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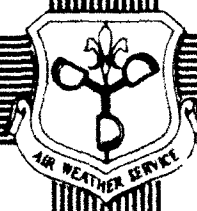

CLIMATE AND WEATHER

of

YUGOSLAVIA

=EXECUTIVE SUMMARY=

by

Capt Richard D. Arnold
Kenneth R. Walters, Sr

JANUARY 1993

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USAF
ENVIRONMENTAL TECHNICAL
APPLICATIONS CENTER

Scott Air Force Base, Illinois, 62225-5116

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PREFACE

This summary, originally prepared on short notice for USTRANSCOM planners, is an *abbreviated summary* of weather and climate in the area formerly known as Yugoslavia. At the request of HQ Air Weather Service (AWS), it is being published and made available for general USAF and DoD use.

Note that the summary does *not* cover the weather and climate of this region in the detail required for use by meteorologists, but is intended for planners and decision-makers who need concise information on general weather conditions. Staff weather officers and forecasters should not, therefore, use this summary as they would, for example, a regional climatology such as the one for Eastern Europe, which is scheduled for publication after mid-1993.

With the geopolitical restructuring of Eastern Europe that began in 1991, the former country of Yugoslavia became politically divided into the countries of Yugoslavia, Croatia, Slovenia, Bosnia and Herzegovina, and Macedonia. The restructuring, however, is immaterial to this study.

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CLIMATE AND WEATHER OF YUGOSLAVIA

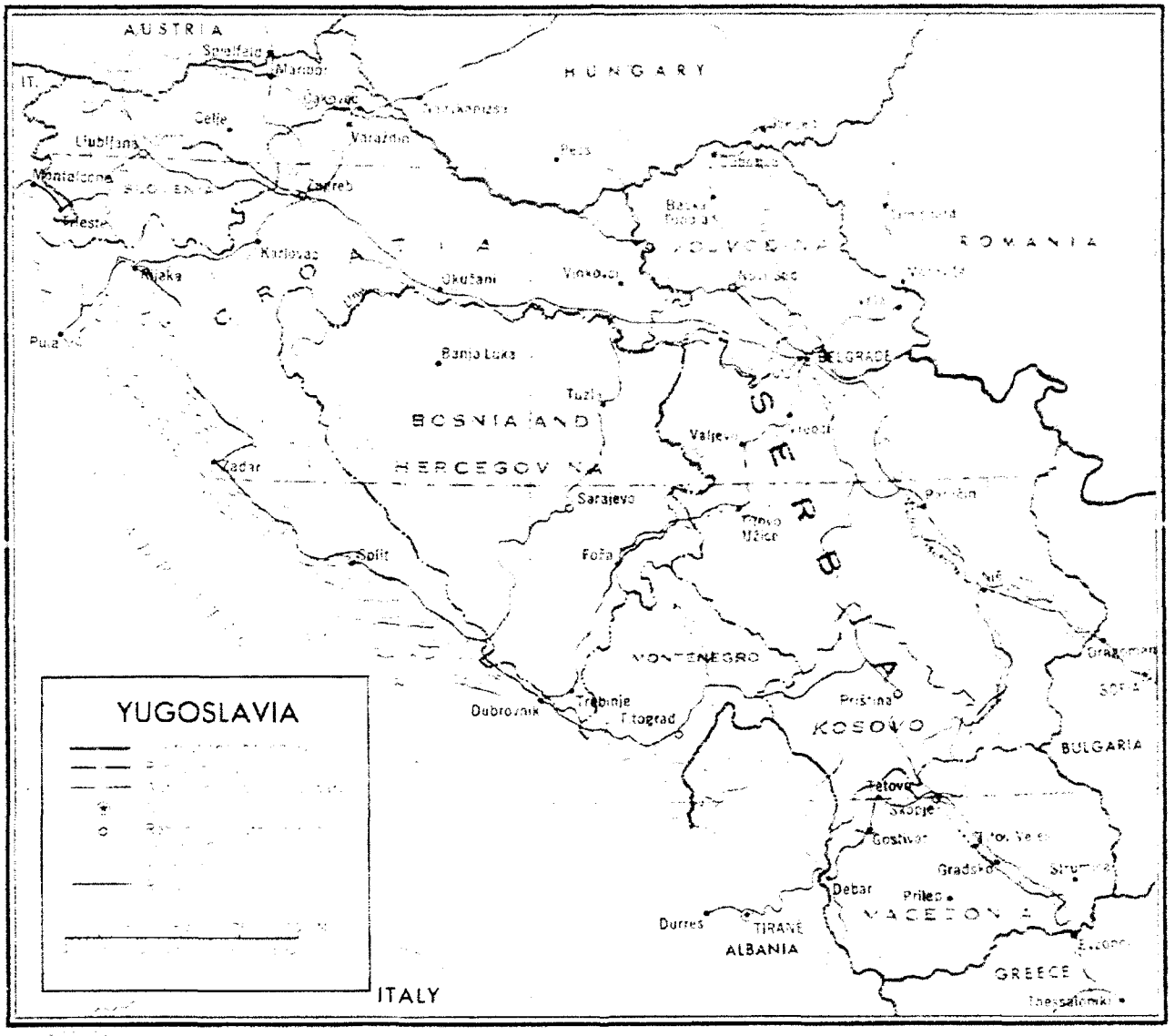


Figure 1. The region formerly known as Yugoslavia. In 1991, the country was redivided politically into a number of other countries, including Serbia, Croatia, and Bosnia-Herzegovina. The new boundaries are not shown here. For the purposes of this study, internal national boundaries are of no consequence. (map courtesy Central Intelligence Agency).

CLIMATE CONTROLS

Summers are generally hot and dry, but between September and May, a series of migratory low-pressure systems and fronts cross the Adriatic, bringing widespread rain and cloudiness. Although a few of these pass directly over Yugoslavia, it is the circulation around those that pass nearby that brings much of the precipitation and cloudiness during fall, winter, and spring. Migratory highs are much less numerous, but they do occur from time to time throughout the year. Two semipermanent high-pressure systems and three migratory lows affect the study area:

- **The Azores High** produces hot, dry weather from May to October. In the fall, it shifts southward and weakens, allowing fronts to move into the Mediterranean basin.

- **The Asiatic (or Siberian) High** is a strong, semipermanent high-pressure cell that dominates much of the Asian continent from late September to late April; when it is strong enough to extend into eastern Europe, Mediterranean lows are forced eastward into Turkey or southeastward into the Middle East; the result is clear skies and low temperatures in Yugoslavia.

- **Genoa (or Ligurean Sea)** Lows form primarily from December to March in the Gulf of Genoa (in the western Mediterranean). They account for about two-thirds of the low-pressure systems that affect the Mediterranean basin. About 50 Genoa and Adriatic Sea Lows (see below) affect the study area during a typical year. They are the main producers of rain, snow, and low ceilings.

- **Adriatic Sea Lows** develop in the lee of the Apennines over the Adriatic Sea, mainly in winter and spring. They tend to be small but intense; associated weather includes heavy rain, thick low cloudiness, and strong winds along the Adriatic coast and the windward mountain slopes. They usually move to the southeast, but weaker versions that develop in summer and fall tend to move to the east-northeast.

- **Atlas Lows** average 14 a year. They develop in the north-central interior of Algeria southeast of the Atlas Mountains from October to June, but are most frequent in March and April. They normally move northeast over the south-central Mediterranean, with strong southerly or southwesterly winds ahead of their advance. These hot winds, with suspended dust, can reach southern Europe. Strong winds and steady rain with dust often precede an Atlas Low; the dust mixes with the rain to produce "red rain."

STORM TRACKS

Figures 2 through 9 show primary and secondary European storm tracks by month (since low formation is rare in June, July, August, and September, tracks for these months are not shown). Primary tracks are the normal paths of lows that originate in major low-pressure development areas. Secondary tracks are either alternate tracks from major low-pressure development areas or tracks for lows originating in less active development areas. Stippled areas show the main low-pressure development areas. Although other storm tracks are shown in the figures, the discussions refer only to those affecting Yugoslavia, which is represented on these figures by the star over Sarajevo.

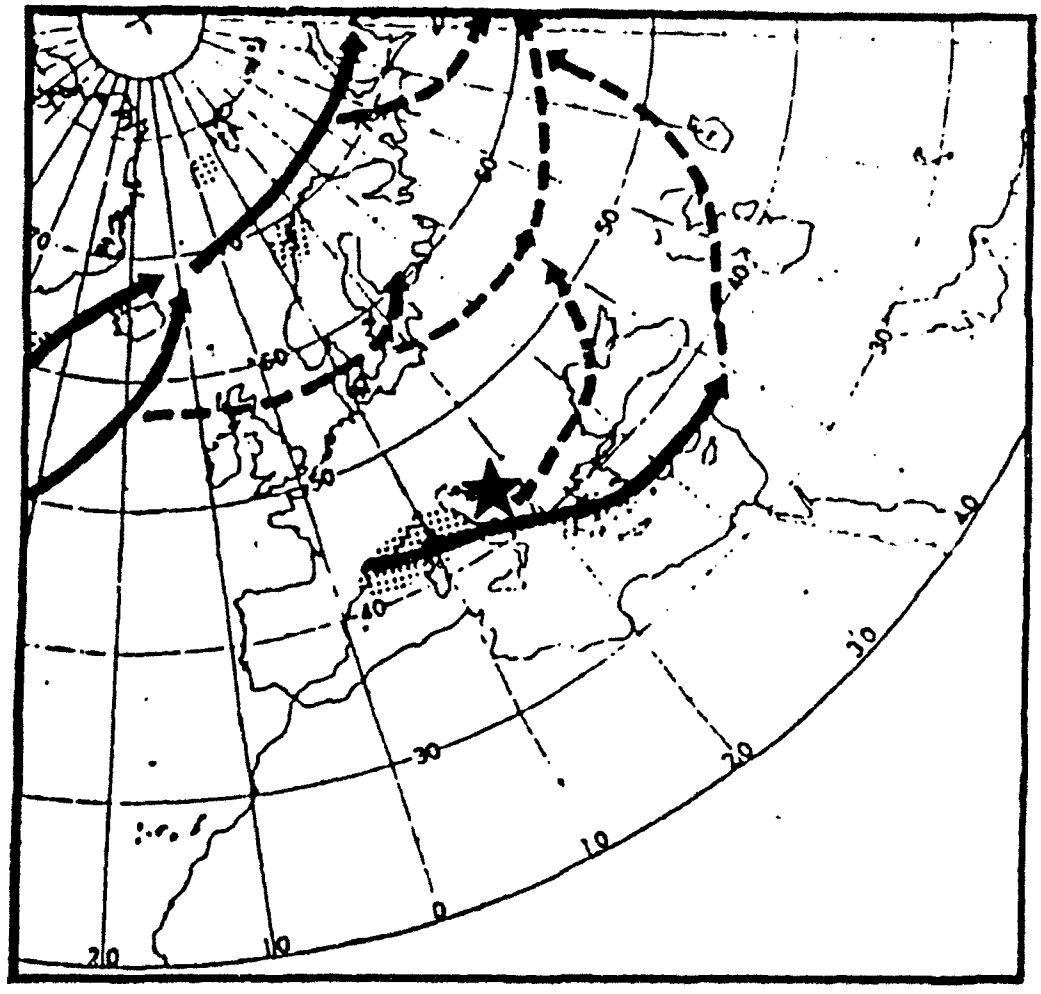


Figure 2. January Primary (solid arrows) and Secondary (dashed arrows) Storm Tracks. Genoa Lows usually move east across Greece and southern Turkey; a secondary track runs northeastward.

