

UNCLASSIFIED

AD NUMBER
AD156453
NEW LIMITATION CHANGE
TO Approved for public release, distribution unlimited
FROM Distribution authorized to U.S. Gov't. agencies and their contractors; Administrative/Operational Use; SEP 1952. Other requests shall be referred to Air Weather Service, Scott AFB, IL.
AUTHORITY
AFCCC ltr, 4 Apr 2006

THIS PAGE IS UNCLASSIFIED

UNCLASSIFIED

AD 156453

Armed Services Technical Information Agency

**ARLINGTON HALL STATION
ARLINGTON 12 VIRGINIA**

**FOR
MICRO-CARD
CONTROL ONLY**

1 OF 2

NOTICE: WHEN GOVERNMENT OR OTHER DRAWINGS, SPECIFICATIONS OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE U. S. GOVERNMENT THEREBY INCURS NO RESPONSIBILITY, NOR ANY OBLIGATION WHATSOEVER; AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS, OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

UNCLASSIFIED

FOR OFFICIAL USE ONLYCHARTS OF MAXIMUM AND MINIMUM THICKNESS LINES 1000/500 MB, NORTHERN HEMISPHERE1946-50

These charts were prepared by Dr. R. C. Sutcliffe of the Meteorological Office, Dunstable, England.

Construction of the envelopes.

To construct the envelopes of a specific thickness line of the 1000/500-mb layer for a month, e.g., 18,000 feet for October, the 18,000-ft line was taken from the morning thickness chart for each day in the month of October during the years 1946 through 1950. All these thickness lines (31 X 5 = 155 of them) were plotted on a chart and the southern (minimum) and northern (maximum) envelopes were determined.

Similarly envelopes for other specific thickness lines have been determined for each month. They have been chosen at 600-ft intervals, so that the thickness lines mapped are 19,200 (highest), 18,600, 18,000, 17,400, 16,800, 16,200, 15,600, and 15,000 ft. (lowest). All the minimum envelopes for a month have been entered on a chart and the maximum envelope for the month on a separate chart. A set of 2 X 12 = 24 charts will then represent the result of the investigation.

On some of the minimum charts isolated cold pools occur south of the main envelope encircling the pole. For practical reasons only one chart a day (the morning chart) was chosen to represent the position of the thickness line during the whole day. At the time of the map a "cut-off" low might have formed, whereas earlier, not represented maps might have shown a cold tongue protruding south from the main cold reservoir and thus bridged the gap between the main envelope and the isolated pool of the same denomination. It is, however, also possible that such a bridge never existed. This is equivalent to saying that the cold pool was not advected south but formed or partly formed locally through adiabatic cooling and/or nonadiabatic processes (radiation, cooling by precipitation, evaporation).

Similarly is explained the existence of cut-off warm pools north of the same-valued main envelope encircling the globe.

It will be noticed that some envelopes have discontinuities. These arise from the inhomogeneous series of charts from which the lines are derived. Hemispheric charts were not available throughout the period Oct. 1946 - Sep. 1951. In some regions of the hemisphere the lines are based on a shorter period than the major part of the chart. Consequently the minimum lines will in some cases jump further north on entering such a region and the maximum lines will jump further south. The discontinuities in the data period are marked on the envelopes by a stroke and the extent of the limited data period is indicated.

Use of the Charts.

As thickness lines are also isopleths of mean temperature (meaned over logarithmic pressure) in an isobaric layer, we can say that the maximum and the minimum charts represent the extremes of the mean temperature in the layer 1000/500 mb.

Notice how the minimum envelopes are made up of sections of cyclonically-curved thickness lines, while the maximum charts are made up of sections of anticyclonically-curved thickness lines. This confirms the well-known principle that cold air masses aloft arrive on a cyclonically-curved path while warm air masses are advected on an anticyclonic path.

The charts can be used as a check on the positions of thickness lines or on the values of the thicknesses, in both analysis and forecasting: In analysis as check on radiosonde data and for estimating thicknesses in areas of sparse upper-air data. When we know the mean and extremes of a quantity we are in a better position to estimate its value than without any quantitative knowledge. The probability that the extremes will be exceeded is small, less than approximately 1/150, since each chart is based on approximately 150 days. How closely the extremes will be approximated depends on the intensity of the cold, or warm, outbreak respectively. The intensity is inferred from the proximity and the temperature of the source region in combination with the speed of the air flow into the area of interest. With some experience a satisfactory accuracy can be obtained in judging this relationship.

