	0	*	4	20	28	31	218	30
Arctic Islands:														
Jan Mayen.....	28	28	30	27	26	13	*	1	9	22	26	29	239	na

na Data not available.

* <0.5 day.

FIGURE 23-44. MEAN NUMBER OF DAYS WITH MAXIMUM TEMPERATURE <32° F.

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:														
Færder.....	13	11	8	1	0	0	0	0	0	0	*	6	39	30
Oksøy.....	10	8	5	0	0	0	0	0	0	0	*	3	26	30
Oslo.....	17	14	5	*	0	0	0	0	0	*	7	15	58	30
Southern Interior:														
Lærdalsøyri.....	9	9	5	0	0	0	0	0	0	2	7	9	41	30
Rena.....	22	18	7	*	0	0	0	0	0	3	16	24	90	30
Røros.....	25	24	22	6	*	0	0	0	0	6	20	27	130	30
Trondheim.....	12	9	5	1	0	0	0	0	0	1	6	10	44	30
Southwest Coast:														
Brønnøysund.....	10	11	5	*	0	0	0	0	0	*	1	7	34	30
Hellesøy.....	4	2	1	0	0	0	0	0	0	0	0	1	8	30
Molde.....	16	10	3	0	0	0	0	0	0	*	*	6	35	30
Nordøyen.....	8	10	5	1	0	0	0	0	0	*	*	5	29	30
Ona.....	3	3	1	0	0	0	0	0	0	0	0	1	8	30
Utsira.....	5	4	2	0	0	0	0	0	0	0	0	1	12	30
Arctic Coast:														
Andenes.....	10	13	12	3	*	0	0	0	0	*	1	6	45	30
Gjesvær.....	14	15	17	8	1	0	0	0	0	1	3	10	69	30
Røst.....	4	6	5	2	0	0	0	0	0	0	0	2	19	30
Tromsø.....	18	19	19	6	1	0	0	0	0	3	7	14	87	30
Vardø.....	20	23	22	12	2	0	0	0	*	2	8	16	105	30
Arctic Interior:														
Alta.....	18	23	25	5	0	0	0	0	0	4	18	23	116	30

* <0.5 day.

FIGURE 23-45. MEAN RELATIVE HUMIDITY (%) AT SPECIFIED HOURS

REGION AND STATION	HOURL (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:															
Kristiansand.....	0730	85	85	83	77	72	74	74	82	85	87	87	86	81	25
	1330	82	80	72	67	64	67	67	71	74	77	83	84	74	25
Oksøy.....	0700	86	85	84	87	79	83	82	87	88	86	85	87	85	5
	1300	84	80	76	80	73	78	73	78	77	80	83	85	79	5
Oslo.....	0730	85	84	81	74	67	68	73	79	84	86	87	87	80	40
	1330	82	75	65	56	51	54	57	61	65	72	82	85	67	40
Southern Interior:															
Dalen.....	0730	83	81	76	72	69	68	73	79	83	85	86	85	78	40
	1330	81	75	63	57	52	53	57	63	68	75	83	83	67	40
Dombås.....	0730	84	83	81	75	70	71	76	81	86	85	86	86	80	40
	1330	81	74	63	59	53	54	57	59	64	72	82	84	67	40
Fanaråken.....	0730	89	89	88	90	87	89	90	90	92	89	91	91	90	14
	1330	88	87	87	90	87	88	87	87	89	87	90	89	88	14
Gardermoen.....	0700	88	89	86	86	82	80	83	89	91	90	90	90	87	5
	1300	86	84	73	66	60	60	62	65	72	80	87	88	74	5
Geilo.....	0700	82	79	79	80	80	80	83	89	90	88	84	84	83	5
	1300	78	72	67	66	59	58	63	66	66	77	81	83	70	5
Lærdalsøyri.....	0730	69	69	67	66	67	70	75	79	82	78	73	71	72	39
	1330	67	65	61	55	56	59	62	65	71	72	71	70	65	39
Lillhammer.....	0730	86	84	82	78	72	71	77	82	87	86	87	88	82	39
	1330	83	75	66	61	56	56	60	62	67	73	82	86	69	39
Røros.....	0800	87	87	87	84	76	75	78	84	87	88	89	89	84	40
	1400	85	81	74	70	61	61	62	64	69	78	86	88	73	40
Trondheim.....	0730	75	75	76	75	74	76	79	82	85	83	79	77	78	40
	1330	71	71	67	63	61	64	65	67	72	75	76	76	69	40
Tynset.....	0700	84	86	87	85	82	82	86	91	94	89	88	88	87	5
	1300	82	76	65	59	53	56	58	63	66	76	84	87	69	5
Værnes.....	0700	82	76	82	82	82	83	86	86	88	84	80	82	83	5
	1300	81	72	71	68	67	69	71	72	74	75	78	81	73	5

FIGURE 23-45 (Continued)

REGION AND STATION	HOUR (LST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southwest Coast:															
Ålesund.....	0800	74	70	76	75	75	78	78	78	75	75	73	71	75	8
	1400	74	68	72	71	74	76	78	74	70	72	72	72	73	8
Bergen.....	0730	80	80	80	77	77	81	85	87	87	84	82	81	82	40
	1330	77	74	68	66	65	70	73	74	75	75	77	79	73	40
Brønnøysund.....	0800	74	76	76	74	73	78	80	81	81	79	77	75	77	40
	1400	73	73	71	67	67	72	73	73	73	73	75	75	72	40
Krakenes.....	0730	78	79	78	79	80	85	87	85	83	84	81	80	82	21
	1330	78	80	77	78	80	85	86	84	82	83	80	80	81	21
Kristiansund.....	0730	75	77	78	76	76	79	83	83	82	80	77	78	79	17
	1330	73	73	72	69	68	73	74	73	74	74	75	76	73	17
Mandal.....	0800	80	81	79	73	69	68	73	80	82	84	81	81	78	18
	1400	80	77	74	66	62	62	64	69	71	75	79	81	72	18
Skudeneshavn.....	0800	81	81	82	81	79	78	82	84	84	84	83	83	82	20
	1400	82	79	76	72	71	71	74	76	75	77	80	82	76	20
Stavanger.....	0730	80	80	82	84	77	82	83	85	85	83	81	81	82	10
	1330	76	74	71	71	64	71	73	72	75	73	75	77	73	10
Arctic Coast:															
Bardufoss.....	0700	87	86	87	84	78	78	82	89	93	90	90	86	86	5
	1300	86	82	70	62	64	63	65	69	73	77	88	86	74	5
Bodø.....	0800	72	73	73	73	71	75	77	79	80	78	75	73	75	40
	1400	72	72	71	68	66	70	72	73	73	74	75	72	71	40
Skrova.....	0800	76	78	77	77	75	76	77	80	81	80	79	76	78	40
	1400	77	78	77	74	70	72	71	74	77	79	79	77	75	40
Tromsø.....	0830	76	77	76	73	72	73	78	81	83	80	79	77	77	40
	1430	77	75	71	67	66	66	70	72	75	77	79	77	73	40
Vardø.....	0900	84	84	83	82	81	83	86	85	85	85	85	84	84	34
	1500	83	84	82	80	79	81	84	83	82	83	85	84	83	34
Arctic Interior:															
Karasjok.....	0830	89	89	87	80	71	68	73	82	91	94	94	91	84	15
	1430	89	86	76	69	64	59	59	65	71	77	93	91	76	15
Arctic Islands:															
Bear Island.....	0830	87	87	88	87	87	90	92	91	90	88	88	88	89	21
	1430	87	87	87	86	85	89	89	88	89	87	88	88	87	21
Grøn fjorden.....	0800	81	80	80	78	75	79	80	83	82	80	79	81	80	14
	1400	81	80	78	72	69	76	77	79	79	79	79	81	77	14
Jan Mayen.....	0630	83	82	82	82	85	88	91	89	86	84	83	84	85	29
	1230	83	83	82	80	83	86	88	86	84	82	83	84	84	29

FIGURE 23-46. MEAN PRECIPITATION (INCHES)