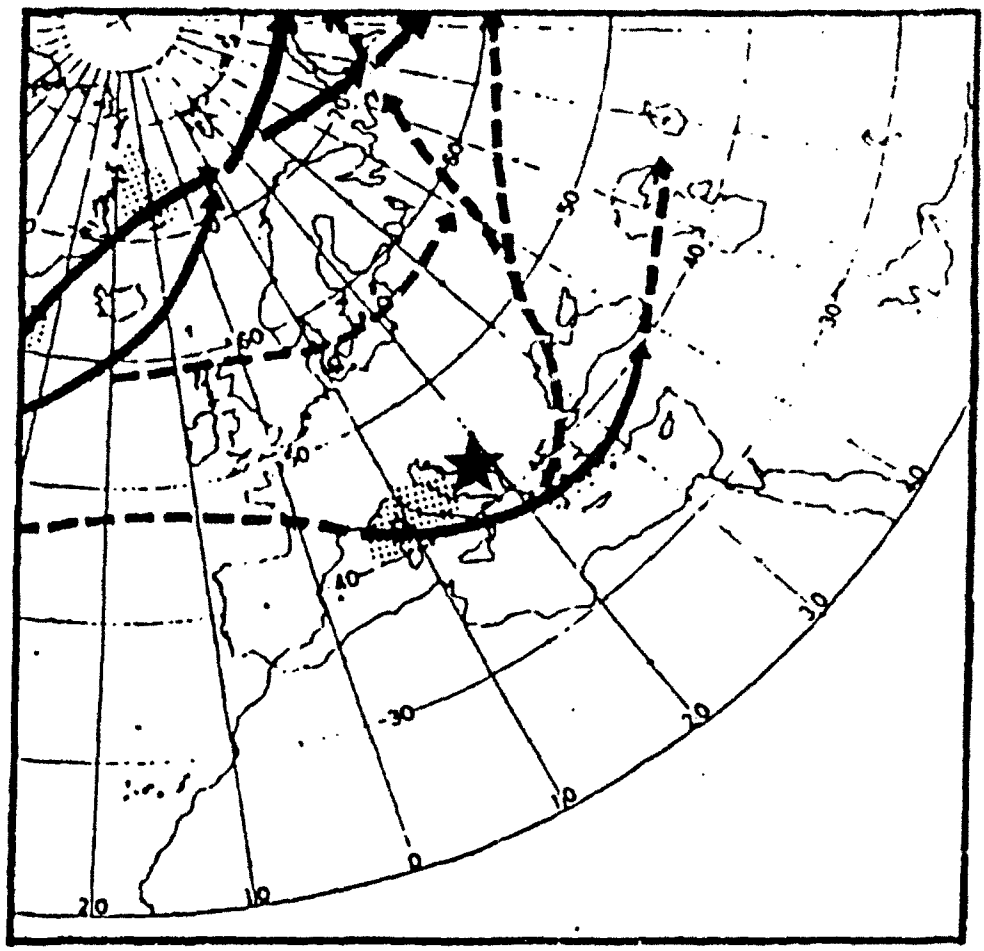


Figure 3. February Primary (solid arrows) and Secondary (dashed arrows) Storm Tracks. Lows developing or redeveloping in the Gulf of Genoa usually move across southern Turkey, with a secondary track to the northeast.

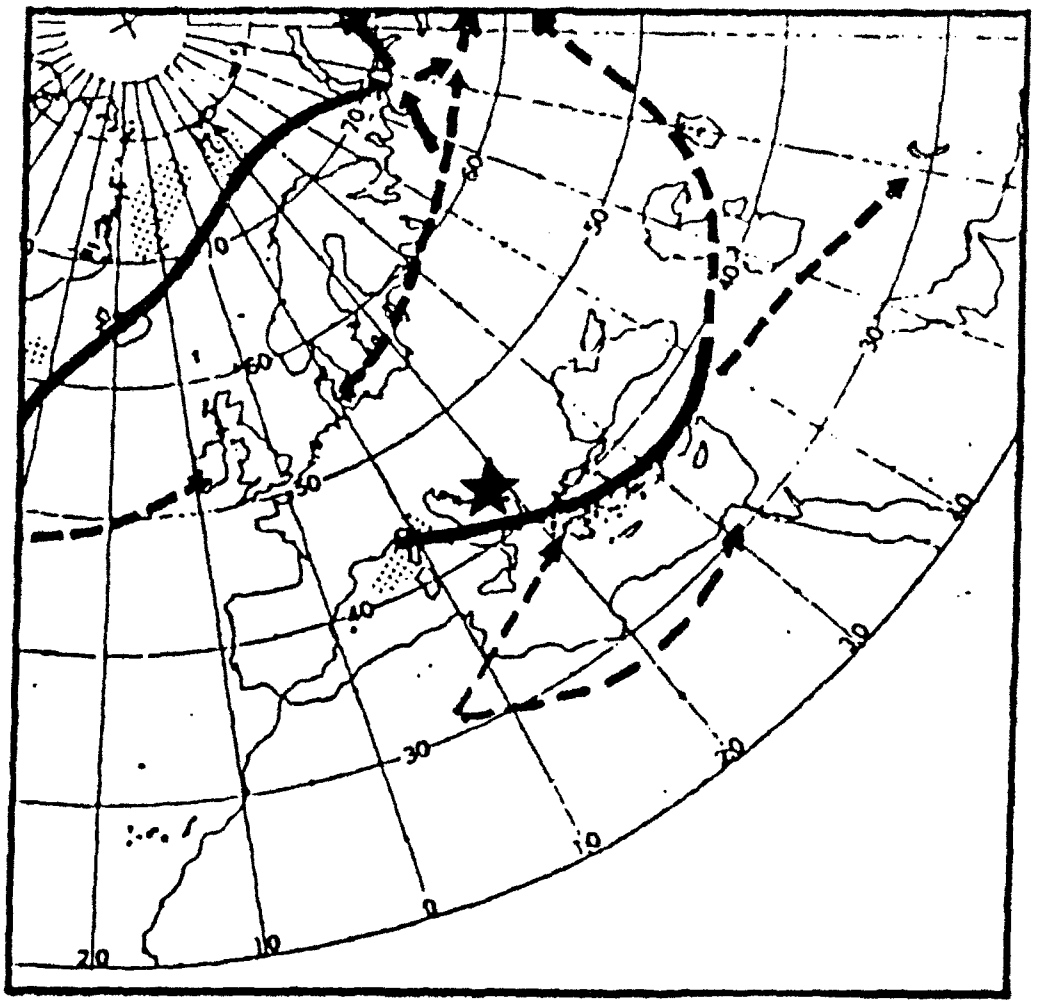


Figure 4. March Primary (solid arrows) and Secondary (dashed arrows) Storm Tracks. Genoa Lows generally cross Greece and Turkey. Atlas Lows, moving either east or northeast, become more common

