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Military Geography

54

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Greece

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Military Geography

A. General (U/OU)

Greece is located in southeastern Europe adjacent to vital sea lanes in the eastern Mediterranean Sea and in the Aegean Sea—the gateway to the Turkish straits (Dardanelles and Bosphorus) and the Black Sea (Figure 40). The entire northern part of the country is bordered by Communist-dominated Balkan neighbors and the eastern land and water frontiers face Turkey, an archrival in Cyprus. Greece has been a member of NATO since 1952 and is a vital link in NATO's southeastern flank.

Greece has an area of about 51,200 square miles (including 9,600 square miles of islands). The mainland, 41,600 square miles, is slightly larger than Ohio, and has maximum dimensions of about 385 miles¹ east-west and about 550 miles north-south. The population is about 8,930,000.

B. Topography (U/OU)

Most of the country consists of hills and mountains (Figure 40) covered by thorny evergreen and deciduous shrubs and deciduous forest; flat to gently rolling, intensively cultivated plains are mainly in small scattered areas along the coasts and are covered primarily by grain crops, evergreen shrubs, and vineyards. Hills (Figure 1) are the most widespread landform on the mainland and in the islands. Summits mainly are 2,000 to 6,000 feet above sea level and generally are broad and rounded and have many small flat or rolling areas. The hills are dissected by numerous narrow, deep, steep-sided valleys with floors 700 to 2,000 feet below adjacent summits. Valley walls (Figure 2) have slopes of 50% to 100% and locally consist of short, discontinuous cliffs. The valley floors rarely exceed 100 yards in width and in places are almost pinched out by narrow fingerlike extensions of the hillsides. The valleys, spaced 2 to 5 miles apart, in many places are connected by low passes. Nearly flat basins (Figure 3), which generally are at elevations up

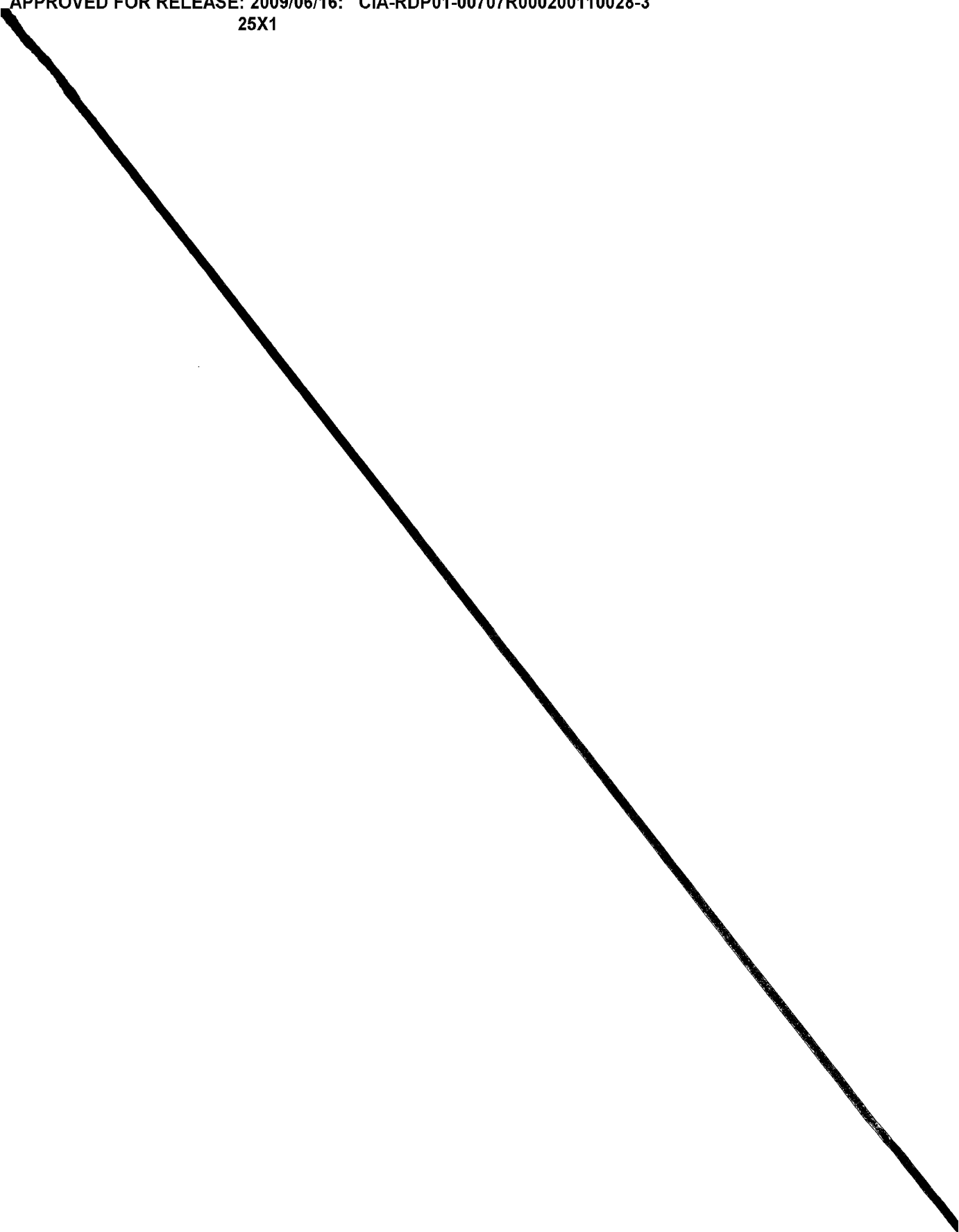
¹Distances are in statute miles unless nautical miles are specifically indicated.

to 2,000 feet, are common in the hills. Mountains are scattered throughout Greece, but the greatest mass (Figure 4) extends south-southeastward from the Albania border to the Gulf of Corinth and continues into northern Peloponnesus. Many mountain summits are more than 6,500 feet above sea level, and several are more than 8,000 feet; the highest elevation, Olympus, is 9,550 ft. The mountains generally consist of massive steep-sided mountain blocks, ridges, and pyramidal forms, and are very rugged. They are dissected by numerous, deep, steep-sided, in places precipitous valleys (Figure 5), many of which range from 3,000 to 5,500 feet in depth and have very narrow, flat, discontinuous floors. Mountain sides and valley walls commonly have slopes of 50% to 100%, and some valley walls are extensive, high, almost vertical cliffs. In places, however, the mountains rise in a series of fairly gradual, though deeply dissected, slopes (Figure 6). Summit areas are mostly rounded and have slopes less than 20%. Passes (Figure 7) are few and mostly at elevations of 3,000 to 5,000 feet. Manmade terraces, generally less than 100 feet wide and separated by stone walls 2 to 4 feet high, are widely scattered through the highlands.

There are no large flat areas in Greece; plains (Figure 8) are isolated from one another by highlands or by the sea, and none exceeds 1,000 square miles in area. Most of the plains are on or near the northern and western shores of the Aegean Sea and are at elevations ranging from sea level to 400 feet. Surfaces are flat (Figure 9) or slightly rolling and have slopes less than 2%; locally, there are isolated crags up to 50 feet in height and, in places, low rolling hills. Lakes and marshes are common. Most plains are crossed by at least one shallow, sluggish, meandering stream, which is bordered in many places by low earthen dikes or embankments. In many of the plains, there are drainage ditches 3 to 10 feet in depth and width and spaced 20 to 200 feet apart. In many of the northern plains, deep, steep-banked irrigation canals, 25 to 175 feet wide and as much as 10 feet deep, are common.

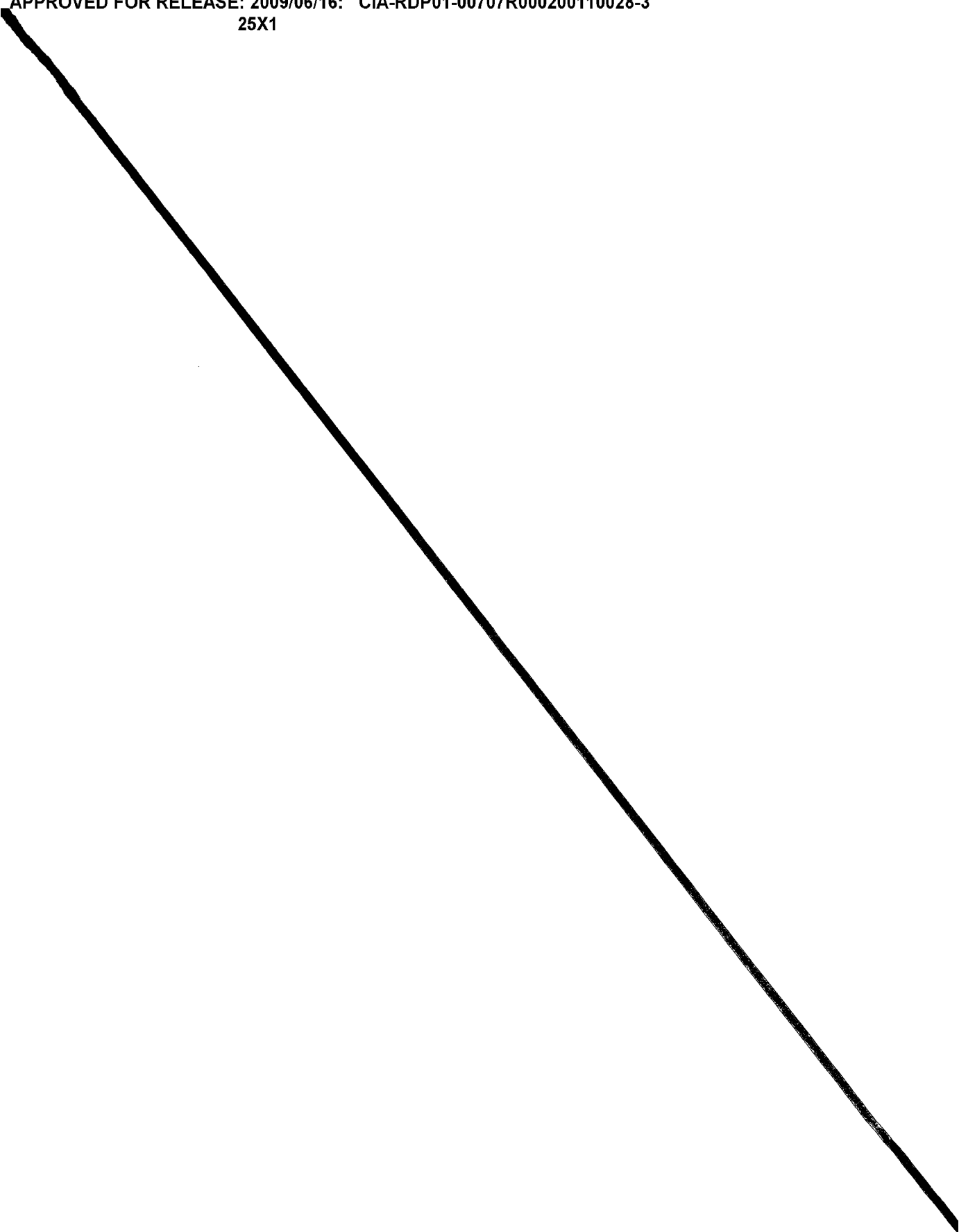
Greece has numerous rivers and small lakes and a few large lakes. Almost all of the rivers are torrential

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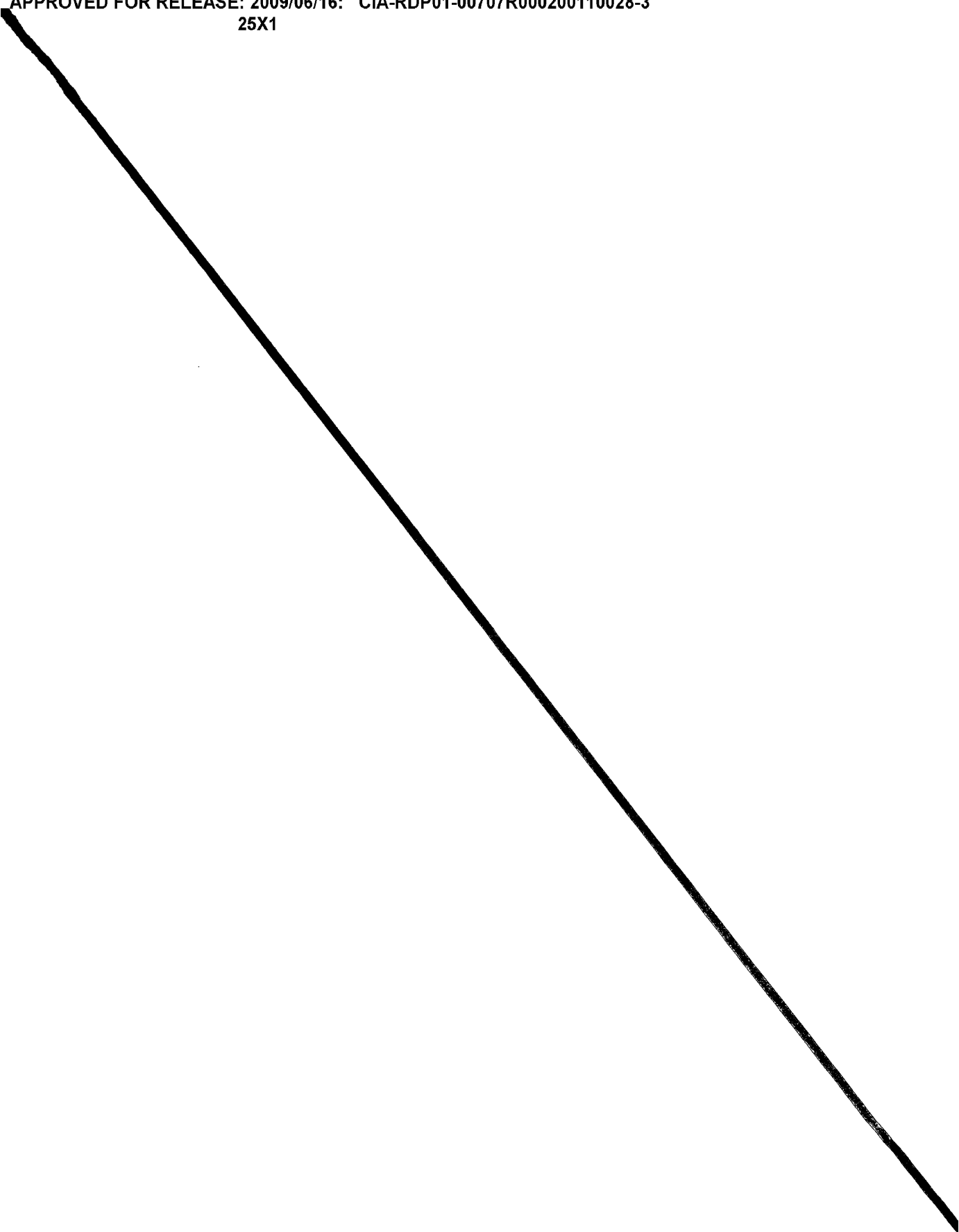
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FIGURE 10. Most streams in the highlands are perennial and flow in deep narrow valleys. This stretch of the Nestos Potamos is less than 250 feet wide and more than 3.5 feet deep. (U/OU)

dry or are reduced to mere trickles. Supplies are perennially plentiful only from a few large streams which are as much as 25 to 50 miles apart. In southern Greece and on the islands, supplies of surface water are primarily scarce or lacking; here, sources are mostly intermittent streams, which contain water only after heavy rains. Throughout the country, almost all of the surface water is fresh, hard, and bacterially impure. Access to sources is difficult in mountains, hills, and gorges, where road nets are sparse and streambanks are high, and is poor in plains and basins during the high water period, when streams flood extensive areas. Ground water supplies are scarce throughout most of Greece and are difficult to obtain. The largest quantities are obtained from wells in river and lake plains, deltas, and in basins generally at depths less than 50 feet near major streams but as much as 200 feet to 700 feet elsewhere. These areas are most extensive in northern and central Greece. Smaller quantities are obtainable chiefly in cavernous limestone and marble located in fairly large but widely separated areas on mainland Greece and a few of the islands in the Aegean Sea; in these areas, the depth of wells is very irregular, ranging from a few feet to more than 500 feet before water is encountered. In the dry season, early May or June through September, quantities of ground water are appreciably reduced in most areas. Ground water is fresh, hard, and near populated places is bacterially contaminated. It is commonly brackish on the coasts and on the islands. Siting and excavation generally is easy in plains and



FIGURE 11. The Maritsa River, which marks most of the boundary between Greece and Turkey, is one of the largest streams in Greece. Banks are predominantly low, and during the high water period, early October through April, flooding is common. (C)

basins but is difficult elsewhere and requires geologic reconnaissance for best yields and power equipment.

Most of the large urban centers, towns, and villages are located in the northern plains and along or near the coasts. Buildings are mostly of masonry construction, have tile roofs, and are one to two stories high; however, in the large cities many of the buildings are of concrete and more than two stories high. In the newer sections the streets are broad and paved, but in the older sections of the cities and in the smaller towns and villages the streets are commonly narrow and winding and some are unpaved. The road network between populated centers is sparse, and in most places the roads are narrow and winding and have crushed-stone and bituminous surfaces. The railroad network is sparse.

C. Climate (U/OU)

Greece has a Mediterranean climate, with cloudy, mild, wet winters (December through March) and clear, hot, dry summers (June through September). The climate is influenced in winter principally by the frequent passage of migratory lows through this area of the Mediterranean and in summer by the persistent northerly flow of air out of the European extension of the Azores high. There are many local variations in the climate derived from the mountainous nature of the country and its proximity to the sea.