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:														
Ås	2.2	1.6	2.0	1.9	2.2	2.2	3.0	4.2	2.5	3.5	3.0	2.8	31.2	30
Færder	2.5	1.9	2.0	1.7	1.9	1.9	1.9	2.9	2.4	2.9	2.6	2.8	27.4	30
Jomfruland	2.5	1.8	2.5	1.9	2.6	2.1	2.7	3.9	3.0	3.9	3.5	3.5	33.9	30
Kristiansand	5.0	3.6	3.6	2.7	2.5	2.8	3.5	5.3	4.7	6.2	5.7	6.4	52.0	56
Mykland	3.8	2.9	3.9	2.7	2.8	2.7	3.7	5.6	4.0	4.9	4.6	5.0	46.6	30
Oksøy	2.5	2.2	2.6	1.9	2.0	1.7	2.6	4.0	3.0	4.0	3.7	3.8	34.0	50
Oslo	1.6	1.5	1.5	1.6	1.7	2.1	3.0	3.5	2.4	2.6	2.0	1.9	25.4	50
Southern Interior:														
Alvdal	0.8	0.7	0.8	0.4	1.4	2.1	2.9	3.4	1.7	1.7	1.3	1.1	18.3	30
Austad	2.8	2.2	1.9	1.9	2.4	2.2	3.4	4.6	3.3	4.1	4.2	3.1	36.1	30
Balestrand	10.4	6.4	5.5	3.3	3.6	3.2	3.7	6.5	7.7	8.9	8.4	7.6	75.2	30
Dalen	2.5	2.0	2.2	1.9	2.3	2.3	3.2	4.7	2.9	3.9	2.9	3.3	34.1	50
Dombås	1.4	1.1	0.8	0.5	1.0	1.3	2.2	2.3	1.3	1.1	1.1	1.1	15.2	50
Fanaråken	3.8	4.6	3.5	4.2	1.9	3.2	4.4	5.0	4.7	3.4	3.4	3.8	45.9	20
Finse	3.2	2.8	2.7	1.5	1.9	2.0	2.7	4.0	3.5	3.8	3.3	3.5	34.9	50
Flisa	1.6	1.1	1.1	1.4	2.0	2.2	2.8	3.9	2.2	2.7	1.8	1.8	24.6	30
Garddøl	6.0	4.0	4.3	2.9	3.0	2.8	3.5	6.3	4.4	6.5	6.2	5.9	55.8	30
Geilo	2.0	1.8	1.6	1.3	1.6	2.2	3.0	3.3	2.6	2.6	2.1	2.2	26.3	55
Granvin	9.7	6.1	5.0	3.1	2.9	3.9	3.7	6.8	6.8	6.5	6.8	7.1	68.4	30
Hattfjelldal	4.0	3.3	2.1	1.4	1.4	1.9	2.4	3.1	4.1	3.2	4.1	3.1	34.1	50
Kongsberg	1.8	1.3	2.0	1.9	2.2	2.5	3.6	4.6	3.0	3.4	2.6	2.6	31.5	30
Krappeto	2.0	1.6	1.6	1.7	2.0	2.4	2.8	4.0	2.7	3.5	3.0	2.5	29.8	30
Kutjern	1.7	1.4	2.1	1.5	2.5	2.5	3.2	4.6	2.5	3.0	2.4	2.4	29.8	30
Lærdalsøyri	2.0	1.5	1.1	0.5	0.9	1.2	1.7	1.9	2.2	1.7	1.8	1.6	18.1	50
Lillhammer	1.5	1.1	1.1	1.4	1.9	2.0	2.9	3.8	2.2	2.5	1.9	1.9	24.4	44
Majavatn	3.5	2.8	2.3	1.6	1.9	2.0	3.0	3.6	4.4	3.3	3.8	2.5	34.7	30
Nesbyen	1.0	0.6	0.8	0.9	1.3	1.7	2.4	3.3	1.6	1.7	1.2	1.3	17.8	30
Nordli	4.1	3.1	2.4	1.4	1.3	2.2	3.0	3.4	2.9	2.2	2.9	2.2	31.1	30
Rena	1.5	1.3	1.6	1.7	2.2	2.3	3.3	4.1	2.6	2.8	1.9	2.3	27.6	50
Røldal	8.2	5.1	4.2	2.5	2.7	2.7	3.0	5.2	5.2	5.7	5.9	6.2	56.6	30
Røres	1.3	1.1	1.0	0.8	1.2	2.0	2.6	2.6	1.9	1.4	1.1	1.0	18.0	50
Selbu	2.5	2.0	2.0	1.5	2.1	3.0	3.4	3.9	3.5	3.2	2.4	2.0	31.5	30
Steinkjer	2.7	2.4	1.9	1.3	1.6	1.8	2.3	3.2	3.2	3.0	3.0	2.4	28.8	30
Stryn	5.8	3.7	3.3	2.8	2.2	2.0	2.2	3.7	4.3	4.1	4.6	5.0	43.7	30
Sunndal	3.8	2.8	2.0	1.3	0.9	1.7	2.0	2.6	2.3	2.4	3.2	2.6	27.6	30
Trondheim	3.4	2.9	2.2	1.8	1.5	1.7	2.2	3.0	3.3	3.4	3.1	2.6	31.1	50
Ullensvang	8.1	6.3	4.9	2.6	2.8	2.7	3.3	4.8	6.5	6.5	7.3	7.4	63.2	50
Veggli	1.2	1.1	1.5	1.8	1.9	2.4	3.3	4.0	2.4	3.0	2.0	2.3	26.9	50
Volden	1.1	1.0	1.1	1.0	1.6	2.1	3.2	3.5	2.2	2.0	1.5	1.5	21.8	50
Ytre Rendall	1.0	0.7	0.8	0.9	1.5	2.0	2.8	3.2	1.4	1.8	1.1	1.1	18.3	30
Southwest Coast:														
Ålesund	5.7	4.0	3.4	3.3	3.6	3.0	3.0	3.9	5.1	4.9	5.0	3.9	48.8	30
Båsmo	6.7	5.7	4.0	2.7	2.9	2.7	3.2	3.3	5.9	5.4	6.5	5.6	54.6	30
Bergen	8.8	7.1	6.1	4.4	4.6	4.2	5.6	7.7	9.3	9.2	8.7	8.7	84.4	50
Brandasund	5.4	3.7	3.5	3.4	2.8	2.6	3.5	5.3	5.2	6.5	5.6	5.3	52.8	30

See footnote at end of table.

FIGURE 23-46 (Continued)

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southwest Coast (Continued):														
Brønnøysund.....	3.5	3.0	2.5	2.2	2.5	2.5	3.0	3.3	5.1	4.6	4.7	3.2	40.1	50
Eigeland.....	11.1	7.1	5.3	5.6	4.4	4.1	4.4	7.8	7.5	9.0	9.4	9.5	85.2	30
Eksingedal.....	11.9	8.3	6.7	3.9	4.0	5.0	4.7	7.5	9.3	10.8	10.3	9.3	91.7	30
Florø.....	9.0	7.1	6.0	4.4	4.4	3.5	5.2	7.3	9.6	9.3	9.0	8.5	83.3	50
Hellesøy.....	6.0	3.1	3.1	2.7	3.1	2.3	3.0	4.3	4.9	6.0	5.0	5.3	48.8	30
Kråkenes.....	4.2	3.3	3.3	2.9	1.8	2.9	3.4	4.1	5.4	6.1	4.9	4.7	47.0	21
Kristiansund.....	5.1	3.6	3.2	2.4	2.5	2.1	3.1	4.2	5.4	5.7	4.8	4.4	46.5	50
Kvasseim.....	4.3	3.2	2.9	2.6	2.3	2.3	2.3	4.8	3.6	5.4	4.4	4.8	42.9	30
Lista Fyr.....	3.9	3.0	2.7	2.4	2.4	1.8	3.2	4.6	3.9	4.9	4.8	4.7	42.3	50
Mandal.....	5.3	3.8	4.0	2.9	3.0	2.6	3.2	5.7	4.2	6.5	5.5	6.5	53.2	44
Namsos.....	5.1	4.0	3.6	2.4	2.3	2.7	3.3	4.0	5.2	4.5	5.2	4.1	46.4	30
Nordøyen.....	4.9	4.6	3.6	2.7	2.8	2.7	2.9	3.7	5.5	5.0	5.2	4.5	48.1	50
Ona.....	4.9	3.7	3.0	2.5	2.8	1.6	2.9	3.0	5.0	4.9	6.2	4.1	44.6	50
Orland.....	4.6	2.9	2.3	2.6	2.0	2.3	3.0	3.4	5.1	4.3	5.1	3.5	41.6	30
Sand.....	10.5	6.3	5.4	4.1	3.9	4.4	5.1	7.6	7.4	7.4	8.6	8.4	79.1	30
Skålvær.....	3.3	3.0	2.4	1.9	1.8	2.1	2.2	2.7	4.1	4.0	4.2	3.0	34.7	30
Skudeneshavn.....	4.4	3.9	3.3	2.5	2.3	2.2	3.2	4.8	4.8	5.7	5.0	4.8	46.9	50
Sokndal.....	5.6	3.8	3.1	2.8	2.6	2.6	3.2	5.3	4.4	5.3	5.2	5.4	49.3	30
Stavanger.....	4.1	2.9	2.4	2.4	1.9	2.5	3.2	4.6	4.7	5.1	4.6	4.3	42.7	67
Sula.....	3.2	2.4	2.6	1.7	1.5	2.1	1.8	2.7	3.5	3.2	4.0	2.8	31.5	30
Tingvoll.....	4.2	2.8	2.9	2.2	2.2	3.7	3.0	4.8	4.8	3.9	4.2	3.5	42.2	30
Utsira.....	4.9	3.0	2.6	2.6	2.2	2.0	2.4	4.0	3.9	4.7	4.7	4.7	41.7	30
Vestnes.....	5.3	3.3	3.5	2.3	2.0	2.9	2.9	4.1	5.3	4.8	4.9	4.4	45.7	30
Arctic Coast:														
Andenes.....	3.0	2.7	2.2	1.7	1.6	1.5	1.7	2.1	3.7	3.5	3.7	2.8	30.2	50
Bodø.....	2.8	2.9	2.4	1.7	2.7	2.7	2.4	2.0	4.0	4.3	3.8	2.4	34.1	50
Borgvær.....	5.1	2.7	2.3	2.0	1.9	2.4	2.4	1.8	4.6	4.7	4.8	4.1	38.8	50
Fauske.....	4.0	3.4	3.3	2.0	2.1	2.5	2.6	3.2	4.7	3.8	4.2	3.1	38.9	50
Fleinvær.....	3.5	3.1	2.4	1.8	1.7	2.3	2.4	2.9	4.3	4.8	4.8	3.2	37.2	30
Gjesvær.....	2.6	3.1	2.8	2.2	2.1	2.2	2.8	2.6	3.9	3.5	3.4	2.9	34.1	50
Hammerfest.....	2.5	2.2	2.1	1.4	1.7	1.9	2.0	1.9	4.1	3.8	2.8	2.0	28.4	30
Lødingen.....	4.5	3.6	2.8	2.4	1.7	1.9	2.5	2.7	4.0	5.9	6.3	3.0	41.3	30
Makkaur.....	2.8	2.0	2.0	1.4	1.3	1.2	1.5	1.2	2.1	2.4	1.9	2.1	21.9	30
Mohamn.....	3.6	2.9	3.0	2.6	1.9	2.2	2.2	2.2	4.0	4.1	3.9	4.2	36.8	30
Narvik.....	1.3	1.1	1.2	0.7	1.2	1.5	1.7	2.3	2.3	1.8	1.2	0.9	17.2	30
Røst.....	3.8	2.2	1.9	1.7	1.1	1.4	1.2	1.8	2.8	4.2	3.5	2.4	28.0	30
Sandsøy.....	3.0	2.0	1.7	1.4	1.5	1.9	2.0	1.8	3.4	3.5	2.8	2.1	27.1	30
Skomvær.....	2.1	1.9	1.4	1.1	1.1	1.2	1.5	1.9	2.6	2.6	2.7	2.0	22.1	50
Skrova.....	6.4	5.1	4.0	3.0	2.8	2.6	2.5	3.3	5.9	6.9	6.2	5.4	54.1	56
Sommarøy.....	2.1	1.5	1.4	1.4	1.7	2.0	2.0	2.0	4.1	2.6	2.5	1.7	25.0	30
Svolvær.....	6.2	7.6	4.5	2.9	3.7	3.1	3.2	3.2	7.0	7.2	7.6	5.4	61.6	50
Torsvåg.....	2.0	1.6	1.6	1.2	1.3	1.5	1.8	1.6	3.4	3.6	2.3	1.8	23.7	30
Tromsø.....	4.3	4.4	3.1	2.3	1.9	2.2	2.2	2.8	4.7	4.6	4.4	3.8	40.7	50
Vardø.....	2.6	2.7	2.1	1.7	1.4	1.6	1.7	2.0	2.4	2.5	2.5	2.6	25.8	50
Arctic Interior:														
Alta.....	0.9	0.9	0.6	0.5	0.6	1.1	1.7	1.6	1.4	1.1	1.1	0.6	12.1	50
Dividal.....	0.7	0.6	0.5	0.4	0.5	1.4	2.2	1.7	1.4	1.0	0.7	0.6	11.7	30
Ekkergøy.....	1.4	1.0	0.9	0.7	0.9	1.0	1.8	1.5	1.4	1.4	1.1	1.1	14.2	30
Karasjok.....	0.7	0.7	0.5	0.6	0.9	1.7	2.3	2.1	1.9	1.2	1.0	0.7	14.3	50
Kautokeino.....	0.3	0.3	0.3	0.5	0.8	1.6	2.5	2.4	1.7	0.9	0.6	0.3	12.2	30
Kirkenes.....	0.7	0.8	0.6	0.6	0.8	1.5	2.3	1.9	1.9	1.5	1.2	0.9	14.7	50
Kistrand.....	1.2	1.1	0.7	0.7	0.7	1.5	1.6	1.6	2.4	1.7	1.4	1.1	15.7	30
Siecajavre.....	0.5	0.4	0.4	0.5	0.8	1.6	2.2	2.3	1.8	0.9	0.8	0.5	12.7	30
Sør-Varanger.....	0.7	0.8	0.8	0.6	0.8	1.4	1.9	1.4	1.5	1.4	1.3	1.1	13.7	30
Arctic Islands:														
Bear Island.....	1.1	1.1	1.2	0.7	0.8	0.8	0.7	0.9	1.6	1.3	1.0	1.1	12.6	na
Grønfjorden.....	1.3	1.2	1.1	0.9	0.5	0.5	0.7	0.8	0.9	1.2	1.0	1.6	11.7	14
Jan Mayen.....	1.5	1.7	1.1	0.9	0.5	0.6	0.8	1.1	2.5	2.2	1.4	1.0	15.3	7
Kvadehuken.....	1.1	1.1	0.9	1.1	0.4	0.6	0.6	1.6	1.3	1.0	1.5	1.3	12.5	na

