

FIGURE 4.—Raininess chart of the United States—winter.

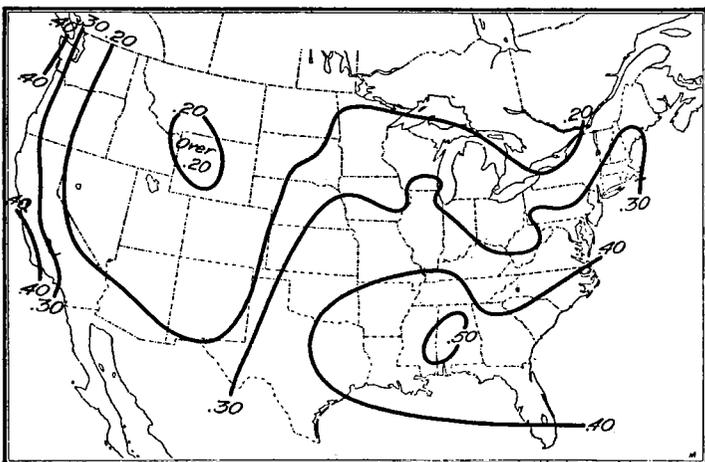


FIGURE 5.—Raininess chart of the United States—year.

The data used in charting the raininess end with the year 1930. In order to see if there has been any secular change, similar data have been taken out for five stations for the period ending with the year 1930. The results are given in the following table:

Comparative raininess

Station	To—	Winter	Spring	Summer	Autumn	Year
Boston.....	1903	0.32	0.32	0.34	0.37	0.34
	1930	.31	.31	.34	.36	.33
Chicago.....	1903	.19	.25	.35	.28	.27
	1930	.19	.25	.34	.29	.27
New Orleans.....	1903	.44	.55	.41	.43	.45
	1930	.46	.58	.43	.48	.47
Phoenix.....	1903	.25	.20	.16	.21	.20
	1930	.20	.25	.18	.24	.20
San Francisco.....	1903	.38	.25	.07	.31	.33
	1930	.40	.29	.06	.29	.33

THE ICE STORM OF DECEMBER 16-17, 1932, NEAR HIGHLANDS, N.C.

By L. T. PIERCE  
[Weather Bureau office, Asheville, N.C.]

A glaze or ice storm of destructive severity visited several widely-separated localities in the North Carolina mountains on the night of December 16-17, 1932. Limbs and branches were stripped from forest and shade trees, and even trunks snapped off under the weight of the ice accumulations. The principal area of destruction extended from Highlands, N.C., northward along the Blue Ridge for a distance of 20 to 30 miles. Light glaze conditions prevailed over a much wider area, extending over the western half of the Carolinas, northern Georgia, eastern Tennessee, and probably into nearby States.

Apparently cold, northeast surface winds, moving nearly parallel to, but east of, the Blue Ridge were overrun by moist, warmer air from the south in which precipitation occurred in the form of rain that froze when it came into contact with the surface which previously had been cooled, by the northerly winds, to below the freezing point.

ORGANIZATION OF THE METEOROLOGICAL AND AEROLOGICAL SERVICES RELATIVE TO AVIATION IN CHILE

By JULIO BUSTOS NAVARRETE, Director

[Observatorio del Salto, Santiago, Chile, 1931]

Since 1927 aviation in Chile has relied on its own service to disseminate the meteorological and aerological information necessary to the navigation of the air.

In reality this service depends on three central observatories and numerous stations throughout the length of the land that make daily issues of weather information to the pilots.

The meteorological and aerological observatory at the aerial base Los Condores (Iquique) collects observations in the northern zone of Chile and transmits them daily, at 8 a.m. and 2 p.m., by radio to "El Bosque."

The meteorological and aerological observatory at the aerial base Maquehue (Temuco) collects observations in all of the southern zone and transmits them daily, at 8 a.m. and 2 p.m. to the station at "El Bosque."

The central meteorological office for aviation attached to the meteorological observatory at "El Bosque" collects, in its turn, all observations in the central zone.

As a result there are collected by radio at "El Bosque" at an early hour in the morning and at an early hour in

the afternoon data on the state of the atmosphere throughout the country, with the observations necessary for the construction of meteorological charts relative to navigation of the air.

At each observatory records are made of atmospheric pressure, temperature, humidity, direction and force of the wind at the surface and also at different elevations, amount and classification of clouds, visibility, precipitation, and also of aerial soundings.

The instrumental equipment of the central observatories Los Condores, El Bosque, and Maquehue is very complete, including apparatus for direct reading and automatic registration. Furthermore, at El Bosque there is used for aerial soundings a Zeiss recording theodolite that traces in a diagram the direction and the velocity of the wind at different elevations.

Experiments are made with meteorographs installed on the planes of the Línea Aérea Nacional, and each pilot carries a route sheet on which are entered the meteorological conditions for each region of the country.

By means of this simultaneous study of the weather and the rapid centralization of meteorological observations by radio there is obtained a complete survey of the weather from one extreme of the Republic to the other.

Each day at noon the Oficina Meteorológica de la Aviación issues through the radio station El Bosque a meteorogram with information of the weather, and forecasts, for each zone of the country. The weather data are noted on blackboards and bulletin boards near the meteorological maps.

In addition to this regular service there is given to every pilot on request a meteorogram setting forth the state of the atmosphere along the proposed route at the time.