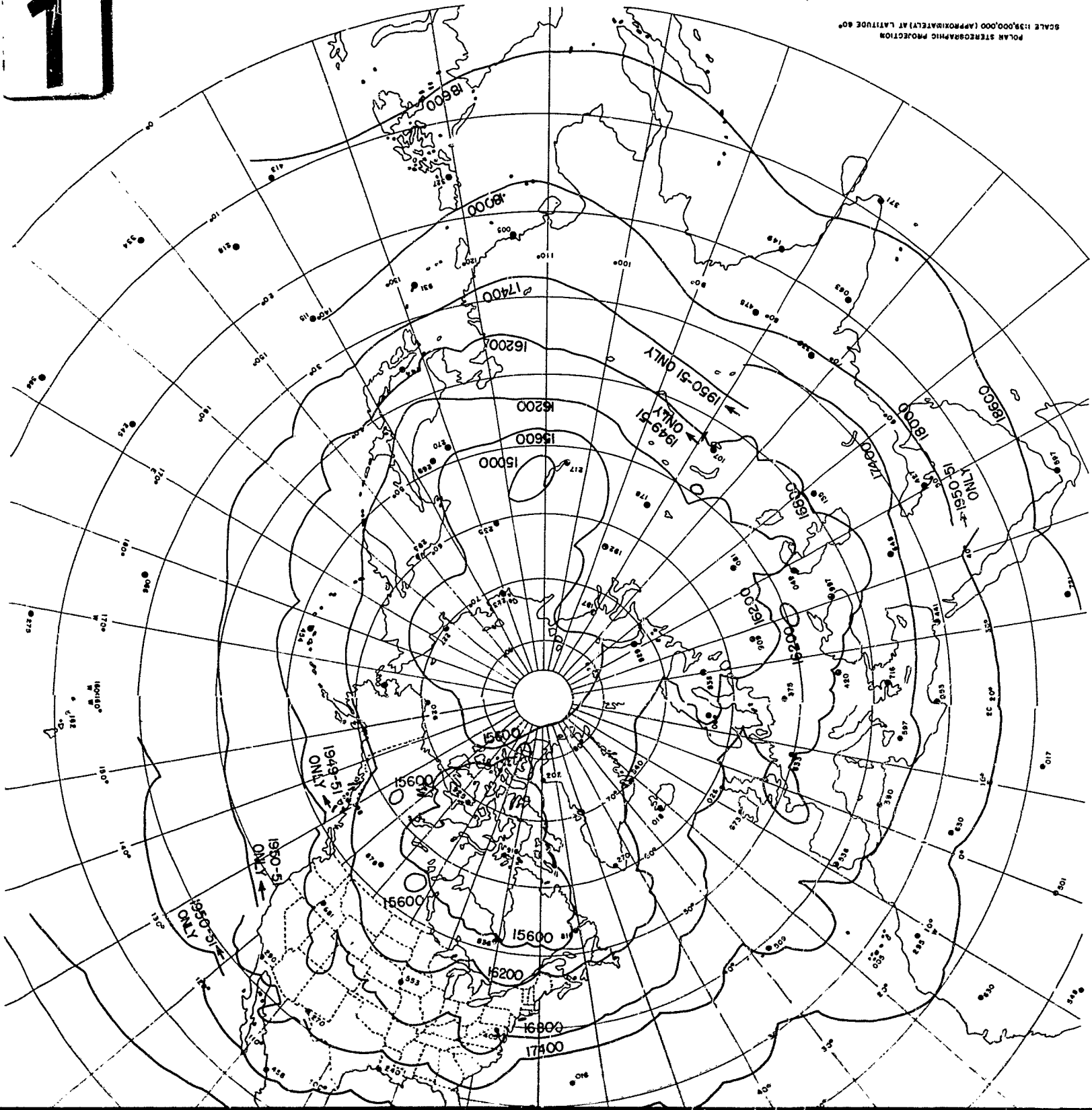
In constructing prognostic upper-air maps the thickness charts are an indispensable aid in eliminating hydrostatic inconsistencies. It is here immaterial whether the 500-mb surface is built up from a prognostic 1000-mb surface and a prognostic 1000/500 thickness chart, or the 1000-mb chart is built down from a prognostic 500-mb chart and a prognostic thickness chart, or the prognostic 500-mb and 1000-mb charts are constructed independently and then mutually adjusted by means of a thickness chart. In any case the thickness chart forms the necessary connecting link between the two pressure levels.