Winters are characterized by frequently changing weather. Cool, damp, and cloudy (Figure 39) conditions are usually associated with the frequent lows that traverse the Mediterranean basin. However,

heavy cloudiness and steady rain preceding the lows quickly diminishes after the low moves eastward, and the sky is soon bright and clear. Snow is infrequent except at the higher elevations, where a snow cover may persist for a few months. Although temperatures normally remain above freezing at most places, the high humidities of winter give a raw, penetrating dampness to the air; this is intensified by an increase in wind speed and overcast conditions. Wind speeds may reach gale force at times and are usually associated with strong lows. Local winds such as the warm *foehn* and cold *bora* occur near the mountains.

Summers are distinguished by clear skies, scanty rainfall, and high temperatures. Skies may be completely cloudless for several days at a time, and at many places in the south July and August are often rainless. Some light afternoon showers occur in the Pindus Mountains and in the north. Temperatures are quite high in the lowlands. However, some relief is given by afternoon sea breezes at coastal locations and by the dryness of the air in the interior. Surface winds are relatively light and therefore more responsive to local effects such as land and sea breezes. The major exception is over the islands in the Aegean Sea, where a light to moderate northerly wind is seldom interrupted.

1. Climatic controls

Among the major controls governing the climate are the semipermanent pressure systems which direct large-scale airflows over or near Greece. The winter circulation is dominated by two large anticyclones and a region of low pressure between them. To the north of Greece is the westward extension of the Siberian high. However, the cold air associated with this system is contained, for the most part, by the chain of mountains east and north of Greece, and invasions of Arctic air are infrequent. To the south, over northern Africa, is the eastward extension of the Azores high. Consequently, the Mediterranean Basin is a region of low pressure between these two anticyclones. Frequent cyclogenesis and movement of lows eastward through the Basin largely dictates the pattern of winter weather. In summer a more persistent and vigorous circulation is established between the strengthened Azores high in the western Mediterranean and a heat low over southern Asia. The steady north or northwest airflow between these pressure systems brings relatively dry air to the country and promotes generally clear skies and high temperatures as a monotonous daily fare. Other climatic controls are important mainly in their roles of establishing areal variations on a smaller scale. Differences in elevation

and in exposure to wind and sun, and proximity to the water determine many locally varied climates within the broad-scale regimes of winter and summer.

2. Weather elements and climatic conditions

a. Temperature

The temperature regime is typically Mediterranean, with mild winters and hot summers (Figures 29 and 30). At most island and coastal locations the maritime influence is quite pronounced throughout the year, resulting in very small diurnal ranges of temperature. During January and February, the coldest months, early morning temperatures generally range from the mid 30's (°F.) to 50°F. Only at some mountain locations do freezing temperatures normally occur at this time. Winter afternoons are relatively mild, and temperatures range from the low 40's to the low 60's. During July and August, the hottest months, afternoon temperatures range from the low 80's to the mid 90's, with the highest temperatures occurring at low-level locations away from the sea. Early morning temperatures in summer range mostly from 60°F. to 75°F. Several places have recorded summertime temperatures in excess of 110°F. Winter temperatures are at times quite cold, but only a few mountain locations have recorded temperatures below zero. Extreme temperatures range from 117°F. in summer to -11°F. in winter.

A main concern of temperatures in the upper air is the average height of the freezing level. It varies from 4,000 to 7,000 feet in winter, except in the higher mountains where it is near the surface, and from 13,000 to 15,000 feet in summer. Icing, heavy enough to be hazardous to aircraft, occurs primarily during the cool months. This condition is most likely in the extensive cloud systems accompanying migratory lows and associated cold fronts.

b. Humidity

Winter is generally characterized by high humidities throughout the country, reflecting the maritime influence on the climate. Early morning humidities are mostly in the 70's and 80's (%) and afternoons are only slightly less moist, with values mostly in the 60's and 70's. In summer much of the mainland is under the influence of dry continental air and afternoon humidities are lowered to the 30's and 40's. Conversely, many of the island and coastal locations remain relatively moist, with afternoon humidities continuing in the 60's and 70's.

c. Precipitation

The mountainous nature of the country causes large areal variations in annual precipitation amounts that range from as little as 8 inches on the south coast of Crete to 70 or more inches in the Pindus Mountains (Figure 39). Precipitation is heaviest on mountain slopes exposed to the moisture-bearing winds and is least at locations sheltered from these winds. The precipitation regime is characterized by distinct seasonal variations. The frequent migratory lows and frontal systems found in the Mediterranean during the cool months produce much of the precipitation in Greece. Maximum amounts occur in November, December, or January, and most places receive 3 to 9 inches during the wettest month; precipitation normally falls on 10 to 20 days per month. Most lowland locations have snow on less than 5 days per year. However, it occurs on 20 to 30 days per year in the Pindus Mountains and is also quite frequent in other parts of northern Greece and at high elevations on western Crete. Summer is the dry season everywhere. In fact, at several locations July and August are nearly rainless. Only in the north, particularly in the mountains, are there as many as 5 to 6 rainy days per month at this time.

d. Cloudiness

Typical of the Mediterranean climate, skies are frequently cloudy in winter and clear in summer (Figure 31). Maximum cloudiness occurs in December, January, or February, with monthly averages of 50% to 70% over most of the country. A wide variety of multilayered cloud types are associated with the migratory lows and fronts and range from low stratus to towering cumulus and cumulonimbus. Cloudiness is least in July and August, when monthly averages are between 5% and 40%. The cloudiest conditions of summer occur during the afternoons in the north, particularly in the mountains. Summer cloudiness is predominantly the cumulus type, but early morning stratus may occasionally be encountered in the mountains.

Very low ceilings occur infrequently over Greece. Only a few northern and mountain locations have ceilings below 1,000 feet on as much as 10% of the observations and then only in winter. Ceilings are below 3,300 feet on about 20% to 30% of the observations at many places from November through March (Figure 32). In summer, low ceilings are infrequent. Information on specific ceiling and visibility combinations pertinent to aircraft operations is supplied in Figure 33.

e. Visibility

Overall, visibility is quite good throughout the year, and this is especially true during the summer months. Visibility is most often restricted during winter in the northern part of the country and in the Pindus Mountains; a few places are restricted to less than 2 1/2 miles on up to 30% of the winter mornings. Slight restrictions (below 6 miles) are experienced on 20% to 50% of the observations in winter at scattered locations, mainly in the north. Fog (Figure 34) and precipitation are the primary restrictions, but heavy snowfall occasionally lowers the visibility to near zero, especially in the mountainous regions. Haze and smoke are locally important in industrial regions. In summer a dust haze is prevalent over the country, but the visibility is only slightly reduced.

f. Winds

Surface winds are predominantly light or calm throughout the year at most places (Figure 35). In winter surface winds are characteristically variable but the mean speeds are somewhat stronger than in summer. Infrequently, gale-force winds (>27 knots) accompany exceptionally strong low centers or a strong *bora*. In summer surface winds are lighter and usually more responsive to the prevailing pressure patterns. This is most apparent in the Aegean Sea and also on eastern Crete, where the flow of northerly-component winds is seldom interrupted. These are the etesian winds which are noted for their persistency. On the mainland coasts, land and sea breezes are a common summer feature. The *sirocco* occasionally affects Greece in spring and autumn; it is a very hot and usually humid southerly wind, causing extensive layers of low stratus clouds. In some cases, the *sirocco* may be quite dry when it arrives over Crete, during which time it is usually accompanied by a heavy layer of fine dust. Westerly winds prevail throughout the year in the upper atmosphere. The strongest winds occur in the south between 30,000 and 45,000 feet in all months; average speeds at these levels range between 50 and 75 knots in winter and between 40 and 50 knots in summer.

g. Thunderstorms and turbulence

Thunderstorms are infrequent over most of the country, and only a few stations have 5 to 10 thunderstorm days per month during the month of maximum activity. Several places have only 1 to 3 thunderstorm days per month throughout the year. Thunderstorms are more frequent in late spring and summer over the mountains and in the north, but on

some of the islands they are more frequent during the cool months and are associated with cold fronts.

Moderate to severe turbulence can always be expected in the vicinity of thunderstorms and strong fronts. Orographic turbulence occurs over the mountainous regions and may extend several thousand feet above the top of the mountains. Eddies, a local turbulent condition, occur frequently to the lee of mountains, hills, and cliffs. The Gulf of Corinth is noted for violent local eddies that result in strong vertical currents. On hot days clear-air turbulence caused by strong surface heating can be expected; the air is especially turbulent over rough mountainous terrain. Clear-air turbulence is also present at high levels in the vicinity of strong winds.

D. Military geographic regions (C)

There are three military geographic regions—the Northern Plains, the Highlands, and the Greek Islands (Figure 40). The combination of environmental conditions within each region would have a relatively uniform effect on military operations, but there would be marked differences between the regions. The Northern Plains are characterized by flat to rolling surfaces that in places contain numerous irrigation ditches and canals, cultivated fields, and closely spaced villages. In the Highlands and Greek Islands regions, rugged relief is the dominant terrain element.

1. Northern Plains

Conditions generally are favorable for large-scale conventional ground operations. Surfaces of the plains are nearly level and are covered by low vegetation, but the plains are small and discontinuous, separated from one another by hills and mountains. Cross-country movement of tracked and wheeled vehicles (Figure 38) would be feasible in most of the plains across dry, firm surfaces except during mid-November through mid-March, when most places are continuously miry and movement would be severely restricted. In addition, from early October through April rivers are in flood, and widespread inundation of adjacent areas may last for 2 or 3 weeks. When in flood, the rivers are barriers to crossings; at other times, however, most streams can be forded, but bottoms may be soft locally. Year-round hindrances to movement include drainage and irrigation ditches, extensive areas of marsh, and local areas of steep slope. There is a moderately dense network of roads, but surfaces primarily are gravel, crushed-stone, or earth and would not support sustained heavy military traffic. During mid-

November through mid-March, unsurfaced roads often are impassable. In most places, additional roads could be constructed with generally unrestricted alignments and easy grades, but natural foundations generally are poor on the thick clays and silts during the rainy season, and embankments would be needed in places because of the high ground-water level and to prevent roads from being flooded. In places, alignments would be restricted by steep slopes. Rock suitable for crushing generally is scarce, but sand and gravel are available locally. Conditions for concealment from ground observation are poor, being provided by grain crops seasonally, by vineyards from April to September, when they are in leaf, and by dense evergreen shrubs. Concealment from air observation would be limited mainly to small scattered areas of deciduous forest from early May through October, when the trees are in leaf. Cover from flat-trajectory fire would be scarce except where provided locally by stone houses and stone walls in small settlements and towns and by steep slopes in small widely scattered areas of dissection, where there are many closely spaced steep-sided valleys, such areas are extensive only in the northeast. The only sites suitable for the construction of tunnel-type installations are in the dissected areas, where valley sides primarily consist of interbedded hard and soft rocks. Here, short entries generally permit 100 to 300 feet of cover, and wide spans would commonly stand without support. Elsewhere in the region, sites are scarce because of insufficient relief. Sites suitable for the construction of bunker-type installations are restricted to a few widely scattered areas of generally dry, unconsolidated material that is easily excavated with handtools; but bunker sides would require support. The largest of these areas are just southwest of Larisa and in the Struma valley. Most of the region is unsuited for the construction of bunkers because of locally and seasonally poorly drained soils.

Conditions are unfavorable in most of the region for airborne and airmobile operations during early October through April, when the ground is either continuously wet or large areas adjacent to the streams are flooded or both. During the remainder of the year, surfaces primarily are dry and are suitable for helicopter landings, parachute drops, and the construction of airfields. In the greater part of the region, slopes generally are less than 2% (Figure 12), and vegetation is low. There are many sites suitable for the construction of airfields, but runway alignments would be restricted locally by marshes, drainage ditches, and steep slopes, and the drainage and stabilization of soils would be major construction



FIGURE 12. The nearly flat, cultivated plain south of Drama has many sites suitable for paratroops and helicopter landings. Cross-country movement of vehicles and foot troops from the drop zones and landing areas to the moderately dense network of roads in the area would be unrestricted except during early October through April when the ground is soft and miry. (U/OU)

problems. Sand and gravel generally are available, but in most places rock suitable for crushing is lacking. Water generally is available year round; quantities are most abundant early October through April. Assault-type aircraft could land at airfields near Larisa and Themi.

Conditions are generally unfavorable for irregular force operations. Cover and concealment would be poor. Most of the region has nearly flat surfaces, and the only suitable cover from small arms fire would be provided by banks of drainage ditches and by steep slopes in the few widely scattered dissected areas. The plains are covered by grainfields, widely spaced evergreen shrubs less than 3 feet high, grapevines cut to form bushes 3 to 5 feet high, widely spaced deciduous trees, and southeast of Kavala and along the coast east of Larisa by dense thorny evergreen and deciduous shrubs 3 to 10 feet tall; this vegetation affords little concealment from ground or air observation. Firewood and timber for construction of shelters are scarce. Field crops are fairly extensive, and vegetable gardens are numerous around cities and villages. Supplies could be airdropped throughout the plains, and there are numerous places along the coast where they could be brought in by sea. Water supplies are available year round. Roads are moderately dense and settlements numerous. Movement on foot generally would be easy at all times of the year although most streams are unfordable at times from early October through April, when they are in flood.

The region generally is suitable for large-scale amphibious operations. Approaches generally are clear but are restricted to bays and are probably obstructed by a few wrecks and nearshore sandbars. The coast is

fairly regular and consists predominantly of flat to rolling plains with a few marshy areas near the shore and in stream valleys. The fairly evenly distributed beaches are largely composed of sand and gravel and are up to 37 miles long, but most are 5 to 10 miles long. The beaches are separated by stretches of rocky shore or shore backed by bluffs or cliffs. Eastern and southern winds may cause heavy swell. Exits from the beaches are generally by cross-country movement (except in marshy areas) or by tracks and trails to roads leading inland.

2. Highlands

Conditions are predominantly unfavorable for large-scale conventional ground operations. Cross-country movement of tracked and wheeled vehicles would be restricted by steep slopes and rough stony surfaces to narrow valleys, small basins, and diminutive plains, each of which is isolated by rugged hilly and mountainous terrain. Even within these confined areas, which are most numerous in Peloponnesus, in the vicinity of Athens, and between Thivai and Dhomokos, movement cross-country would be hindered by miry surfaces, torrential streams, and floods for long periods from early October through April. In the higher mountains, the few passes interconnecting the larger valleys and plains generally are blocked by snow in January and February. Movement through these dissected, steep-sided highlands would be confined to a sparse network of mostly gravel, crushed-stone, or earth roads roughly aligned north-south and characterized by numerous sharp curves (Figure 13), steep grades, and narrow



FIGURE 13. Throughout the greater part of the mountains movement would be restricted to roads that are mostly narrow and have numerous sharp curves and circuitous alignments. There are few alternate routes. (U/OU)

roadways; defiles and narrow and low-capacity bridges are common, and there are a few tunnels. Roads may be occasionally blocked by landslides and from early December through February by snow; from October through March rainfall may make the unsurfaced roads impassable and cause washouts. The construction of new roads to supplement this vulnerable network would be extremely difficult because of the rugged terrain, which imposes severe restrictions on road alignment and necessitates much grading, blasting, cutting, bridging, and in places tunneling. Freezing conditions on the higher mountain slopes would hamper construction. In some places, particularly in the high mountains, forests are dense and clearing would be difficult. Only in these localities would timber for construction be readily available, but rock suitable for crushing is abundant in many places, and small quantities of sand and gravel are obtainable in most stream valleys. Concealment from ground observation and cover from flat-trajectory fire would be provided in most of the region by dissected surfaces or large rocks; additional concealment from ground observation would be available in closely spaced thorny evergreen and deciduous shrubs 3 to 10 feet high. Concealment from

air observation would be limited to the higher mountains where there are scattered dense evergreen forests. Little concealment would be afforded by widely spaced deciduous trees and short evergreen shrubs that cover large parts of the region. Large areas are unsuitable for the construction of tunnel-type installations because of unstable and fractured rocks, but there are scattered suitable areas, particularly between Athens and Lamia, in eastern Peloponnesus, and along the western coast, where there are large areas of massive hard rock and interbedded hard and soft rocks. In these areas, short entries normally permit 100 to 300 feet of protective cover. Drilling and blasting would be required, but wide spans would generally stand without support. Most of the region is unsuitable for bunker-type installations because of shallow soils and poor drainage.

Most of the region is unsuitable for airborne and airmobile operations because of rugged terrain. Sites suitable for parachute drops and helicopter landings are available only in a few small, widely separated plains (Figure 14), basins, and narrow valleys. Low-level approaches to most parachute drop sites would be severely restricted by steep slopes. The only suitable sites for landing assault-type aircraft are the existing



FIGURE 14. This cultivated plain is one of the few sites suitable in the Peloponnesus for airborne and airmobile operations. Limited concealment from air and ground observation would be afforded by the orchards. (C)

airfields, which are most numerous in the southern part of the region. Steep, rugged slopes restrict the construction of airfields to the small scattered basins, plains, and valleys. In these areas, runway alignments would be restricted by streams and marshes and by the size and shape of these confined areas. Drainage and stabilization of soils would be required because of high ground water levels and flooding during frequent and extended periods early October through April. Rock, sand, and gravel for construction generally are available, but timber is scarce. For the most part, approach hazards are severe because of the surrounding rugged terrain.