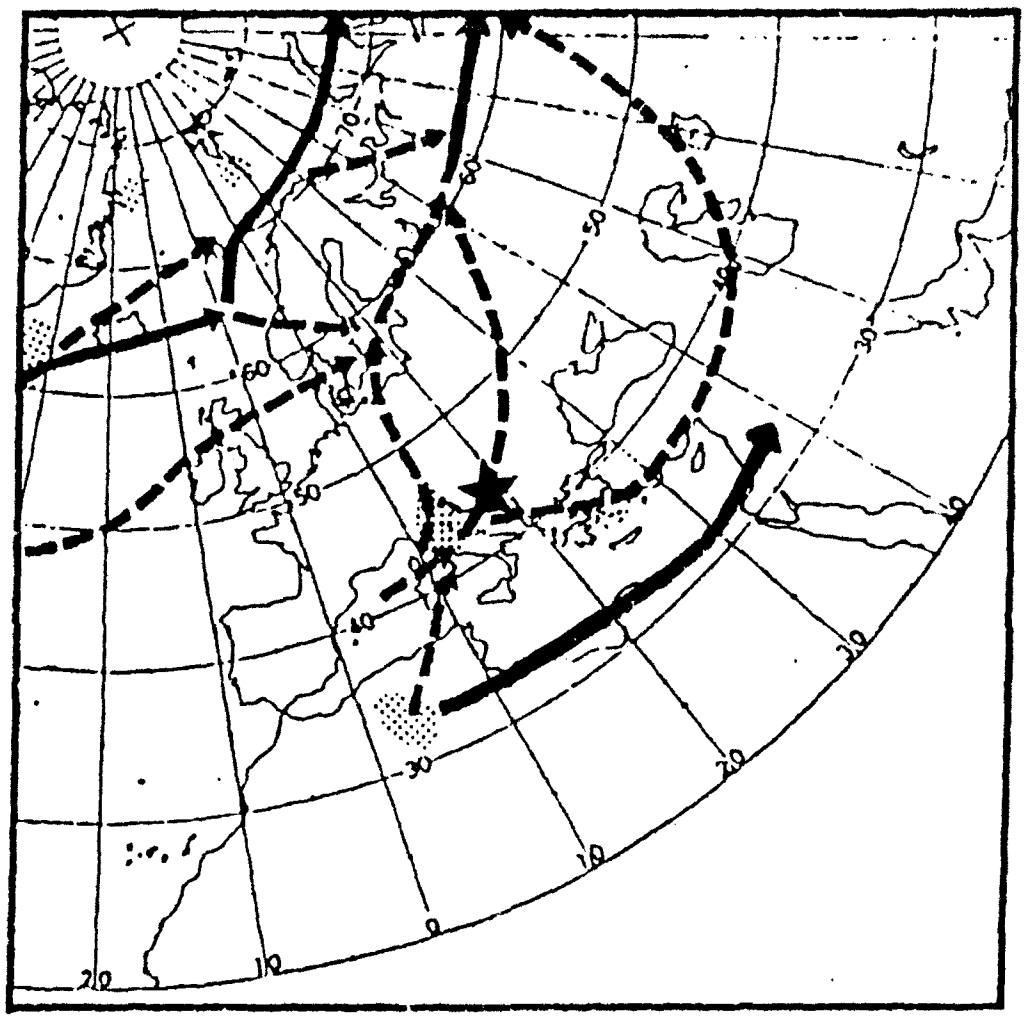
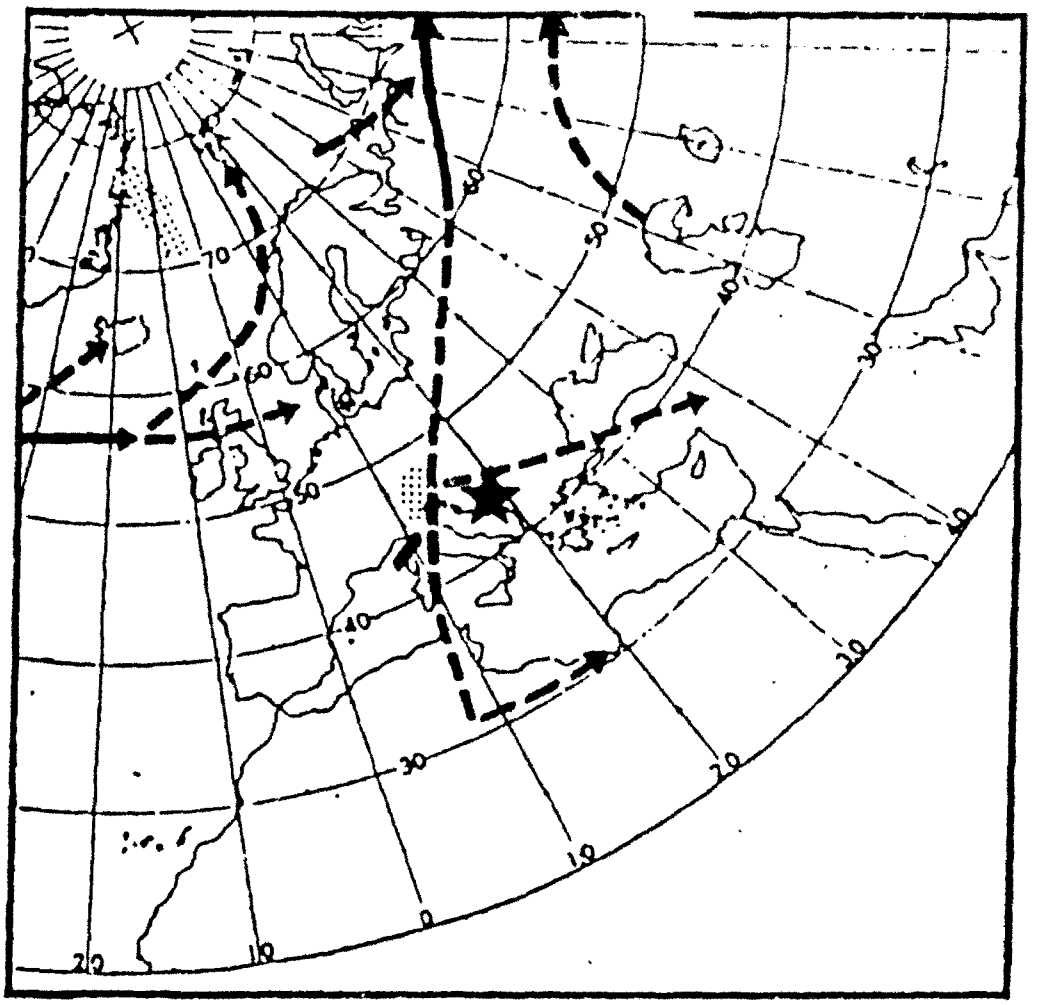


Figure 5. April Primary (solid arrows) and Secondary (dashed arrows) Storm Tracks. Atlas Lows usually move east across North Africa, but there is a secondary northeast track. Some Genoa and Adriatic Sea Lows form; those that develop early in the month are more likely to move east across Turkey, while those forming later in the month move northeastward.



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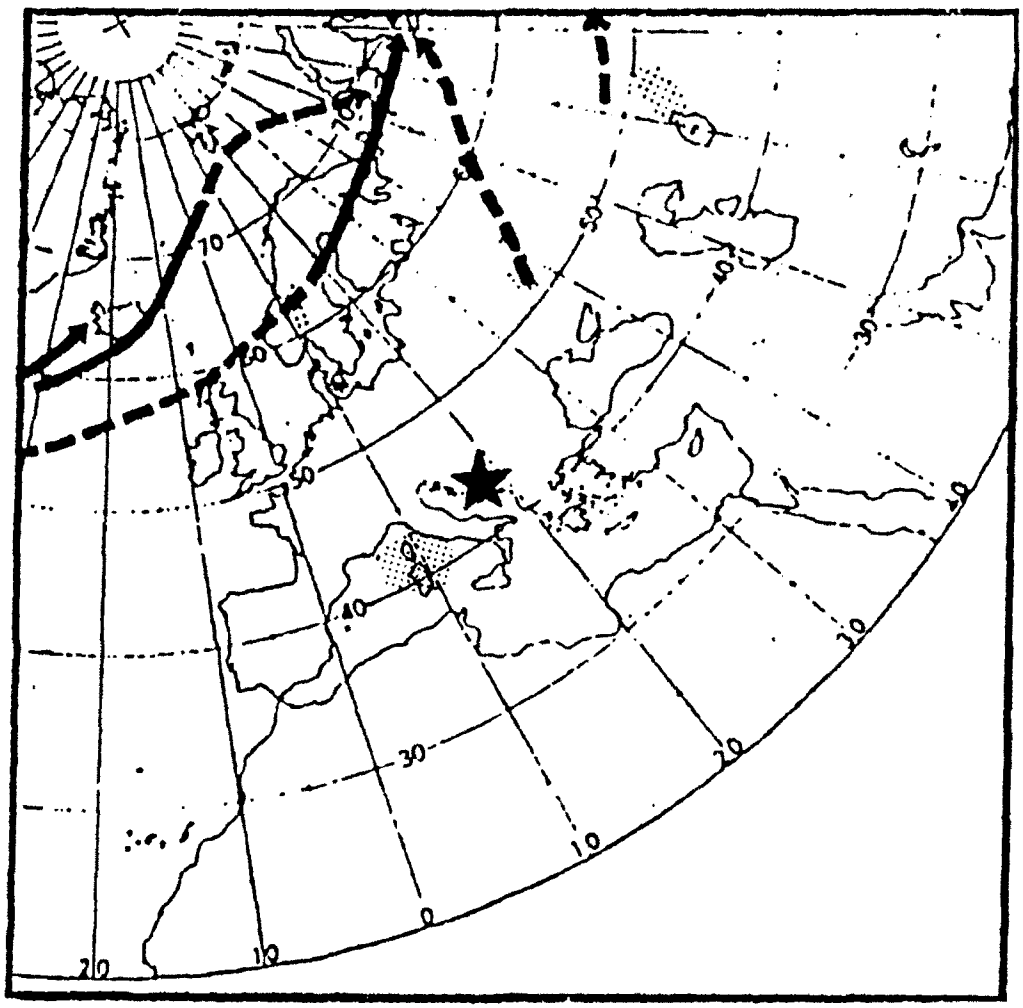

Figure 7. October Primary (solid arrows) and Secondary (dashed arrows) Storm Tracks. Although there is no established Genoa Low storm track, per se, some of these lows begin to develop and move northeastward as the Azores High weakens and recedes.

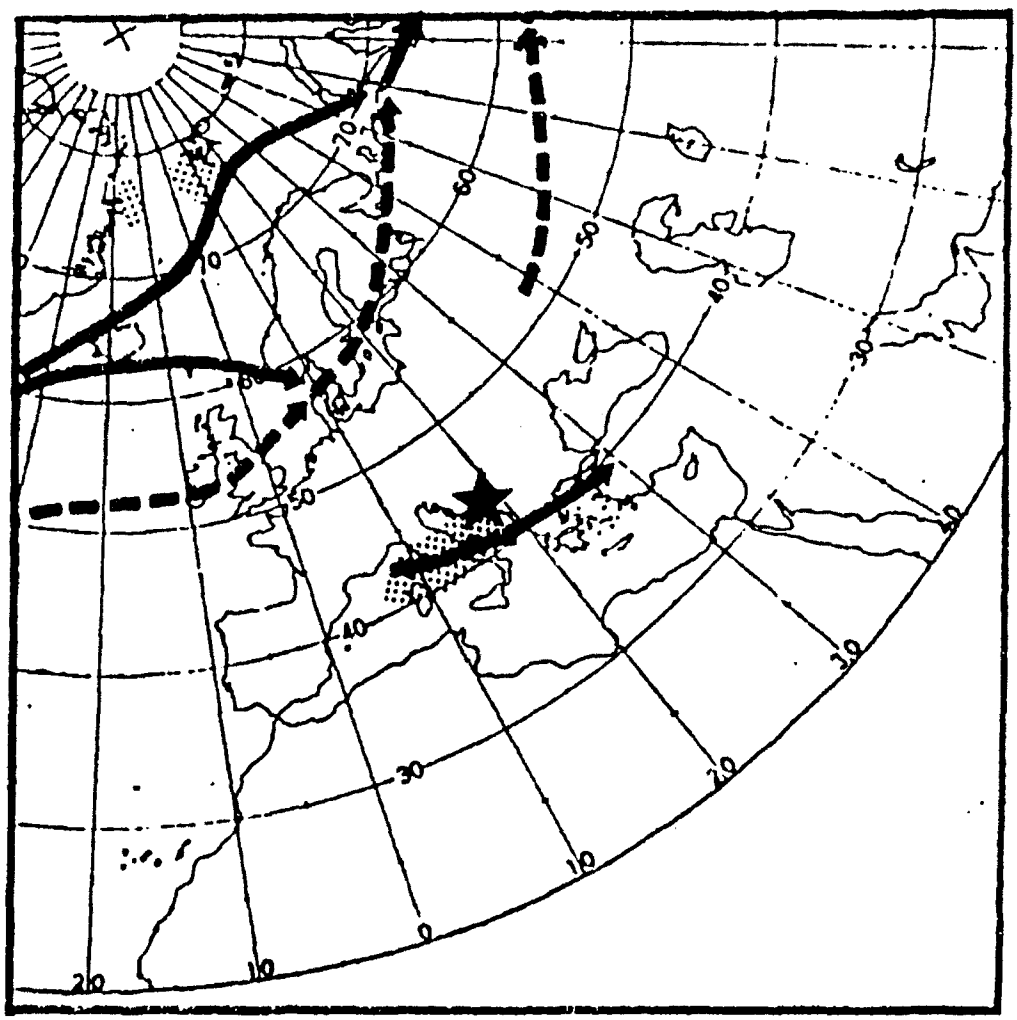

Figure 8. November Primary (solid arrows) and Secondary (dashed arrows) Storm Tracks. Genoa and Adriatic Sea Lows increase in the Mediterranean, generally moving eastward.