na Data not available.

FIGURE 23-47. MAXIMUM 24-HOUR PRECIPITATION (INCHES)

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:														
Kristiansand.....	3.5	3.0	3.0	1.9	2.9	2.7	3.5	3.5	2.9	3.0	4.6	3.1	4.6	66
Oslo.....	1.3	0.9	0.9	1.3	1.5	1.7	2.2	2.2	2.3	2.0	1.5	1.1	2.3	76
Southern Interior:														
Dalen.....	1.5	1.1	1.3	1.1	1.8	2.9	2.7	3.2	1.9	2.0	1.9	1.2	3.2	62
Dombås.....	1.6	1.1	1.1	0.9	1.0	1.5	1.9	2.5	2.8	1.3	1.0	2.0	2.8	76
Fanaråken.....	1.3	1.4	1.5	4.1	1.1	1.3	1.9	2.3	2.8	1.5	2.7	1.4	4.1	20
Geilo.....	1.1	1.7	1.5	1.4	1.4	1.6	2.0	2.3	1.5	2.3	1.5	1.1	2.3	56
Lærdalsøyri.....	1.5	1.6	2.0	0.9	1.1	1.9	1.4	1.8	2.2	1.7	1.8	1.9	2.2	74
Lillhammer.....	0.8	0.7	1.3	1.2	1.2	2.9	1.5	1.8	1.7	1.5	1.1	0.9	2.9	60
Røros.....	0.9	1.4	0.7	0.7	2.5	1.9	1.8	2.3	1.6	1.7	0.7	0.9	2.5	76
Trondheim.....	1.7	1.9	2.6	1.6	1.3	1.2	1.7	2.4	2.0	3.2	1.9	2.6	3.2	65
Southwest Coast:														
Bergen.....	3.7	3.7	4.6	3.8	2.4	2.6	3.1	3.5	4.7	3.5	5.2	4.7	5.2	76
Brønnøysund.....	2.0	1.6	1.5	1.3	1.3	1.9	1.7	2.0	1.8	2.1	2.1	1.7	2.1	75
Kråkenes.....	1.8	1.2	1.1	1.3	1.0	1.2	1.9	1.8	1.9	2.6	1.7	2.2	2.6	26
Kristiansund.....	3.2	2.5	2.8	1.3	1.1	2.0	1.6	2.3	2.6	4.1	3.3	2.2	4.1	59
Stavanger.....	2.1	1.8	2.3	2.4	1.6	2.4	1.9	2.0	2.6	2.3	2.2	2.9	2.9	70
Arctic Coast:														
Bodø.....	2.0	2.4	2.9	2.2	2.2	1.8	1.8	2.6	2.2	2.9	2.6	2.2	2.9	75
Narvik.....	1.2	1.6	1.7	1.2	0.7	2.1	1.0	1.4	2.1	1.8	1.4	1.7	2.1	19
Skrova.....	3.6	2.6	2.0	2.1	2.0	2.0	3.0	2.1	2.6	4.9	2.6	3.0	4.9	62
Tromsø.....	1.8	2.4	1.5	1.4	1.1	2.5	1.7	1.5	1.9	1.9	1.6	2.5	2.5	76
Vardø.....	2.0	1.5	1.7	1.0	1.4	1.4	2.2	1.3	1.3	1.3	0.8	0.9	2.2	57
Arctic Interior:														
Karasjok.....	0.6	1.6	0.4	0.7	1.0	2.0	1.3	1.4	1.2	1.2	0.8	0.6	2.0	71
Arctic Islands:														
Bear Island.....	0.9	0.6	1.3	0.7	1.6	0.7	0.8	0.9	1.0	0.8	0.8	0.8	1.6	17
Grønfjorden.....	0.7	1.6	0.6	1.4	0.5	0.4	0.8	0.9	0.9	0.6	1.3	1.3	1.6	19
Jan Mayen.....	2.4	1.3	1.4	1.0	2.0	0.7	3.4	1.4	1.8	1.8	1.3	1.5	3.4	29

FIGURE 23-48. MEAN NUMBER OF DAYS WITH PRECIPITATION ≥ 0.004 INCH

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:														
Ås.....	15	13	14	11	12	12	13	17	14	16	15	17	169	30
Færder.....	12	10	11	9	10	8	9	12	10	13	12	14	130	30
Oksøy.....	15	12	12	10	9	9	9	13	10	14	14	16	143	30
Oslo.....	13	11	12	10	11	11	13	16	11	13	13	15	149	30
Southern Interior:														
Balestrand.....	19	14	14	12	14	13	16	19	17	16	18	17	189	30
Dalen.....	13	11	12	9	10	10	12	15	10	12	12	13	139	30
Dombås.....	14	11	11	8	9	10	14	16	12	11	13	13	142	30
Finse.....	18	13	16	12	14	14	15	19	17	16	18	18	190	14
Hamar.....	12	10	10	9	11	11	13	16	12	13	12	14	143	30
Hattfjellidal.....	20	16	15	11	12	14	15	18	18	17	17	17	190	30
Lærdalsøyri.....	12	8	8	6	9	9	11	16	12	11	10	10	122	30
Lillihammer.....	11	9	10	8	10	10	12	15	10	11	10	12	128	20
Luster.....	15	11	11	8	10	11	13	17	14	13	14	14	151	30
Mesnalién Kappel.....	11	10	11	9	11	12	13	15	10	12	11	13	138	30
Nesbyen.....	10	8	8	7	8	10	12	15	9	10	9	10	116	30
Nordli.....	20	19	19	17	17	18	18	21	19	19	20	20	227	30
Rena.....	12	9	11	8	11	12	14	16	12	13	12	14	144	30
Røldal.....	17	14	14	11	12	11	13	19	15	15	16	16	173	30
Røros.....	16	13	13	10	12	13	15	18	15	14	14	15	168	30
Steinkjer.....	16	14	13	11	12	13	14	16	18	16	16	14	173	30
Sunndal.....	10	9	8	6	7	9	12	13	11	9	9	8	111	30
Trondheim.....	17	14	14	13	14	15	15	18	19	18	16	15	188	30
Ullensvang.....	20	14	13	12	12	12	15	19	17	16	16	16	182	30
Veggli.....	9	8	10	8	9	10	13	16	9	12	10	11	125	30
Volden.....	13	11	11	9	11	12	14	18	12	13	12	14	150	30
Southwest Coast:														
Ålesund.....	18	16	15	14	15	15	15	18	18	18	19	16	197	30
Bergen.....	18	15	17	12	15	12	17	18	19	18	18	19	198	20
Brønnøysund.....	19	16	16	14	15	15	15	16	20	19	18	17	200	30
Florø.....	21	17	17	14	13	13	13	17	18	19	19	20	201	30
Hellesøy.....	21	18	19	15	14	13	13	19	19	20	20	20	211	20
Kristiansund.....	18	15	16	15	15	16	14	19	20	19	18	17	202	20
Mandal.....	19	16	16	13	13	11	11	15	13	19	18	20	184	30
Molde.....	17	14	14	12	13	13	13	18	18	17	16	15	180	30
Nordøyen.....	17	16	15	12	12	12	11	13	16	17	18	16	175	30
Ona.....	18	17	17	14	14	15	13	17	18	18	18	18	197	30
Skudeneshavn.....	18	14	14	12	11	11	11	17	16	18	18	18	178	30
Sokndal.....	23	18	17	15	17	13	15	21	21	24	23	24	231	30
Utsira.....	21	20	18	16	15	13	14	20	18	21	21	22	219	30
Vestnes.....	16	14	15	13	14	16	15	20	16	17	16	15	187	30
Arctic Coast:														
Andenes.....	19	18	17	15	16	14	13	12	20	20	19	17	200	30
Bodø.....	14	12	12	10	11	11	11	11	17	16	14	12	151	30
Gjesvær.....	16	17	18	16	15	14	12	12	18	20	18	16	192	30
Lødingen.....	22	19	16	14	16	15	14	17	22	22	22	15	214	30
Mehamn.....	20	19	20	17	17	14	13	15	21	22	21	19	218	30
Narvik.....	18	15	15	15	15	15	17	16	21	20	18	14	201	30
Røst.....	24	20	18	15	14	13	12	14	19	22	23	21	215	30
Skomvær.....	23	20	17	14	14	13	12	14	18	21	22	21	209	30
Svolvær.....	20	17	15	12	15	13	12	12	19	22	19	16	192	30
Tromsø.....	15	13	12	12	11	11	9	11	16	17	17	11	155	30
Vardø.....	15	14	14	12	11	9	10	12	15	15	15	16	158	20
Arctic Interior:														
Alta.....	9	9	9	9	9	9	9	9	12	11	10	8	113	30
Karasjok.....	7	7	6	6	7	9	10	10	11	9	8	6	96	30
Kautokeino.....	10	8	9	7	9	9	12	12	13	11	10	6	116	30
Kistrand.....	14	13	12	11	11	12	11	11	16	15	14	11	151	30
Siccajavre.....	8	6	7	5	8	8	11	11	10	10	7	5	96	30
Sor-Varanger.....	11	10	11	9	10	10	11	11	13	12	12	12	132	30
Arctic Islands:														
Bear Island.....	14	14	14	10	12	7	7	8	14	13	14	13	140	na
Grønfyorden.....	12	12	12	10	7	6	6	6	9	11	11	12	114	na
Jan Mayen.....	19	20	15	15	11	9	11	9	15	15	17	18	178	na

na Data not available.