If a pilot must depart from Arica he collects information on the state of the atmosphere through radio in a very short time and can have an exact knowledge of the meteorological conditions that he will encounter.

Under the Dirección de Aeronáutica there is a Sección Meteorológica in charge of statistical data and meteorological observations at the aerial bases in Chile. Meteorological maps are drawn daily, the observations made on the route sheets are entered in graphs, the elaboration of aerial navigation charts is studied, pamphlets containing meteorological instructions to pilots are published, and studies of the meteorological conditions along each route are made public.

In the aviation school at El Bosque there is a 2-years course in meteorology for the proper preparation of pilots. (Translated by W. W. R.)

#### AERONAUTICAL METEOROLOGY IN GERMANY

In my article with this title in the Monthly Weather Review, November 1932 the date, April 1927 given for the beginning of daily airplane observations, refers to the daily flights to 5,000 meters or higher, as now made in this country. Airplane observations at lower levels, however, were begun in 1921 by the Lindenberg Observatory, in 1922 by the Seewarte at Hamburg, and in 1927 by the three other airplane observatories in Germany.

At the present time (1933) 19 airport observatories in Germany, the most important of which are in constant communication by private wire, are furnished the three hourly reports of surface conditions at about 200 stations; reports of the winds aloft at about 20 pilot-balloon stations; the daily airplane observations at Berlin, Hamburg, Koenigsberg, Darmstadt, and Munich; data from the kite station on Lake Constance, and from the captive balloon, kite, and sounding balloon flights at the Lindenberg Aeronautical Observatory; and observations received from surrounding countries by exchange.

A diagnosis of weather conditions is prepared by each airport observatory, from its own standpoint. This is regarded as especially important since nearly every airway passes over one or more mountains. The aim of the German airways service, as of course of all other such services, is to keep pilots fully informed of the weather, actual and imminent, both before taking off and while in flight. Information to the pilot in flight is transmitted from the broadcasting stations that serve as radio-beacons and for place and direction finding.—*Eric R. Miller.*

### BIBLIOGRAPHY

C. FITZHUGH TALMAN, in Charge of Library

#### RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

**Abbot, C. G.**

Kampometer, a new instrument of extreme sensitiveness for measuring radiation. Washington, 1933. 5 p. figs. 24½ cm. (Smith. misc. coll. v. 89, no. 3).

**Canada. Meteorological service.**

Instructions to observers in the meteorological service of Canada. Ottawa, 1930. viii, 144 p. illus. pl. 25 cm.

**International Commission for the exploration of the upper air.**

Ergebnisse der aerologischen Messungen. V. 1-31. 1926. Berlin, 1932. p. 132-903. 29 cm. [Author and title in German, English, and French.]

**Ives, James E.**

Loss of light due to smoke in Baltimore, Md., from October 1929 to September 1930. [Washington.] 1933. p. 113-125. figs. 23½ cm. (U.S. Pub. health serv. Pub. health rep., v. 48, no. 5. Feb. 3, 1933).

**Lee, Oliver J., & Bryant, Ernest C.**

Effect of atmospheric refraction upon the deflection of starlight by the sun's gravitational field. [Evanston, Ill., 1933.] 14 p. diagr. pl. 32½ cm. (Annals Dearborn observ. Northwestern univ. v. 4, pt. 4).

**Luckiesh, Matthew.**

Book of the sky. Journeys in cloudland on the wings of experience and knowledge. Rev. & enl. New York, 1933. xii, 335 p. figs. pl. 21 cm.

**Marchi, Luigi de.**

Climatologia. 2d. ed. Milano, 1932. xiii, 289 p. plates (part fold). 16 cm.

**Marvin, Charles F.**

Things we know about the weather. p. 261, 270. 29½ cm. (Mich. alumnus. v. 39, Jan. 28, 1933).

**Milham, Willis I.**

Temperature observations at Fyeburrg, Maine, during the total solar eclipse of August 31, 1932. 3 p. diagr. 27 cm. (Pop. astron., v. 41, no. 2. February, 1933).

**Pettinger, N. A.**

Effect of fertilizers, crop rotation and weather conditions on the anchorage of corn plants. Blacksburg, 1933. 36 p. illus. 23½ cm. (Va. polytech. inst. Va. agr. exper. sta. Tech. bull. 46, January 1933).

**Rouch, J.**

Les méthodes de prévision du temps. Nouv. éd. Paris, 1932. 280 p. figs. 19 cm.

**Vernon, H. M.**

Measurement, in relation to human comfort, of the radiation produced by various heating systems. 44 p. illus. 21½ cm. (Inst. heat. & vent. engin., Autumn special meeting, London, Oct. 4, 1932).

Measurement of radiant heat in relation to human comfort. p. 95-111. illus. 25½ cm. (Journ. indust. hygiene. v. 14, March 1932).

**Watson, R. A.**

Cyclone season 1929-30 at Mauritius. 3 p. pl. 32½ cm. (Misc. pub. Royal Alfred observ. no. 12).

Pilot balloon observations at Mauritius. n. p. [1933.] 17 p. pl. 32½ cm. (Misc. pub. Royal Alfred observ. no. 11).

**Weeks, John R.**

What will the winter be? A study in seasonal correlation. [Baltimore, 1932.] 33 p. tables. charts. 26½ cm. [Manifolded].