The social stratification has been altered in recent times. Industrialization has created a new urban group incompatible with the old class system, and political freedom has brought many of obscure origin into positions of prominence. Also, many aristocrats accused after World War II of collaborating with the Japanese have lost their influence.

C. SOCIAL CUSTOMS AND RELIGION

Korean social customs are inextricably mingled with religious practices. Early Korean culture stems directly from China, which also introduced Buddhism and Confucianism. Shamanism and Chondokyo also flourish, and Christianity has become a major influence.

Shamanism, a cult of Ural-Altaic origin, is a mixture of demonology, magic and astrology. It still has a strong hold on the people and most Korean peasants invoke the spirits, particularly in time of illness or misfortune.

Chondokyo is a native Korean cult which originated in the early 1860's partly as a political reform movement and partly as a religious doctrine. It lays stress on the unity of man with the universe, on human liberty, and on ethical improvement. It denies the existence of sin and of a life after death. Politically, the cult has been nationalistic and its members have participated actively in independence movements. Since it was banned by the Japanese and forced to operate underground, there are no reliable statistics on the number of its followers.

Confucianism, with its emphasis on filial piety, controls the social life of the upper classes. Widespread ancestor worship reflects the strength of the Confucian heritage as does the high esteem in which learning is held. Concentration on ritual ancestor worship retards the modernization of Korean home life, since any change in the established pattern is interpreted as a dishonor to ancestors.

Also Confucianistic is the adherence to rigid ceremony in the matter of weddings and funerals. Weddings are the most colorful and symbolic of all festivals, and funeral custom demands two complete years of mourning for each parent.

For most Koreans, Buddhism is too mystical and Confucianism too cold and materialistic. Women lean toward Buddhism. The average Korean believes in all three regions; he takes his personal education from Confucianism, sends his wife to the temples of Buddha to pray for sons, and willingly pays toll to the indigenous spirits. Because of their electicism Koreans are tolerant in religious matters and have few strong tabus. They demand only a reasonable respect for their customs and beliefs, particularly those connected with ancestor worship.

D. OCCUPATIONAL DISTRIBUTION

The majority of the population throughout Korea is engaged in agriculture. There is a shortage of skilled labor, due to the Japanese in positions requiring technical skills, and to the limited education available to Koreans of the working class. Since 1945 both Soviets in the north and Americans in the south have introduced training programs to fit Koreans for skilled jobs and for technical supervision of native industries.

Efficiency of Korean labor is low, not only by western standards but also in comparison with Japanese and Chinese.

A considerable share of labor is supplied by women. Korean women, in addition to housekeeping, traditionally do much of the field work and play an important part in such household industries as weaving. Recently, women have begun to work outside the home, particularly in the textile industry. There has been a trend toward employment of women in heavy industries, and as early as 1938 women comprised nearly 10 percent of the mining labor.

TABLE XVII-1. PRINCIPAL OCCUPATIONS IN NORTHERN KOREA, 1949

Occupation	Numbered employed	Percentage
Agriculture and livestock	3,213,808	33.3
Fishing	66,025	0.7
Industries	245,731	2.7
Commerce and transportation	226,498	2.5
Public service	280,755	3.1
Miscellaneous	268,311	3.0
Unemployed	4,801,243	52.7

TABLE XVII-2. PRINCIPAL OCCUPATIONS IN SOUTH KOREA, 1949

Occupation	Numbered employed	Percentage
Agriculture	6,270,510	31.09
Fishing	89,069	0.44
Mining	33,815	0.17
Industry	265,753	1.32
Commerce	370,477	1.84
Transportation	74,162	0.37
Public service	416,323	2.06
Household workers	142,736	0.71
Miscellaneous	297,690	1.48
Unemployed	12,206,221	60.52

These figures are the result of a preliminary hand count of the General Population Survey forms, 1 May 1949. Although not final, they are appopulation Survey forms, 1 May 1949. Although not final, they are apsick, housewives, and prisoners.

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E. EDUCATION

The traditional system of education in Korea was centered around the study of Confucianism; each major district had a public school. Korea was one of the first nations of the Far East to sponsor a public school system, even though few of its people were able to continue their studies beyond the primary grades.

During the early 1900's mission schools began to influence the educational pattern. They stressed the teaching of western languages as well as Korean, and were responsible for bringing a practical education to many who could not afford the years necessary for mastery of the Chinese classics.

The Japanese regarded the school system as a vehicle for propaganda dissemination. Japanese teachers were imported to teach their own language, and studies of the Korean tongue were outlawed. In spite of this, the Japanese contributed a fairly well organized modern school system. Industrial and agricultural training were emphasized, and some form of school, at least on the primary level, was available to all. Further education was provided mostly by private and mission schools, since Japanese institutions of higher learning were reserved for the Japanese.

After 1936 Japanization and militarization of Korean education became more intensified. By 1930 all foreigners and foreign-educated Koreans had been forced out of the teaching field, and most of the private institutions had been closed.

Since the end of World War II, Korean teachers in the southern zone have again been revising the curricula. Under American guidance the native language has been taught, kindergartens have been established, and coeducation has been attempted. Years of Japanese domination had left few qualified teachers, but a program of teacher training has been showing results.

No information is available on current education in northern Korea, but it is assumed that the Soviets were continuing the Japanese practice of propagandizing through the schools.