FIGURE 23-49. MEAN NUMBER OF DAYS WITH SNOWFALL ≥ 0.004 INCH

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:														
Ås.....	12	10	10	5	1	0	0	0	*	2	6	12	58	30
Færder.....	7	7	7	2	*	0	0	0	0	1	3	6	33	30
Oksøy.....	7	6	6	2	*	0	0	0	0	*	2	5	28	30
Oslo.....	13	11	11	5	1	0	0	0	*	2	6	12	61	44
Southern Interior:														
Dalen.....	10	9	10	5	1	0	0	0	0	2	6	11	54	30
Dombås.....	13	10	11	7	3	1	0	0	1	6	12	13	77	30
Finse.....	17	13	16	11	11	6	1	2	8	12	17	17	131	14
Hamar.....	11	9	9	5	1	0	0	0	0	2	7	12	56	30
Hattfjeldal.....	17	14	13	8	4	1	*	0	1	7	13	15	93	30
Lærdalsøyri.....	6	5	3	1	*	0	0	0	0	*	3	4	22	30
Lillihammer.....	11	9	10	6	2	0	0	0	*	3	8	12	61	44
Nesbyen.....	9	7	6	4	1	0	0	0	*	3	6	9	45	30
Rena.....	11	9	10	5	2	0	0	0	*	4	9	12	62	30
Røros.....	16	15	15	12	7	3	*	*	3	10	13	16	110	44
Sunnadal.....	9	7	7	5	3	*	0	0	1	4	7	6	49	30
Trondheim.....	15	14	13	9	4	*	0	0	1	5	10	13	84	44
Ullensvang.....	8	7	5	2	1	0	0	0	0	1	3	5	32	na
Volden.....	12	11	10	7	2	*	0	0	*	5	10	13	70	30
Southwest Coast:														
Bergen.....	11	10	9	6	1	0	0	0	*	2	5	7	51	44
Brønnøysund.....	12	11	11	7	3	*	0	0	*	4	8	9	65	44
Florø.....	9	9	8	5	1	0	0	0	0	1	4	6	43	na
Mandal.....	8	8	7	2	*	0	0	0	0	1	2	6	34	44
Molde.....	10	8	8	5	3	0	0	0	0	3	6	7	50	30
Nordøyen.....	9	10	9	6	2	0	0	0	*	2	7	8	53	30
Skudeneshavn.....	6	6	5	2	*	0	0	0	0	1	3	4	27	30
Arctic Coast:														
Bodø.....	11	11	10	6	3	*	0	0	1	5	8	8	63	44
Gjesvær.....	12	12	14	12	8	4	*	*	3	9	11	11	96	12
Skomvær.....	11	10	11	6	3	1	0	0	1	4	8	9	64	30
Svolvær.....	15	14	12	8	4	1	0	0	1	7	10	11	83	30
Tromsø.....	13	14	13	10	7	1	0	0	2	8	11	11	90	44
Vardø.....	16	17	16	12	10	4	0	*	3	11	15	17	121	44
Arctic Interior:														
Alta.....	8	9	9	8	4	1	0	0	2	7	9	7	64	30
Karasjok.....	9	8	9	7	6	2	*	*	2	7	9	7	66	44
Sor-Varanger.....	10	10	11	7	6	2	0	*	1	7	11	11	76	30
Arctic Islands:														
Bear Island.....	11	12	13	8	8	2	*	*	3	8	12	11	88	na
Grønfjorden.....	11	12	12	9	6	4	1	*	5	9	10	11	90	na
Jan Mayen.....	15	17	15	11	10	3	1	*	6	9	15	17	119	na

na Data not available.

* <0.5 day.

FIGURE 23-50. MEAN AND MAXIMUM SNOW DEPTH (INCHES)

REGION AND STATION	ELEVATION	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	MAXIMUM DEPTH	YRS REC*
	<i>feet</i>										
Southeast Coast:											
Mykland.....	919	0	2	9	14	16	19	8	0	67	49
Oslo.....	75	0	1	2	6	6	4	***	0	31	37
Southern Interior:											
Bestul**.....	1,549	1	4	13	22	28	34	26	4	79	49
Bjørnholt**.....	1,181	***	4	14	26	33	41	30	6	80	43
Hattfjelldal.....	728	1	7	15	23	32	36	26	5	73	37
Lesja.....	1,863	0	2	4	7	8	8	2	0	32	32
Levanger.....	15	0	1	2	4	4	2	***	0	28	25
Mjel.....	1,455	0	2	5	16	19	20	15	2	87	32
Orbekkedal**.....	1,690	1	4	14	19	31	35	25	4	75	48
Raundal.....	2,297	1	4	11	12	22	33	38	30	77	26
Røros.....	2,057	2	9	18	27	34	37	34	14	89	43
Skiravrales.....	1,345	1	4	9	12	21	24	14	2	59	32
Strømfoss**.....	371	0	1	3	7	7	6	1	0	40	49
Trondheim.....	116	0	2	4	6	8	6	3	0	40	33
Vatnedalen.....	2,248	1	2	7	10	12	11	9	1	57	22
Volden**.....	1,322	***	3	9	13	14	13	6	0	43	43
Voss.....	184	0	1	2	3	3	1	0	0	24	19
Southwest Coast:											
Åndanes.....	33	1	4	7	9	9	8	3	0	66	49
Bryne**.....	36	0	0	***	1	1	***	0	0	18	33
Kristiansund.....	59	0	1	1	3	3	2	1	0	17	10
Nordøyan.....	102	0	***	1	1	1	1	***	0	13	35
Overhalla**.....	82	1	4	9	14	21	22	13	1	55	48
Ringerejde**.....	79	0	1	2	3	3	2	***	0	52	49
Skåvler.....	13	0	1	1	1	2	2	1	0	17	23
Stavanger**.....	98	0	0	***	1	1	***	0	0	22	41
Stord.....	177	0	1	1	2	2	1	0	0	24	19
Arctic Coast:											
Hammerfest.....	26	3	8	12	14	20	20	19	8	56	10
Kanstadbotn**.....	43	2	6	11	19	26	33	26	9	89	37
Kråkmo.....	279	1	4	6	9	13	16	12	2	54	49
Mattisjorden.....	625	3	5	9	14	20	22	19	5	56	36
Moen**.....	36	1	4	7	11	15	16	10	1	63	49
Moldjord**.....	33	1	4	7	8	11	12	6	***	48	44
Skjånes**.....	7	1	2	3	3	4	4	2	1	16	41
Skomvær**.....	65	0	0	0	1	1	1	0	0	22	37
Svolvær.....	13	***	4	6	11	14	17	10	2	73	33
Torsvåg**.....	72	***	2	3	4	4	4	4	0	39	9
Vardø.....	33	2	5	13	24	34	41	36	16	83	31
Arctic Interior:											
Ankerlia.....	574	2	4	4	5	6	6	5	1	30	16
Bjørnsund**.....	66	1	7	13	19	24	26	25	9	48	49
Innset.....	1,063	2	8	17	24	31	34	28	11	102	47
Karasjok**.....	420	1	5	9	12	14	16	13	3	31	43
Levojok.....	230	1	4	12	22	29	34	32	15	52	47
Nordbotn.....	49	2	5	8	13	19	21	16	4	57	47
Olderøy.....	16	1	2	2	3	3	3	2	***	31	39
Solovomi.....	1,148	3	9	15	22	31	37	34	17	71	48

* The years of record apply only to the maximum snow depth.

** Depths observed during period 1901-1930. Depths for remaining stations derived from other periods of records and adjusted to the 1901-1930 period.