Notice how the minimum lines crowd over the warm ocean currents near the east coast of the continents in wintertime, illustrating the rapid warming of the cP air masses as they leave the continent.

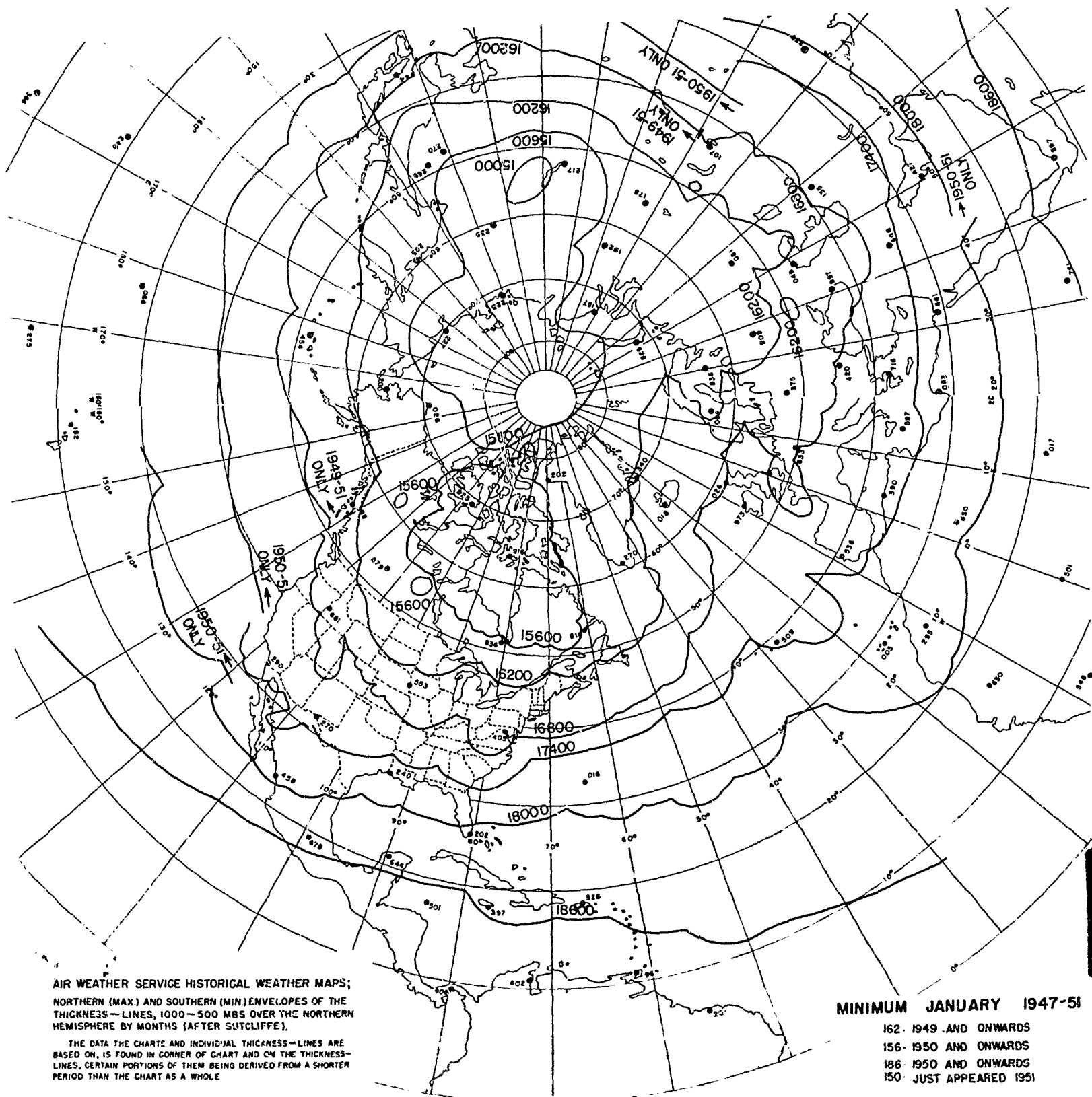
Also notice how in the winter the cold sources in the Arctic tend to split into two pools, one with center over Siberia near 110°E and another over the Canadian Arctic Archipelago near Hudson Bay. Thus the charts teach us something of the principal air mass sources and about modification of air masses.

