

## USA winter weather 1939/40 caused by war (2\_32)

### The United States pushed into the cold

New York experienced the hottest day on record on October 10, 1939 (NYT, 11 Oct. 1939, p. 26 – Commentary). Ironically, only a few days later the same City, and many other parts of the United States, were shivering under a steadily falling thermometer approaching freezing temperatures (NYT, 18 Oct. 1939), dropping to a record low level for that date. (NYT, 19 Oct. 1939). At the same time, war had started in Europe in earnest, and the North Atlantic took the first torpedoed vessels down to its bottom, while Japan was in combat with Chinese forces. Could the extreme conditions New York experienced in mid October 1939 have been caused by WWII activities? This section will leave it to anyone's guess as it will focus on the question why the following January 1940 proved to be record cold for the USA which was not expected either.

The first signs of a 'real' winter emerged at Christmas time 1939, when except for the Deep South and California, the United States had snow and extreme cold. (NYT, 26 Dec. 1939). Winter came earnestly in early January 1940, with a frigid wave that gripped most of the United States (NYT, 06 Jan. 1940). Icy north-westerly winds swept over New York with force, on January 06, causing temperatures to drop to an average of 10 degrees Fahrenheit below normal (NYT, 07 Jan.40). From the Continental Divide to the Atlantic Coast there were strange occurrences as compared with normal weather conditions. Frigid waves even touched the northern parts of Florida. (ditto). Was this due to the unusually dry air in November 1939, as noted by Dr. James Kimball in 'The New York Times' on January 7<sup>th</sup> (NYT, ditto), which actually continued well into December 1939 (see below)? That December had not been as dry as November in statistical terms, maybe due to



snow that fell with the Christmas cold, e.g. between St. Louis and Louisville the snow generally was 6 inches deep<sup>1</sup>.

USA weather map  
November 25<sup>th</sup>, 1939.

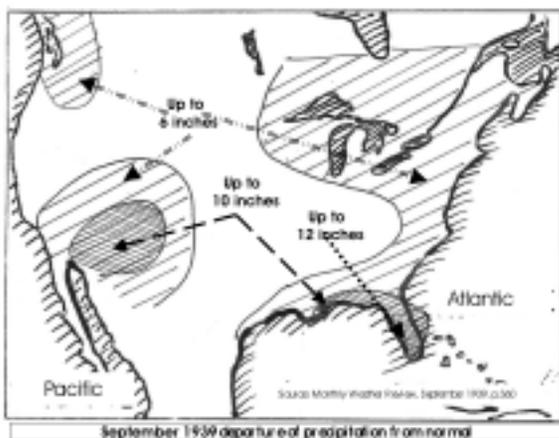
The less humid the atmospheric air is, the more easily it can be replaced by colder air. If the amount of water in the atmosphere is less than average, the

<sup>1</sup> Brooks, 1939/40

‘vacuum’ thus created, is filled by colder air. If the atmosphere is ‘water free’ as on the moon, the temperature range there is about 300°. It is somewhat plus 150° or higher when the sun shines, without the sun shining, temperature on the moon is in the range of minus 150° or lower. On the earth the water in the air makes the difference in global air temperature. About the equivalent of a three-metre deep water layer of the ocean surface is usually in the atmosphere. If a portion of this water ‘has been taken out of the air’ for a brief period of time during sunless winter months, arctic air sweeping in from the North Pole region may cause a frigid blast causing surprising cold winter conditions.

This paper will show that, the United States had an extremely dry weather from October to December 1939, presumably caused by the war in Europe.

### USA deprived of rain - October to December 1939



Since the initial days of September 1939 a battle line several hundred kilometres long stretched through Central Europe from the Strait of Dover and the Helgoland Bight to Switzerland with attacks of various intensity; missions and encounters taking place every day. As has been explained in the previous chapter,

it rained excessively in Central Europe, presumably due to military activities over land and at sea. In early September the Russian and Japanese Armies met in a severe encounter in the Outer Mongolia (A), whereby California experienced an eight days heat wave, since about September 16<sup>th</sup> followed by a severe tropical storm (NYT, 25 September) and record rain. It was the heaviest September rain in Los Angeles’ weather history and it broke the worst heat wave in Weather Bureau records, as measured by intensity and duration. It lasted for eight days. (NYT, 26 September). During summer 1939 an El Niño was active off South America’s coast. Made events in Europe, China and the equatorial Pacific Ocean record weather in California?