*** <0.5 inch.

FIGURE 23-51. MEAN NUMBER OF DAYS WITH SNOW COVER

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Southeast Coast:														
Ås.....	24	23	23	8	0	0	0	0	0	1	10	19	108	30
Ekeland.....	28	25	27	11	0	0	0	0	0	1	8	17	117	20
Kristiansand.....	23	18	18	6	0	0	0	0	0	0	3	10	78	na
Oslo.....	25	25	20	3	0	0	0	0	0	1	8	19	101	30
Southern Interior:														
Austad.....	28	26	25	9	0	0	0	0	0	2	10	24	124	30
Bestul.....	30	27	31	28	7	0	0	0	0	5	16	28	172	20
Bjørnholt.....	31	28	31	29	9	0	0	0	0	4	16	30	178	20
Dalen.....	30	25	25	14	0	0	0	0	0	2	9	24	129	30
Dombås.....	31	28	30	19	1	0	0	0	0	3	20	31	163	30
Eidsvoll.....	30	27	30	19	2	0	0	0	0	3	14	28	153	30
Grjøttruste.....	31	28	31	30	31	20	2	*	1	12	25	31	242	na
Hattfjelldal.....	31	28	31	29	12	0	0	0	0	6	24	30	191	na
Haugen.....	16	16	13	2	0	0	0	0	0	0	4	10	61	20
Lesja.....	26	27	26	11	1	*	0	0	1	4	21	26	143	na
Levanger.....	16	20	18	4	0	0	0	0	0	1	12	18	89	20
Luster.....	31	28	31	23	3	0	0	0	0	1	10	24	151	30
Mesnalen Kappell.....	31	28	31	28	7	0	0	0	0	4	20	30	179	30
Mjel.....	31	28	30	28	8	0	0	0	0	4	18	28	175	20
Nesbyen.....	31	26	27	7	0	0	0	0	0	3	16	25	135	30
Nordli.....	31	28	31	28	11	0	0	0	0	3	19	31	182	30
Ørbekkedal.....	31	28	31	29	8	0	0	0	0	6	20	31	184	20
Os.....	31	28	31	30	23	1	*	*	3	14	28	31	220	na
Raundal.....	31	28	31	29	12	1	0	0	0	2	16	28	178	20
Rjukan.....	31	27	31	28	10	0	0	0	0	9	24	31	191	20
Røldal.....	30	28	31	26	4	0	0	0	0	3	18	28	168	30
Rørø.....	31	28	31	27	8	1	0	0	*	6	24	31	187	30
Seljord.....	29	26	30	9	*	0	0	0	0	*	9	25	128	na
Skiravrales.....	31	27	31	25	3	0	0	0	0	5	15	28	165	20
Strømfoss.....	15	15	16	4	0	0	0	0	0	0	4	10	64	20
Sunnal.....	30	28	30	23	3	0	0	0	0	5	12	29	160	30
Trondheim.....	26	26	25	10	*	0	0	0	0	3	13	21	124	30
Ulefoss.....	29	26	28	10	0	0	0	0	0	1	10	24	128	30
Ullensvang.....	19	19	7	0	0	0	0	0	0	0	3	11	59	30
Vatnedalen.....	30	28	31	28	5	0	0	0	0	5	20	30	177	20
Veggli.....	30	28	31	24	4	0	0	0	0	6	21	30	174	30
Volden.....	30	27	30	19	1	0	0	0	0	5	20	28	160	30
Voss.....	19	19	14	2	0	0	0	0	0	0	7	14	75	20
Ytre Rendall.....	31	28	31	15	*	0	0	0	*	3	15	26	149	na
Southwest Coast:														
Ålesund.....	13	11	10	3	1	0	0	0	0	1	6	9	54	30
Åndalsnes.....	20	20	16	10	1	0	0	0	0	1	11	17	96	20
Bergen.....	9	12	9	1	*	0	0	0	0	*	4	9	44	na
Brønnøysund.....	9	11	16	4	0	0	0	0	0	0	4	5	49	30
Bryne.....	8	8	4	1	0	0	0	0	0	0	1	6	28	20
Gjerde.....	10	10	10	1	0	0	0	0	0	*	4	5	40	na
Kristiansund.....	13	14	13	5	0	0	0	0	0	0	7	8	60	30
Namsos.....	22	23	25	9	*	0	0	0	0	3	16	23	121	na
Nordøyen.....	10	10	9	3	0	0	0	0	0	1	5	9	47	30
Overhalla.....	27	25	29	17	2	0	0	0	0	2	16	27	145	20
Ringerejde.....	18	20	19	6	0	0	0	0	0	1	7	10	81	20
Stavanger.....	7	9	4	1	0	0	0	0	0	0	2	4	27	20
Stord.....	4	3	3	0	0	0	0	0	0	0	1	3	14	20
Utsira.....	5	7	4	1	*	0	0	0	0	*	2	3	22	na
Vestnes.....	28	21	20	13	2	0	0	0	0	5	11	20	120	30

See footnotes at end of table.

FIGURE 23-51 (Continued)

REGION AND STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Arctic Coast:														
Andenes.....	21	22	24	16	5	0	0	0	0	5	17	16	126	30
Barkestad.....	22	24	25	19	5	*	0	0	*	5	14	20	134	na
Bodø.....	18	20	19	9	1	0	0	0	0	5	11	12	95	30
Gjesvær.....	22	26	28	26	10	0	0	0	0	12	18	19	161	30
Harstad.....	31	28	31	21	5	0	0	0	1	9	20	24	170	20
Kanstadbotn.....	31	28	31	30	15	0	0	0	1	10	20	26	192	20
Kråkmo.....	28	28	30	24	5	0	0	0	0	5	17	27	164	20
Lødingen.....	20	22	25	14	2	0	0	0	0	4	13	14	114	30
Mattisjorden.....	31	28	31	29	14	0	0	0	2	13	27	31	206	20
Moen.....	31	28	31	26	8	0	0	0	1	10	21	28	184	20
Moldjord.....	27	26	30	18	3	0	0	0	1	7	20	26	158	20
Narvik.....	27	27	30	24	4	0	0	0	0	8	17	27	164	30
Rødøy.....	14	18	20	10	2	0	0	0	0	2	9	14	89	na
Skjånes.....	29	27	28	20	10	0	0	0	1	9	22	28	174	20
Skomvær.....	8	8	9	3	1	0	0	0	0	1	5	7	42	30
Svolvær.....	23	23	25	16	3	0	0	0	1	6	15	21	133	na
Trangøy.....	27	28	30	21	9	*	0	0	1	7	16	24	163	na
Tromsø.....	28	28	30	24	9	0	0	0	1	11	22	27	180	30
Vardø.....	31	28	31	29	17	1	0	0	1	11	21	29	199	30
Arctic Interior:														
Ankerlia.....	31	28	28	24	8	0	0	0	1	9	22	22	173	20
Bjørnsund.....	31	28	31	30	20	1	0	0	1	12	28	31	213	20
Elvevold.....	31	28	31	29	18	1	0	0	1	14	25	30	208	20
Innset.....	31	28	31	29	20	1	0	0	3	10	26	31	210	20
Karasjok.....	31	28	31	29	10	0	0	0	1	13	27	31	201	30
Kautokeino.....	31	28	31	30	14	1	0	0	0	12	27	31	204	30
Kirkenes.....	31	28	31	30	21	3	0	0	*	9	26	31	210	na
Levojok.....	31	28	31	30	18	2	0	0	3	13	28	31	215	20
Nordbotn.....	31	26	28	21	8	0	0	0	0	6	21	24	165	20
Olderøy.....	31	28	31	23	4	0	0	0	1	10	22	31	181	20
Siccajavre.....	31	28	31	30	24	0	0	0	2	18	30	31	225	30
Solovomi.....	31	28	31	30	23	2	0	0	3	19	28	31	226	20
Sør-Varanger.....	31	28	31	30	19	1	0	0	0	12	26	30	208	30

na Data not available.

* <0.5 day.

①

LIST OF STATIONS

REGION AND STATION	LATI- TUDE*	LONGI- TUDE*	ELEVA- TION	REGION AND STATION	LATI- TUDE*	LONGI- TUDE*	ELEVA- TION
	° ' "	° ' "	feet		° ' "	° ' "	feet
Southeast Coast:				Southwest Coast (Continued):			
As.....	59 40 N.	10 46 E.	312	Krakenes.....	62 02 N.	4 59 E.	128
Ekeland.....	58 48 N.	9 06 E.	154	Kristiansund.....	63 07 N.	7 45 E.	59
Færder.....	59 02 N.	10 32 E.	20	Kvasseim.....	58 33 N.	5 40 E.	30
Jomfruland.....	58 52 N.	9 36 E.	49	Lista Fyr.....	58 06 N.	6 34 E.	39
Kristiansand.....	58 10 N.	8 01 E.	72	Mandal.....	58 02 N.	7 27 E.	16
Mykland.....	58 38 N.	8 17 E.	919	Molde.....	62 44 N.	7 10 E.	59
Oksoy.....	58 04 N.	8 04 E.	37	Namsos.....	64 29 N.	11 30 E.	82
Oslo.....	59 55 N.	10 44 E.	75	Nordøyen.....	64 48 N.	10 33 E.	102
Sandøesund.....	59 05 N.	10 28 E.	26	Ona.....	62 52 N.	6 33 E.	39
Ytre Torungen.....	58 24 N.	8 48 E.	39	Ørland.....	63 41 N.	9 40 E.	39
Southern Interior:				Overhalla.....	64 30 N.	11 56 E.	82
Alvdal.....	62 01 N.	10 48 E.	1,591	Ringerejde.....	61 09 N.	5 33 E.	79
Austad.....	58 58 N.	7 40 E.	787	Sand.....	59 29 N.	6 15 E.	23
Balestrand.....	61 13 N.	6 34 E.	92	Skålvær.....	65 52 N.	12 11 E.	13
Bestul.....	59 27 N.	9 32 E.	1,549	Skudeneshavn.....	59 09 N.	5 15 E.	13
Bjørnholt.....	60 03 N.	10 41 E.	1,181	Sokndal.....	58 19 N.	6 17 E.	26
Dalen.....	59 27 N.	8 00 E.	338	Stavanger.....	58 58 N.	5 44 E.	98
Dombås.....	62 04 N.	9 07 E.	2,110	Stord.....	59 47 N.	5 30 E.	177
Eidsvoll.....	60 20 N.	11 13 E.	640	Sula.....	63 51 N.	8 28 E.	88
Fanaråken.....	61 31 N.	7 55 E.	6,972	Tingvoll.....	62 50 N.	8 19 E.	167
Finse.....	60 36 N.	7 32 E.	4,022	Utsira.....	59 18 N.	5 54 E.	187
Flisa.....	60 37 N.	12 01 E.	600	Vestnes.....	62 33 N.	7 06 E.	72
Gardermoen.....	60 12 N.	11 06 E.	692	Arctic Coast:			
Garddøl.....	58 30 N.	7 11 E.	656	Andenes.....	69 20 N.	16 08 E.	23
Gausta.....	59 51 N.	8 40 E.	6,001	Bardufoss.....	69 04 N.	18 31 E.	272
Geilo.....	60 32 N.	8 12 E.	2,520	Barkestad.....	68 49 N.	14 48 E.	23
Granvin.....	60 25 N.	6 49 E.	1,132	Bodø.....	67 17 N.	14 24 E.	56
Grjøttruste.....	60 38 N.	7 16 E.	4,264	Borgvær.....	68 20 N.	13 48 E.	13
Hamar.....	60 48 N.	11 04 E.	456	Fauske.....	67 15 N.	15 25 E.	46
Hattfjelldal.....	65 36 N.	14 00 E.	728	Fleinvær.....	67 10 N.	13 47 E.	13
Haugen.....	58 56 N.	6 55 E.	633	Gjesvær.....	71 06 N.	25 22 E.	23
Kongsberg.....	59 40 N.	9 39 E.	558	Hammerfest.....	70 40 N.	23 41 E.	26
Krappeto.....	59 09 N.	11 37 E.	351	Harstad.....	68 49 N.	16 32 E.	148
Kutjern.....	60 34 N.	10 33 E.	1,941	Ingøy.....	71 04 N.	24 09 E.	13
Lærdalsøyri.....	61 06 N.	7 29 E.	15	Kanstadbotn.....	68 31 N.	15 53 E.	43
Lesja.....	62 07 N.	8 50 E.	1,863	Kråkmo.....	67 50 N.	15 59 E.	279
Levanger.....	63 45 N.	11 18 E.	15	Lødingen.....	68 25 N.	16 00 E.	43
Lillihammer.....	61 06 N.	10 28 E.	748	Makkaur.....	70 42 N.	30 03 E.	43
Luster.....	61 26 N.	7 26 E.	1,647	Malangen.....	69 19 N.	18 33 E.	16
Majavatn.....	65 13 N.	13 22 E.	1,148	Mattisjorden.....	68 25 N.	17 24 E.	625
Mesnali Kappell.....	61 06 N.	10 43 E.	1,883	Mehamn.....	71 01 N.	27 47 E.	19
Mjel.....	61 21 N.	6 19 E.	1,455	Moen.....	69 08 N.	18 37 E.	36
Nesbyen.....	60 35 N.	9 06 E.	538	Moldjord.....	67 00 N.	14 35 E.	33
Nordli.....	64 28 N.	13 36 E.	1,316	Narvik.....	68 27 N.	17 25 E.	26
Ørbekkedal.....	61 03 N.	11 54 E.	1,690	Rødøy.....	66 41 N.	13 05 E.	33
Os.....	62 30 N.	11 12 E.	2,559	Røst.....	67 31 N.	12 09 E.	26
Raundal.....	60 41 N.	6 38 E.	2,297	Sandsøy.....	68 57 N.	16 40 E.	56
Rena.....	61 08 N.	11 22 E.	738	Skjånes.....	70 32 N.	27 00 E.	7
Rjukan.....	59 52 N.	8 27 E.	2,861	Skomvær.....	67 25 N.	11 54 E.	65
Røldal.....	59 44 N.	6 52 E.	1,411	Skrova.....	68 09 N.	14 39 E.	36
Røros.....	62 34 N.	11 23 E.	2,057	Sommarøy.....	69 38 N.	18 01 E.	7
Selbu.....	63 12 N.	11 07 E.	646	Svolvær.....	68 14 N.	14 37 E.	13
Seljord.....	59 29 N.	8 37 E.	400	Torsvåg.....	70 15 N.	19 30 E.	72
Skiravråkes.....	60 36 N.	10 39 E.	1,345	Tranøy.....	68 11 N.	15 37 E.	na
Steinkjer.....	64 01 N.	11 30 E.	33	Tromsø.....	69 39 N.	18 57 E.	361
Strømfoss.....	59 19 N.	11 40 E.	371	Vardø.....	70 22 N.	31 06 E.	33
Stryn.....	61 55 N.	6 44 E.	16	Arctic Interior:			
Sunddal.....	62 33 N.	9 07 E.	640	Alta.....	69 58 N.	23 15 E.	32
Svandalsfjona.....	59 50 N.	6 59 E.	3,547	Ankerlia.....	69 27 N.	21 02 E.	574
Trondheim.....	63 26 N.	10 25 E.	116	Bjørnsund.....	69 28 N.	30 11 E.	66
Tynset.....	62 18 N.	10 45 E.	1,591	Bugøynes.....	69 57 N.	29 40 E.	33
Ulefoss.....	59 17 N.	9 16 E.	92	Dividal.....	68 47 N.	19 44 E.	663
	60 10 N.	8 40 E.	49				