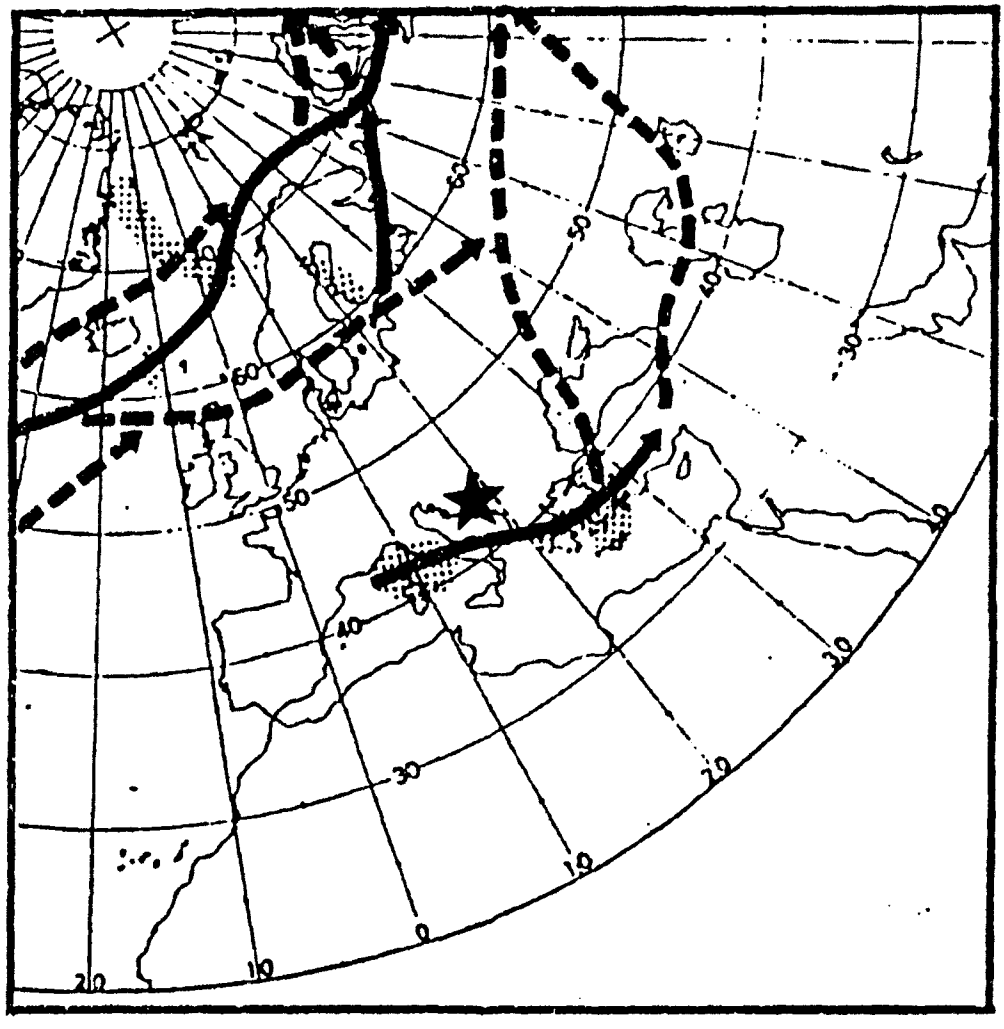

Figure 9. December Primary (solid arrows) and Secondary (dashed arrows) Storm Tracks. Genoa Lows develop and move toward Turkey; their primary track lies across Turkey (or south of it), while others turn northeastward across the Black Sea.

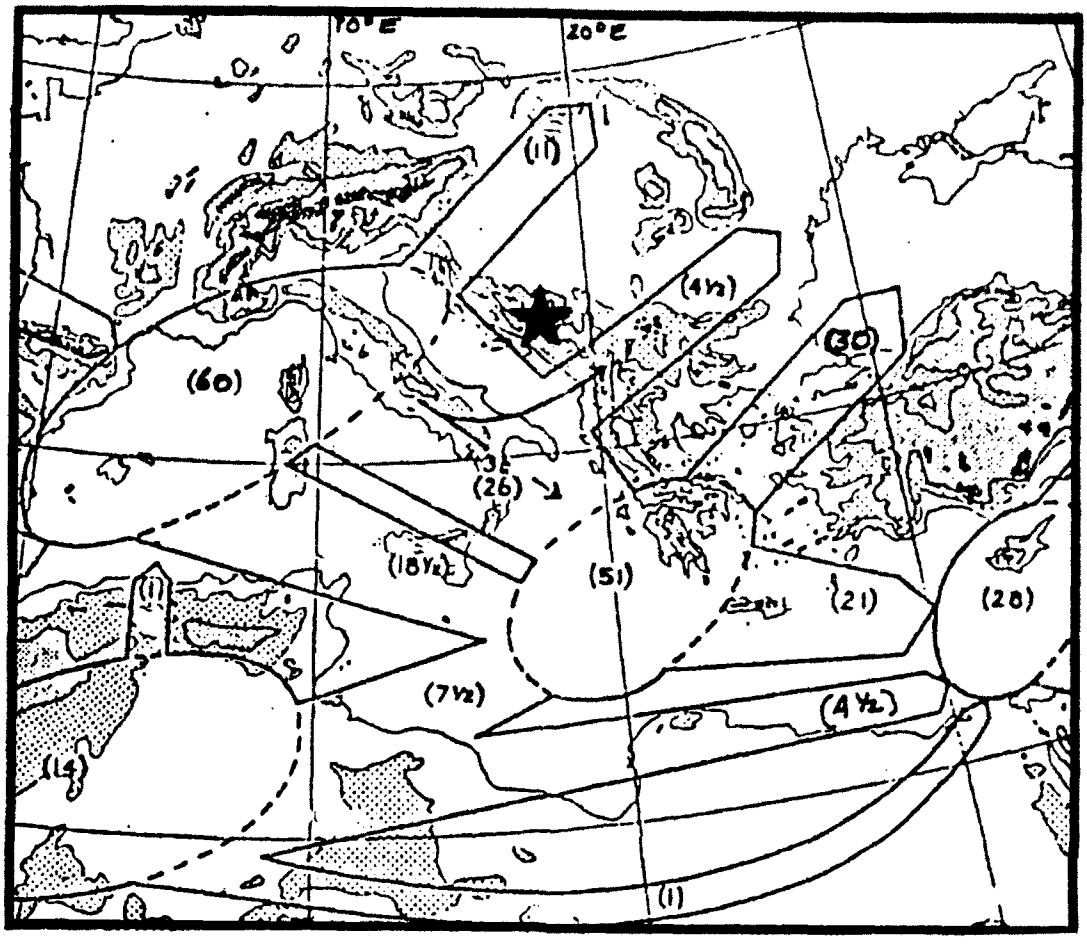

Figure 10. Annual Average Numbers of Low-Pressure Systems and Their Tracks (from Weather in the Mediterranean, 1962). The star represents Sarajevo. The numbers in parentheses represent the average number of lows that form in the area or follow the summarized annual storm tracks shown by the arrows. The average number of lows per year along each track gives some idea as to their relative frequency. Genoa Lows are easily the most common and most frequent; they generally move east-southeast into the central Mediterranean, but some move into southeast Europe. The northeast track from the central Mediterranean is traveled with slightly higher frequency than the eastward track into the eastern Mediterranean. A small number of lows move into the Mediterranean from the North Atlantic. Although summertime lows are infrequent over the Mediterranean, cold fronts can extend south to the northern coast, where they produce rain or rainshowers. An average of four lows a summertime month reach the Adriatic Sea and Yugoslavia, increasing to six a month during the winter. This area has the highest frequency of frontal passage in Europe (it averages 62 a year), due mainly to the influence of Genoa and Adriatic Lows.

WINTER WEATHER
(December-February)

GENERAL WEATHER. Winters are generally mild and rainy along the coast, but it can be very cold in the higher mountains. Winters are also cold over the plains in the northeast, with light snow. The frequency of migratory low-pressure systems that affect the area is the highest of the year. The worst weather occurs when lows move southward over the Adriatic Sea and produce heavy rain, thick low clouds, and strong winds along the entire coast and windward slopes of the coastal mountains. Lows moving southeastward west of Italy, then curving eastward, sometimes become intense, bringing heavy rain, thick cloud decks, and occasionally gale-force ($\geq$ 28 knots) winds to the coastal lowlands and windward mountain slopes. The coldest outbreaks are the result of strong high pressure centered in Siberia (see "The Asiatic High"). These cold snaps may last for several days; only the coastal areas are spared.