Further details: (A) War in China, 2\_33.

Accepting the status-quo as it is, it might be interesting to see whether it is possible to identify a reflex action in the air that reached North America from the French-German, or the Polish-German front in Europe, e.g. from the fires burning in Warsaw during the second half of September, or even from the fighting in China? Actually, with regard to contemporary climatic conditions in the United States, it is a fact that the weather changed suddenly from too wet to too dry between summer 1939 and winter 1939/40.

The winter of 1938/39 in the United States was abnormally wet particularly in the eastern United States and in the Southwest, with the larger part of the country having above-normal conditions. The spring of 1939 was exceptionally dry with only a few States from the Mississippi Valley eastward having somewhat more than normal rainfall. From the Great Plains westward, all States experienced deficient rainfall. The summer was relatively wet eastward of the Great Plains, except in the Northeast, where rainfall was deficient in almost all sections. The fall season was extremely dry over large areas, although amounts of precipitation were a little bit above normal in Utah, Colorado and Arizona. For all the areas eastward of the Rocky Mountains it was the driest fall on record<sup>2</sup>.

With regard to anthropogenic rain making due to military activities in Europe and Asia, and due to the fact that ‘aerosols’ from battle fields, for example in Poland during September 1939, could easily make their way to the USA, it should at least be mentioned here that in California precipitation in September 1939 was 370 % above normal (Alabama, 119%; Arizona, 335%; Nevada 327%; Utah 261%). However, in most States, September 1939 was unusual dry.

A closer look at a few areas, which received above normal rain in the fall of 1939, reveals that it was the result of high precipitation levels in September. Figures given below show the percentage of normal precipitation. It may be noted that the States named by Martin above<sup>3</sup> are normally very dry during the months October–December.

Utah	Sept. 261 %	Oct. 119 %	Nov. 15 %	Dec. 37 %
Colorado	Sept. 83 %	Oct. 50 %	Nov. 32 %	Dec. 51 %
Arizona	Sept. 335 %	Oct. 55 %	Nov. 136 %	Dec. 29 %

Source: Martin

South Dakota and Wyoming recorded a mere 1 percent, and North Dakota and Nebraska recorded just 5 percent. Only Arizona exceeded the ‘average mark’ by 136 percent. November 1939 was the driest month in the history of the whole of the USA, the rain average about 30 percent lower than the ‘dry

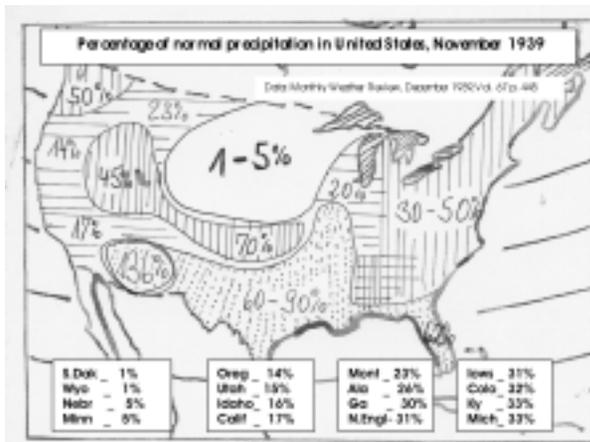
<sup>2</sup> Martin

<sup>3</sup> Martin

spring average’, with the driest months May (72 percent) and April (94 percent).

The total precipitation in the 42 States of the USA during the closing months of the year 1939 as listed by the Monthly Weather Review<sup>4</sup> was as follows:

Percentage of normal precipitation in 42 States (figures in approximation)	October	November	December
	78%	44%	71%



The ‘unusual dry air’ during November 1939 was quickly noticed (NYT, 07 Jan. 1940). The recorded dry months of October to December 1939 coincide perfectly with the excessive rain in central Europe where the battles were being waged.