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F. DETAILED POPULATION FIGURES

With a land area of 85,242 square miles, Korea has a population density of almost 344 square miles. In 1949 the total population was 29,291,012. The breakdown by zones is as follows:

Republic of Korea

Total population 20,188,641

Area 36,153 square miles

Density 558 per square mile

Northern Korea

Total population 9,102,371

Area 49,089 square miles

Density 185 per square mile

Before 1936 over 75 percent of the total population eked out an existence on small farm holdings concentrated mostly in the arable coastal plains and valleys of the southern and western margins of the peninsula. After 1936 there was a definite trend toward the larger industrial cities, particularly in the northeast. At present, about 60 percent of the total population is engaged in agriculture and is almost evenly divided between the northern and southern zones. Urbanization, which received its initial impetus under the Japanese, was further advanced in 1945 when it became necessary for an increasing number of Koreans to take over public positions formerly held by Japanese. Seoul, which had a population of 935,464 in 1940, including 138,023 Japanese, now has a total of 1,446,019.

G. GOVERNMENT

1. Japanese background

Korea became a Japanese colony in 1910 and an integral part of the empire in 1942. Regardless of status, however, policies of the Imperial Army were the greatest influence in administrative matters.

Few Koreans were permitted to hold any kind of public office although the Central Advisory Council was set up to give the illusion of some form of self rule. Its 65 councillors were appointed by the Governor-General and were selected from members of the wealthy class who had long been collaborating with the Japanese. In 1945, therefore, it was very difficult to turn over to native leaders the machinery of a government which for so long had been in the hands of a totalitarian power. The great mass of the people were almost entirely lacking in political experience. Furthermore, the arbitrary division of the country by the 38th parallel was a severe shock to the general and intense desire for national independence.

2. Chosun Democratic Peoples Republic (North Korea) (Table XVII-3)

a. Background and source comment

Although Koreans living north of the 38th parallel have the same historical and cultural background as those in the south, they have long shared a bond with Russia. Particularly since the failure of the 1919 independence movement, there has been a tendency to turn to the USSR for emancipation, and this tendency has been strongest in the cities of the northeast.

Information on the current regime in Northern Korea has been largely obtained from a copy of the Korean Central Year Book, 1949 edition, published by the Korean Central Correspondence Company, an agency of the CDPR.

b. Supreme Peoples Assembly

The constitution of the CDPR states that the main ruling power of the republic lies in the people. This power is delegated by the people to the highest ruling organization and source of all state power, the Supreme Peoples Assembly, through the local political bodies or Peoples Committees. Representatives to the Supreme Assembly are elected for three years, and there is one representative for each 50,000 of the population.

The assembly is organized along strictly totalitarian lines. The

premier, attorney general, and all ambassadors are appointed by the assembly and all legislative and judicial power is derived from its rulings.

c. Presidium (standing executive committee)

The presidium is empowered to exercise the authority vested in the Supreme Assembly only when the Assembly is not in session. In practice, however, the Presidium can convene the Assembly and does so twice a year during which periods the Assembly actually does little more than approve officially the interim actions of the Presidium. Members of the Presidium are elected by the Assembly. Powers granted to the Presidium include: convening the Assembly, overseeing administration and interpreting existing laws and the constitution, and the right to abrogate cabinet decisions made in violation of constitutional practice.

d. Cabinet (national central executive organization)

The cabinet is the supreme executive organ in the government. It is empowered to lead and control the tasks and actions of each department and its organization. The premier is cabinet chairman, assisted by the deputy premier and the chairman of the national planning committee. The various ministers are the regular members.

e. Judicial system

The courts are organized entirely on the basis of power derived from the Supreme Peoples Assembly. All members of the Supreme Court are elected from membrs of the Assembly. Members of village, city and provincial courts are elected from the respective Peoples Committees. All trials are held in the name of the Assembly and sentence is passed in the name of the Republic.

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XVIII. MEDICAL PROBLEMS

A. GENERAL

Korea is poorly served with medical facilities. In spite of modern developments, methods are still primitive in most parts of the country.

B. DISEASES

Vectors of disease are numerous and include mosquitoes, flies, fleas, lice, ticks, water snails, and rodents.

Dysentery is common throughout the area. Both the bacillary and amoebic types occur. Typhoid and paratyphoid fevers are prevalent. Enteritis and common diarrhoea are common also.

Malaria is very common.

Venereal disease are wide-spread.

A sudden flare up of epidemic or louse-borne typhus fever is not impossible. Acute communicable diseases which spread through the respiratory tract (diptheria, cerebrospinal meningitis, scarlet fever, small pox, and others) are known to be prevalent.

C. PUBLIC HEALTH AND SANITATION

1. Organization of public health facilities (ROK)

The national government has a "Sanitary Section" which is in charge of all public health matters except the purely technical details of water-works, construction, and administration. Activities include clinics or tours by doctors from government hospitals, quarantine inspection, inspection of drugs and foods, control of epidemic and endemic diseases, and control of opium, leprosy, and veterinary problems. A number of departments and institutions under direct governmental administration are concerned with preventive medicine, manufacture of serums, school training, and asylums for the deaf and blind, and for lepers.

Laboratories were established by the Japanese for testing water and food and for various examinations relating to communicable diseases, but their status has deteriorated.

The public health system has been successful on the whole in keeping plague and cholera out of the country.

2. Water supplies

Water is available in sufficient quantity. Cities and some towns have modern waterworks, but even in the cities only 20 to 60 percent of the population are supplied by waterworks. The great majority of the people depend on wells, springs or creeks, most of which are heavily contaminated.

All drinking water should be treated.