Conditions generally are favorable for irregular force operations. The rugged surfaces provide good concealment from ground observation and good cover, and scattered areas of dense forest provide concealment from air observation; closely spaced thorny evergreen and deciduous shrubs (Figure 15) afford additional concealment from ground observa-

tion. Small units generally would be able to move on foot in most of the region. Roads are sparse, and settlements are numerous only along the coast. Natural shelter materials and moderate amounts of firewood are available in scattered areas, especially in the central mountains, where there are dense stands of evergreen forests. Food supplies primarily would be limited to small, widely scattered areas of cultivated crops, mainly grains, and to scattered herds of goats and sheep; in summer, vegetable gardens are numerous around cities and villages. Supplies could be airdropped in the scattered small basins, plains, and valleys and could be brought in by sea at numerous places along the coast, although approaches and exits are difficult.

The region is generally unsuitable for large-scale amphibious operations because of encumbered approaches, rugged coasts (Figure 16), and poor exits. Sea approaches are partly obstructed by islands, islets, rocks, sandbars, and shoals. The coast is generally

FIGURE 15. Most of the highlands are suitable for irregular force operations. In this hilly area in the northeast, short evergreen shrubs supplemented by the rolling terrain provide concealment for small units. (C)



FIGURE 16. The coasts of the highlands generally are steep and irregular and are unsuitable for amphibious operations. In this stretch of coast east of Athens, rugged shrub-covered hills rise abruptly from the water. (C)



steep and irregular and consists of mountains or steep hills. The beaches are fairly evenly distributed. They are largely composed of sand and gravel and are up to 39 miles in length but most are about 2 miles long and are separated by rocks and reefs or immediately backed by cliffs or steep slopes. Exits from the beaches are generally cross-country or by tracks, trails, and a few loose-surfaced roads. Cross-country movement farther inland would be restricted by rugged terrain.

3. Greek Islands

Conditions are predominantly unfavorable for large-scale conventional ground operations. Cross-country movement of tracked and wheeled vehicles generally would be precluded by the steep-sided, deeply dissected hills and mountains that constitute the terrain of most of the islands. Movement cross-country in the few small plains that are on several islands, primarily on Crete, would be hindered by narrow, steep-walled valleys and at times from early October through April by miry surfaces and flooding. Movement would be limited to gravel, crushed-stone, or earth roads that are few in number and generally parallel the coasts. Traffic would be impeded by narrow roadways, narrow and low-capacity bridges, steep grades, and sharp curves. In addition, roads are blocked at times by landslides, and earth roads become miry or stretches may be washed away after heavy rains, which are most common mid-November through mid-March. The construction of new roads to supplement this sparse network would be difficult because of requirements for extensive cutting, filling, grading, and bridging; alignments would be restricted, and short-radius curves would be necessary. Natural foundations generally are good, however, and drainage is rapid. Rock suitable for crushing is abundant, and small quantities of sand and gravel are obtainable in most stream valleys; timber is scarce. Good cover from flat-trajectory fire and concealment from ground observation would be provided by rugged surfaces. Concealment from ground observation would be provided by vineyards, which are widespread, on Crete, and by widely spaced thorny evergreen shrubs, which are extensive on all the islands. Most of the islands have large areas generally suitable for the construction of tunnel-type installations. Stability would be good, short entries primarily would permit 100 to over 300 feet of natural cover, and most wide spans would stand without support. There are few sites suitable for the construction of bunker-type installations because of shallow soils.

Conditions generally are unsuitable for airborne and airmobile operations, although the Germans made airdrops on Crete during World War II. Steep, rugged surfaces preclude parachute drops and helicopter landings in most of the islands; the only suitable sites are a few small, widely separated plains and valleys. Low-level approaches to airdrop sites in these areas generally would be made difficult by hills in the approaches or the postdrop flightlines. Landings of assault-type aircraft would be limited to existing airfields, which are most numerous on Crete. There are few suitable sites for new airfields because of restricted alignments, severe approach hazards, and the need for much grading. Water, rock, sand, gravel, and, locally, timber are available for construction purposes.

Conditions generally are fair for irregular force operations. Cover and concealment from ground observation would be good for small units in most places, but food supplies and shelter are limited. Cover from flat-trajectory fire and concealment from ground observation would be provided in the greater part of most of the islands by rugged, rocky surfaces and by low stone walls on terraced slopes. Concealment from air observation would be available mainly on Crete, where there are scattered orchards. Widely spaced thorny evergreen shrubs and vineyards provide additional but limited concealment from ground observation in most of the islands. Food supplies are limited to small, scattered patches of grainfields consisting primarily of wheat, barley, oats, and rye; in summer, vegetables are grown around most towns and villages. Natural shelter materials are limited, and firewood is scarce. Supply by air would be difficult because of the predominance of rugged terrain, but there are numerous places along the coasts where supplies could be brought in by sea, although nearshore approaches would be difficult. Movement on foot would be possible almost everywhere. Roads are sparse, and settlements are scattered.

The region is generally unsuitable for large-scale amphibious operations because of encumbered approaches, rugged coasts, and poor exits. Sea approaches are partly obstructed by islands, islets, rocks, shoals, and reefs. Many areas, however, are suitable for small-scale amphibious operations. The coasts of the islands are generally steep and rugged and are backed by small flat areas, short, narrow valleys, hills, and ridges. The many beaches are widely distributed on the islands, but the most significant concentration of those suitable for large-scale amphibious operations are on the island of Crete. The beaches of the region are largely composed of sand,

gravel, or sand and gravel and are up to 16 miles in length, but most are 1 to 2 miles long and are separated by rocky shores, steep embankments, escarpments, cliffs, or swampy areas. Exits from the beaches are generally up ravines or by trails. Some islands have earth or loose-surfaced roads and a few have hard-surfaced roads.

E. Strategic areas (S)

There are two strategic areas in Greece, the Athens and Thessaloniki urban areas and their environs (Figure 40). These areas contain nationally important civil and military administrative units, the country's major airfields and ports, key control centers for national and international telecommunications, and the largest concentrations of important industrial installations. Important military operating units are based in these areas, which have the best facilities for logistical support of large military forces.

1. Athens

This strategic area contains Athens, the largest Greek city (population 2,530,000) and national capital (Figure 17). It is the site for the Ministry of Defense, the National Defense Headquarters, the Air Materiel Command Headquarters, and NATO Headquarters for the eastern Mediterranean. The largest Greek naval base is on Salamis Island. Two large military airfields are located north of Athens and a major international civil/military airfield is in the southern part of the city. The country's largest port facilities are in Piraeus and the western environs of Athens. The national telecommunication network is centered in the Athens area; key national and international switching, transmitting, and receiving facilities are located here. Important industrial installations include two of the four petroleum refineries in Greece and petroleum storage facilities for 2.4 million barrels of crude oil and 3.7 million barrels of petroleum products; the largest iron and steel mill in the country; three ammunition and explosives plants; the country's largest shipbuilding and repair yards; three bus assembly plants; railroad repair shops; a chemical plant; and a telecommunications equipment plant. Information on the physical characteristics; external communications; utilities, services, and facilities; and accessibility of the Athens urban area is contained in Figures 18 and 19.

2. Thessaloniki

The Thessaloniki strategic area contains the second largest city (population 545,000) and port in the

country (Figure 20). It is the chief military, transportation, telecommunication, and industrial center in northern Greece. The strategic area contains an army corps headquarters, the North Aegean Command Naval Headquarters, a principal Greek airbase, the Army War College, army depots and operating units, a military hospital, and a NATO advance command post. Thessaloniki International Airfield, about 6 miles south of the city, serves NATO forces and is an airport of entry for civil air traffic; an adjacent facility, Sedes Airbase, serves Greek air forces. A regional telecommunication switching center serving northern Greece is situated within this region. Important industrial installations manufacture automobiles, telecommunications equipment, petroleum products, copper products, steel, chemicals, rubber products, and railroad rolling stock. Petroleum storage facilities are available for one million barrels of crude oil and two million barrels of petroleum products. Data on the physical characteristics; external communications; utilities, services, and facilities; and accessibility of the Thessaloniki urban area are contained in Figures 21 and 22.

3. Other important areas

Iraklion (population 78,000) is the largest city and most important port on the island of Crete. Important military installations include a NATO early-warning radar facility and a Greek air force base. Storage capacity for 83,000 barrels of petroleum products is available.

Larisa (population 73,000) is the site of a major NATO airbase and petroleum storage depot and headquarters for several Greek army and air force units. An ammunition depot is south of the city. It is a principal highway and railroad junction between Athens and Thessaloniki and has well equipped railroad workshops. Storage capacity for 131,000 barrels of petroleum products is available.

Patrai (population 120,000) is the largest Greek port on the Ionian Sea and principal city on Peloponnesus. Several military camps and an airbase are situated about 15 miles southwest of the city. Important industrial installations include a tire plant, a bus body plant, and railroad workshops. Storage capacity for 145,000 barrels of petroleum products is available.

Volos (population 85,000) is the third most important industrial city in Greece; important industrial installations include a steel fabricating plant, an agricultural and hydraulic machinery plant,

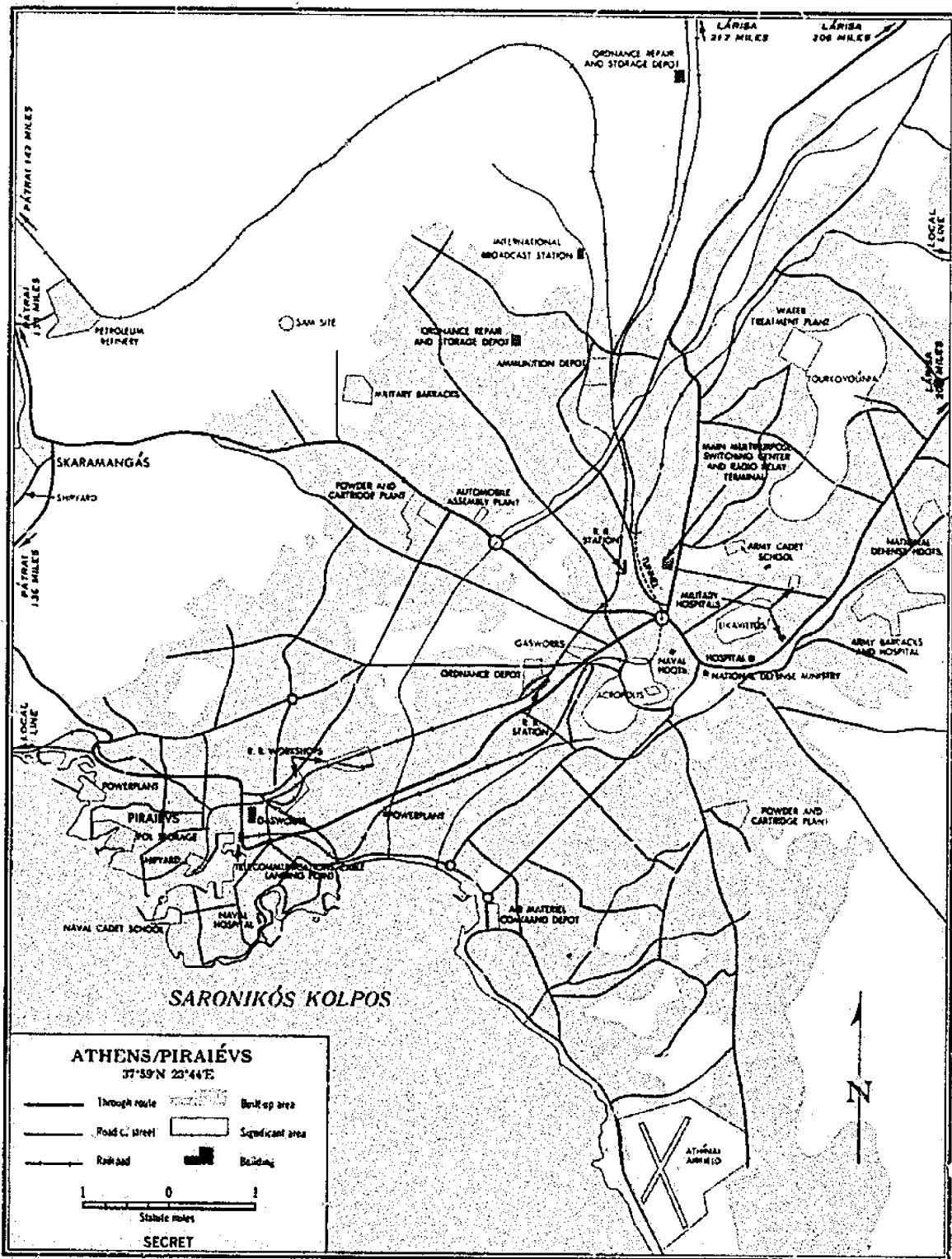


FIGURE 17. Athens strategic area (S)

FIGURE 18. Constricted on all sides, Athens has grown steadily until its outer limits have begun climbing the lower slopes of surrounding mountains and spilling into neighboring plains and basins. The critical building density can be seen in this view from the Acropolis. (C)



FIGURE 19. Athens (S)

Physical characteristics: The city, located on a plain, is bounded on three sides by brush- and pine-covered hills; its southwestern side is on the Saronikos Kolpos (gulf) that opens into the Aegean Sea. The built-up area includes the Acropolis, Likavittos, and Tourkovounia, hills which rise prominently in the center of the city. Mild, wet winters and hot, dry summers are common. The built-up area, triangular in shape, occupies about 54 square miles; it consists of two sections, Athens and Piraeus. Athens is very densely built-up in the central core, but building distribution generally becomes moderate toward the outer fringes (Figure 18); residential structures are predominant, but clusters of commercial, governmental and institutional, industrial, and military buildings are scattered throughout the section. Piraeus is moderately to densely built-up; residential development predominates but commercial and industrial buildings also occupy large areas. Buildings are generally of masonry or concrete construction and most are two stories or less; higher structures are located principally in the central part of the city. Most streets are two lanes, paved, and form grid patterns; main thoroughfares are up to six lanes and paved. There are no bypass routes.

External communications: Highways and rail lines extend north to Larisa and west to Patrai. Athina Airfield provides both international and domestic air connections; Elefsis Airfield in the northwestern environs and Tatoi Airfield to the north serve as alternate air facilities. Large, privately owned maritime shipping firms provide international connections.

Utilities, services, and facilities: An ample supply of water is available from Lake Iliki, 37 miles northwest of the city, and from Lake Marathonos, in the northeastern environs; however, treatment and distribution facilities are only marginally adequate because of the rapid urban growth. A sewerage system serves most parts of the city, but facilities in the older sections are antiquated and inadequate; sewage is discharged untreated into Saronikos Kolpos. Dry waste materials are collected regularly and burned. Electric power is supplied from the national grid; a local powerplant is a major contributor to the national network. Manufactured gas is produced by two local plants, but only part of the city is served. The city is well served by telecommunications facilities, but only one-fourth of the populace is served by telephone. Internal transit is adequately provided by motor buses, trolley buses, streetcars, commuter trains, and taxis. Health and sanitation conditions are poor because of inadequate and substandard food handling practices and sewage disposal systems, and because of a shortage of medical facilities and competent medical personnel. About 28,200 beds are available in 221 hospitals and clinics; however, many of these facilities are outdated. Storage space is abundant in Athens and its environs, particularly in the Piraeus port area. Ordnance storage is available at the Hellenic Powder and Cartridge Plant and at various military installations. Fire and police service are adequate.