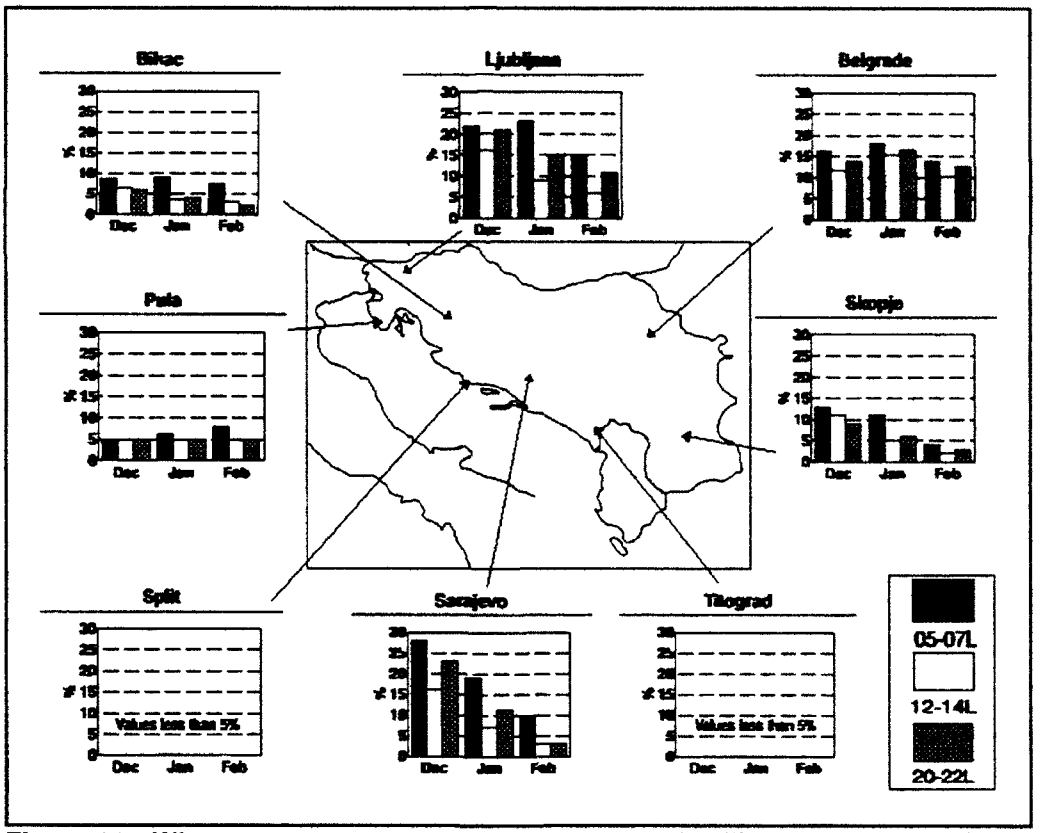

Figure 11. Winter percent occurrence frequencies of ceilings below 1,000 feet.

SKY COVER. As a result of the frequent low-pressure activity, cloud cover is greatest in winter, usually in December or January. But at higher elevations in the north, cloud amounts decrease northward; for example,

cloud cover over the Julian Alps in Slovenia is actually least in winter. Frontal clouds are generally layered to 30,000 feet. Ceilings (cloud cover greater than 4/8 coverage) are present about 60% of the time. The principal cloud type is stratiform, with bases at 500-1,000 feet and tops 2,000-5,000 feet. The stratus, which forms near sunrise over lower terrain, then lifts and decreases slightly during the afternoon, increases again during the evening. Mountainous areas in southern Yugoslavia are cloud-covered about half the time. Since the primary storm tracks are in the south, frequency of ceilings below 1,000 feet decreases from southwest to northwest-see Figure 11.

VISIBILITY. Visibilities are restricted most often in late fall and winter, generally in fog, rain, and snow. The western shore of the Istrian peninsula from Trieste to Pula has the most days a month with fog (1-4) along the Yugoslavian coast--three times more than other coastal stations. Visibilities are worst over inland sections, where they are below 1,600 meters two to three times more often than in coastal areas (see Figure 12).

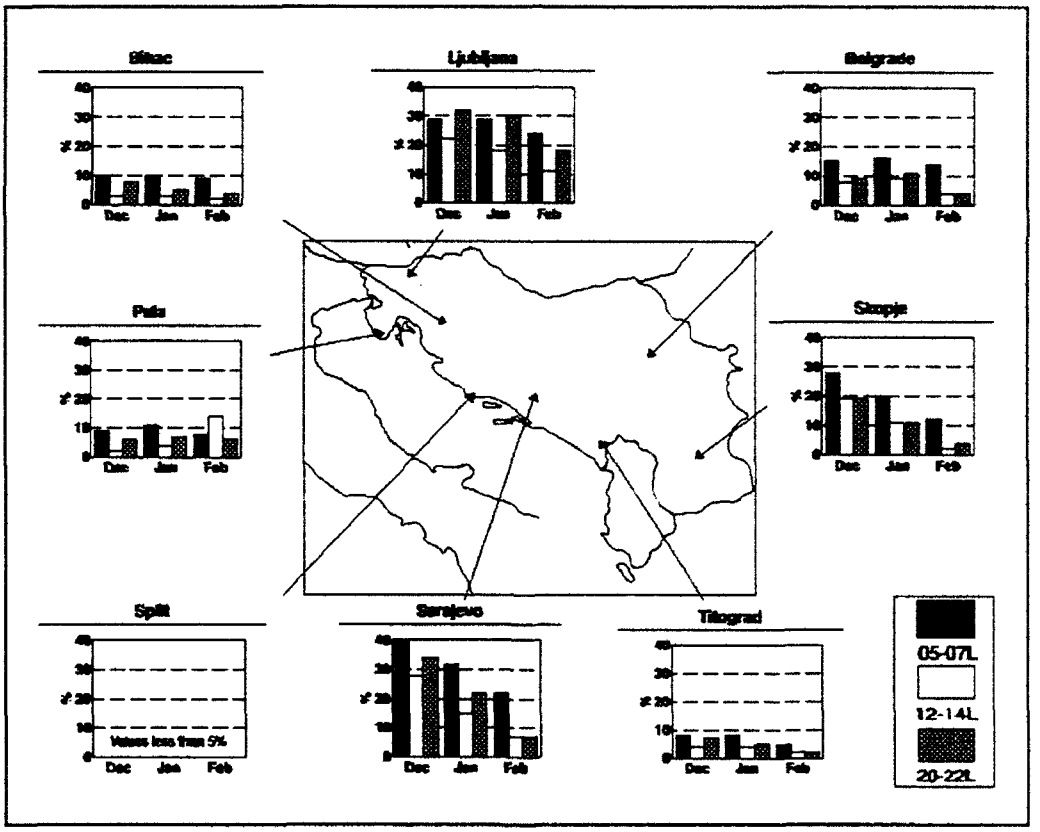

Figure 12. Winter percent occurrence frequencies of visibilities below 1,600 meters.

WINDS. Average surface winds are light and variable at 7 knots or less over most of Yugoslavia all year. Topography produces variable surface wind patterns; winds over the mountains are channeled along valleys or nearby ridges while sheltered areas, such as enclosed valleys and basins, are often calm. In exposed areas, winds are frequently from the northwest. Northeasterly winds prevail along the coast as a result of the "bora" wind--see Appendix A. Because of the frequent passage of lows in the Adriatic and occurrences of the "bora," wind speeds are highest in coastal and island regions. Gale-force winds are most frequent in winter and most likely along the coast and at high mountain locations. Land/sea breezes are rare.

PRECIPITATION. The coasts and islands of Yugoslavia get their maximum precipitation in fall and early winter, again because of frequent migratory low passages. Snow is common inland from December through March, but rare along the coast. Snow cover varies locally but seldom lasts long or is very deep in valleys and on plains. In parts of the mountains, however, snow depth may be several feet. Mean snowfall days vary markedly in the mountains depending on location, exposure, and elevation. Below 4,000 feet (1,200 meters), the average number of days with snowfall ranges from 1 to 10 a month in December through March. Above 4,000 feet (1,200 meters), frequency increases to 5-15 days in December through April, with the highest frequencies at the highest elevations. (See Appendix B for an in-depth study on snow depth and snow cover for Sarajevo.) The greatest snowfall frequencies are north and inland. Coastal and island locations seldom see snowfall; the average there is 2 or less days a month. With increasing distance inland and increasing height, snow cover lasts much longer; for example, the peaks of the Dinaric Alps, which parallel the Adriatic coast south to Albania, may be snow covered until the end of June. Average precipitation amounts (water equivalent) range from 3 to 7 inches (80 to 180 mm) over the western and central areas to 2 to 4 inches (50 to 100 mm) over the northeast.

THUNDERSTORMS. Thunderstorms occur on less than 1 day a month at most places, but slightly more often over the coast and islands. They are seldom severe. Tops can reach 30,000 feet. Bases are 2,000 to 4,000 feet.

TEMPERATURES. Winters range from mild on the coasts and islands to very cold in the mountains. January is usually the coldest month. At elevations below 3,000 feet (900 meters), mean daily highs are in the low 30s to mid 40s ° F (0-5° C) and in the 20s to low 30s° F (-6 to 0° C) above 3,000 feet (900 meters). Mean daily lows depend on terrain; cold air becomes trapped in enclosed basins and valleys. Average lows range from the mid teens to the mid 30s° F (-9 to 2° C), with some of the lower temperatures occurring at both high and low elevations. Along the coast

and islands, mean daily highs range from the mid 40s to the low 50s° F (8-11° C). Mean daily lows range from the mid 30s to mid 40s° F (2-8° C). See Appendix B for a more detailed discussion of temperature at Sarajevo.

SPRING WEATHER
(MARCH-MAY)

GENERAL WEATHER. Spring lows, although less frequent than in winter, are responsible for much of spring's precipitation and cloudiness. Lows moving east or northeast from the northern Adriatic Sea cause most cloudiness, rainfall, low ceilings, and visibilities in northern areas. Adriatic Lows moving from east to northeast occur most often in late spring. Lows moving southeastward over the Adriatic Sea often produce heavy rain, thick low clouds, and strong winds along the entire coast and on the windward slopes of the coastal mountains. Average relative humidities are 65-85% in the morning and 50-75% in the afternoon.

SKY COVER. Depending on location, cloudiness stays the same as in winter or decreases. Stratiform clouds change to cumuliform as the season progresses. Bases are generally higher than winter (1,000-2,500 feet), with tops 2,000-7,000 feet. In early spring, the mean frequency of ceilings is about 60%; in eastern Yugoslavia, 70%. See Figure 13 for percent occurrence frequencies of ceilings below 1,000 feet.