3. Waste disposal

Water-borne sewerage systems are known to have been established in major cities, but the majority of the population depends on more primitive methods. Night soil is collected from poorly protected privies and pails and is

stored in crude, leaky cisterns, when it is removed from time to time to be used for fertilizer. Widespread pollution of the soil results. In some rural districts, indiscriminate soil pollution is practiced in the fields.

Open gutters carry off liquid waste and the sewage is discharged in rivers. In some cases refuse is burned or buried. In spite of the low standard of sanitation, especially in rural areas, health authorities have always been able to prevent or check epidemics.

4. Housing

The ordinary Korean house is built chiefly of mud, or mud and stone, with a timber framework. It is heated by a fireplace from which the warm air and smoke pass through horizontal flues below the mud-plastered stone floor before escaping through a chimney on the opposite side of the house. This method keeps the house dry and is effective in diminishing rat infection.

D. HOSPITAL AND MEDICAL FACILITIES

Hospital facilities are inadequate. Private practice forms the basis of the medical system. It is supplemented by government institutions, public establishments maintained by provinces or municipalities, Christian mission hospitals, and private institutions of which at least two-thirds was Japanese-owned. There are also private dispensaries which are essentially physicians' offices with primitive accommodations for a few in-patients.

E. PESTS AND DANGEROUS ANIMALS

1. Mosquitoes

The anopheles mosquito (anopheles hyreanus sinensis) is the most important vector of malaria. It characteristically, though not necessarily, thrives in clear-water and open country. A number of other species are found.

2. Flies

The common house fly (musca domestica) is prevalent. It is a mechanical carrier of intestinal diseases and diseases of the eyes; both conditions are very widespread.

Sandflies, which transmit the virus of sandfly fever, may be found in small numbers. They are very small and can penetrate ordinary mosquito netting.

3. Fleas

Several species of fleas are found in Korea, the most important being the tropical rat flea (xenopsylla cheopis) the principal vector of plague.

4. Bugs and lice

Bedbugs are numerous.

The body louse (pediculus humanus corporis) carries the agent of epidemic typhus fever and trench fever. Louse-borne relapsing fever is caused by the spirochete (borrelia recurrentis).

5. Mites

The most important species of mite in Korea is the small red harvest mite, (trombidium (trombicula) akamushi). Its larvae are parasitic on various

rodents and are vectors of the causative agent of scrub typhus. The itch mite (sarcoptes scabiei), the cause of scabies, is also prevalent.

6. Ticks

The dog and wood tick are present, but their role as potential vectors of disease is insignificant.

7. Mollusks

Several species of water snails are important as intermediate hosts of parasitic flukes infecting man. The snail (katayama (oncomelanie) nosophoya) carries the cercariae of the oriental blood flue (schistosoma japonicum). Melania ebinina and M. libertina carry the cercariae of the intestinal fluke.

8. Rodents

Rats are prevalent. The most important species are the common black house rat, brown sewer rat, and roof rat. As host to fleas and mites, rats spread plague, murine (endemic) typhus fever, scrub typhus and typhus fever. They are also hosts to dwarf tapeworms and other parasitic worms including irichinella spiralis. Their bite may cause rat-bite fever.

9. Snakes and insects

Two species of pit vipers are reported. The bite may be fatal, but as a rule the poison is not very potent.

Poisonous scorpions, spiders, and centipedes have been reported.

10. Other dangerous animals

The tiger, leopard, lynx and wolf may still be found in the mountains.

A poisonous stinging ray is said to be found in Korean waters. The stinger is covered with a thick, gelatinous substance believed to be poison, and causes a deep and lacerated wound.

11. Poisonous plants

The commoner poisonous plants are thorn-apple, mock (or Indian) berries, green sorrel, tubers of arisaema japonicum, wolf bane (aconitum koreanum), and white helle bore (veratrum album).

Poisonous mushroom also occur, the most important of which are the fly agaric (amanita muscaria) and the deadly amanita (amanita phalloides)

The sap of the lacquer tree (rhus vernicifera) causes a severe dermatitis resembling that of poison ivy. The varnish is applied to many articles and must be allowed to dry for several weeks in order to lose its toxicity.

XIX. CLIMATE AND WEATHER CONDITIONS

A. GENERAL

The climate of any sizable land area varies considerably from place to place and the differences are in part due to the local influence of topography upon the overall climatic pattern. Consequently, in the following discussion of the climate and weather of Korea, reference will be made frequently to the various natural terrain regions delimited in Section VI of this study.

The climate of Korea is characterized by cold, relatively dry winters and hot, wet summers. Broadly speaking, weather conditions are most favorable for military operations from October through March. The great majority of weather disturbances cross peninsular Korea in the 5-month period from April through September, with the most adverse conditions occurring in July and August. The spring and autumn transitional months are generally mild with moderate rainfall.

The Korean climatic picture is dominated by the monsoonal circulation system of East Asia. In midwinter high pressure normally overlies the eastern portion of the continent with the highest mean pressure over Mongolia. The outflowing air from this high pressure area is very cold and dry, and the prevailing winds are generally north to northwest over Korea, except where modified by local topography. For example, because of such topographic modification, the prevailing winds along the narrow eastern coastal belt are westerly, while in the Amnokgang Valley they are northeasterly. Where the trajectory of the monsoon air stream is entirely over land, the skies are predominantly clear. With strong pressure gradients, dust may be carried aloft over Korea from the Gobi and Ordos deserts, resulting in reduced visibility. With weak pressure gradients, the monsson air stream may be shallow with moist layers aloft moving toward lower pressure over northern Japan or the Kuriles. This condition results in widespread overcast and some light precipitation over the mountainous portions of Korea. Where the trajectory of the monsoon air stream is over water, moisture is rapidly added to the lower levels of the atmosphere and decks of stratocumulus clouds are formed. These stratocumulus decks are the normal sky for the coastal regions of southwest Korea and the offlying, exposed islands such as Cheju-do, Tsushima, and Ullung-do. Light precipitation frequently occurs where the marinemodified monsoon air is forced to rise over mountains, as at Cheju-do and Ullung-do.