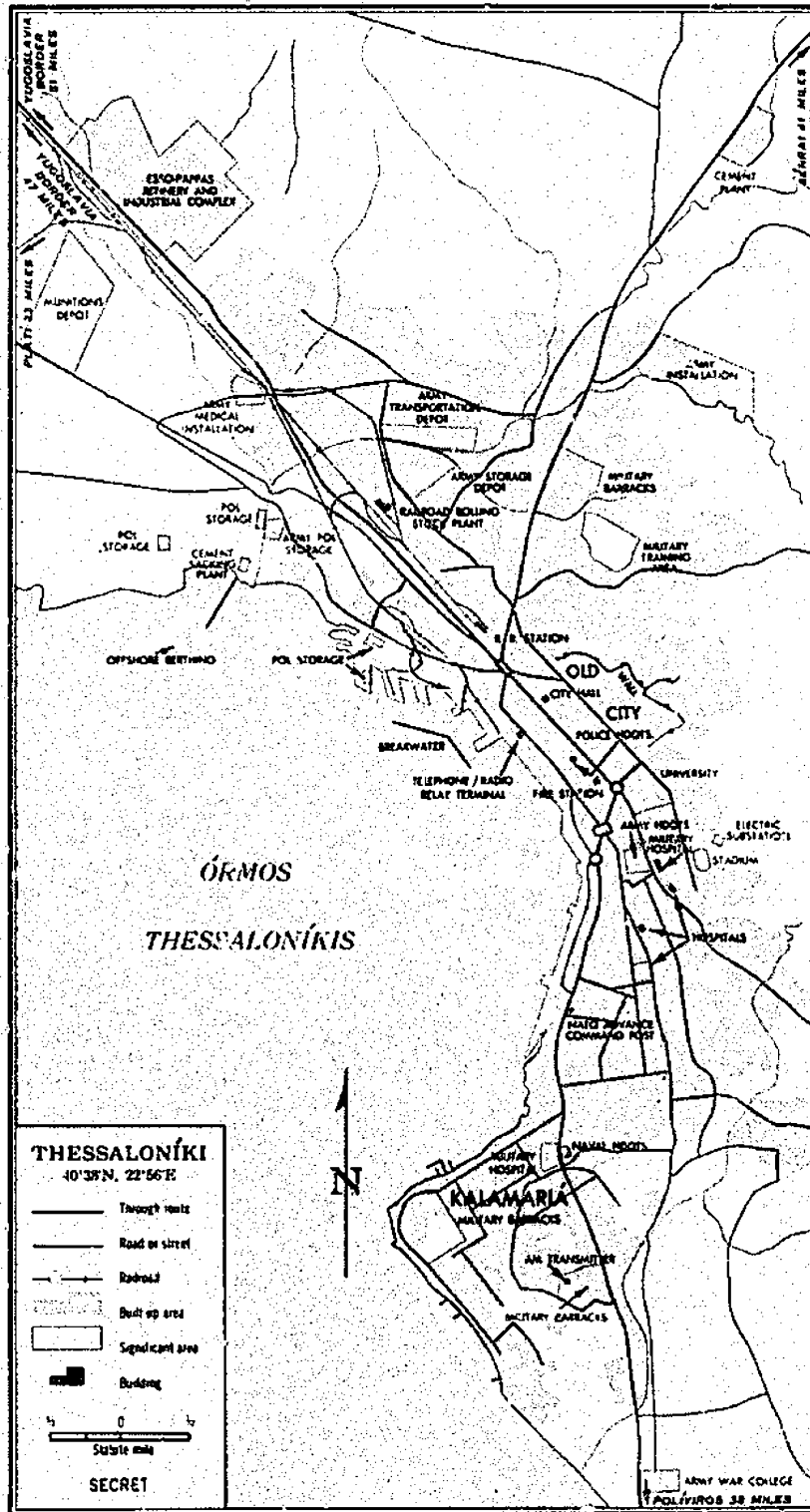
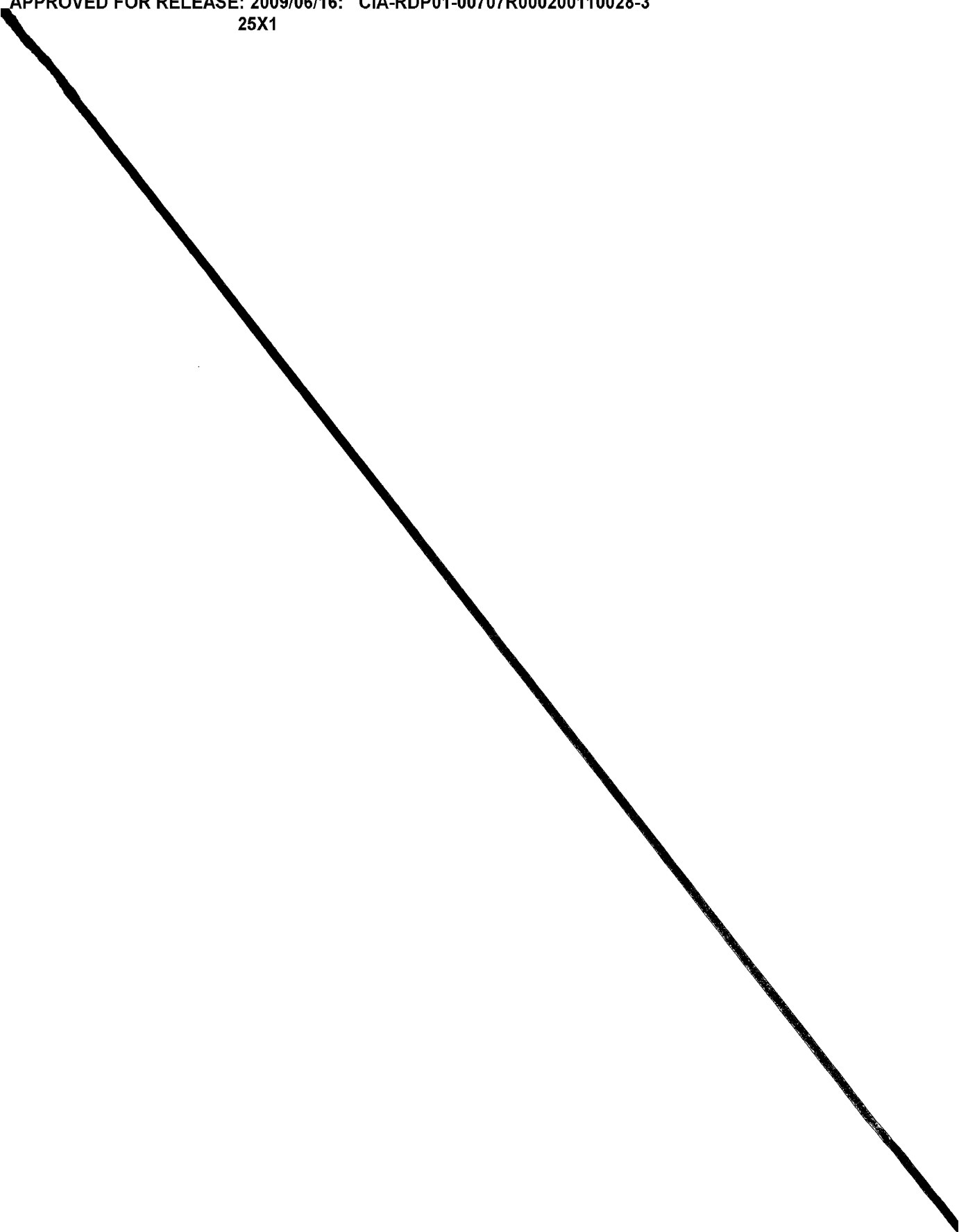


FIGURE 20. Thessaloniki strategic area (S)

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25X1



APPROVED FOR RELEASE: 2009/06/16: CIA-RDP01-00707R000200110028-3
25X1

FIGURE 23. Internal routes (C)

ROUTE	ROAD	RAILROAD	OFFROAD DISPERSED AND CROSS-COUNTRY MOVEMENT
Connects approach from Turkey and amphibious landing area near Aspropolva to route from Bulgaria border near Thessaloniki strategic area. Extends generally across flat to rolling cultivated plains and hills; terraces in places.	Mostly two lanes, bituminous and bituminous treated, in good condition; sharp curves and steep grades common.	Single track 4'8 1/2" gage; roughly parallels road in east.	Fairly easy in many places during Apr. through early Oct., but precluded for long periods during remainder of year because of flooding and mity ground. In places, severely restricted by steep slopes.
Links approach from Bulgaria border to Thessaloniki strategic area. Traverses mostly rounded hills covered by numerous patches of trees and brush except for about 20 miles along Struma River, where across flat to gently rolling cultivated plains crisscrossed in scattered areas by drainage ditches. Through 8-mile-long pass in highlands just south of border.	Predominantly two lanes, some sections of bituminous and bituminous treatment in good condition; steep grades and sharp curves common.	Single track 4'8 1/2" gage; parallels road for about 18 miles in northern part of route.	Generally restricted by steep slopes; precluded in 8-mile-long pass in north. Easy across plains during Apr. through early Oct., except where hindered locally by drainage ditches; during remainder of year, precluded for long periods by flooding and mity ground.
Links approach from eastern Yugoslavia to Thessaloniki strategic area. Across mainly flat to rolling valley plains; some terraced slopes.	Two lanes, bituminous surfaced, in good condition. Some sharp curves and one narrow bridge potential bottlenecks. New road under construction.	Single track 4'8 1/2" gage.....	Generally easy during Apr. through Oct. except where locally restricted by steep sides of terraces. Hindered or precluded by soft ground and floods for long periods during Nov. through Mar.
Connects approach from western Yugoslavia to Athens strategic area. Crosses diverse terrain; flat to rolling plains; rough, dissected plains, with steep valleys; and rounded to steep-sided hills covered by brush and patches of dense forest. Plains and lower valley slopes cultivated in many places. Terraces common.	Border to Larisa, one to two lanes, bituminous, in fair to good condition; from Larisa to Athens, two lanes, bituminous, in good condition. Steep grades and sharp curves.	Single track 4'8 1/2" gage; parallels road from border to Kozani and from Larisa to Athens. Double track near Athens.	Restricted or precluded by steep slopes in hills and dissected plains; easy in scattered areas of flat to gently rolling plains except during early Oct. through Apr. because of flooding and mity ground.
Links approach from Albania to internal route from western Yugoslavia at Florina. Extends across hills and rugged mountains covered mainly by scattered brush and patches of forest.	Mostly two lanes, single lane in short section; crushed-stone surface except for about 7-mile stretch of bituminous at junction of internal routes. Fair to poor condition. Near border impassable because of antitank ditches and destroyed culverts. Steep grades and sharp curves common. During winter, traffic frequently halted by snowdrifts. Numerous narrow bridges potential bottlenecks.	None.....	Generally precluded or restricted by steep slopes in rugged highlands. Good most of time in small basins.
Connects internal route from western Yugoslavia to Athens to route from eastern Yugoslavia that leads to Thessaloniki strategic area. Mostly steep, forested mountains and hills in west and flat, cultivated plain in east.	One to two lanes, bituminous, in good condition.	Single track 4'8 1/2" gage, in fair condition.	Restricted or precluded by steep slopes in west; movement feasible in east but hindered or precluded in places during early Oct. through Apr. by flooding and mity ground.

<p>Extends from Khaikidion (west of Thessaloniki) to Lamia; interconnects routes that lead to Thessaloniki and Athens strategic areas. Amphibious landing area on eastern flank. Across generally flat to dissected plains and valley floors and, in south, through valleys and passes in highlands.</p>	<p>Mostly two lanes, bituminous, in good condition.</p>	<p>Mostly single track 4'8 1/2" gage, in good condition. Parallel road in northern 3/4 of route.</p>	<p>In many places, moderately to severely hindered by streams; restricted by steep slopes. Dissected basins, hills, and mountains, and by mucky ground in marshy areas. Nearly everywhere hindered or precluded by mucky ground for periods from mid-Nov. through mid-Mar.</p>
<p>Connects amphibious landing area south of Pirgos to Athens strategic area. Flanked by amphibious landing area near Corinth. Across high hills and low mountains and through deep, narrow, steep-sided valleys; flat basins less than 10 mi. wide at Tripolis, near Navplion, and at Corinth. Vegetation mainly evergreen and deciduous brushwood but some dense coniferous forests; field crops and vineyards along river valleys and in flat basins.</p>	<p>Mostly two lanes, bituminous and bituminous treated; short section of divided highway in vicinity of Athens; in good condition. Sharp curves, steep grades, and a narrow bridge are potential bottlenecks. Stretches subject to earth and rock slides.</p>	<p>Single track 4'8 1/2" gage near Pirgos and from Tripolis to Athens in good condition. Many bridges.</p>	<p>Generally restricted because of steep slopes and dense coniferous forests; fair in river valleys and basins except for periods early Oct. through Apr. because of flooding and mucky ground. Good most of time in plain; near Corinth and Navplion.</p>
<p>Connects amphibious landing area near Marathon to Athens strategic area. Mostly across hills and plains. Evergreen brush and pine woods on hills; vineyards and field crops on small coastal plain and east of Athens.</p>	<p>Two lanes, bituminous, in good condition. 40-foot-wide, divided section near Athens. Steep grades and many sharp curves in hills. One-lane bridge near Marathon potential bottleneck.</p>	<p>None.....</p>	<p>Generally easy except for some sections of steep slopes in hills and mucky soils for periods from mid-Nov. through mid-Mar.</p>

a chemical plant, electrical appliance factory, steel wire plant, and foodstuff processing facilities. It is also an important port serving east-central Greece. Storage capacity is available for 208,000 barrels of petroleum products.

Khania (population 43,000) is the site of a NATO missile-firing installation and maritime squadron airfield; Crete and Ionian Sea Command Naval Headquarters (also supports NATO naval forces); an infantry division headquarters; an artillery battalion; and a military hospital. Storage facilities for 1.3 million barrels of petroleum products are available.

F. Internal routes (C)

The internal routes afford the easiest avenues of movement from the land approaches and amphibious landing areas to the strategic areas and between the strategic areas (Figure 40). Data on individual routes are presented in Figure 23.

G. Approaches

The perimeter of Greece is about 9,240 miles. Land boundaries comprise only about 740 miles. The coast of the mainland is approximately 2,000 miles in length, and the coasts of the islands aggregate about 6,500 miles. Greece claims 6 nautical miles from its shores as territorial waters; however, where Greek islands are separated from Turkish or Albanian territory by less than 6 nautical miles, the limit of territorial waters is centered between the islands and the foreign coast. Coastal defenses generally are insignificant. Specific data on boundaries are contained in Figure 24. (C)

1. Land (C)

Cross-country movement in the border zone primarily would be confined to river valleys and small plains by the steep, rugged slopes of hills and mountains (Figure 25). In these constricted corridors, movement cross-country would be feasible except from about early October through April when miry ground, flooding, and deep streams would greatly hinder movement. Only along the border with Turkey are there any extensive areas of plains (Figure 26), but even here cross-country movement would be hindered for long periods early October through April by miry soils and flooding; the wide, deep Maritsa is an obstacle to crossings year round. Widely spaced roads

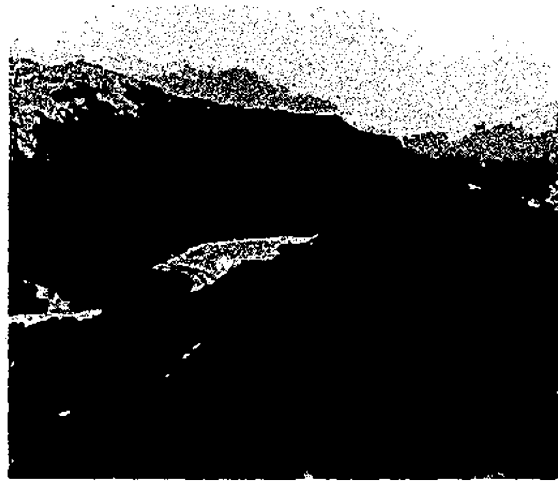


FIGURE 25. Almost the entire northern boundary of Greece is aligned in rugged terrain, such as this stretch along the border with Albania. The few roads and railroads that cross the border utilize river valleys and plains. (C)

FIGURE 24. Boundaries (U/OU)

BOUNDARY	LENGTH	STATUS	TERRAIN
	<i>Miles</i>		
Turkey....	123	Demarcated and undisputed; partly fortified.	Generally along Maritsa River, which meanders across a generally flat, cultivated valley plain; seasonally flooded areas and marshes along lower course.
Bulgaria.....	305	Demarcated and undisputed; scattered light fortifications.	Traverses mostly forested and scrub-covered hills and mountains.
Yugoslavia.....	163do.....	Mostly across forested and scrub-covered hills and mountains; several flat, commonly cultivated basins and valleys. Small areas of flat to rolling plains in east and west.
Albania.....	155	Demarcated but in dispute; antitank obstacles, pillboxes, and mined areas common.	In hills and rugged mountains covered mainly by deciduous scrub; some areas of deciduous forests and overgreen forests and scrub. Cultivated crops in some river valleys. In north, short segments across lakes.



FIGURE 26. The border zone between Turkey and Greece consists of flat, cultivated plains that flank the wide, deep Maritsa River (background). Cross-country movement would be hindered by soft, miry soils for periods from early October through April. (C)

that have stretches of steep grades and sharp curves and slippery surfaces during rainy periods and only five railroads cross the borders. The approaches shown on Figure 40 and described in Figure 27 are the best means of land access to Greece.

2. Sea (C)

Sea approaches to Greece are through the Mediterranean, Ionian, and Aegean Seas, and the Sea of Crete. Approaches are generally unsuitable for large-scale amphibious operations because of obstructions in the nearshore, constricted passages between offshore islands, and narrowness of bays and gulfs. Approaches through the Mediterranean Sea are generally clear. Offshore approaches to the west coast, through the Ionian Sea, are partly obstructed by the Ionian Islands, but the islands are separated by navigable channels. Approaches to the east coast are across the Aegean Sea and partly obstructed by islands, islets, rocks, and shoals. Approaches across the Sea of Crete are partly obstructed by scattered islands. Nearshore approaches are partly obstructed by islands, islets, rocks, shoals, sandbars, reefs, and a few charted wrecks. The nearshore gradient ranges from flat to steep, but is predominantly mild to gentle; bottom material is mostly sand or sand and mud. Surf 4 feet or higher occurs infrequently. Tides are semidiurnal, and ranges are small and vary from less than a few inches to 2.6 feet. Changes in water level are influenced more by wind than by tides. Except on the islands, the beaches are fairly evenly distributed. Most are

composed of sand and gravel or just sand and are 1 to 2 miles long in the Highlands and Greek Islands regions and 5 to 10 miles long in the Northern Plains region. Beach widths are mostly 10 to 50 yards, and gradients range from mild to steep but are mostly moderate to steep. Most are backed by dunes and narrow coastal plains in the Highlands region, by dunes, stream valleys, or plains in the Northern Plains region, and by the hills, small flat areas, or short, narrow valleys in the Greek Islands region. Exits from the beaches are generally by cross-country movement or by tracks and trails to coastal roads.

The amphibious landing areas shown on Figure 40 provide access to strategic areas or to internal routes leading to the strategic areas. These landing areas are described in detail in Figure 28.