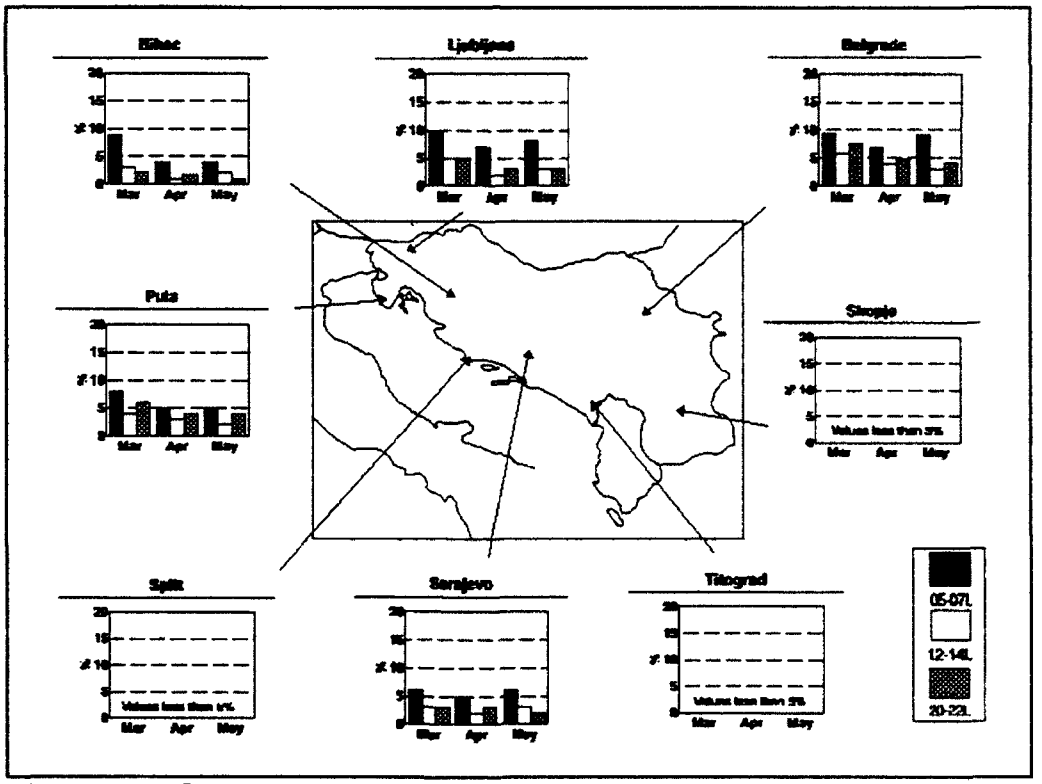

Figure 13. Spring percent occurrence frequencies of ceilings below 1,000 feet.

VISIBILITY. Fog and rain are the primary causes of reduced visibility. In early spring, snow still falls in northern areas and throughout the spring at higher elevations. Industrial pollution is evident, but mainly in late spring and then only in sheltered areas. The highest frequencies of visibilities below 1,600 meters are in northern areas--see Figure 14.

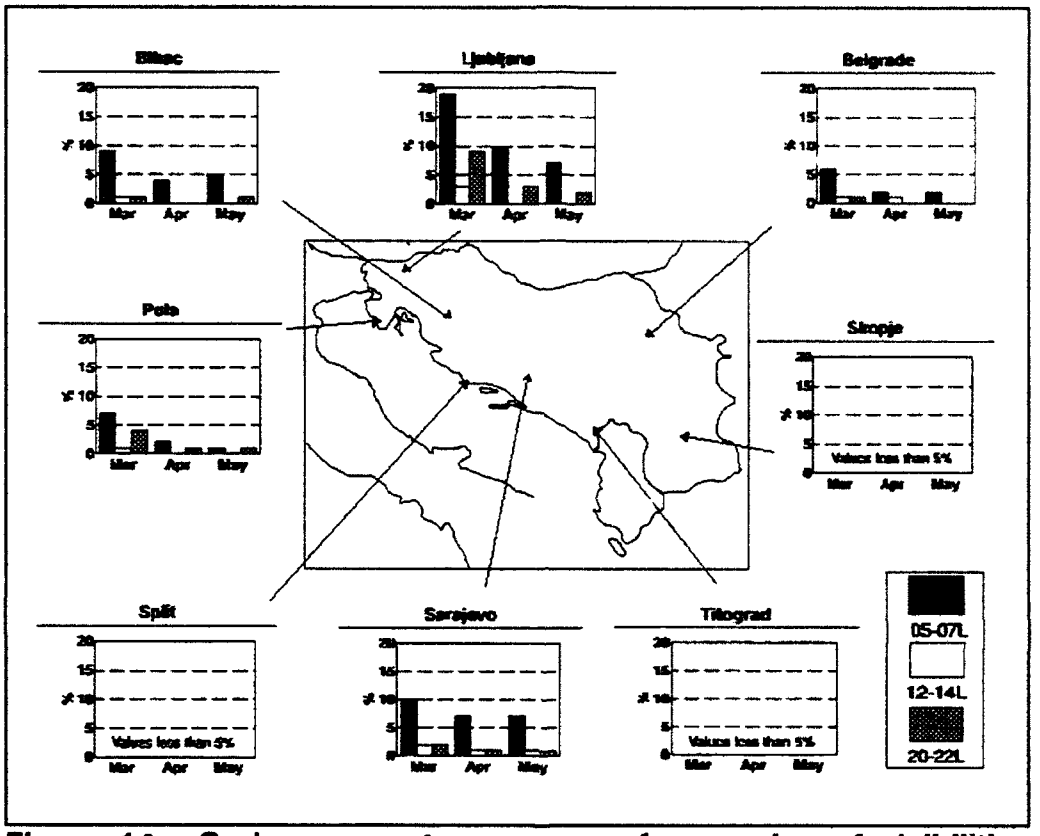

Figure 14. Spring percent occurrence frequencies of visibilities below 1,600 meters.

WINDS. Winds are stronger along coastal areas than in the mountains due to the presence of the "bora" wind, as well as to the beginning of a consistent land/sea breeze. Wind speeds and directions are generally northeast to southeasterly at less than 17 knots. Winds in the mountains and on the northeastern plains are usually light and variable.

PRECIPITATION. Since cyclonic activity is still high, precipitation is generally plentiful. Most falls as heavy showers or in short periods of heavy continuous rain or snow. Spring thaws of snow in the mountains may cause local flooding. Precipitation averages 3-5 inches (80-130 mm) a month.

THUNDERSTORMS. Thunderstorms are most frequent in late spring. Mean days with thunderstorm range from 2 in early spring to about 4 by May. Some storms, with tops to 40,000 feet, can be severe. Bases are generally 1,000-3,000 feet.

TEMPERATURES. Temperatures rise steadily through spring, but it is still cold in mountainous areas. Mean lows are in the upper 30s to upper 40s° F (3-9° C); mean highs, in the lower 50s to mid 60s° F (11-19° C).

SUMMER WEATHER
(JUNE-AUGUST)

GENERAL WEATHER. Summer weather is the best and most settled. The frequency of migratory low passage is at a minimum. The rare lows that move east or northeast from the northern Adriatic Sea bring cloudiness, rainfall, low ceilings, and visibilities to northern areas; these occur most often in early summer and are usually weak. Along the Adriatic coast, migratory highs occur more often in summer and are one of the causes of clear skies. Frequent conditions of stability normally last only a few hours. Radiation inversions are common, but usually short-lived as the surface warms after sunrise and the air becomes unstable again. Instability is greatest on summer afternoons. Relative humidities are 75-90% in the morning and 45-65% in the afternoon.

SKY COVER. Cloudiness is least during the summer. Cumulus usually start to form about mid-morning, reaches its greatest development in the afternoon, and dissipates at night. There are few cases of low ceilings.

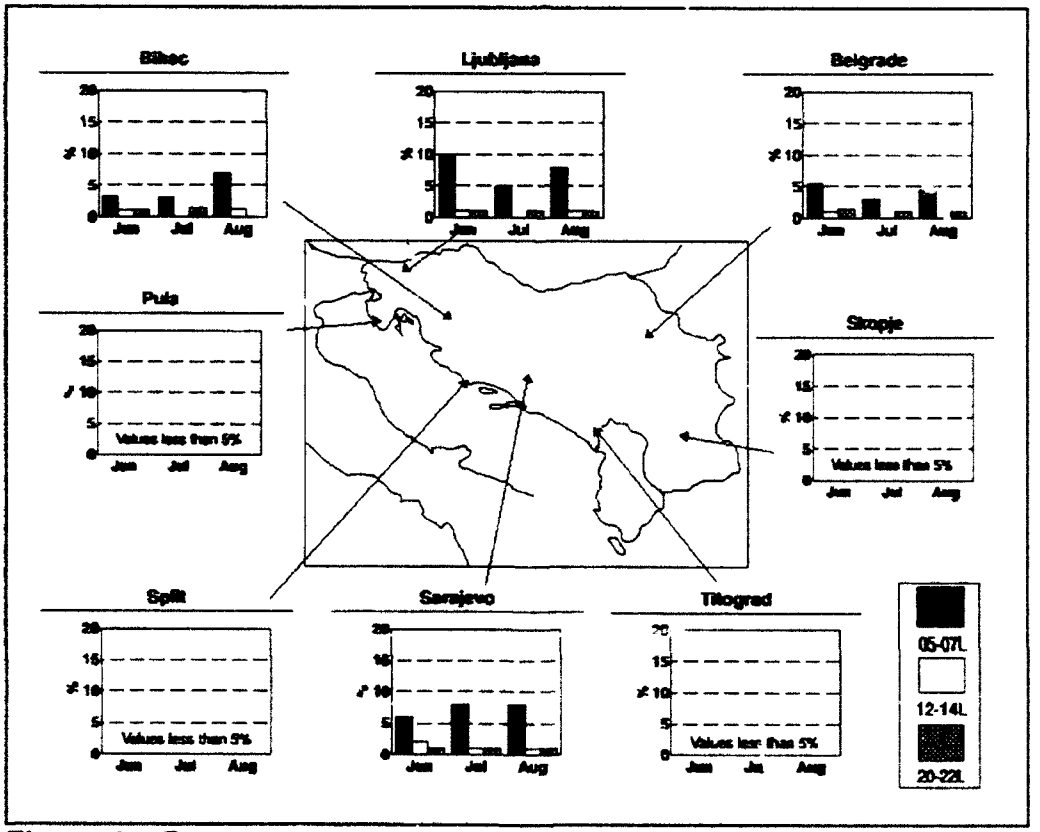

Figure 15. Summer percent occurrence frequencies of ceilings below 1,000 feet.

Bases generally run from 3,000 to 5,000 feet and tops from 7,000 to 10,000 feet. Ceilings are present from about 20% of the time along the southern coast to 40% in the northwest. The highest frequencies of ceilings below 1,000 feet are in northern Yugoslavia and around Sarajevo--see Figure 15.

VISIBILITY. Visibilities are best in summer and early fall. They are below 1,600 meters most often in northern Yugoslavia and in the mountains due to showers and morning fog--see Figure 16.