The period on which the charts are based (up to 5 years) is comparatively short. The lines therefore do not have a smoothed appearance but are made up of sections of individual thickness lines, marking the occasion of an extreme outbreak of cold air or extreme advection of warm air. The charts therefore give information about historical extreme cases and how they are related to topography, distribution of land and sea, proximity of cold and warm sources etc.

1



POLAR STEREOGRAPHIC PROJECTION
SCALE 1:39,000,000 (APPROXIMATELY AT LATITUDE 80°)



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

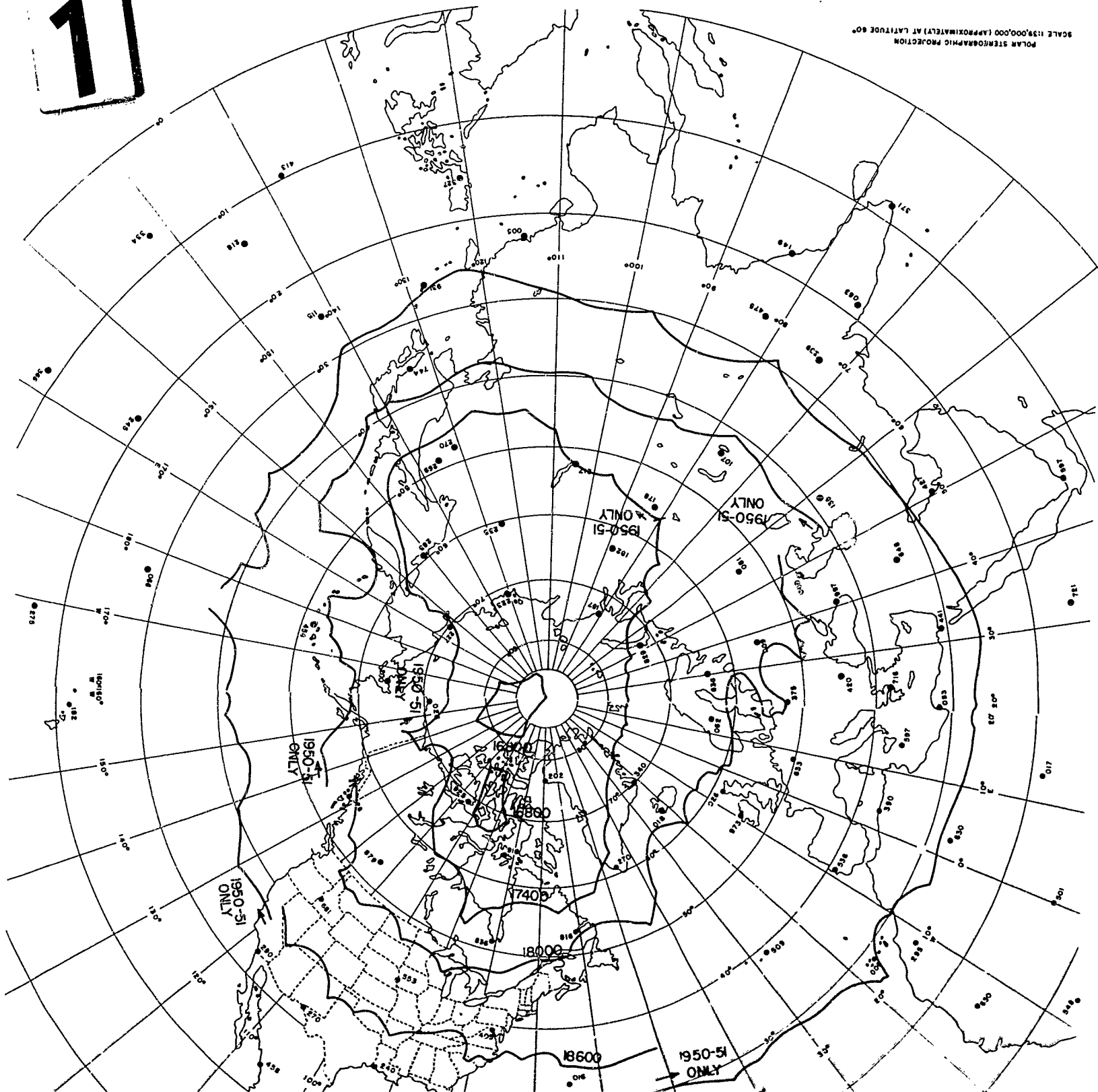
THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES. CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE.