3. Air (U/OU)

Weather conditions in all air approaches³ are most favorable in June through August, when cloudiness is at a minimum. However, afternoon and early evening thunderstorms occur over the mountains of Yugoslavia and Bulgaria on 20% to 50% of the days. The most hazardous flying conditions occur from about October through April or May, when there is a high incidence of migratory lows and cold fronts in all approaches. Extensive cloud masses are associated with the migratory lows, presenting a greater risk of aircraft icing, and turbulence is often encountered in the vicinity of fronts. An additional hazard of clear-air turbulence may be expected all year within the westerly jet stream at levels between about 30,000 and 45,000 feet; strongest average wind speeds are 75 to 100 knots in the southeastern approaches in winter and 50 to 70 knots in eastern approaches in summer. Air approaches within 200 nautical miles of Greece are primarily over rugged terrain. Landforms consist mainly of deeply dissected hills and mountains that have elevations ranging mostly from 1,650 to 6,500 feet, but there are numerous peaks and crests between 5,000 and 9,000 feet above sea level. Maximum elevations include 6,417 feet in the toe of Italy and 8,435 feet in southwestern Turkey, both about 200 nautical miles from Greece, 9,594 feet in southwestern Bulgaria, about 45 nautical miles distant, 9,068 feet in east-central Albania, 65 nautical miles from the Greek border, and 8,865 feet in Yugoslavia, about 70 nautical miles from Greece.

³The discussion zone for air approaches extends approximately 200 nautical miles beyond the borders of Greece.

FIGURE 27. Land approaches (C)

ROUTE	ROAD	RAILROAD	OFFROAD DISPENSAL AND CROSS-COUNTRY MOVEMENT
From Ipsala, Turkey. Traverses flat to rolling cultivated plains primarily in ricefields; locally, drainage ditches and some dikes.	Two lanes, bituminous treated, in poor to fair condition.	None.....	Feasible during May through early Oct. except where locally restricted by poorly drained soils, ditches, and dikes. During remainder of year, generally precluded by miry ground, flooding and streams too deep to ford.
From Sandanski, Bulgaria. Across flat to gently rolling, cultivated Struma River valley; used by Germans in invasion of Greece in 1941.	Two lane bituminous surface, in good condition.	Single track 4'8 1/2" gage in good condition.	Generally good. During winter thaws and after rains, especially in Mar. and Apr., miry ground would hinder movement; streams fordable, except during high water, Jan. through Apr.
From Titov Veles, Yugoslavia, to Greece border at Geveglja. Traverses narrow, flat, cultivated Vardar River valley. Used by Germans to invade Greece in World War II.	Two lanes, bituminous concrete surface, in good condition. Some steep grades, sharp curves slow traffic, and tunnels and narrow, low-capacity bridges potential bottlenecks. 1,500-foot bridge over Sermentit River 3 miles north of border.	Single track 4'8 1/2" gage in fair condition.	Chiefly fair on flat valley plain; however, restricted or channelized by streams and, in places, by steep valley slopes. Severely hindered or precluded by miry ground and flooding much of time Dec. to mid-Apr.
From Titov Veles, Yugoslavia, to Greece border northwest of Florina. Across flat to gently rolling cultivated valley plains in rugged highlands. Near border, approach through a pass. Used by Germans to invade Greece in World War II.	Mostly one lane, earth or gravel, in fair condition. Much of road on embankments. Traffic hindered at times during rainy season by muddy surfaces. One narrow bridge 14 miles north of border and a 12-foot-wide tunnel 20 miles north of border.	Single track 4'8 1/2" gage in fair condition, parallels road south of Prilep.	Generally feasible; however, from early Dec. through mid-Apr., hindered or precluded much of time by miry, slippery soils and flooding; precluded throughout year in some small poorly drained areas.
From Bllisht, Albania. Mainly across flat to gently rolling cultivated plains.	One lane, gravel surfaced, in good condition. Steep grades and sharp curves common.	None.....	Generally easy except mid-Oct. to mid-Apr. because of miry ground and some flooding in river valleys.

FIGURE 28. Amphibious landing areas (C)

LOCATION	APPROACH	BEACH	TERRAIN BEHIND BEACH AND EXIT
South of Pirgos.....	Seaward of 5-fathom depth, clear; shoreward, flanked by rocks and partly obstructed to NW, by breakwaters; sandbar about 330 yd. off most of beach. Nearshore bottom sand and gravel; gradient 1 on 40 to 1 on 15; most places suitable for dry-ramp LST landings. Surf heavy in strong onshore winds. Tides negligible.	35 1/2 mi. long; 35 1/4 mi. usable; separated in NW part by river; 15 to 50 yd. wide; gradient 1 on 40 to 1 on 15; material sand with some gravel.	Most of beach immediately backed by low dunes extending up to 400 yd. inland and by low bluffs; all in turn backed by flat to rolling plain, partly cultivated in orchards and vineyards, with some areas of brush, and traversed by river in NW part; plain extends 800 yd. to 4 1/2 mi. to low, steeply sloping, partly brush-covered hills rising to mountains; lagoons and marsh close behind NW part; possible minefields in dunes behind parts of SE half. A few towns and many villages on plain, and clusters of buildings close behind parts of beach. Exit cross-country along center and SE parts to track 150 to 600 yd. inland leading to network of tracks and several loose-surfaced roads joining hard-surfaced road leading to Athens; exit along NW part by a few tracks and trails crisscrossing plain and marsh area.
East of Corinth Canal..	Seaward of 5-fathom depth channelized by islands and mainland and partly obstructed by islets and islands; shoreward, partly obstructed by submerged and exposed rocks. Nearshore bottom sand with some gravel; gradient 1 on 29 to 1 on 7; most places suitable for dry-ramp LST landings. Surf 4 ft. or higher infrequent. Tides negligible.	Contains 4 main beaches separated by unusable stretches closely fronted by rocks or backed by cliffs. Beach centered 2 mi. E. of Corinth Canal 2 1/4 mi. long; nearly all usable; 20 yd. wide; gradient 1 on 20; material sand and gravel. Beach centered 4 1/2 mi. E. of Corinth Canal 1 1/4 mi. long; nearly all usable; 20 yd. wide; gradient 1 on 20; material sand and gravel. Beach centered 2 1/2 mi. E. of Corinth Canal 1,100 yd. long; nearly all usable; 20 yd. wide; gradient 1 on 20; material sand and gravel. Beach centered 19 mi. E. of Corinth Canal 1,100 yd. long; nearly all usable; 20 yd. wide; gradient 1 on 20; material sand and gravel.	Next parts of beaches backed by flat to rolling deltaic plains traversed by streams; in turn backed by brush-covered steep hills; parts of plains cultivated in orchards and vineyards. Several villages and town on plains. Exit cross-country to hard-surfaced coastal road 50 to 900 yd. inland.
Southeast of Marathon..	Seaward of 5-fathom depth channelized by islands and mainland; shoreward, partly obstructed by rocks near center and ends of beach; possible sandbars and coral covered by seaweed in nearshore. Nearshore bottom sand with some mud; gradient 1 on 163 to 1 on 33; few places suitable for dry-ramp LST landings. Surf 4 ft. or higher infrequent. Tides negligible.	7 1/2 mi. long; nearly all usable; 10 to 20 yd. wide; gradient 1 on 5 to 1 on 4; material sand.	Northeast half immediately backed by narrow belt of low dunes; dunes and remainder backed by flat plain predominantly cultivated in orchards and vineyards; plain extends 1,250 yd. to 2 1/4 mi. inland to low steep hills rising to mountains; groves of trees behind dunes in extreme NE part; parts of plain in NE, seasonally swampy. Exit cross-country or by tracks and trails to loose- and hard-surfaced roads 700 yd. to 2 1/2 mi. inland; roads join hard-surfaced road leading to Athens.

24 **FIGURE 28. Amphibious landing areas (C) (Continued)**

LOCATION	APPROACH	BEACH	TERRAIN BEHIND BEACH AND EXIT
East of Katerini.....	Seaward of 6-fathom depth partly obstructed off NE. end by wrecks and restricted to bay; shoreward, clear but sandbars may be present. Nearshore bottom sand and mud; gradient 1 on 100 to 1 on 13; few places suitable for dry-ramp LST landings. Surf. 4 ft. or higher infrequent. Tides negligible.	1 1/2 mi. long; separated in SW. by river and interrupted by several streams and canals; nearly all usable; 15 to 50 yd. wide; gradient 1 on 35 to 1 on 10; material sand.	Beach immediately backed by mostly barren dunes extending 50 to 165 yd. inland to flat to rolling predominantly cultivated plain backed by partly wooded, low, steep hills 4 to 13 mi. inland; plain traversed by streams and drainage canals, some bordered by high embankments; periodically marshy areas on plain and several ponds close behind dunes; town of Katerini and several villages on plain. Exit by tracks, trails, loose-surfaced roads, or cross-country in dry season to hard-surfaced road 500 yd. to 3 mi. behind center and SW. part.
South of Thessaloniki...	Seaward of 6-fathom depth restricted to bay and channeled by main land; shoreward, partly obstructed by piers and jetties and flanked to NE. by shoals and pipeline and to SW. by rocks; shifting sandbars off beach. Nearshore bottom sand and mud; gradient 1 on 91 to 1 on 54; most places suitable for dry-ramp LST landings; north winds may cause severe swells. Surf 4 ft. or higher infrequent. Tides negligible.	7 mi. long; separated in NE. half by jetties at stream mouths and interrupted in SW. half by piers; nearly all usable; 10 to 25 yd. wide; gradient 1 on 20 to 1 on 8; material sand.	Beach immediately backed by broad plain extending more than 10 mi. inland in NE. part but less than 350 yd. in SW. part; plain cultivated predominantly in orchards and vineyards and bordered and backed by low, steep, partly tree- and brush-covered hills; hills cut by ravines in SW. half; NE. half of plain seasonally marshy; walls up to 6 ft. high, border several streams traversing plain; villages close behind SW. part and inland behind entire beach; radio towers behind center part. Exit cross-country or by tracks, trails, and village streets to hard-surfaced road 250 yd. to 1 1/2 mi. inland.
East of Aspropolita.....	Seaward of 6-fathom depth, clear but restricted to bay; shoreward, clear but flanked to SW. by pier; rocks beyond NE. flank. Nearshore bottom sand with some mud; gradient 1 on 53 or steeper; most places suitable for dry-ramp LST landings; strong easterly winds cause heavy swell. Surf 4 ft. or higher infrequent. Tides negligible.	7 mi. long; interrupted by several streams; nearly all usable 30 to 60 yd. wide; gradient 1 on 50 to 1 on 16; material sand and gravel.	Beach immediately backed by strip of dunes extending up to 200 yd. inland to flat coastal strip, partly cultivated in orchards, extending 1,300 yd. to 1 1/2 mi. inland to partly wooded and brush-covered low, steep hills; several streams and ditches, some bordered by steep banks, traverse strip; small water-filled depressions behind center and SW. part; several villages inland. Exit cross-country to hard-surfaced coastal road 200 yd. to 1 1/4 mi. inland.

FIGURE 29. Mean number of days with maximum temperature $\geq 90^{\circ}\text{F}$ (U/OU)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Agrinion.....	0	0	0	*	2	12	26	26	12	1	0	0	80	15-18
Alexandroupolis.....	0	0	0	0	*	2	10	12	1	0	0	0	25	18-21
Athens/Ellinikon.....	0	0	0	0	1	5	18	19	3	0	0	0	46	11-13
Ioannina.....	0	0	0	0	*	4	12	16	5	*	0	0	37	15-18
Iraklion.....	0	0	*	*	1	2	4	5	1	1	0	0	13	18-21
Larisa.....	0	0	*	*	3	14	24	23	8	1	0	0	72	17-21
Naxos.....	0	0	0	0	0	1	1	2	0	0	0	0	4	12-17
Rodhos.....	0	0	0	0	1	7	18	21	6	1	0	0	53	18-21
Samos.....	0	0	0	0	*	2	5	5	1	0	0	0	13	13-19
Thessaloniki Airport.....	0	0	0	0	1	8	10	17	4	0	0	0	46	8-11
Tripolis.....	0	0	0	0	1	3	5	12	2	0	0	0	23	3-5
Zakynthos.....	0	0	0	0	1	0	10	18	5	*	0	0	46	14-16

* < 0.5 day.

FIGURE 30. Mean number of days with minimum temperature $\leq 32^{\circ}\text{F}$ (U/OU)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Agrinion.....	7	3	2	0	0	0	0	0	0	0	*	3	16	13-16
Alexandroupolis.....	13	10	8	1	0	0	0	0	0	*	3	7	41	18-21
Athens/Ellinikon.....	1	1	*	0	0	0	0	0	0	0	0	*	2	11-13
Ioannina.....	14	13	7	1	0	0	0	0	0	*	4	11	51	17-20
Iraklion.....	*	*	0	0	0	0	0	0	0	0	0	0	*	18-21
Larisa.....	13	11	7	1	0	0	0	0	0	*	3	9	45	18-21
Naxos.....	*	*	0	0	0	0	0	0	0	0	0	0	*	14-18
Rodhos.....	1	1	*	0	0	0	0	0	0	0	*	0	2	18-21
Samos.....	1	*	*	0	0	0	0	0	0	0	0	*	1	14-20
Thessaloniki Airport.....	13	9	4	*	0	0	0	0	0	*	2	8	36	8-11
Tripolis.....	10	9	8	2	0	0	0	0	0	*	4	5	38	3-5
Zakynthos.....	*	*	*	0	0	0	0	0	0	0	0	*	1	12-14

* < 0.5 day.

FIGURE 31. Mean cloudness (%) at specified hours (U/OU)

STATION	HOUR (LUT)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Alexandroupolis	0200	59	55	58	37	25	22	6	3	17	20	44	59	35	4-6
Athens/Elinikon	0200	54	48	51	36	22	19	5	4	15	30	41	48	31	7-9
Ioannina	0100	56	55	52	43	31	21	8	12	20	32	44	67	37	3-5
Iraklion	0200	56	49	51	35	30	10	2	3	13	34	45	54	31	7-9
Larisa	0100	54	50	53	41	32	27	15	14	26	37	50	54	38	7-8
Naxos	0200	54	48	53	32	25	15	2	1	12	30	40	56	31	4-5
Rodhos	0200	52	47	48	35	21	9	1	1	7	22	33	48	27	7-9
Thessaloniki Airport	0200	55	51	55	38	32	25	23	19	25	31	45	51	37	6-7
Tripolis	0100	60	58	49	38	25	22	3	5	15	31	37	61	34	3-5
Agrinio	0700	62	59	55	48	43	27	9	12	24	45	58	69	42	17-19
Alexandroupolis	0800	76	71	69	58	51	35	17	15	31	53	67	74	52	18-21
Athens/Elinikon	0900	65	61	61	48	38	25	7	7	23	45	59	63	42	12-13
Ioannina	0700	66	64	61	58	45	30	12	13	31	52	68	89	47	18-21
Iraklion	0900	69	65	65	50	36	18	8	9	20	52	61	67	44	10-22
Larisa	0700	71	63	65	55	46	30	20	18	35	56	66	67	49	18-21
Naxos	0900	69	65	63	51	36	18	5	7	2	43	58	66	42	18-18
Rodhos	0600	62	59	56	48	30	14	3	3	13	36	52	62	37	10-22
Samos	0900	65	62	62	51	39	19	5	5	18	40	58	65	41	18-21
Thessaloniki Airport	0600	66	64	70	56	51	39	25	23	39	57	68	69	52	10-11
Tripolis	0700	67	63	61	51	37	23	8	13	29	43	55	71	43	4-6
Zakinthos	0700	63	61	57	45	39	23	7	10	26	43	58	65	42	15-17
Agrinio	1300	67	63	60	56	59	42	28	28	40	51	64	70	52	11-13
Alexandroupolis	1400	72	70	70	63	55	52	33	33	41	47	59	75	56	5-8
Athens/Elinikon	1400	68	61	64	56	47	34	18	17	34	50	60	65	48	10-19
Ioannina	1300	62	64	64	61	54	50	35	35	40	42	54	71	53	4-6
Iraklion	1400	71	65	65	53	38	26	9	9	27	48	57	64	44	9-11
Larisa	1300	66	64	69	61	55	52	31	32	45	56	65	70	58	7-9
Naxos	1400	67	64	62	52	34	26	7	9	22	44	54	65	42	4-6
Rodhos	1400	64	63	63	52	35	20	4	4	17	40	54	64	40	7-9
Samos	1400	66	65	61	50	40	24	4	6	22	37	54	67	41	5-6
Thessaloniki Airport	1400	63	63	66	59	50	48	28	30	31	50	59	69	52	8-7
Tripolis	1300	74	68	72	64	55	54	40	33	42	52	57	74	57	3-5
Zakinthos	1300	70	69	68	54	42	36	13	19	31	48	56	67	48	3-4
Agrinio	1900	54	52	51	50	49	36	16	16	29	40	49	60	42	17 10
Alexandroupolis	2000	63	55	54	54	56	48	27	23	24	35	53	64	46	18-21
Athens/Elinikon	2000	56	54	53	48	41	33	11	9	21	35	48	56	39	12-13
Ioannina	1900	56	57	57	62	56	46	27	25	33	40	53	57	47	18-21
Iraklion	2000	62	59	59	47	36	18	5	5	19	44	52	57	39	19-22
Larisa	1900	60	51	57	55	56	49	29	24	30	43	52	57	47	18-21
Naxos	2000	55	51	50	41	33	22	5	5	12	28	40	51	33	14-18
Rodhos	2000	54	47	47	40	35	16	3	3	9	26	38	49	31	19-22
Samos	2000	57	50	51	42	35	19	4	5	10	28	43	52	33	18-20
Thessaloniki Airport	2000	56	54	54	54	56	52	30	25	31	40	48	57	47	10-11
Tripolis	1900	59	53	53	51	41	39	20	25	35	38	43	65	44	4-6
Zakinthos	1900	60	53	52	42	33	24	6	8	24	38	51	61	38	15-17

FIGURE 32. Percentage frequency of ceiling < 3,300 feet at specified hours (U/OU)
(Ceiling defined as 1/2 or more cloud cover)