In midsummer low pressure overlies China and Mongolia and southerly air streams cross the coastal regions of eastern Asia from the tropical and subtropical regions of the western Pacific towards the interior of Asia. The interaction between polar and maritime tropical air masses and between maritime tropical and equatorial air masses causes frequent and heavy rains in the summer. Frontal or quasi-frontal conditions are so frequent in the summer that 8 to 12 inches of rainfall monthly is normal for the peninsular portions of Korea in July and August, and serious droughts are not to be expected. Midsummer is also the season of maximum cloudiness and highest humidities throughout Korea.

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B. STORM TYPES AND FREQUENCY

1. Frontal storms

Unfavorable weather over Korea is usually associated with frontal activity caused by the interaction of differing air masses, or by the passage of cyclonic disturbances across the Korean peninsula from north China or

Mongolia. The storm conditions accompanying these frontal movements are not ordinarily severe, although very infrequent gale winds and torrential rain may occur. Well-defined frontal storms develop irregularly between March and October reaching their maximum frequency and intensity in July and August. Much of the nearly continuous bad weather of midsummer is caused by the development of a semi-stationary or slightly fluctuating frontal zone between polar and maritime tropical air masses or between maritime tropical and equatorial air masses. During these storms winds are ordinarily moderate, although rainfall is often heavy, ceilings very low, and visibility poor. In the winter only a few weak and short-lived frontal disturbances occur.

2. Typhoons

Typhoons affect Korea once or twice a year on the average, and four or five times a year under extreme conditions. They may occur any time between early June and mid-September, and may strike across Korea at any point. Over long periods the southwest coastal region is most often affected. Typhoons are attended by widespread low overcast, torrential rains, wind speeds avobe 75 mph and in the coastal areas by very high "following tides".

3. Thunderstorms

Thunderstorms are not very common in most areas of Korea. They occur most frequently in the Amnok-gang Valley along the north Korea-Manchuria frontier, averaging about 20 storms a year, most of which come during late spring and early summer. These convectional storms are brief and local, but the associated squall winds, heavy rain and extremely turbulent air are a temporary hazard to aircraft. Thunderstorms also occur sometimes during the passage of cold fronts, between April and October, and such storms may affect relatively large areas.

C. WIND

In a country as mountainous as Korea the direction and speed of the surface winds is greatly modified by topography. Although the gradient air flow in winter is predominantly north to northwest, west winds prevail at Wonsan and Kangnung along the east coast and at Taegu in the upper Naktong-gang Basin, northeast winds prevail at Chunggangjin, and south winds at Ch'osan. Wind velocity is highest at exposed localities along the coasts, such as Cheju on Quelpart Island and Mokp'o in the extreme southwest. The lightest winds occur in sheltered mountain valleys or in river valleys where the air drainage downstream is opposed to the gradient wind flow, as at Seoul. Highest mean wind speeds at exposed coastal points occur in winter, whereas highest mean wind speeds in the interior occur in the spring.

A special feature in Korea is the frequency of strong downslope winds along the east coast, sometimes described as foehn winds. These occur when a high pressure area moves into the peninsula behind a cold front and a disturbance on the front simultaneously deepens over the adjacent Sea of Japan. As a result of the temporarily steepened pressure gradient, strong westerly winds move down the mountain slopes; the air is warmed adiabatically and arrives at the coast as a warm dry wind. These foehn winds are most frequent in early spring and late fall, but may occur in any month except July and August. They were observed most often in the afternoon and evening hours, and rarely in the morning. Usually the foehn winds are of local occurence only, being channeled through mountain valleys and affecting only narrow reaches of the coast.

Midwinter along the east coast lowlands is characterized by offshore winds, which average 14 mph from the north-northwest at Unggi, 7 mph from the northwest and west at Songjin and Wonsan, and 10 mph from the south-west at Kangnung. Maximum wind speeds up to 70 mph have been recorded at Unggi, and speeds of 30 to 50 mph at other localities along the coast. Gale winds above 33 mph occur 5 to 10 days a month at Unggi during the winter period. The summer winds are generally light and variable, with occasional moderate to strong winds from the south and east.

Surface wind data for stations in the Northen Korean Highlands are representative of only the immediate localities of the stations. Data for Ch'osan, for example, indicate southerly winds prevailing every month except March, while at Chunggangjin east or northeast winds prevail from November through February and southwest winds predominate the remainder of the year. Wind speeds in protected valleys average only two to three miles per hour, with a large percentage of calms, particularly during the cold season. Along exposed mountain crests, however, strong northerly winds prevail during the winter season. Along the Northern Taebeak Range, which is the southern extension of the Northern Korean Highlands into the peninsula of Korea, the prevailing surface winds are from the northwest in winter and from a southerly direction in summer. As in the mountainous country of the north, average wind speeds in protected valleys are low and there are many periods of calm.

In the Wonsan-Seoul Corridor, which provides a natural passageway between the east and west coasts of Korea as well a separation between the Northern and Southern Taebaek Ranges, surface winds are likely to vary considerably in different parts of the corridor. In the wider parts northwest winds prevail in winter and southeast winds are most common in summer. Surface wind speeds may be rather strong when the general air flow is in the same direction as the northwest-southeast trend of the corridor, but at other times wind speeds are usually low.