JAN MAY

70 0 10

HELLES

BRANDAS

Hauges

UTSIRA

STAVAN

KVAS

Bestur	59 27 N.	9 32 E.	1,343	Sokndal	58 19 N.	6 17 E.	26
Bjørnholt	60 03 N.	10 41 E.	1,181	Stavanger	58 58 N.	5 44 E.	98
Dalen	59 27 N.	8 00 E.	338	Stord	59 47 N.	5 30 E.	177
Dombås	62 04 N.	9 07 E.	2,110	Sula	63 51 N.	8 28 E.	88
Eidsvoll	60 20 N.	11 13 E.	640	Tingvoll	62 50 N.	8 19 E.	167
Fanaråken	61 31 N.	7 55 E.	6,972	Utsira	59 18 N.	4 54 E.	187
Finse	60 36 N.	7 32 E.	4,022	Vestnes	62 33 N.	7 06 E.	72
Flisa	60 37 N.	12 01 E.	600				
Gardermoen	60 12 N.	11 06 E.	692	Arctic Coast:			
Garddøl	58 30 N.	7 11 E.	656	Andenes	69 20 N.	16 08 E.	23
Gausta	59 51 N.	8 40 E.	6,001	Bardufoss	69 04 N.	18 31 E.	272
Geilo	60 32 N.	8 12 E.	2,520	Barkestad	68 49 N.	14 48 E.	23
Granvin	60 25 N.	6 49 E.	1,132	Bodø	67 17 N.	14 24 E.	56
Grjotruste	60 38 N.	7 16 E.	4,264	Borgvær	68 20 N.	13 48 E.	13
Hamar	60 48 N.	11 04 E.	456	Fauske	67 15 N.	15 25 E.	46
Hattfjelldal	65 36 N.	14 00 E.	728	Fleinvær	67 10 N.	13 47 E.	13
Haugen	58 56 N.	6 55 E.	633	Gjesvær	71 06 N.	25 22 E.	23
Kongsberg	59 40 N.	9 39 E.	558	Hammerfest	70 40 N.	23 41 E.	26
Krappeto	59 09 N.	11 37 E.	351	Harstad	68 49 N.	16 32 E.	148
Kutjern	60 34 N.	10 33 E.	1,941	Ingøy	71 04 N.	24 09 E.	13
Lærdalsøyri	61 06 N.	7 29 E.	15	Kanstadbotn	68 31 N.	15 53 E.	43
Lesja	62 07 N.	8 50 E.	1,363	Kråkmo	67 50 N.	15 59 E.	279
Levanger	63 45 N.	11 18 E.	15	Lødingen	68 25 N.	16 00 E.	43
Lillihammer	61 06 N.	10 28 E.	748	Makkaur	70 42 N.	30 03 E.	43
Luster	61 26 N.	7 26 E.	1,647	Malangen	69 19 N.	18 33 E.	16
Majavatn	65 13 N.	13 22 E.	1,148	Mattisjorden	68 25 N.	17 24 E.	625
Mesnalién Kappell	61 06 N.	10 43 E.	1,883	Mehamn	71 01 N.	27 47 E.	19
Mjel	61 21 N.	6 19 E.	1,455	Moen	69 08 N.	18 37 E.	36
Nesbyen	60 35 N.	9 06 E.	538	Moldjord	67 00 N.	14 35 E.	33
Nordli	64 28 N.	13 36 E.	1,316	Narvik	68 27 N.	17 25 E.	26
Ørbekkedal	61 03 N.	11 54 E.	1,690	Rødøy	66 41 N.	13 05 E.	33
Os	62 30 N.	11 12 E.	2,559	Røst	67 31 N.	12 09 E.	26
Raundal	60 41 N.	6 38 E.	2,297	Sandsøy	68 57 N.	16 40 E.	56
Rena	61 08 N.	11 22 E.	738	Skjanes	70 32 N.	27 00 E.	7
Rjukan	59 52 N.	8 27 E.	2,861	Skomvær	67 25 N.	11 54 E.	65
Røldal	59 44 N.	6 52 E.	1,411	Skrova	68 09 N.	14 39 E.	36
Røros	62 34 N.	11 23 E.	2,057	Sommarøy	69 38 N.	18 01 E.	7
Selbu	63 12 N.	11 07 E.	646	Svolvær	68 14 N.	14 37 E.	13
Seljord	59 29 N.	8 37 E.	400	Torsvåg	70 15 N.	19 30 E.	72
Skiravrakes	60 36 N.	10 39 E.	1,345	Tranøy	68 11 N.	15 37 E.	n a
Steinkjer	64 01 N.	11 30 E.	33	Tromsø	69 39 N.	18 57 E.	361
Strømfoss	59 19 N.	11 40 E.	371	Vardø	70 22 N.	31 06 E.	33
Stryn	61 55 N.	6 44 E.	16				
Sundal	62 33 N.	9 07 E.	640	Arctic Interior:			
Svandalsflona	59 50 N.	6 59 E.	3,547	Alta	69 58 N.	23 15 E.	32
Trondheim	63 26 N.	10 25 E.	116	Ankerlia	69 27 N.	21 02 E.	574
Tynset	62 18 N.	10 45 E.	1,591	Bjørnsund	69 28 N.	30 11 E.	66
Ulefoss	59 17 N.	9 16 E.	92	Bugøynes	69 57 N.	29 40 E.	33
Ullensvang	60 19 N.	6 40 E.	49	Dividal	68 47 N.	19 44 E.	663
Umbukta	66 10 N.	14 37 E.	771	Ekkerøy	70 04 N.	30 06 E.	23
Værnes	63 28 N.	10 56 E.	52	Elvevold	68 58 N.	19 40 E.	33
Vatnedalen	59 28 N.	7 15 E.	2,248	Innset	68 40 N.	18 51 E.	1,063
Veggli	60 03 N.	9 10 E.	666	Karasjok	69 27 N.	25 30 E.	420
Volden	61 06 N.	8 58 E.	1,322	Kautokeino	69 00 N.	23 02 E.	1,011
Voss	60 38 N.	6 25 E.	184	Kirkenes	69 43 N.	30 03 E.	16
Ytre Rendall	61 35 N.	11 25 E.	830	Kistrand	70 27 N.	25 15 E.	39
Southwest Coast:				Levojok	69 53 N.	26 25 E.	230
Ålesund	62 29 N.	6 11 E.	47	Nordbotn	69 45 N.	22 08 E.	49
Åndalsnes	62 34 N.	7 42 E.	33	Olderøy	70 03 N.	24 55 E.	16
Båsmo	66 20 N.	14 06 E.	125	Siccejavre	68 45 N.	23 33 E.	1,257
Bergen	60 24 N.	5 19 E.	57	Solovomi	69 37 N.	23 31 E.	1,148
Brandasund	59 54 N.	5 06 E.	26	Sor-Varanger	69 44 N.	30 03 E.	16
Brønnøysund	65 28 N.	12 12 E.	16				
Bryne	58 44 N.	5 38 E.	36	Arctic Islands:			
Eigeland	58 44 N.	6 10 E.	820	Bear Island	74 31 N.	19 01 E.	46
Eksingedal	60 47 N.	5 57 E.	984	Grønfjorden	78 02 N.	14 15 E.	36
Florø	61 38 N.	5 00 E.	26	Isfjord Radio	78 04 N.	13 38 E.	30
Gjerde	59 40 N.	5 57 E.	n a	Jan Mayen	71 01 N.	8 28 W.	128
Hellesøy	60 45 N.	4 43 E.	66	Kvadehuken	78 57 N.	11 42 E.	33
				Murchisonfjorden	80 03 N.	18 18 E.	16

n a Data not available.