MINIMUM JANUARY 1947-51

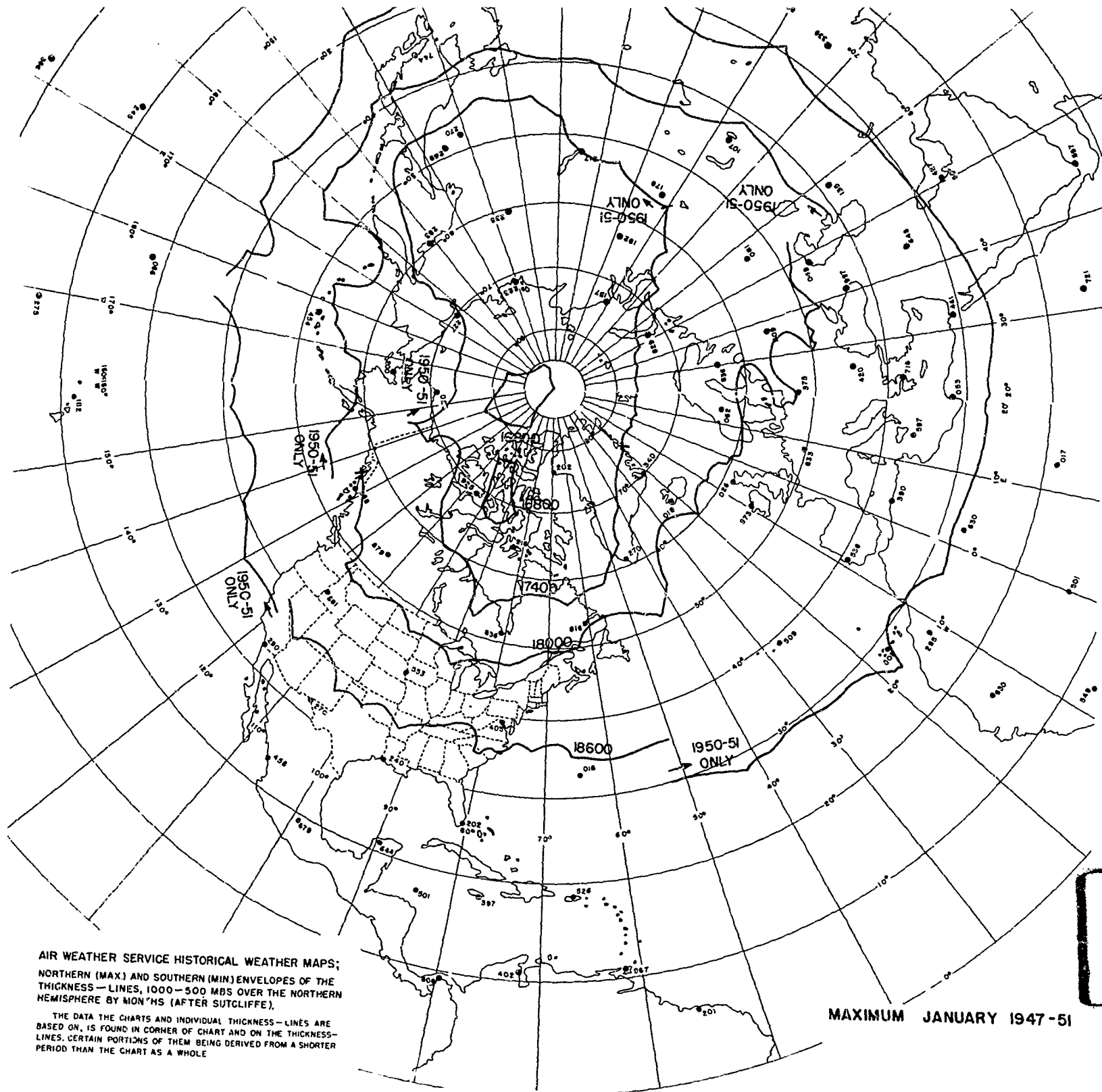
162. 1949 AND ONWARDS
 156. 1950 AND ONWARDS
 186. 1950 AND ONWARDS
 150. JUST APPEARED 1951