In the Southern Taebaek and Sobaek ranges, surface wind directions in the enclosed valleys are extremely variable and the average speeds are very low, but over the mountain mass as a whole, the prevailing winds are northwest in winter and southwest to southeast in summer.

Complete climatic data for the region of the Naktong-gang Basin is available from two stations, Taegu, in the enclosed valley of the upper Naktong, and Pusan on the south coast. At Pusan north winds prevail throughout the year except in July when south winds are dominant. At Taegu the prevailing surface winds are from the west at all seasons. Mean wind speeds are higher at Pusan than at Taegu, averaging 8 and 5 mph respectively, with the greatest difference occurring in winter when wind speeds at Pusan are approximately double those at Taegu.

At Mokp'o, on the coast at the extreme southeastern corner of the peninsula, the prevailing surface winds are from the south in July and August and from a northerly direction the rest of the year. The average wind speed at Mokp'o is higher than that of most Korean stations, exceeding 12 mph in January, February and March, and decreasing to 7 mph in June, the month of lowest wind speeds. The Mokp'o area is affected by typhoons more frequently than any other sector along the west coast.

At Cheju, on the north coast of Quelpart Island, prevailing winds are northwest from November through April; in other month, winds are more variable, although northeast to east is the most frequent direction from June through September. The northwest winds prevailing during the cooler months of the year are typical of the overall circulation of the winter monsoon, but the

northeast to east winds in summer are not consistent with the general air flow for the region and are probably the result of local land and sea breezes. 'The mean wind speed at Cheju, averaging over 14 mph in winter and about 9 mph in summer, is the highest recorded at any station in Korea for which records are available.

Prevailing winds over the lowland and hill country of western Korea are northwest from November through March, and west or west-southwest from April through June. In July, August and September winds are variable throughout the region, but there is a tendency for easterly winds to prevail in the north and westerly winds in the south. Wind speeds are higher near the coast than in the interior, averaging about 10 and 4 mph respectively. Maximum wind speeds of about 40 mph may be expected in the interior, and of 80 mph or more along the coast when typhoons occur.

In northern Korea prevailing winds in the Amnok-gang Valley are northerly eight months of the year, from August to April, and southerly from April through July. Mean wind speeds from 5 to 8 mph, with the higher speeds in April and May and lowest in August. Maximum wind speeds of 40 to 48 mph have occurred in all seasons but they are not common.

The weather over the seas surrounding Korea is also controlled by the northerly and southerly monsoons, cyclonic depressions moving out from East Asia, and by the passage of occasional typhoons from the south. From October through March the Yellow Sea and the Sea of Japan are frequented by an almost unbroken flow of cold air from the continental interior. Winds are relatively strong and steady and normally prevail from a northerly direction. During April, the northerly winds are replaced by weaker, more irregular southerly winds which characerize the summer monsoon period. The transition from summer to winter monsoon conditions again takes place during September when northerly winds are reported more frequently than southerly.

Over the open water wind speeds average 10 to 16 knots during the winter monsoon, occasionally increasing to about 30 knots. On the other hand, winds during the summer monsoon are usually much lighter, averaging 6 to 10 knots. Velocities are usually lowest in the northern portion of the Huang Hai. Gale winds of 34 knots or more are most frequent during the winter monsoon when they are reported in 2 to 7 percent of the observations. From April through September gales are more often southerly and decrease to a frequency of less than 3 percent. In all seasons gales are least frequent in the northern sector of the Yellow Sea and most common in the Korea Strait.

The accompanying wind-rose charts pertaining to wind conditions over the seas surrounding the Korean peninsula are taken from a report published by the Japanese Hydrographic Office. The charts are a tabulation of data derived from observations made at sea by Japanese naval vessels and merchant ships over a 24-year period, from 1910 to 1933.

Winds-aloft data are available for only a few stations in Korea but they provide enough information for a few generalizations on overall upper wind conditions. In winter the winds aloft are northwesterly, gradually shifting to west-northwest and increasing in velocity at 10,000 feet and above. In summer the winds aloft are variable to about 10,000 feet, and westerly above that level. Very strong winds aloft are not to be expected at ordinary flying levels in the summer, although strong vertical air currents may be encountered in local areas of convectional activity.

D. PRECIPITATION

In Korea there is a rather wide variation in total annual precipitation, ranging from 20 inches in the extreme northeast along the upper Tuman-gang valley to nearly 60 inches along the central portion of the south coast. Regions of relatively light yearly precipitation include the entire northeast (north 40°N and east 128°E), the lowlands around the mouth of the Taedonggang, and the islands of low elevation off the west coast. Regions of relatively high annual precipitation include the mountainous interior of the northwest, the entire south and southwest coastal section, and a large portion of the central part of the Korean peninsula. Total rainfall is very heavy over the more mountainous islands, reaching 90 inches yearly at a few locations such as Izuhara on Tsushima Island.

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For Korea in general the year is divided into a wet season from April through September, and a dry season from October through March. From 80 to 85 percent of the yearly rainfall occurs in the wet season, and only 15 to 20 percent in the dry season.