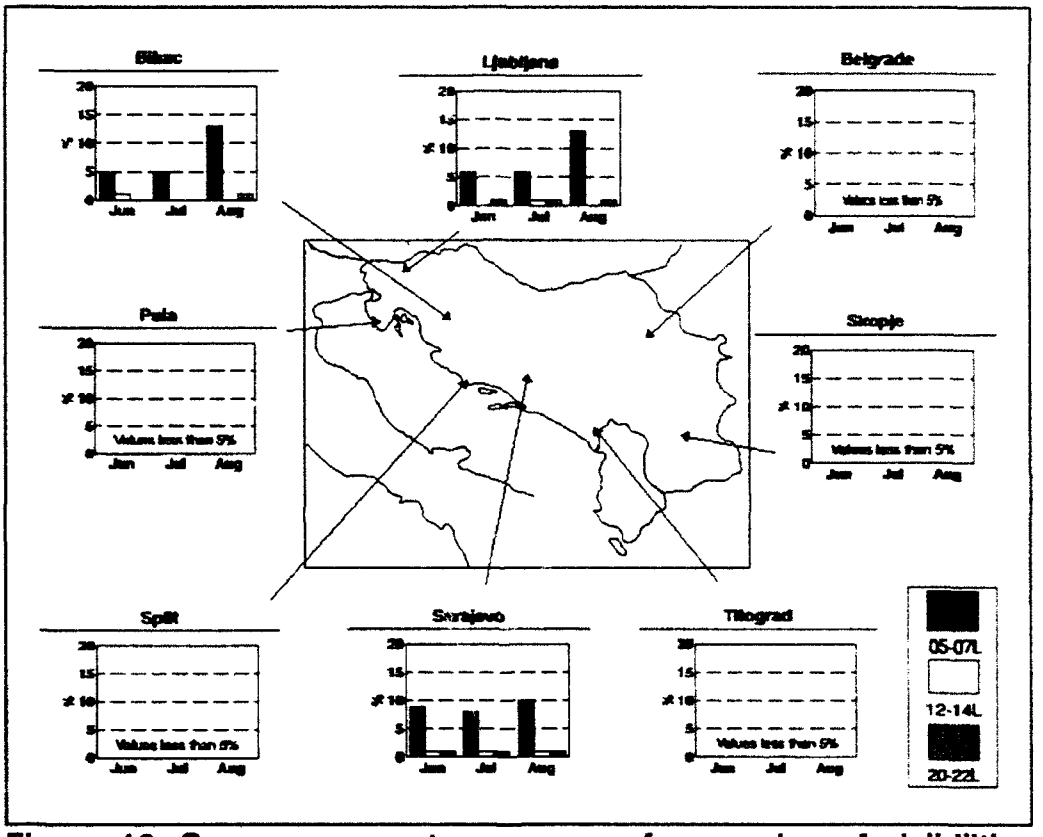

Figure 16. Summer percent occurrence frequencies of visibilities below 1,600 meters.

WINDS. Speeds are highest at most stations during the afternoon. In coastal areas, the land breeze normally begins about sunset and persists until after sunrise. The stronger sea breeze, sometimes reaching speeds of 21 knots, usually starts before noon and lasts until sundown. Nighttime downslope (mountain) winds and daytime upslope (valley) winds are common in the mountains. Both are normally light. Winds in the rest of the country are light and variable.

PRECIPITATION. Average precipitation is less than 3 inches (80 mm) a month because of the rarity of low-pressure systems. Most precipitation falls as afternoon or evening rainshowers or thunderstorms.

THUNDERSTORMS. Thunderstorms are frequent and primarily of the air mass type. They form in the afternoon and last into evening. Although precipitation can be heavy at times, storms are not usually severe. Bases are from 1,000 to 2,000 feet, but tops can exceed 40,000 feet.

TEMPERATURES. Summers range from warm to hot at most locations. July is normally the hottest month. In the mountains, mean daily highs below 3,000 feet (900 meters) are in the 70s to low 90s° F (24-33° C), but much lower above 3,000 feet (900 meters), where they range from the upper 40s to the mid 70s° F (9-24° C), depending on elevation. Mean daily lows are more uniform, ranging in the 40s to mid 60s° F (8-19° C). The range between mean daily highs and lows is about 10 to 30° F (6-16° C); ranges are smallest in the highest elevations. Along the coast and islands, mean daily highs range from the low 70s to the low 90s° F (22-33° C). Lows in the 60s to mid 70s° F (18-24° C) are common. Temperatures in areas exposed to sea breezes are 10° F (6° C) lower.

FALL WEATHER
(SEPTEMBER-NOVEMBER)

GENERAL WEATHER. Migratory lows are fewer than in winter, but they still contribute to cloudiness and precipitation. Lows moving east or northeast from the northern Adriatic Sea cause the most cloudiness, rainfall, and low ceilings/visibilities in the north. Average relative humidities are 65%-85% in the morning and 50%-75% in the afternoon.

SKY COVER. Cloudiness and low ceilings occur most often in late fall and winter. In early fall, cumulus clouds are predominant. They usually form about mid-morning, reach their greatest development in the afternoon, and dissipate at night. Afternoon skies are scattered to broken, becoming scattered at night. In late fall, low stratus prevails; it tends to form near sunrise, lift and decrease slightly during the day, and increase slightly during the evening. Late fall cloudiness is greatest in early morning, when skies are usually broken. Minimum coverage is in early evening, when skies are normally scattered to broken. Ceilings become lower through fall,

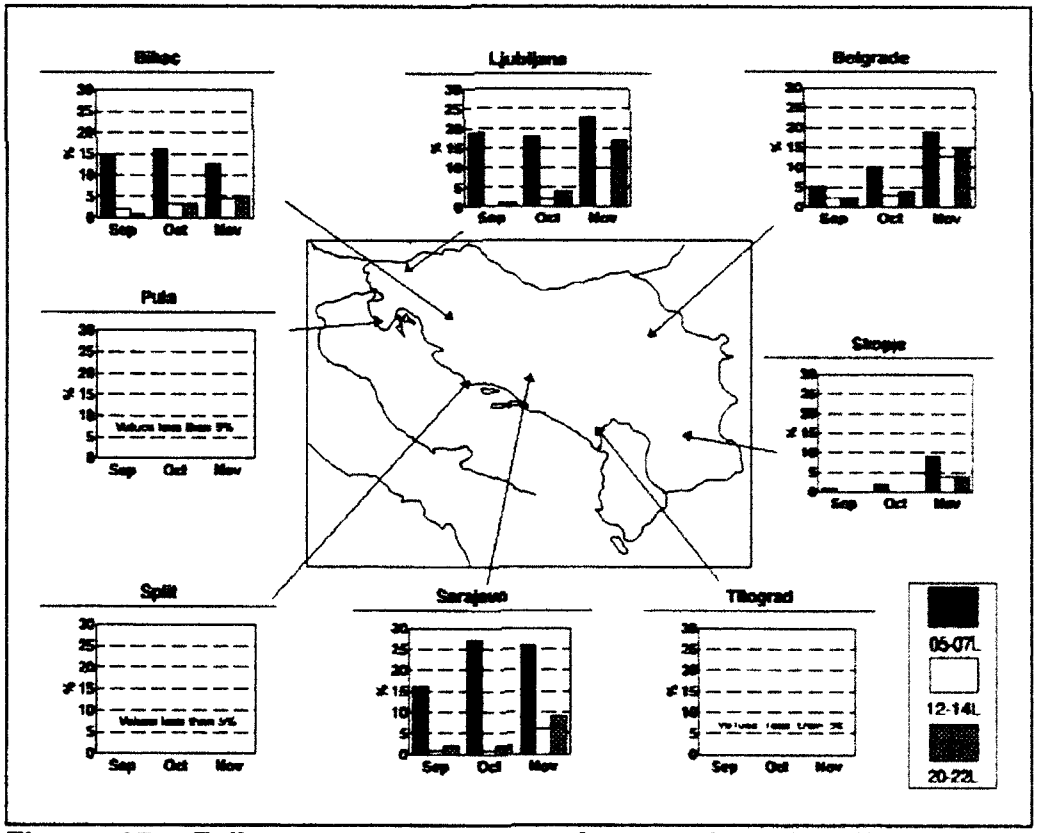

Figure 17. Fall percent occurrence frequencies of ceilings below 1,000 feet.

decreasing from about 3,000 feet to 1,000-1,500 feet by November. Percent occurrence frequency of ceilings during November (50-60%) resembles that of winter. Frequencies of ceilings below 1,000 feet are highest in northern Yugoslavia and over the mountains--see Figure 17.

VISIBILITY. Visibilities worsen through fall, generally by fog, rain, and snow. At most stations, visibilities are worst in early morning, improving toward midday and becoming good by afternoon. A common exception to this diurnal cycle occurs in late fall in enclosed basins where there is appreciable industrial pollution. Most visibilities below 1,600 meters are found in northern Yugoslavia and mountainous areas--see Figure 18.

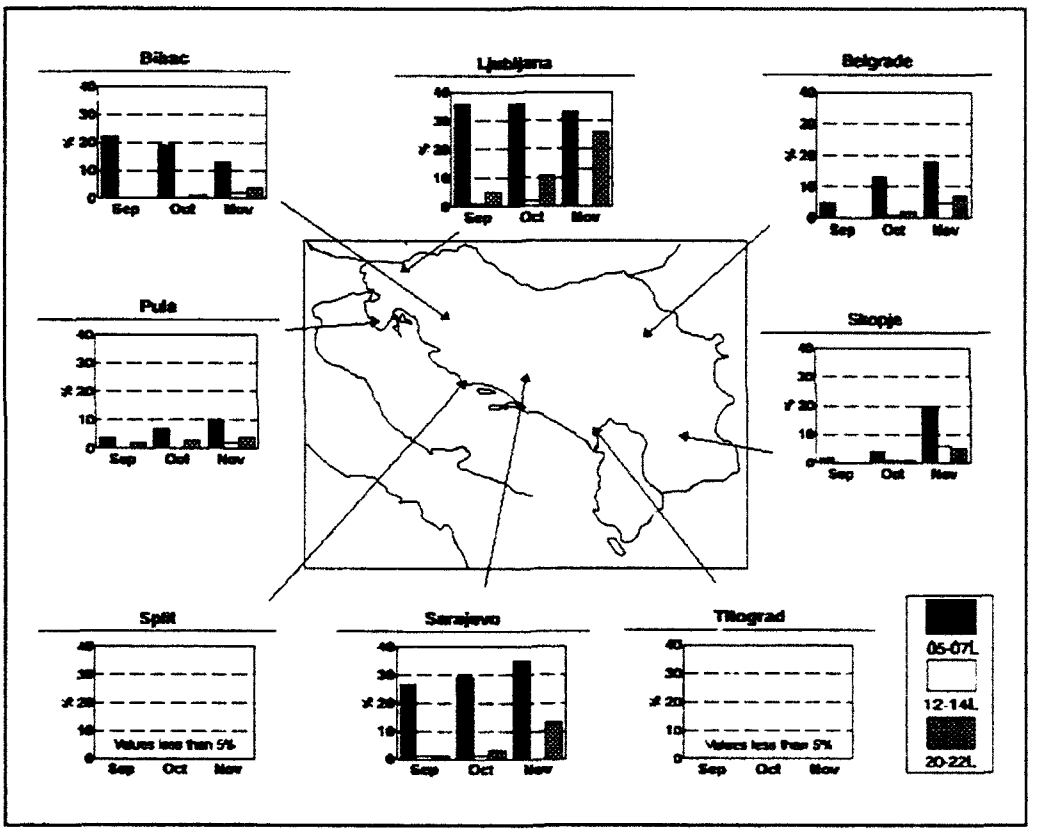

Figure 18. Fall percent occurrence frequencies of visibilities below 1,600 meters.