2

1



POLAR STEREOGRAPHIC PROJECTION (APPROXIMATELY AT LATITUDE 60°)
SCALE 1:139,000,000



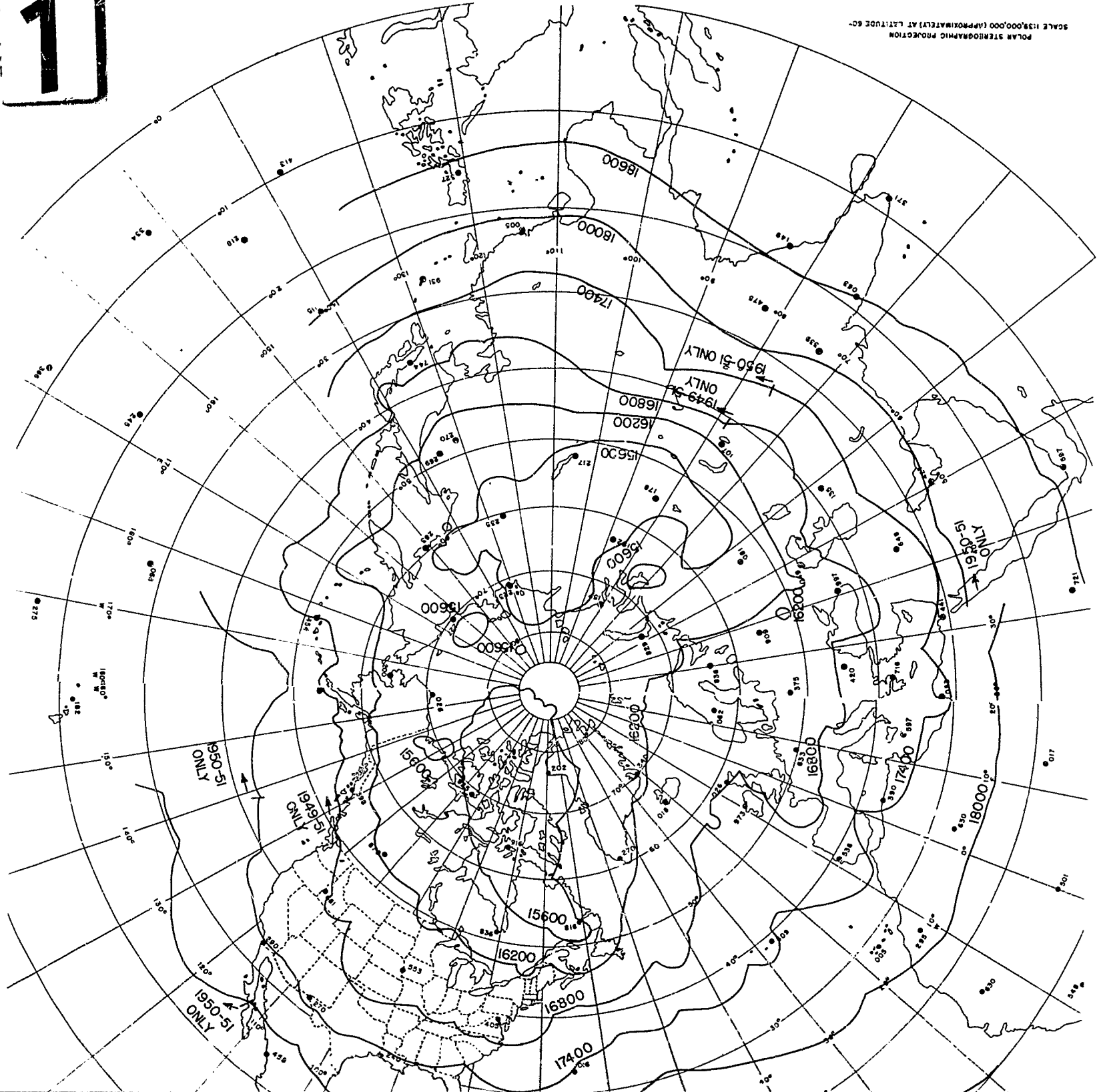
AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