Winter is a period of light precipitation in all sections except Ullung-do, where spring is the period of least rainfall. The distribution of monthly precipitation is approximately as follows: over most of the interior, less than 1 inch; over the coastal regions, 1 to 2 inches: in the vicinity of Kangnung and on the mountainous islands except Ullung-do, 2 to 4 inches: at Ullung-do, 4 to 6 inches. On the mainland only 5 to 10 percent of the annual precipitation occurs in winter, and only at Ullung-do does more than 25 percent occur during the winter months. A steady increase in amount and frequency of precipitation begins in late March, and by April and May 2 to 4 inches normally fall in all sections except the south coast where the usual monthly total is 5 to 6 inches.

Much of the winter precipitation falls as snow, but since the total amount is small, the accumulation of snow on the ground at any one time seldom exceeds one foot except in a few northern mountain valleys where the depth is increased by local drifting. In northern and central Korea light snow falls on about 10 or 12 days each month. In the south snow falls infrequently and remains on the ground for only very short periods, and during some winters there is no snow cover at all.

Summer is the season of heavy rainfall throughout Korea. In June, 3 to 4 inches are normal in the north and 4 to 6 inches in the central and south portions, except immediately along the south coast where 8 to 10 inches are usually recorded. At Izuhara on Tsushima, June is the wettest month of the year, with an average total of 14 inches. Over most of central and southern Korea, July is the month of maximum rainfall, with total precipitation averaging 8 to 12 inches, and over the northern Taebaek mountains 16 inches is normal in July. In north-central and northeast Korea, August is the wettest month, with a normal rainfall of 6 to 8 inches. Elsewhere precipitation begins to decrease in August, although between 6 and 9 inches is recorded for most sections. From 50 to 65 percent of the total annual rainfall occurs in the three summer months over the whole country except along the northeast coast where slightly less than half the yearly precipitation occurs in summer.

The rainy summer season is the least favorable period for military movement and also for aerial activity because of adverse cloud conditions associated with heavy rainfall. Heavy to moderate rain may fall for several hours at a time, and periods of intermittent rain may last for several days. Although

rainy season continues until mid-September, rainfall is considerably light in that month. Only in July and August can rainfall conditions be regarded as a major handicap to military operations. During these months trafficability conditions are very poor. Ground is soft, rivers and streams are at their highest levels, and much of the low farmlands consists of flooded paddy fields which are an additional obstacle to cross-country movement of equipment and troops. Although there is ordinarily a marked improvement by the beginning of September, trafficability conditions are not good during the first two weeks of that month. In contrast to the wet conditions of summer, trafficability during the rest of the year is generally good, particularly in the late fall and early winter.

The autumn months show a rapid decrease in precipitation with from 2 to 4 inches falling over most sections in October, and only from 1 to 2 inches in November. The northeast coastal region receives slightly more rain during the autumn period than do the other sections of Korea.

The normal expectation of precipitation has been given in the preceeding paragraphs. A brief discussion of extreme conditions follows. In winter moderate precipitation has fallen at most stations; heavy precipitation has occured along the east coast south of the Kumjin-ch'on (5 to 7 inches monthly), and at Ullung-do (9 to 14 inches). In summer maximum monthly precipitation of 18 to 25 inches has been quite general over central and southern Korea. In the northeast and along the northwest border, the greatest recorded in any summer month is 8 to 16 inches. In August 1922, an extreme monthly precipitation of 43 inches was registered at Sin'gye in the upper reaches of the Yesong-gang.

Conditions of unusually heavy rainfall may occur whenever fronts become semi-stationary over Korea. In August 1922, the polar front was semi-stationary across the peninsula of Korea most of the month, and extremely heavy rains were general over a large part of the country. Very heavy rainfall also occurs whenever a typhoon passes slowly northward across or near the peninsula.

Maximum rainfall of 6 to 9 inches in 24 hours has been recorded rather generally throughout the country at various times, and excessive precipitation of 12 to 15 inches in 124 hours has occurred at several island stations and at Inch'on.

At most stations very little winter precipitation has been recorded in some years, with the exception of the more mountainous islands such as Chejudo and Ullung-do which are not subject to extreme dry spells. In summer adequate rain falls even in the driest years, except in the northeast where monthly rainfall of less than an inch has been recorded. Dry winters occur when the Asiatic anti-cyclone is persistent within the eastern portions of the continent and the flow of air across the Korean peninsula is consistently offshore. Dry summers occur when there is a rapid retreat northward of the polar front in the spring. At such times homogenous air masses may overlie the peninsula throughout the summer months, and only in the high mountain districts will summer rainfall approach normal.

E. CLOUDS

For most of Korea, the cloudiness averages about 75 percent in summer, but there are many days with complete overcast. During the summer rainy season there are less than five clear days each month and they do not come in succession. Maximum cloudiness usually occurs in the early morning hours. There is a tendency for slightly improved cloud conditions late in the day, and the least cloud cover often occurs around midnight or shortly thereafter.

In summer stratus clouds are the most frequent type reported, but during periods of frontal activity any of the low, middle, or high cloud types is likely to predominate at different times. Consequently, ceiling heights vary widely, but when the stratus cloud cover prevails, the ceiling is generally below 2,500 feet and often much lower. Over the interior cumulus build-ups are frequent during the daytime, although they do not ordinarily result in thunderstorms, since they generally disperse before reaching the cumul-nimbus stage.

The best sky conditions for aerial operations prevail in winter when cloud cover averages 35 to 45 percent in most sections of Korea. Along the southwest coast in the vicinity of Mokp'o winter cloud cover is somewhat greater, averaging 55 to 65 percent, and similar conditions prevail over the mountainous islands except for an increase to 80 percent over the windward slopes for much of the time. Clear days, with less than 20 percent cloud cover, range in frequency from about 70 at some interior stations to 20 or less at some coastal stations in the south. Days with cloudless skies are not uncommon in the north, and relatively clear skies may last for several days. Strato-cumulus is the most frequent cloud type in winter and ceiling heights are ordinary 2,000 to 4,000 feet. The strato-cumulus cloud decks are not very thick, usually not extending above 7,500 feet.