STATION	HOOR (LEST)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YUS REC
Alexandroupolis.....	0200	23	24	22	11	4	4	1	1	4	7	17	27	12	4-5
Athens/Ellinikon.....	0200	15	11	13	1	2	1	0	0	1	4	5	9	5	7-9
Ioannina.....	0100	34	27	26	18	8	6	1	4	5	6	15	38	10	3-5
Iraklion.....	0200	28	16	22	12	4	1	1	4	5	14	22	20	12	7-9
Larisa.....	0100	16	11	16	3	2	1	1	0	2	5	13	20	8	7-8
Naxos.....	0200	20	10	18	7	1	0	0	0	1	5	8	20	7	4-5
Rodhos.....	0200	20	12	8	4	2	0	0	0	1	2	7	12	6	7-9
Thessaloniki Airport.....	0200	22	15	17	6	2	2	2	1	2	2	12	20	9	6-7
Tripolis.....	0100	46	38	36	14	8	4	0	1	2	18	20	42	19	3-5
Agrinio.....	0700	23	23	17	9	8	4	1	0	2	7	19	29	12	7-9
Alexandroupolis.....	0800	25	22	16	7	6	4	1	0	3	9	16	22	11	18-21
Athens/Ellinikon.....	0600	18	12	16	5	3	2	0	0	3	7	11	16	8	12-13
Ioannina.....	0700	27	26	21	13	8	5	1	1	6	14	25	30	15	18-21
Iraklion.....	0800	31	20	27	14	6	2	2	2	10	24	22	27	15	19-22
Larisa.....	0700	30	19	24	7	4	1	1	0	3	10	16	24	12	18-21
Naxos.....	0800	14	11	9	5	3	1	1	1	2	6	7	11	6	16-18
Rodhos.....	0800	15	10	9	7	4	1	0	0	1	5	8	14	6	19-22
Samos.....	0800	31	24	23	12	8	2	0	1	5	11	20	28	14	18-21
Thessaloniki Airport.....	0900	30	20	23	6	5	2	1	1	4	9	25	30	13	10-11
Tripolis.....	0700	48	36	32	17	7	3	1	2	4	18	24	54	20	4-6
Zakynthos.....	0700	27	23	18	12	11	4	0	2	6	11	17	31	13	14-17
Agrinio.....	1300	35	30	17	22	15	11	3	2	5	10	24	42	18	1-3
Alexandroupolis.....	1400	28	23	21	12	9	13	8	4	3	11	15	32	15	4-6
Athens/Ellinikon.....	1400	19	15	16	8	6	4	1	1	5	6	12	18	9	10-10
Ioannina.....	1300	30	30	34	20	12	18	7	5	11	10	10	46	20	4-6
Iraklion.....	1400	28	16	23	11	5	2	1	1	6	17	15	22	12	9-11
Larisa.....	1300	19	15	25	11	7	6	1	0	5	12	20	21	12	7-9
Naxos.....	1400	25	18	17	9	3	0	0	1	0	8	18	18	10	4-5
Rodhos.....	1400	22	16	15	11	4	1	0	0	1	7	12	22	9	7-9
Samos.....	1400	26	15	15	4	4	1	0	0	3	4	14	28	10	7-9
Thessaloniki Airport.....	1400	28	21	24	8	8	2	3	1	4	6	16	24	12	6-7
Tripolis.....	1300	58	44	53	21	18	8	8	2	14	21	25	61	28	3-5
Zakynthos.....	1300	23	26	16	13	5	4	1	1	3	9	12	25	12	3-4

Footnotes at end of table.

FIGURE 32. Percentage frequency of ceiling < 3,300 feet at specified hours (U/OU) (Continued)

STATION	HOUR (LRT)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Agrinion.....	1800	25	23	20	0	6	4	1	0	4	10	18	32	13	7-9
Alexandroupolis.....	2000	21	18	17	10	5	4	2	2	3	7	15	23	10	17-20
Athens/Ellinikon.....	2000	13	11	13	8	5	2	1	1	2	6	7	15	7	12-13
Ioannina.....	1900	19	19	19	14	6	4	2	2	4	8	16	24	11	18-21
Iraklion.....	2000	28	21	25	12	6	1	1	0	6	18	23	34	14	19-22
Larisa.....	1900	22	14	20	9	5	4	1	0	3	10	13	18	10	18-21
Naxos.....	2000	10	8	7	3	1	0	0	0	1	4	4	9	4	14-18
Rodhos.....	2000	13	11	9	3	3	0	0	0	0	3	6	11	3	18-22
Samos.....	2000	23	17	14	8	4	0	0	0	0	4	13	19	9	16-20
Thessaloniki Airport.....	2000	22	17	19	7	6	2	1	1	3	6	14	21	10	10-11
Tripolis.....	1900	43	31	31	18	6	5	3	3	8	13	23	49	19	4-6
Zakynthos.....	1900	27	24	16	7	6	5	0	1	7	10	19	28	12	15-17

• < 0.5%.

FIGURE 33. Percentage frequency of specified ceiling and visibility combinations at specified hours (U/OU) (Ceiling defined as 1/2 or more cloud cover)

STATION	HOUR (LRT)	COMBINATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YR REC
Agrinion.....	0700	A	98	95	98	100	100	100	100	100	100	99	99	98	99	7-9
Alexandroupolis.....	0800	B	1	2	0	0	0	0	0	0	0	1	0	1	1	18-21
Athens/Ellinikon.....	0800	A	94	97	98	98	100	100	100	100	99	99	97	97	98	18-21
Ioannina.....	0800	B	2	2	0	0	0	0	0	0	0	1	2	2	1	12-13
Iraklion.....	0700	A	99	99	99	99	99	100	100	100	100	100	99	100	100	18-21
Larisa.....	0700	B	0	0	0	0	0	0	0	0	0	0	0	0	0	18-21
Naxos.....	0800	A	81	81	86	60	93	97	95	95	1	83	78	82	88	18-21
Rodhos.....	0800	B	13	12	8	4	2	1	0	0	4	14	20	15	8	18-21
Samos.....	0800	A	98	99	99	100	100	100	100	100	100	100	99	99	99	19-22
Thessaloniki Airport.....	0600	B	1	0	0	0	0	0	0	0	0	0	0	0	0	18-21
		A	68	77	82	95	98	100	100	100	98	90	80	69	88	18-21
		B	18	11	8	2	1	0	0	0	1	4	13	10	6	16-18
		A	99	100	99	100	100	100	100	100	99	100	100	99	100	19-22
		B	0	0	0	0	0	0	0	0	0	0	0	0	0	19-22
		A	99	100	99	99	100	100	100	100	100	100	100	99	100	18-21
		B	0	0	0	0	0	0	0	0	0	0	0	0	0	18-21
		A	98	98	97	98	100	100	100	99	99	98	98	98	98	18-21
		B	1	0	1	1	0	0	0	1	1	1	1	1	1	10-11
		A	61	63	89	96	98	100	100	100	97	96	87	80	92	10-11
		B	11	9	5	2	1	0	0	0	2	3	8	13	5	

Tripolis.....	0700	A	93	94	94	94	97	90	100	99	92	88	84	97	94	4-6
		B	6	5	4	3	1	0	0	0	5	11	13	3	5	
Zakynthos.....	0700	A	99	98	97	96	95	97	96	96	97	99	99	99	97	14-17
		B	**	**	1	**	2	**	1	**	1	**	**	**	1	
Agynion.....	1300	A	99	100	100	100	100	100	100	100	100	100	98	97	100	1-3
		B	0	0	0	0	0	0	0	0	0	0	0	0	0	
Alexandroupolis.....	1400	A	97	99	98	100	100	100	100	100	99	98	99	99	99	4-6
		B	1	0	1	0	0	0	0	0	0	0	1	1	**	
Athens/Ellinikon.....	1400	A	90	99	99	99	99	100	100	100	100	100	99	99	99	10-19
		B	**	**	**	**	**	**	0	**	0	0	**	**	**	
Ioannina.....	1300	A	93	97	94	99	98	99	100	100	100	100	95	91	97	4-6
		B	3	1	3	0	1	0	0	0	0	0	1	4	1	
Iraklion.....	1400	A	99	100	99	100	100	100	100	100	100	100	100	100	100	9-11
		B	**	0	0	0	0	0	0	0	0	0	0	0	**	
Larisa.....	1300	A	87	91	97	100	100	100	100	100	100	100	95	96	97	7-9
		B	6	2	1	0	0	0	0	0	0	0	2	4	1	
Naos.....	1400	A	99	100	100	100	100	100	100	100	100	100	98	99	100	4-5
		B	1	0	0	0	0	0	0	0	0	0	0	0	**	
Rodhos.....	1400	A	100	99	99	99	100	100	100	100	100	100	100	98	100	7-9
		B	0	0	0	0	0	0	0	0	0	0	0	1	**	
Samos.....	1400	A	98	99	99	99	100	99	100	100	98	99	99	100	20	4-6
		B	0	0	0	0	1	0	0	0	0	0	1	0	**	
Thessaloniki Airport.....	1400	A	84	91	96	100	100	100	100	100	99	99	97	90	90	6-7
		B	8	3	2	0	0	0	0	0	0	1	1	4	1	
Tripolis.....	1300	A	99	99	100	100	100	100	100	100	100	99	100	99	100	3-5
		B	1	1	0	0	0	0	0	0	0	0	0	1	**	
Zakynthos.....	1300	A	97	99	100	99	98	99	100	100	100	100	100	99	99	3-4
		B	1	0	0	0	0	0	0	0	0	0	0	0	**	

*Combination
 A—Ceiling \leq 1,000 feet with visibility \geq 2 1/2 miles.
 B—Ceiling \leq 650 feet and/or visibility $<$ 1 1/4 miles.
 ** $<$ 0.5%.

FIGURE 34. Mean number of days with fog (U/OU)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN	YRS REC
Agrinion.....	*	1	1	1	1	1	0	0	1	3	0	1	11	1-2
Alexandroupolis.....	3	2	2	1	1	0	1	0	*	1	2	2	15	5-7
Athens/Ellinikon.....	3	5	5	4	3	1	*	*	1	1	6	3	32	8-9
Ioannina.....	5	7	6	2	4	1	*	7	7	11	12	7	69	4-5
Iraklion.....	*	*	1	1	1	*	0	*	*	0	0	0	3	8-9
Larisa.....	19	17	17	12	8	5	2	1	9	11	15	20	136	7-9
Naxos.....	1	*	1	1	1	*	1	0	1	*	0	0	7	4-6
Rodhos.....	*	*	*	1	*	0	*	0	0	0	*	*	2	8-9
Samos.....	0	0	1	1	1	*	*	*	0	*	*	1	5	3-6
Thessaloniki Airport.....	13	11	13	8	7	2	2	3	4	8	15	15	99	6-8
Tripolis.....	3	2	2	3	1	1	*	1	4	6	7	3	33	4-5
Zakynthos.....	*	*	2	4	4	2	1	*	2	0	0	*	16	2-3

* < 0.5 day.

FIGURE 35. Direction, mean speed (knots), and percentage frequency of prevailing surface wind by quadrant (U/OU)

STATION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YRS REC
Agrinion.....	E/6 39	NE/5 34	NE/7 34	NW/5 33	NW/6 39	NW/6 49	NW/6 47	NW/6 45	NW/5 39	E/7 33	E/6 34	NE/5 40	16-17
Alexandroupolis.....	NE/12 57	NE/11 49	NE/12 52	NE/11 39	Calm 37	NE/10 36	NE/11 52	NE/10 49	NE/11 53	NE/11 55	NE/10 44	NE/11 53	8-9
Athens/Ellinikon.....	N/10 51	N/9 42	N/10 41	NW/9 34	SW/8 39	NW/8 39	N/11 52	N/10 53	N/9 50	NE/10 53	NE/8 39	N/9 41	9-10
Iowannina.....	Calm 73	Calm 69	Calm 63	Calm 63	Calm 67	Calm 62	Calm 84	Calm 67	Calm 73	Calm 89	Calm 77	Calm 76	8-10
Iraclion.....	SW/10 45	SW/10 43	NW/12 39	NW/10 36	Calm 46	NW/9 49	NW/11 70	NW/11 66	NW/10 55	NW/10 43	S/9 37	S/11 50	10-11
Larisa.....	Calm 71	Calm 67	Calm 60	Calm 61	Calm 60	Calm 52	Calm 47	Calm 52	Calm 59	Calm 66	Calm 77	Calm 81	9-10
Naxos.....	NE/19 46	S/12 45	NE/19 51	NW/16 48	N/11 53	N/12 65	N/13 87	N/15 80	N/16 77	NE/19 67	NE/15 46	S/13 47	7-8
Rodhos.....	Calm 36	NW/13 36	NW/14 42	W/12 50	W/11 62	W/12 79	W/13 89	W/12 85	W/11 76	W/0 45	Calm 49	Calm 36	10-11
Samos.....	SE/12 43	SE/14 43	N/12 47	NW/11 50	NW/10 58	NW/11 75	NW/12 90	NW/11 86	NW/11 77	N/10 53	SE/10 40	SE/14 47	6-7
Thessaloniki Airport.....	Calm 43	Calm 42	Calm 37	Calm 37	Calm 36	NW/8 34	NW/9 38	SE/7 33	Calm 35	SE/5 36	Calm 46	Calm 42	7-8
Tripolis.....	Calm 47	Calm 41	Calm 39	Calm 39	Calm 43	Calm 42	NE/12 37	Calm 41	Calm 50	Calm 45	Calm 58	Calm 44	3-4
Zakinthos.....	SW/11 45	SW/10 44	N/11 43	SW/10 44	N/9 47	N/10 55	N/10 69	N/10 62	N/10 52	NE/12 42	SW/9 49	SW/11 49	5-6

SECRET

Places and features referred to in this Chapter (u/ou)

	COORDINATES				COORDINATES		
	°	'N.	° 'E.		°	'N.	° 'E.
Acropolis (<i>hill</i>)	37	58	23 44	Lesbos (<i>Lésvos</i>) (<i>isl</i>)	39	10	26 32
Agrinion	38	38	21 25	Likavittós (<i>hill</i>)	37	59	23 45
Akhelóos Potamós (<i>strm</i>)	38	20	21 06	Marathón	38	09	23 58
Alexandroupolis	40	51	25 52	Maritsa River (<i>strm</i>)	40	52	26 12
Alifiós Potamós (<i>strm</i>)	37	37	21 27	Métsovon	39	46	21 11
Aliákmon Potamós (<i>strm</i>)	40	30	22 40	Návpflon	37	34	22 48
Asproválta	40	43	23 42	Náxos (<i>isl</i>)	37	02	25 33
Athens	37	50	23 44	Néstos Potamós (<i>strm</i>)	40	51	24 44
Bilisht, Albania	40	37	29 59	Olympus (<i>mt</i>)	40	05	22 21
Bosphorus (<i>str</i>)	41	00	29 00	Ormós Thessaloníkis (<i>bay</i>)	49	37	22 55
Corinth	37	58	22 56	Pátra	38	15	21 44
Corinth Canal (<i>canal</i>)	37	57	22 58	Peloponneus (Pelopónnisos) (<i>rgn</i>)	37	30	22 00
Corinth, Gulf of (<i>bay</i>)	38	12	22 30	Pindus Mountains (<i>mts</i>)	39	45	21 30
Cvete (<i>isl</i>)	35	15	24 45	Piraiévs	37	57	23 38
Dardanelles (<i>str</i>)	40	15	26 25	Pirgos	37	41	21 27
Dhomokós	39	08	22 18	Pollyiros	40	23	23 27
Dráma	41	09	24 09	Rhodes (Ródhos) (<i>isl</i>)	38	10	28 00
Ellinikón	37	53	23 44	Salamis (<i>isl</i>)	37	55	23 30
Flórina	40	47	21 24	Sámos (<i>isl</i>)	37	45	26 48
Gevgelija, Yugoslavia	41	04	22 31	Sandanski, Bulgaria	41	34	23 17
Ioánnina	39	40	20 50	Saronikós Kóipos (<i>gul</i>)	37	45	23 30
Ionian Islands (<i>isls</i>)	38	30	20 30	Sermentli, Yugoslavia (<i>strm</i>)	41	10	22 32
Ípsala, Turkey	40	55	26 23	Struma River (<i>strm</i>)	40	47	23 51
Iráklion	35	20	25 08	Thessaloníkí	40	38	22 56
Katerini	40	16	22 30	Thérmi	40	33	23 01
Kavála	40	56	24 25	Thívai (Thebes)	38	19	23 10
Khalikidhón	40	44	22 36	Titov Veles, Yugoslavia	41	42	21 48
Khánai	35	31	24 02	Tourkovoúnia hills (<i>hills</i>)	38	02	23 45
Kozáni	40	18	21 47	Tríkala	39	33	21 46
Lake Iliki (Iliki Límni) (<i>lk</i>)	38	25	23 15	Trípoli	37	31	22 22
Lake Marathonas (Marathónos, Límni) (<i>lk</i>)	38	10	23 53	Vardar River (<i>strm</i>)	40	35	22 50
Lamiá	38	54	22 26	Vólos	39	22	22 57
Lárisa	39	38	22 25	Zákynthos (<i>isl</i>)	37	47	20 47