* Coordinates give locations of weather stations and do not necessarily correspond to those for populated places.

HELLESØY

BRANDASUND

Haugesund

UTSIRA

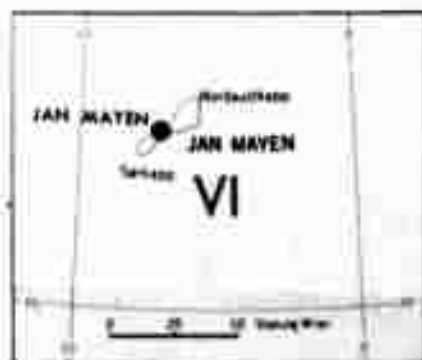
STAVANGER

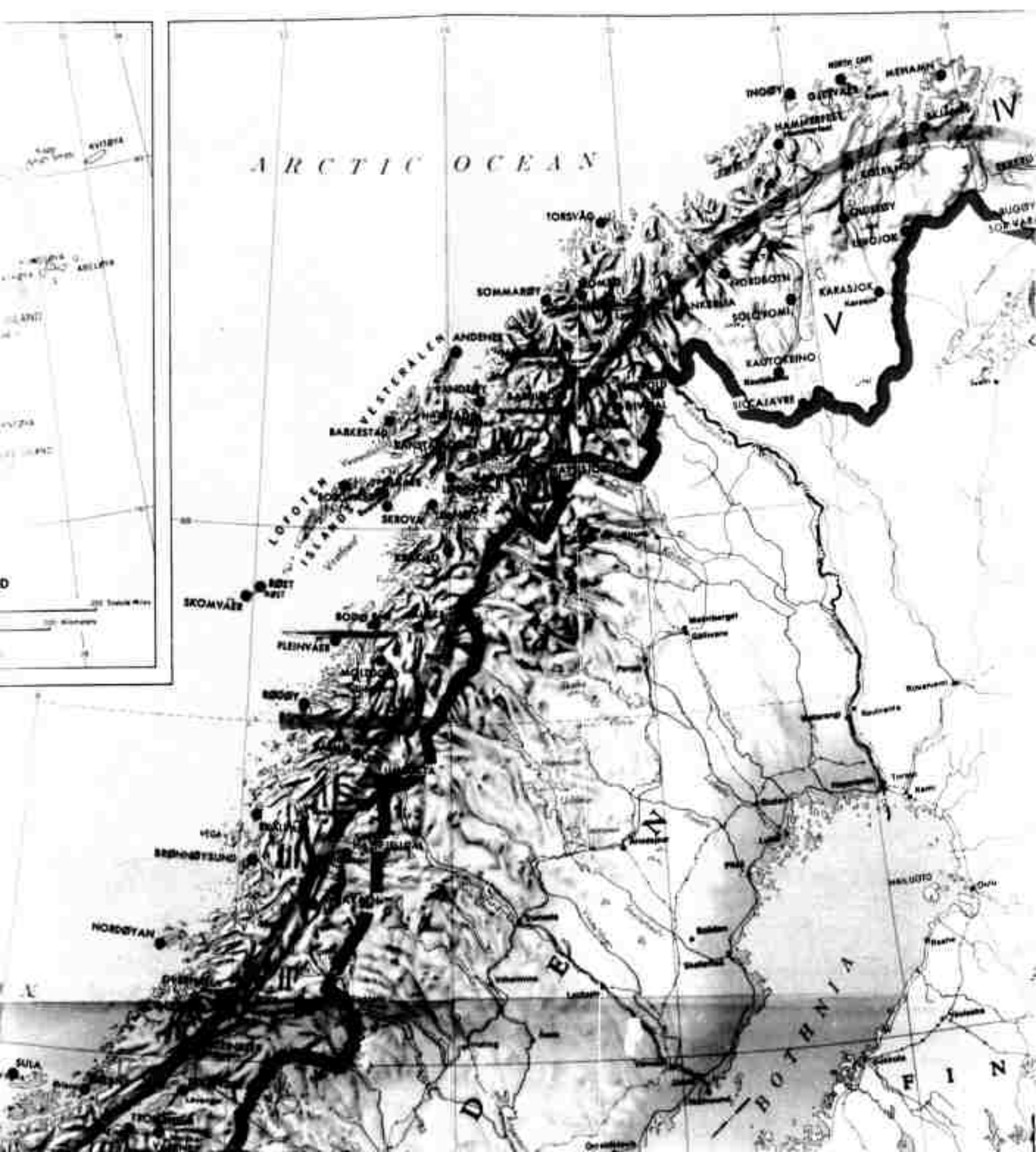
KVASSØY

ELEVATION

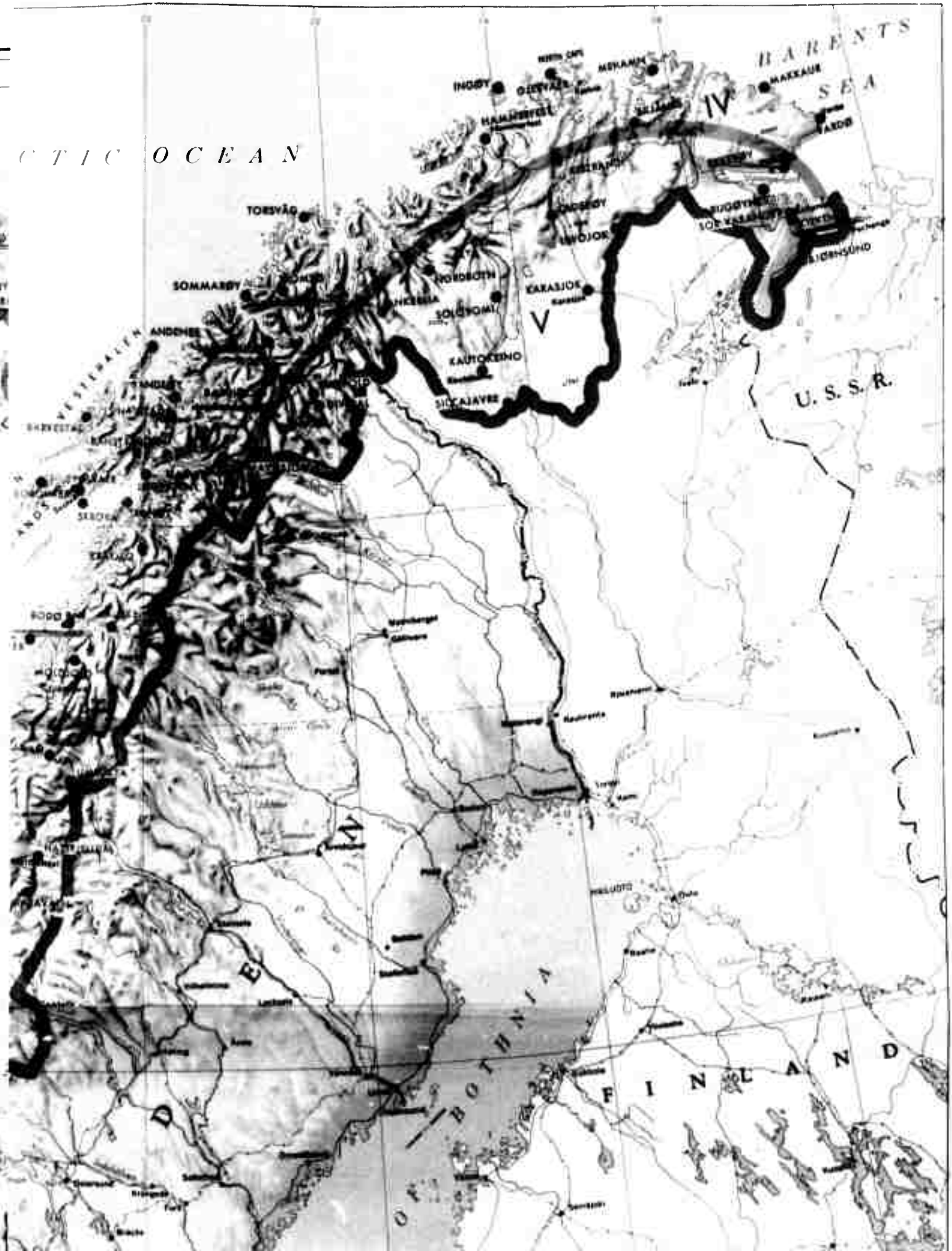
Boundaries recognize feet

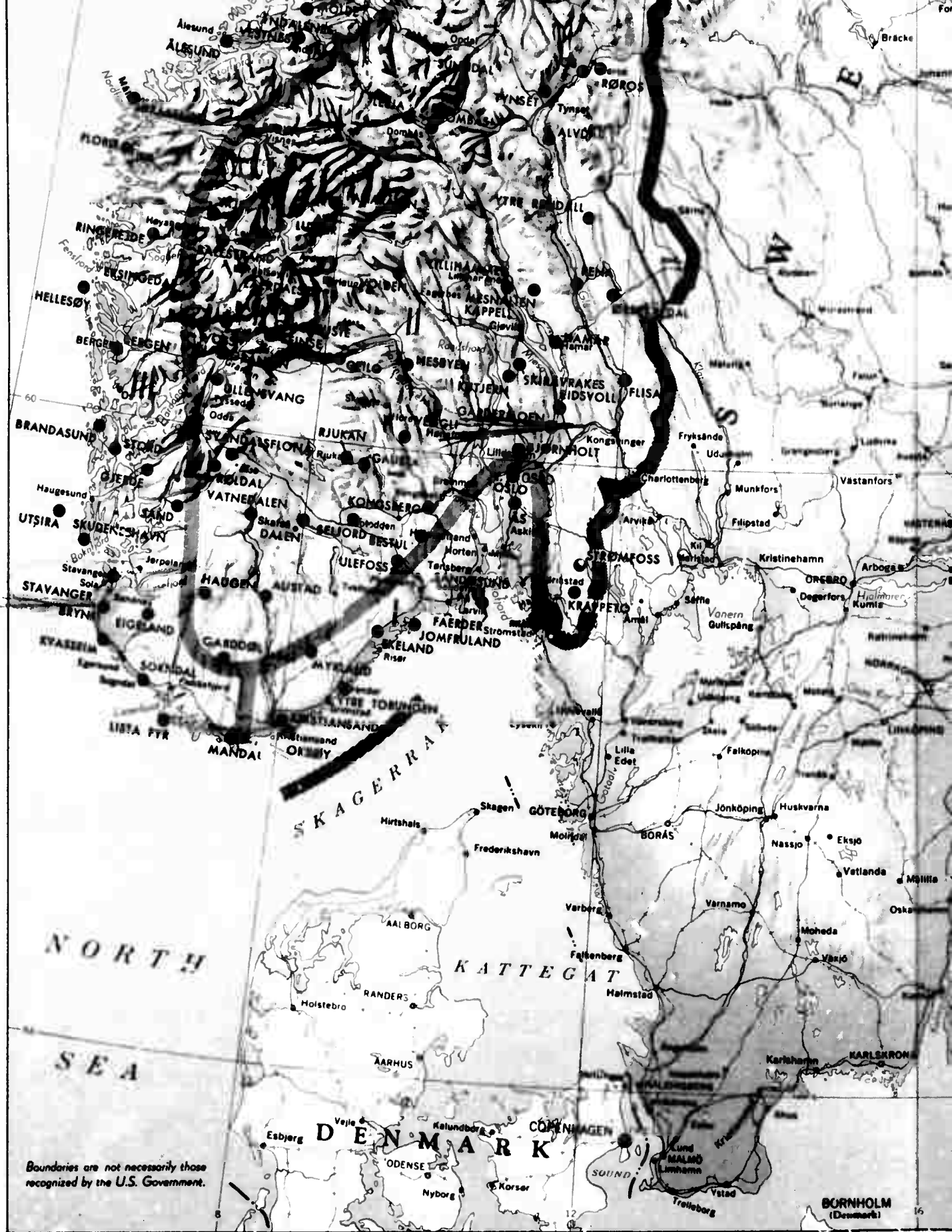
128
50
30
38
16
50
82
102
30
39
82
79
23
13