F. FOGS AND VISIBILITY

Two types of fog may locally affect flying operations in Korea. The most important is the sea fog, which forms most frequently when war, moist air of tropical or subtropical origin drifts slowly northward across the cool waters of the Yellow Sea and the Sea of Japan. At points exposed to southerly air drift, such as Inch'on on the west coast and Unggi on the northeast coast, sea fog is most likely to occur from late March through August, with the maximum occurrence in June and July. From May through July, sea fogs occur at Unggi on 8 to 11 days a month (typical of the extreme northeast coastal region) and Inch'on on 6 to 10 days a month. In the coastal areas affected by sea fogs, visibility may be temporarily reduced to zero. The fogs seldom last more than six hours, and rarely penetrate inland more than a few miles.

Radiation fogs occasionally occur during the cooler months, in protected localities in the interior, particularly along river valleys. They form during calms or very light winds, late at night or in the early morning hours, and are ordinarily dissipated by 1000 hours. They do not readily develop where there is adequate air drainage, as along the eastern coast. Damp haze during the warm season is another factor which frequently reduces visibility to less than 10 miles. Also, in late winter or spring dust carried by strong winds from the deserts of Mongolia and North China may lower visibility to a few miles over wide areas for two or three days at a time.

In general, visibility is usually excellent on the many clear days of autumn and winter, whereas it is often limited by haze on the relatively few clear days of spring and summer.

G. TEMPERATURE

Throughout most of Korea temperature conditions over the year are not extreme enough to be a serious obstacle in military planning. Winters are generally cold, but not severe except in the northernmost sections. Summer temperatures are universally and consistently high. During the transitional months of spring and fall, temperatures are predominantly moderate, but may vary widely within short periods.

Winters in the North Korean highlands are severe, with mean minimum temperatures generally below zero degrees Fahrenheit; extreme minimum temperatures are 30 to 40 degrees below zero, but these are not likely to be experienced during any particular year. At Chunggangjin the minimum temperature may be expected to fall below zero on about 75 days between late November and early March. In the northern valleys, summer temperatures are similar to those prevailing over most of Korea.

In the northern Taebaek Mountains winters are cold, but not so severe as in the North Korean Highlands. Mean minimum temperatures average zero or slightly below in the coldest months, with extremes of 25 degrees below zero in some years. Summers are hot, with average maximum temperatures of about 85 degrees during July and August. Winter temperatures in the Wonsan-Seoul Corridor are higher than in the neighboring highlands. At Ch'orwon and Kumhwa average minimum temperatures are 8 degrees in January, the coldest month, with extreme minima recorded at 15 degrees below zero.

Along the northeast coast mean minimum temperatures in winter vary from 8 to 18 degrees, and along the southeast coast, from 18 to 28 degrees. Extreme minimum temperatures range from 12 degrees below zero at Unggi to zero at P'ohang-dong. These minima are somewhat higher than those recorded in the interior and reflect the ameliorating effect of the adjacent Sea of Japan.

The Naktong-gang Basin, although cold for the latitude, is mild in comparison with northern Korea. At Taegu and Pusan mean minimum temperatures in January are 21 and 29 degrees respectively, with extreme minima 4 degrees below zero and 7 degrees above. Summers are hot, with mean maxima in August reaching 88 degrees at Taegu and 85 at Pusan. Extreme maximum temperatures are about 95 degrees along the coast, and exceed 100 degrees occasionally in the interior. The moderating influence of the ocean is seen in the milder winters and slightly cooler summers prevailing on the coast.

In the lowland and hill country of western Korea, mean minimum temperatures during the coldest months vary from 8 degrees in the north to 22 degrees in the south, and extreme minima range between 20 degrees below zero to slightly above zero. Mean maximum temperatures in summer are 80 to 88 degrees, and occasional extreme maxima of 100 degrees are reported rather widely throughout the region.

Along the south coast lowlands and off-lying islands, temperatures are moderate in winter and hot, though not excessively so, in summer. Mean minimum temperatures in midwinter are slightly below freezing on the mainland and slightly above freezing offshore. Extreme minimum temperatures may be as low as 6 degrees on the mainland and between 10 and 15 degrees on the islands. Summer temperatures approximate those recorded at Pusan.

On the large off-lying islands temperatures are moderate in comparison with the interior. Mean minimum temperatures in winter are above freezing on Tsushima and Quelpart (Cheju-do) and slightly below freezing on Ullung-do. Extreme minima range between 12 and 16 degrees. Mean maximum temperatures in summer range between 80 and 86 degrees, and 95 and 97 degrees are the highest temperatures recorded.

An indication of the duration of sub-freezing temperatures is given in the following information on freezing and break-up of ice in a few of the larger rivers of northern Korea:

River and locality	Mean date of freezing	Mean date of break-up	Mean length of frozen period
Tuman (At Musan)	28 Nov	7 Apr	131 days
Tuman (At Sinasan)	24 Nov	31 Mar	128 days
Amnok (At Chunggangjin)	17 Dec	5 Apr	110 days
Amnok (At Yongamp'o)	7 Dec	16 Mar	101 days
Taedong (At P'yongyang)	17 Dec	8 Mar	82 days
Han (At Seoul)	17 Dec	4 Mar	78 days

H. HUMIDITY

Relative humidity in winter is not high over most sections of Korea. Mean values vary from 50 percent along the east coast where winds are prevailingly offshore with a downslope component, to 70 percent along the southwest coast where there is a large percentage of onshore winds. Mean values are somewhat higher in the northern mountains because of lower temperatures. Relative humidity in summer is consistently high; mean values vary from over 70 to nearly 90 percent, with lower values in the interior and higher values in exposed localities along the coasts. Highest humidities occur in early morning, and mean values are well over 90 percent in July and August.