71387

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Surface water resources Fi



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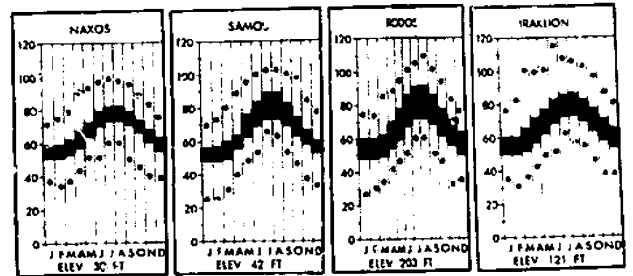
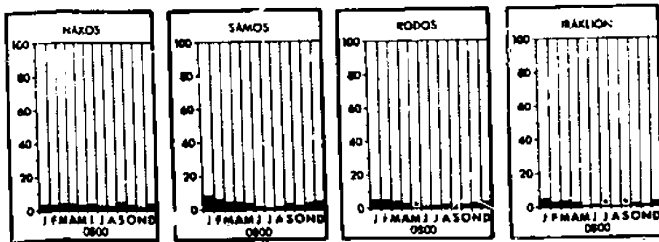
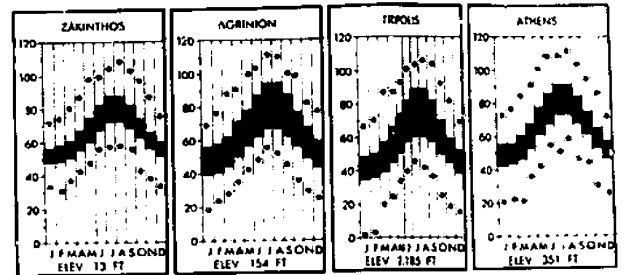
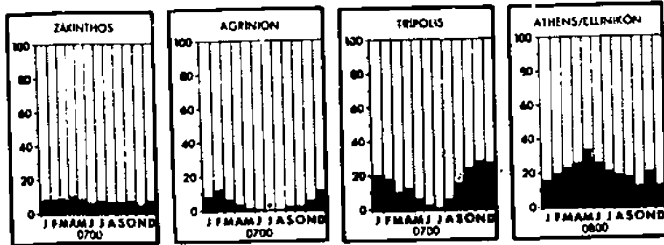
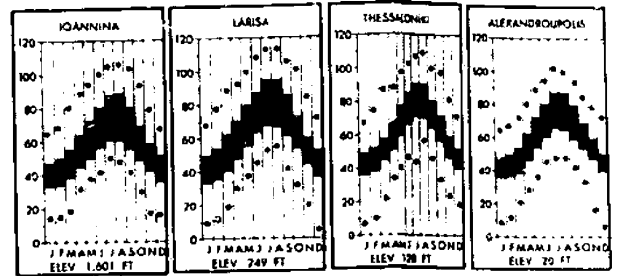
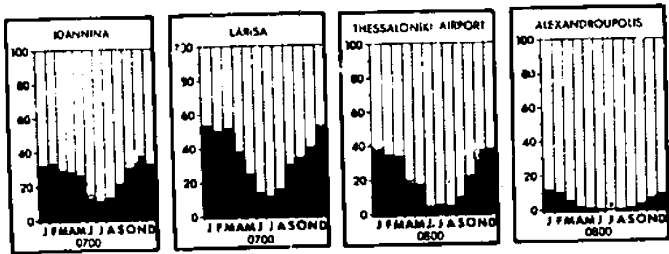
Ground water resources Figure

Confidential



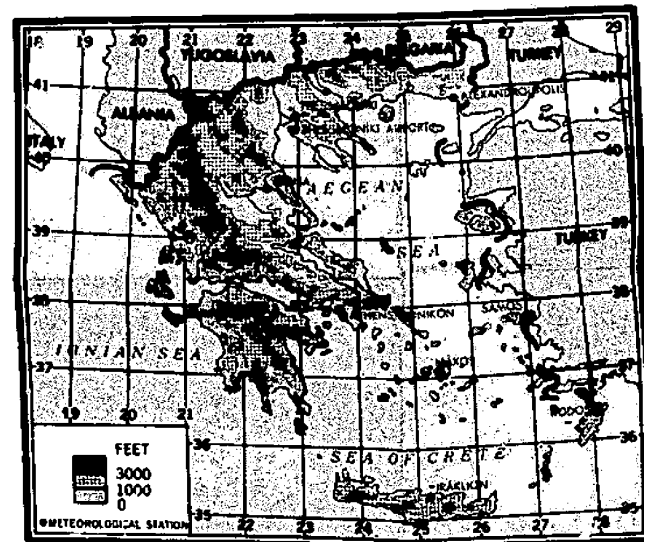
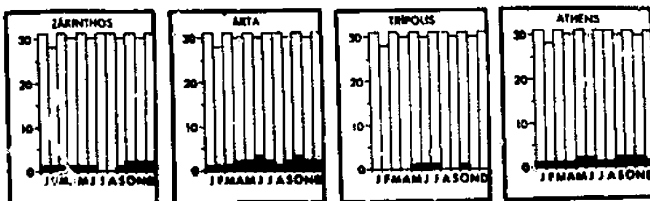
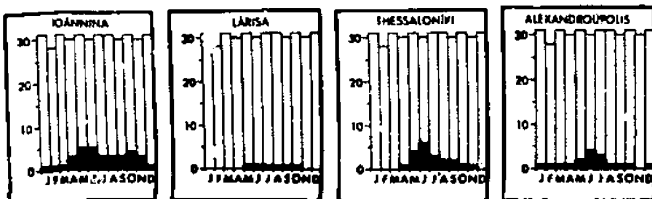
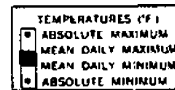
Confidential

Cross-country movement conditions I

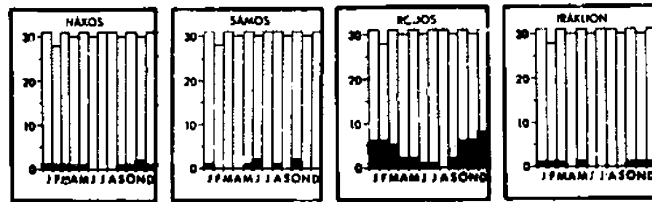
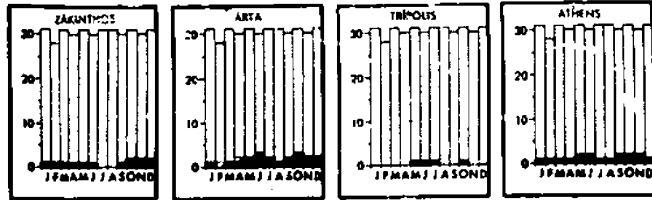
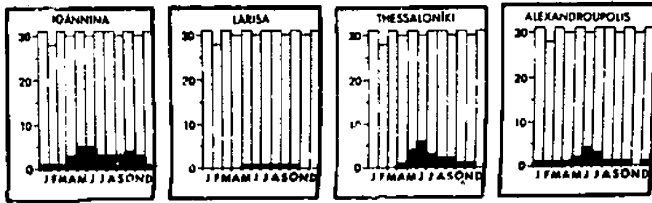


PERCENTAGE FREQUENCY OF VISIBILITY < 6 MILES IN THE EARLY MORNING
TIMES SHOWN LST < 0.5%

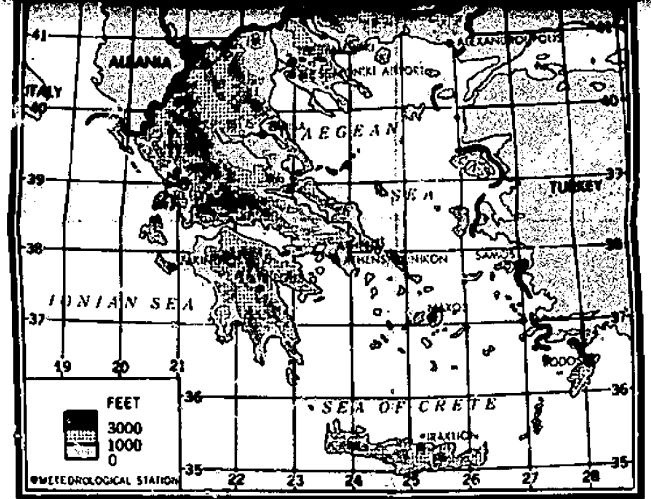
TEMPERATURES (°F.)



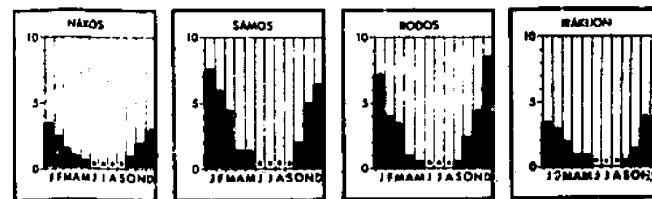
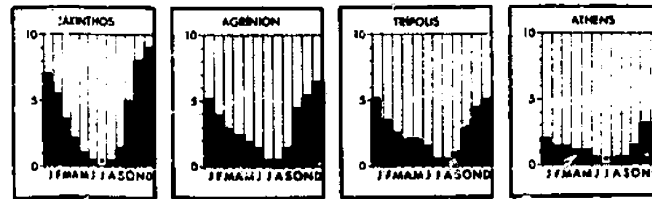
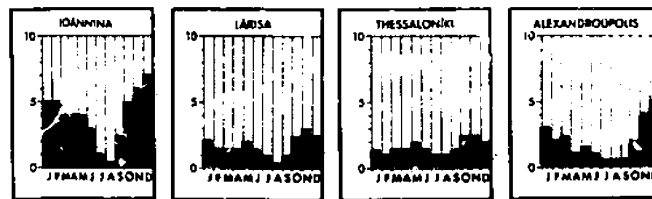
STATION LOCATIONS



MEAN NUMBER OF DAYS WITH THUNDERSTORMS

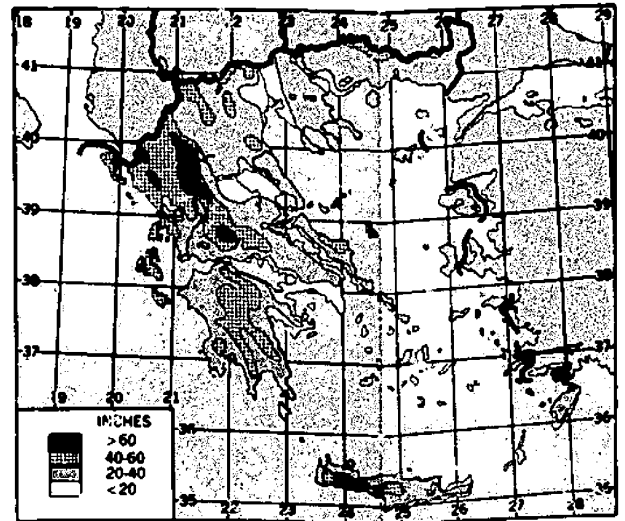


STATION LOCATIONS

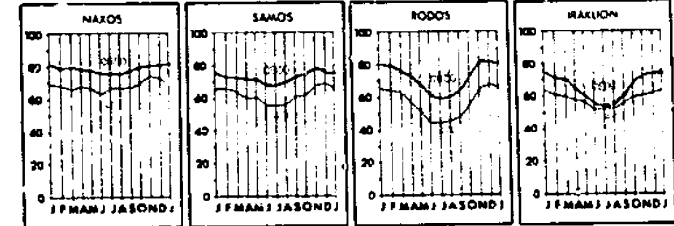
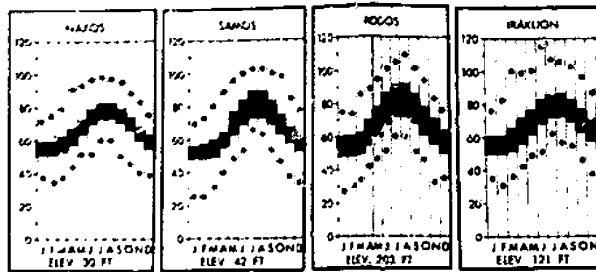
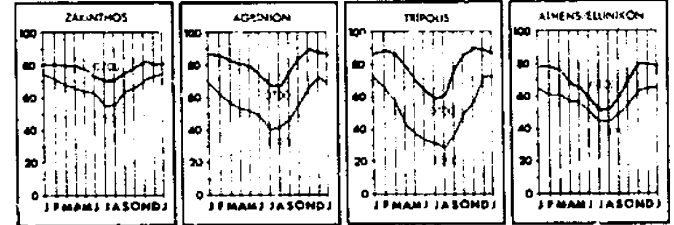
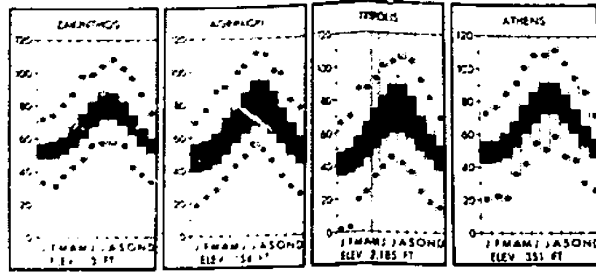
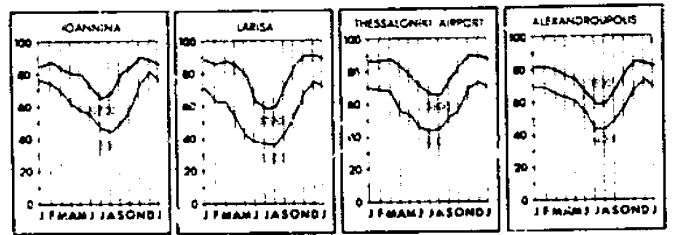
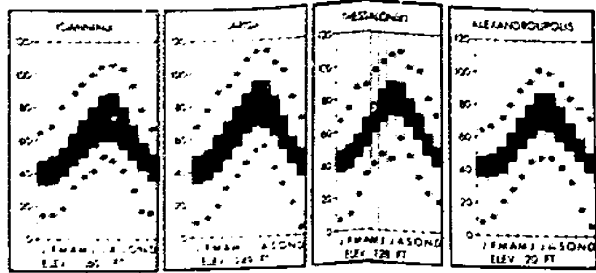


MEAN MONTHLY PRECIPITATION (INCHES)

* < 0.25 INCH

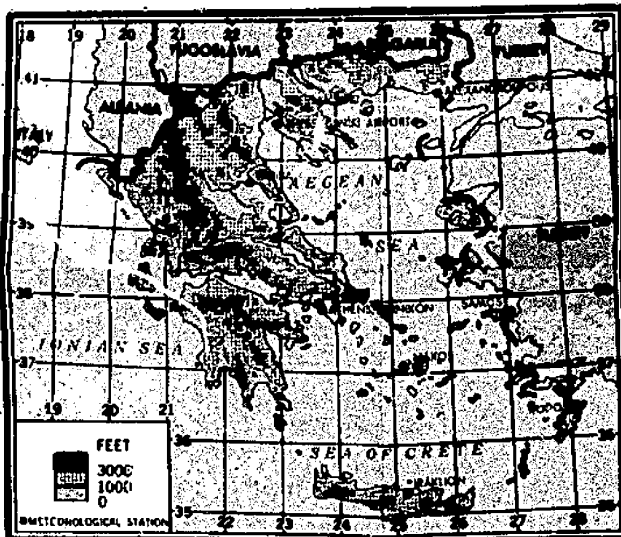
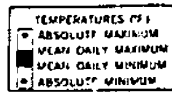


MEAN ANNUAL PRECIPITATION (INCHES)

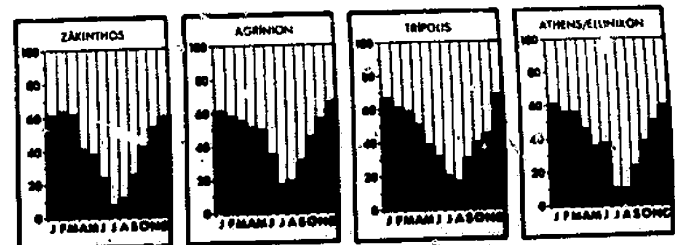
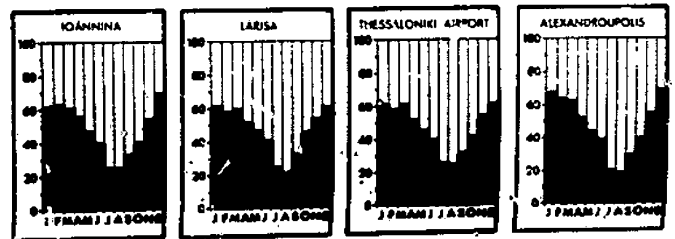