WINDS. Northwest to southeast winds are stronger (at 7-16 knots) along coastal areas that again feel the effect of the "bora" as the consistent land/sea breezes come to an end. In other areas, winds are light and variable.

PRECIPITATION. The coasts, islands, and mountains of Yugoslavia get the most precipitation in fall and winter, again because of the increasing frequency of migratory lows. Mean amounts range from 3 to 6 inches (80-150 mm). There is snow, but mainly in the mountains.

THUNDERSTORMS. In most areas, thunderstorm days decrease through fall to less than 2. Storms are generally not severe--tops seldom exceed 40,000 feet.

TEMPERATURES. Temperatures fall steadily. Lows are in the upper 30s to mid 40s° F (4-8° C) and highs are in the lower 60s to lower 70s° F (17-22° C).

APPENDIX A

Bora Wind Outbreaks at Split, Ploce, and Bar, Yugoslavia

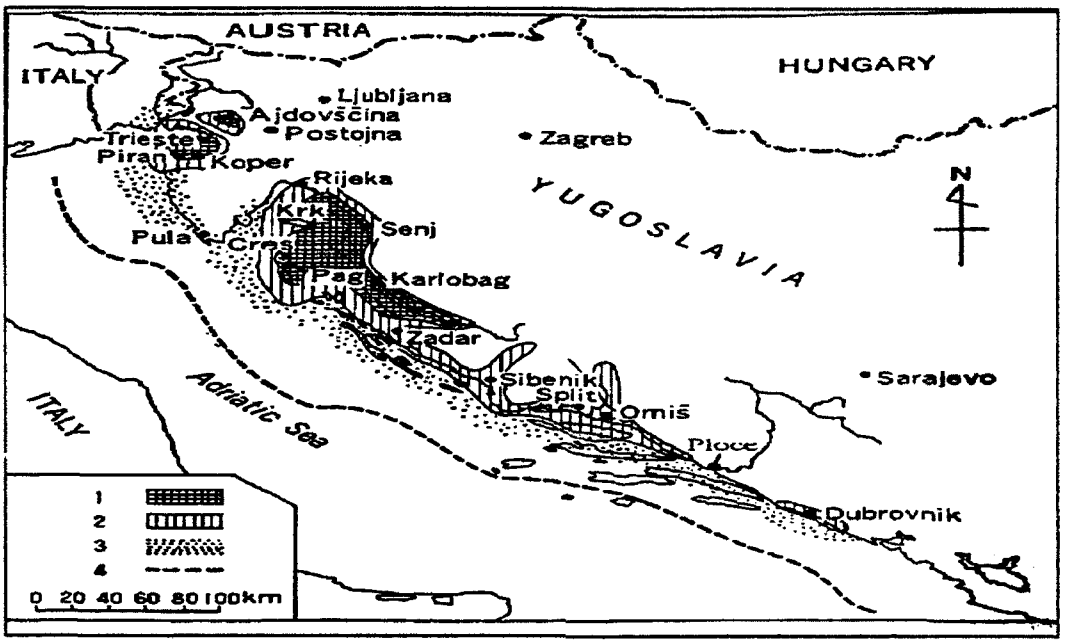

Figure A-1. Bora regions on the Adriatic coast. 1 = Regions of *strongest* boras; 2 = Regions of *strong* boras; 3 = Regions of *detectable* boras; 4 = boundary of strong NE wind gusts.

The "bora" is a cold and strong north or northeast wind that blows downslope from the mountains to the sea along the Yugoslavian Coast. Bora intensity varies from place to place, depending mostly on topography. As shown in Figure A-1, boras become less likely as one goes south along the coast; note that the city of Bar is just off the map to the southeast. The bora is strongest and most frequent in winter, but it occurs in other seasons. The most dangerous aspect of this wind is that it arrives suddenly, without warning; its strength is such that travel by coastal waters, road, and even rail, may be temporarily interrupted. The bora's duration is variable. In some cases, it lasts only a few hours, but at times it may prevail for several days. Inland, the bora produces snow drifts. On the Adriatic Sea, bora-produced waves reach heights of 2.5 meters.

Strong bora gusts may be found up to 50-60 km offshore. Winds as high as 58 knots have been recorded at Split. Although no peak wind records are available for Ploce or Bar, Titograd (40 km northeast of Bar) has recorded 52 knots. It's likely that Ploce, with the nearest mountain range about 60 km to the northeast, is spared the brunt of the bora. Temperature

drops of 14 to 18° F (-8 to -10° C) are not unusual with the bora wind. Wind data shows the bora to have a nocturnal maximum, peaking between about 0500 and 0800L.

Each bora event (NE-ENE winds with gusts of at least 30 kts) usually lasts for 12-20 hours, but there may be extended periods of 6-7 days or more at least once every winter, as shown in the table below. Note that there were 114 days with bora conditions at Split, Yugoslavia, during one 2-year period.

Average number of days boras are likely to occur along the Adriatic coast. The numbers are based on meteorological conditions known to cause boras.

Jan	Feb	Mar	Apr	May	Jun
11	10	10	8	8	7
Jul	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
6	7	7	11	9	10

APPENDIX B

Sarajevo Winter Temperature, Snowfall, and Snow Depth

1. Introduction. This brief study discusses temperature, snowfall, and snow depth for November through March within a 15-mile radius of Sarajevo Airport, Bosnia. Temperatures are in degrees Fahrenheit and snow depth information is in inches. The recorded temperatures, snow occurrences, and measured snow depths are for Sarajevo Airport, elevation 1,708 feet (521 meters). Data for terrain at elevations of 3,280 feet (1,000 meters) MSL and 5,012 feet (1,500 meters) MSL are derived from several Yugoslavian Hydrometeorological Institute studies on snowfall and snow cover, combined with an assumed temperature decrease of 1.8° F/3,280 feet (0.5° F/1,000 feet) or 1.0° C/1,000 feet (0.3° C/300 meters).

2. Temperature. The table shows monthly mean maximum and mean minimum temperatures for Sarajevo Airport; data is from a 22-year Yugoslavian Hydrometeorological Institute observational record. The table on the next page gives temperatures that have been derived (from studies of other Bosnian and Serbian Dinaric Mountain areas) for terrain elevations of 3,280 feet (1,000 meters) and 5,000 feet (1,500 meters) MSL.

Monthly mean maximum and mean minimum temperatures at Sarajevo airport (elevation 1,720 feet/520 meters MSL)

MONTH	MEAN MAX TEMPERATURE	MEAN MIN TEMPERATURE
November	46	32
December	37	26
January	35	23
February	42	27
March	52	33

Mountain slope temperatures at 3,280 feet (1,000 meters)/5,000 feet (1500 meters)

MONTH	MEAN MAX TEMPERATURE	MEAN MIN TEMPERATURE
November	43/40	29/26
December	34/31	23/20
January	32/29	20/17
February	39/36	24/21
March	49/46	30/27

Extreme maximum temperatures in March have reached 76 °F at Sarajevo; corresponding 5,000-foot temperatures would be near 70 °F. Minimums have been as low as -11 °F in January. Corresponding minimum 5,000 foot temperatures are near -20 °F. Abnormally warm weather occurs when the primary storm track is well north of Yugoslavia and warm air flows north from northern Africa into Central Europe. The coldest conditions, including wind chills well below -65 °F, occur with a strong flow of Arctic air westward out of the Ukraine and Russia in late December, January, and February; this usually begins immediately after passage of a low-pressure system eastward across the southern Adriatic into Bulgaria. These broadscale conditions also produce the strong easterly winds known along the Yugoslavian coast as "boras."

3. Snow Cover and Snow Depth. Below are mean number of days at Sarajevo Airport with measurable snow cover, mean snow depth on those days as measured at 0700 local time (LT), and greatest observed snow depth. Data was averaged from 6 years of daily observations.

Mean number of days with snow cover and mean and maximum snow depths at Sarajevo Airport (elevation 1,720 feet/520 meters MSL)

MONTH	# DAYS W/SNOW COVER	MEAN SNOW DEPTH (INCHES)	EXTREME SNOW DEPTH (INCHES)
NOVEMBER	3	1	11
DECEMBER	10	2	5
JANUARY	17	3	17
FEBRUARY	11	4	35
MARCH	7	3	22

Below are derived (see "Temperature) mean number of days with snow cover and mean snow depth. Data are for sites with an elevation of 3,280 feet (1,000 meters) MSL and at 5,012 feet (1,500 meters) MSL, respectively.

Derived mean number of days with snow cover and mean snow depth at elevations of 3,280 feet (1,000 meters)/5,012 feet (1,500 meters) MSL

MONTH	MEAN DAYS W/SNOW COVER	MEAN SNOW DEPTH
NOVEMBER	15/25	21/40
DECEMBER	30/30	35/73
JANUARY	31/31	42/98
FEBRUARY	28/28	56/120
MARCH	17/27	60/135

Conditions most favorable to sustained heavy snow occur when a stationary low pressure system is located over the southern Adriatic Sea. Such systems usually drift slowly eastward, crossing northern Greece, southeastern Serbia, or European Turkey. Snowfall ends once the low center has moved into the western Black Sea or to the southeast of Athens, Greece. Note that the same general weather conditions that produce heavy snow also are accompanied by strong winds--especially at the two higher elevations. Drifts greater than 15 to 20 feet are likely above 5,012 feet (1,500 meters) on uncleared roads immediately after major winter storms in late January and February. Heavy duty snow removal equipment or tracked vehicles, similar to those used in the western United States, will be necessary to move supplies into isolated mountain villages.

4. Confidence Factor. The Sarajevo Airport data is considered "excellent," since it was taken directly from daily Hydrometeorological Service Sarajevo Airport summaries. Temperatures and snow data for 3,280 feet and 5,012 feet are considered "fair," since they were derived from studies for other Bosnian and Serbian Dinaric Mountain areas.

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