High humidity and heavy rainfall in mid-summer necessitate special precautions for the preservation of foodstuffs, the protection of leather and fabrics against mold, and the protection of metal equipment against corrosion. Excessive moisture is a danger to most electronic equipment.

I. ICING

Icing is not a frequent phenonmenon over most of Korea, since the predominant air mass is of continental origin and is very dry. However, some icing may occur along the southwest coast and along the north coast of Chejudo in the strato-cumulus clouds decks formed in the marine-modified air. Icing in these clouds occurs with a strong northwesterly air flow at elevations of 2,500 to 8,000 feet. Where the Asiatic anticyclone retreats to the westward and cyclonic storms move northeastward across the Korean peninsula, icing may be expected in the frontal zones at very low levels. From late spring through early autumn, when frontal conditions are most common over Korea, icing may be expected with every well-developed disturbance, and may be

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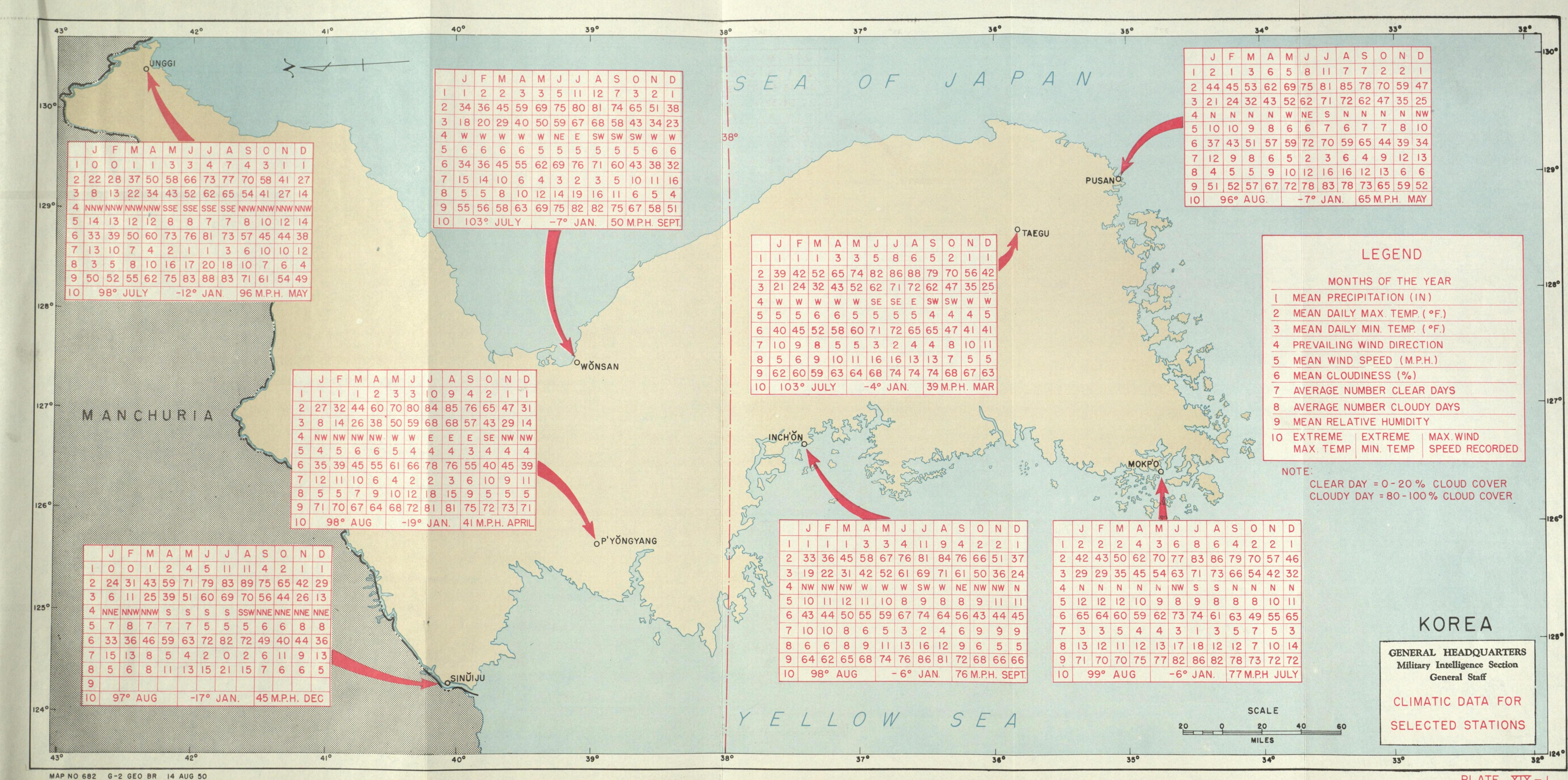
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severe where fronts are forced to rise over mountains. Icing is most commonly encountered between 4,000 and 12,000 feet in the transitional seasons, and above 12,000 feet in mid-summer.

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