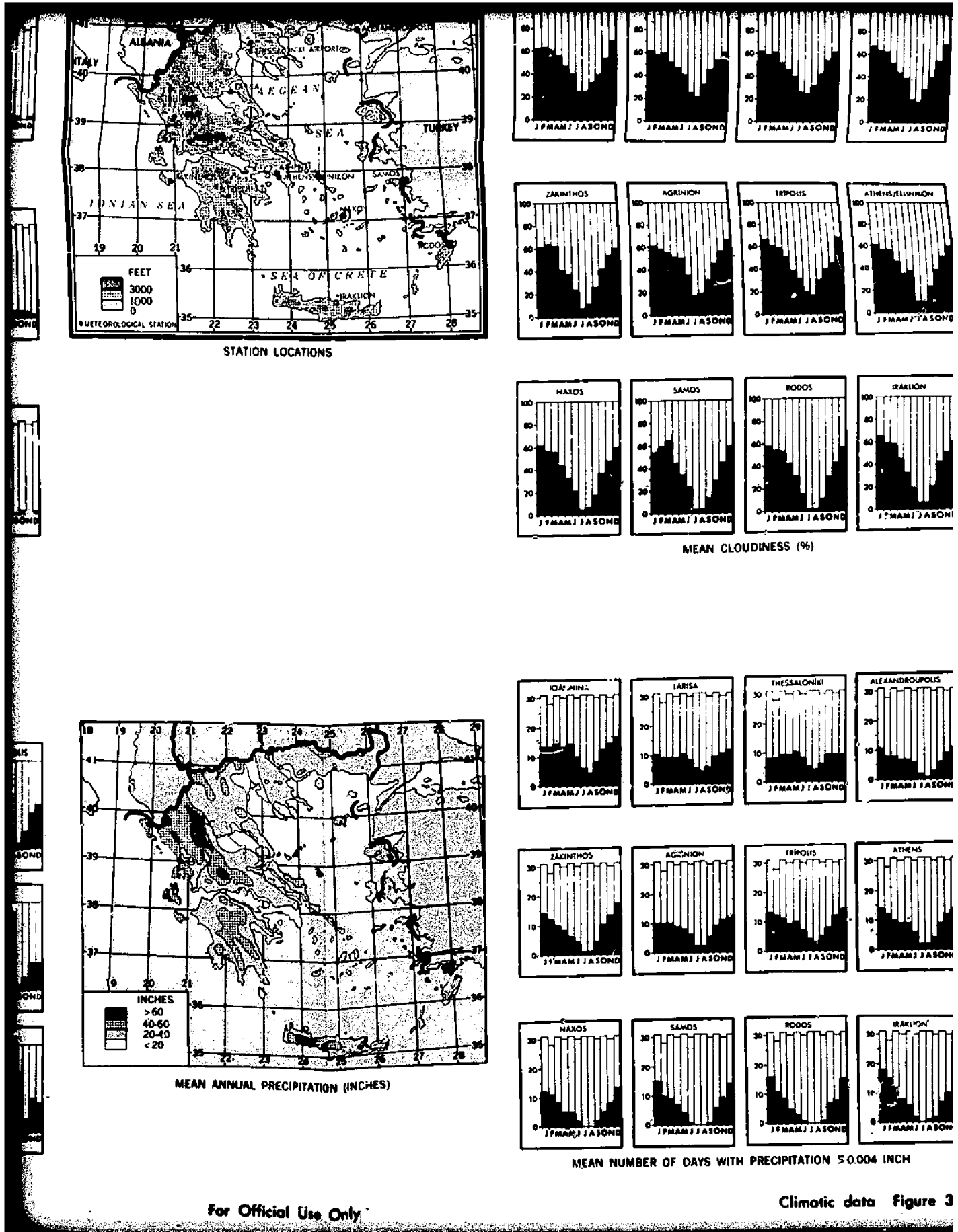
MEAN RELATIVE HUMIDITY (%) AT SPECIFIED HOURS (LST)

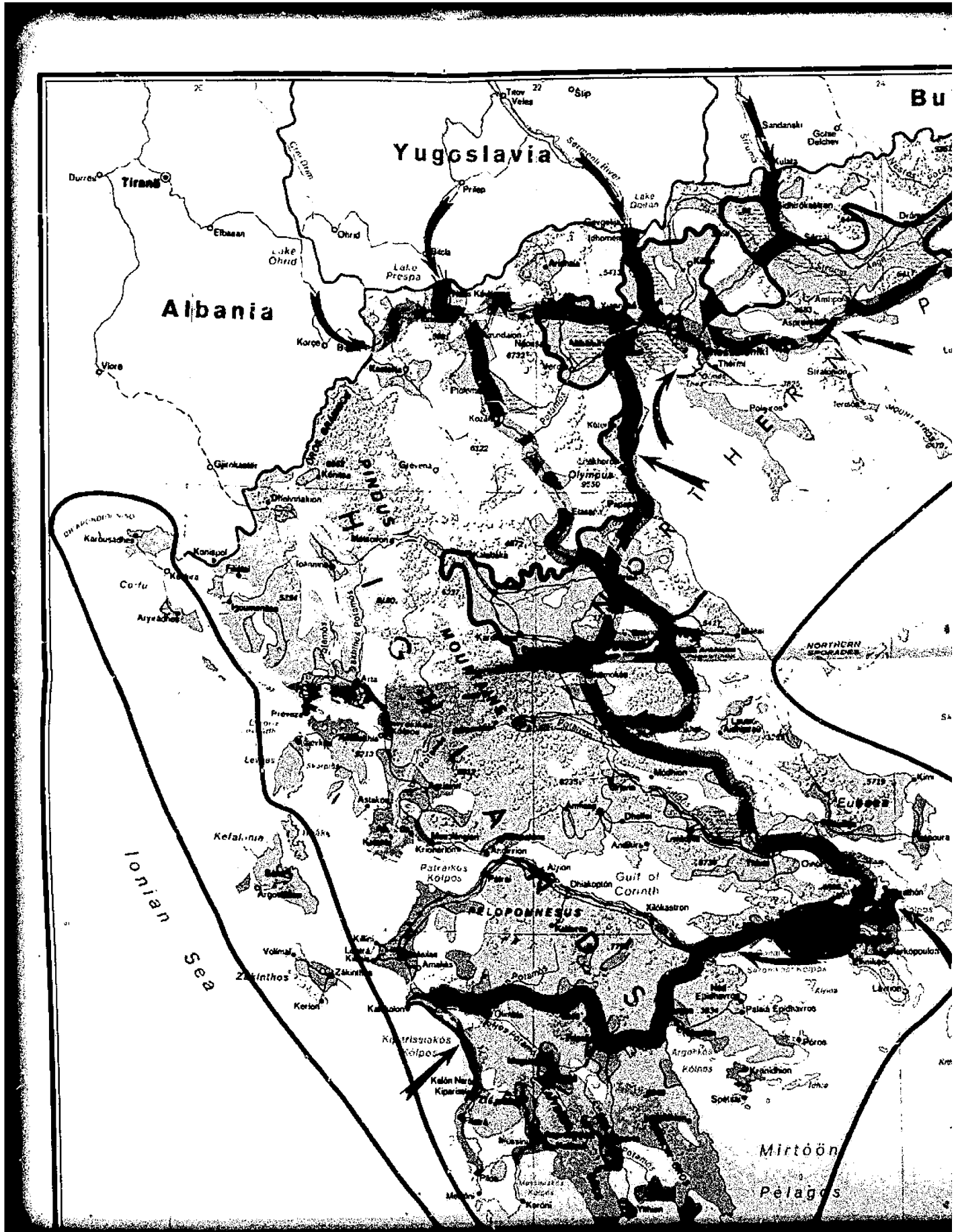
TEMPERATURES (°F.)

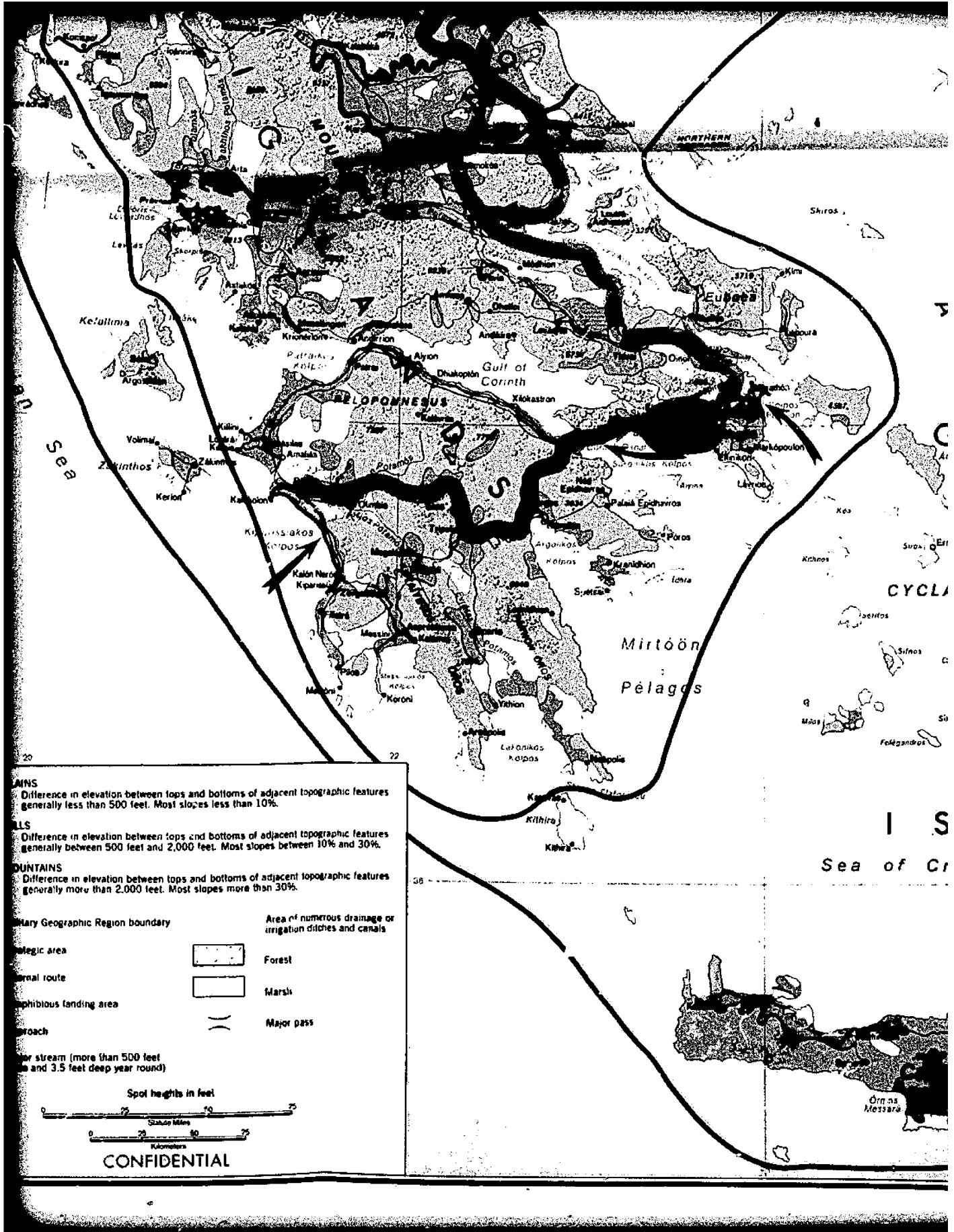


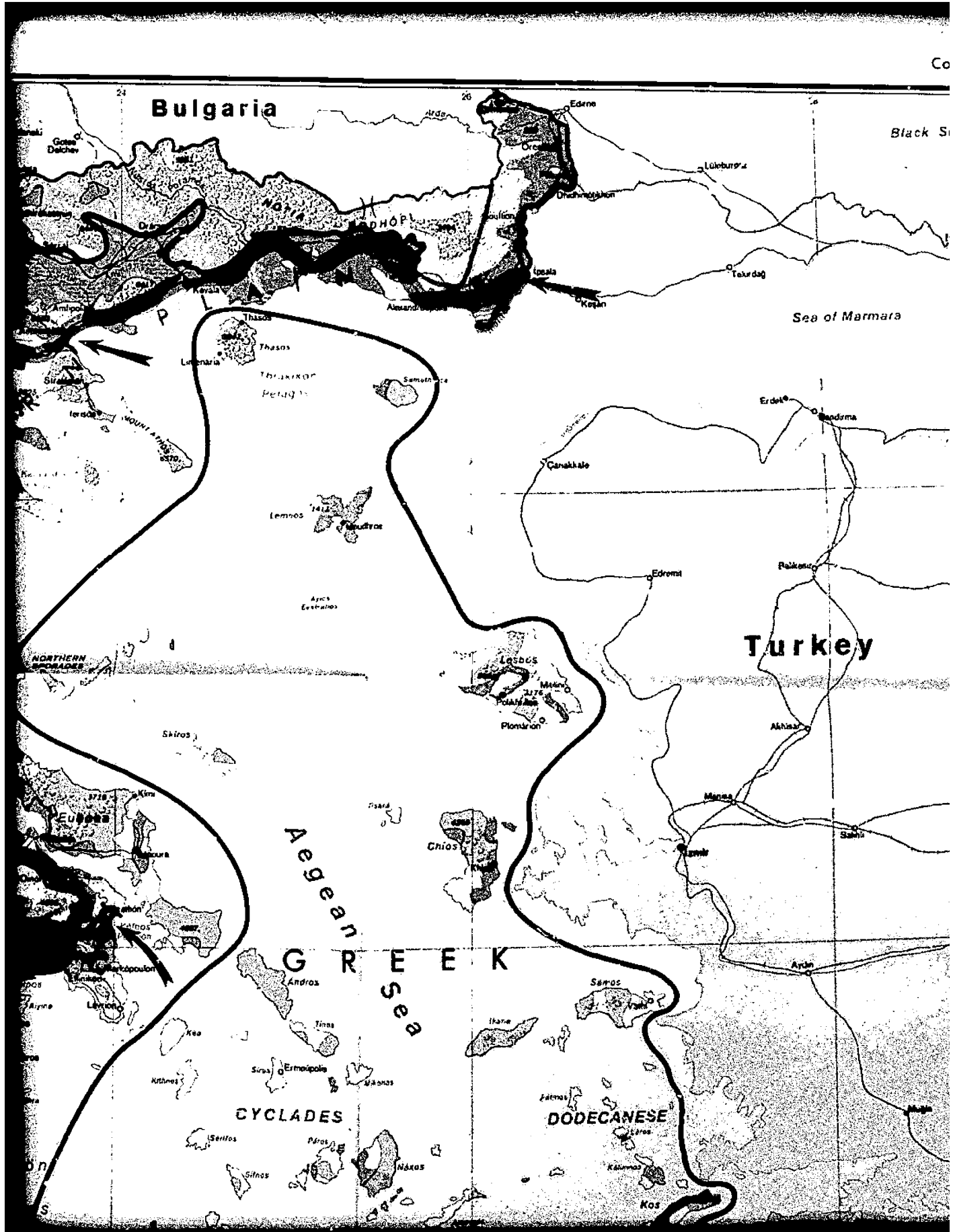
STATION LOCATIONS

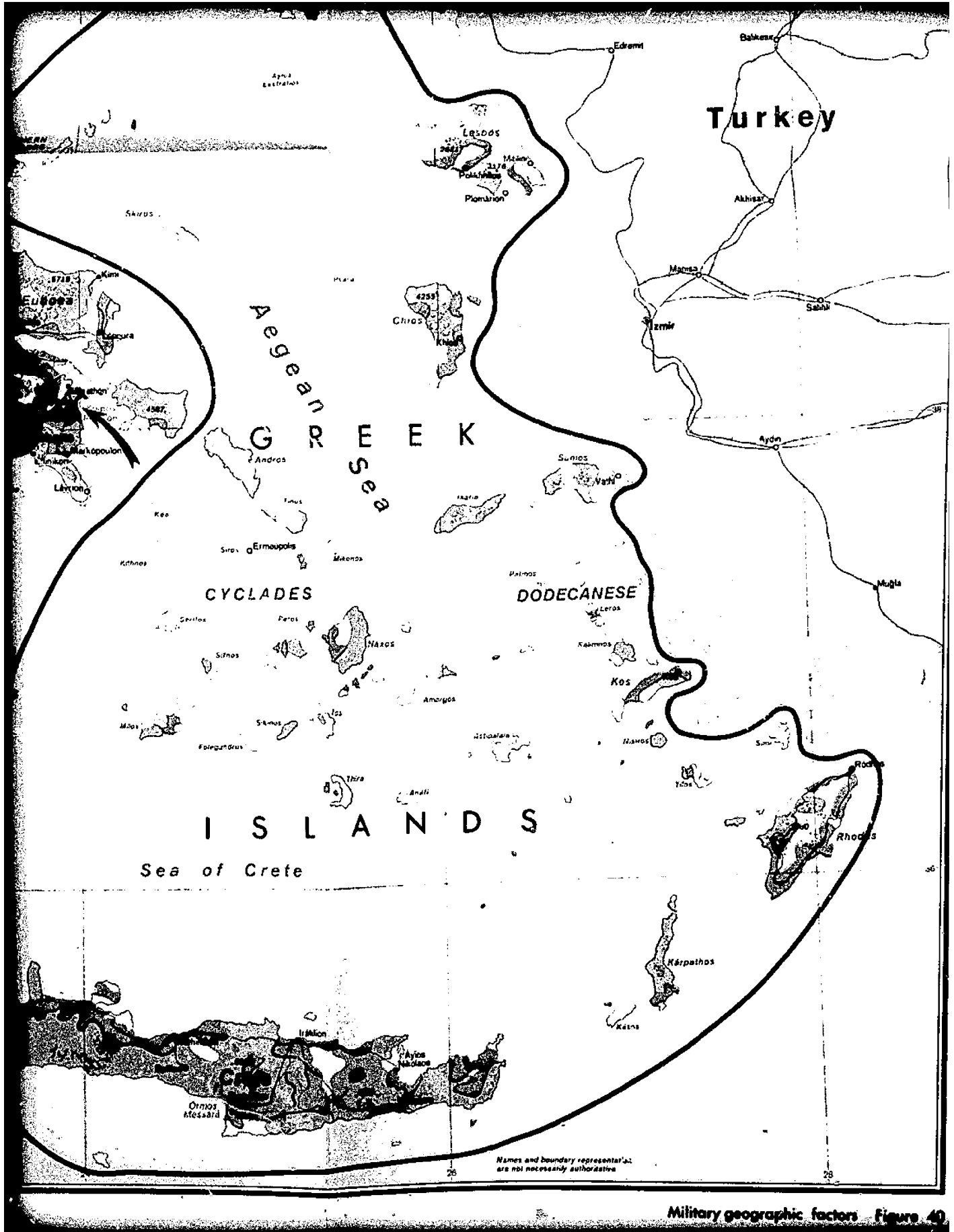












Military geographic factors Figure 40