### Natural variation?

*The Timing:* The ‘timing’ between excessive rain in Europe and the dry months in the United States is a perfect indication of the relationship between both the events. Any ‘interchange’ between dry and wet air takes time. A dry or humid air body can exist up to several days or a few weeks. An ‘air body’ needs a couple of weeks to circle the Northern Hemisphere. Interaction of air between the hemispheres may take several months, as based on observations made on the movement of air in the wake of the outbreak of the volcano Krakatoa in 1883<sup>5,6</sup>.

Scherhag, who analysed a disruption in the circulation of air in the winter of 1940, states with regard to air movements that there must have been a subsequent air-body-transfer (Massentransport) from the Southern Hemisphere towards the Arctic<sup>7</sup>. This remark makes it clear, that ‘dry air’ from Europe could have circled the globe for some time before a ‘humidity gap’ could be refilled. It also confirms that there was a ‘humidity gap’ in the

<sup>4</sup> Martin

<sup>5</sup> Furneaux

<sup>6</sup> Wexler, Spread

<sup>7</sup> Scherhag, 1951

first place. If this 'dry-out' had not been caused by military activities, what else caused it?

*The Regions Covered:* January 1940 was cold in all Northern Hemisphere regions, viz. North America, Northern Europe and Northern Asia. This is a strong indication that there was too little humidity in the air (as proved in the case of the USA - above), giving arctic air a free path to penetrate deep into southern regions. At least the first cold wave in the second half of December 1939 can be clearly related to the prevalent 'dry air' condition. Additional causes (e.g. snow cover) may have contributed to subsequent weather events. Nevertheless, presumably the 'dry air' in late 1939 did not move away quickly, due to scant sunshine available during the winter season in the northern hemisphere.

*Difference between the winters in USA and Europe:* A further piece of evidence is the fact that the severity of the winter in the United States was over by the end of January 1940<sup>8</sup>, whereas extreme winter conditions prevailing in Northern Europe even during February 1940 show that a number of countries, e.g. Holland, Northern Germany and Southern Scandinavia, experienced their coldest winter for more than a 100 years.

*Lower air circulation:* Only few years after WWII, Richard Scherhag, came to the conclusion that the winter of 1939/40 was the result of a comprehensive general disruption in the atmospheric circulation, which could be regarded as a 'prototype' for a weakened circulation<sup>9</sup>. Altering downwards temperature in seas and oceans inevitably causes disruptions in atmospheric air movements.

### Summary

This paper provides a number of indications to show that the war in Europe may have significantly influenced winter weather conditions over large distances. In this case, North America had a severe cold January in 1940. However, this was presumably initiated by a lack of usual rain in the United States during the months of October to December 1939 in the first place. This could have been caused by excessive 'rain making' on account of military activities along the Western Front in Europe. The evidently low humidity in the atmosphere in late 1939, made it easy for arctic air to travel forcefully over the northern parts of the continents in the Northern Hemisphere at low temperatures. The timing of 'dry air' and the invasion of polar air into all continents in the Northern Hemisphere with severe impacts also in the USA and China seem to suggest that this was not a mere natural variation.

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<sup>8</sup> Martin

<sup>9</sup> Scherhag, 1951

Although the ‘dry-USA’ aspect together with the factor ‘forcing rain by military activities’, are highly interesting contributory events, neither is,



however, the principal cause of the severe war winters of 1939-42 in Europe, (A) and the subsequent global cooling from 1939 until the 1970s. (B) But these aspects should be regarded as a collection of ideas for further investigation and study.

Further details: (A) Three war winters, 3\_31; (B) Sea system effected, 4\_12.

That something strange had been going on with the weather many thousand kilometres away from the war in Europe, is briefly indicated by an excerpt from Brook's paper<sup>10</sup>:

“Paradoxically, most of eastern Canada north of latitude 48° was above normal, with temperatures running up to more than 25° F above normal north of latitude 58° and 18° F above normal in the interior of Alaska. Missouri was actually as cold as the Hudson Bay region for the month”.

Higher winter temperatures during El Niño events have been observed in eastern Canada and Alaska and during other events also. However, in winter 1939/40 the key for this erratic behaviour was the war in Europe.

<sup>10</sup> Brooks