CTIC OCEAN





Boundaries are not necessarily those recognized by the U.S. Government.

20770 AWS

(4)

(6)



The figure is a map of Norway and surrounding areas, including the Gulf of Bothnia, Åland Islands, Gotska Sandön, Fårön, and Gotland. It shows the locations of meteorological stations marked with black dots. A legend box in the center of the map defines the discussion regions and provides a scale in statute miles and kilometers. The regions are numbered I to VI: I. Southeast Coast, II. Southern Interior, III. Southwest Coast, IV. Arctic Coast, V. Arctic Interior, and VI. Arctic Islands. The map also shows major cities like Jyväskylä, Helsingfors, and Peksämäki.

NORWAY

STATION LOCATIONS

● METEOROLOGICAL STATION

Locations are shown only for stations for which data are presented in text or tables.

DISCUSSION REGION BOUNDARY

I SOUTHEAST COAST

II SOUTHERN INTERIOR

III SOUTHWEST COAST

IV ARCTIC COAST

V ARCTIC INTERIOR

VI ARCTIC ISLANDS

0 50 100 150
Statute Miles

0 50 100 150
Kilometers

6

The figure is a map of Norway and surrounding areas, including the Gulf of Bothnia, Åland Islands, Gotska Sandön, Fårön, and Gotland. It shows the locations of meteorological stations marked with black dots. A legend box in the center of the map defines the discussion regions and provides a scale in statute miles and kilometers. The regions are: I. Southeast Coast, II. Southern Interior, III. Southwest Coast, IV. Arctic Coast, V. Arctic Interior, and VI. Arctic Islands. The scale bar shows 0 to 150 statute miles and 0 to 150 kilometers. The map also includes labels for Jyväskylä, Helsingfors, and Peksämäki in the north.

NORWAY

STATION LOCATIONS

● METEOROLOGICAL STATION

Locations are shown only for stations for which data are presented in text or tables.

DISCUSSION REGION BOUNDARY

I SOUTHEAST COAST

II SOUTHERN INTERIOR

III SOUTHWEST COAST

IV ARCTIC COAST

V ARCTIC INTERIOR

VI ARCTIC ISLANDS

0 50 100 150
Statute Miles

0 50 100 150
Kilometers

6

The figure is a map of Norway and surrounding areas, including the Gulf of Bothnia, Åland Islands, Gotska Sandön, Fårön, and Gotland. It shows the locations of meteorological stations marked with black dots. A legend box in the center of the map defines the discussion regions and provides a scale in statute miles and kilometers. The regions are: I. Southeast Coast, II. Southern Interior, III. Southwest Coast, IV. Arctic Coast, V. Arctic Interior, and VI. Arctic Islands. The scale bar shows 0 to 150 statute miles and 0 to 150 kilometers. The map also includes labels for Jyväskylä, Helsingfors, and Peksämäki in the north.

NORWAY

STATION LOCATIONS

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DISCUSSION REGION BOUNDARY

I SOUTHEAST COAST

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0 50 100 150
Statute Miles

0 50 100 150
Kilometers

6

The figure is a map of Norway and surrounding areas, including the Gulf of Bothnia, Åland Islands, Gotska Sandön, Fårön, and Gotland. It shows the locations of meteorological stations marked with black dots. A legend box in the center of the map defines the discussion regions and provides a scale in statute miles and kilometers. The regions are: I. Southeast Coast, II. Southern Interior, III. Southwest Coast, IV. Arctic Coast, V. Arctic Interior, and VI. Arctic Islands. The scale bar shows 0 to 150 statute miles and 0 to 150 kilometers. The map also includes labels for Jyväskylä, Helsingfors, and Peksämäki in the north.

NORWAY

STATION LOCATIONS

● METEOROLOGICAL STATION

Locations are shown only for stations for which data are presented in text or tables.

DISCUSSION REGION BOUNDARY

I SOUTHEAST COAST

II SOUTHERN INTERIOR

III SOUTHWEST COAST

IV ARCTIC COAST

V ARCTIC INTERIOR

VI ARCTIC ISLANDS

0 50 100 150
Statute Miles

0 50 100 150
Kilometers

6

- The figure is a map of Norway and surrounding areas, including the Gulf of Bothnia, Åland Islands, Gotska Sandön, Fårön, and Gotland. It shows the locations of meteorological stations marked with black dots. A legend box in the center of the map defines the discussion regions and provides a scale in statute miles and kilometers. The regions are: I. Southeast Coast, II. Southern Interior, III. Southwest Coast, IV. Arctic Coast, V. Arctic Interior, and VI. Arctic Islands. The scale bar shows 0 to 150 statute miles and 0 to 150 kilometers. The map also includes labels for Jyväskylä, Helsingfors, and Peksämäki in the north.

NORWAY

STATION LOCATIONS

● METEOROLOGICAL STATION

Locations are shown only for stations for which data are presented in text or tables.

DISCUSSION REGION BOUNDARY

I SOUTHEAST COAST

II SOUTHERN INTERIOR

III SOUTHWEST COAST

IV ARCTIC COAST

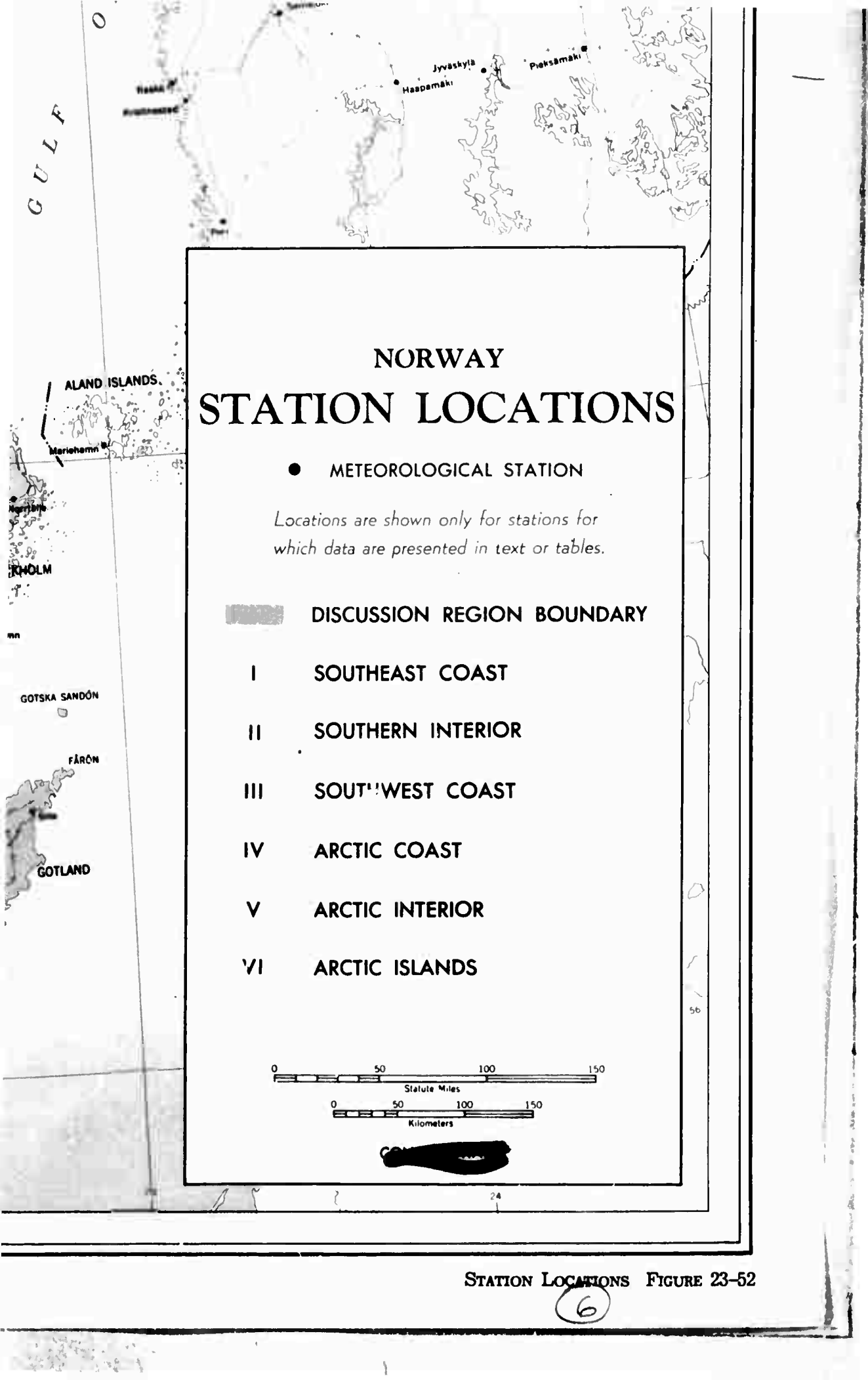
V ARCTIC INTERIOR

VI ARCTIC ISLANDS

0 50 100 150
Statute Miles

0 50 100 150
Kilometers

6



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