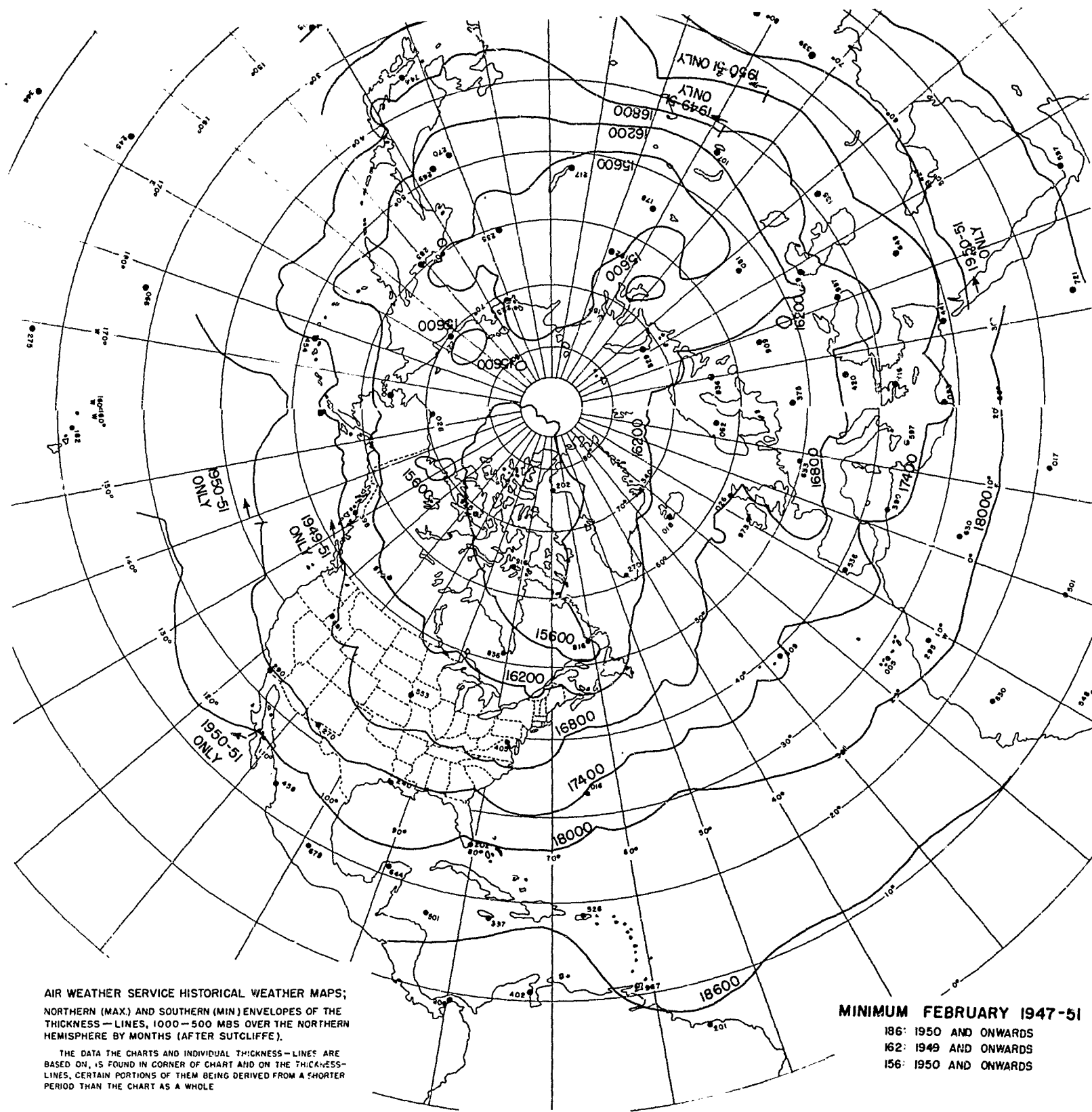
THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES. CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MAXIMUM JANUARY 1947-51

2

1





AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS — LINES, 1000 — 500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

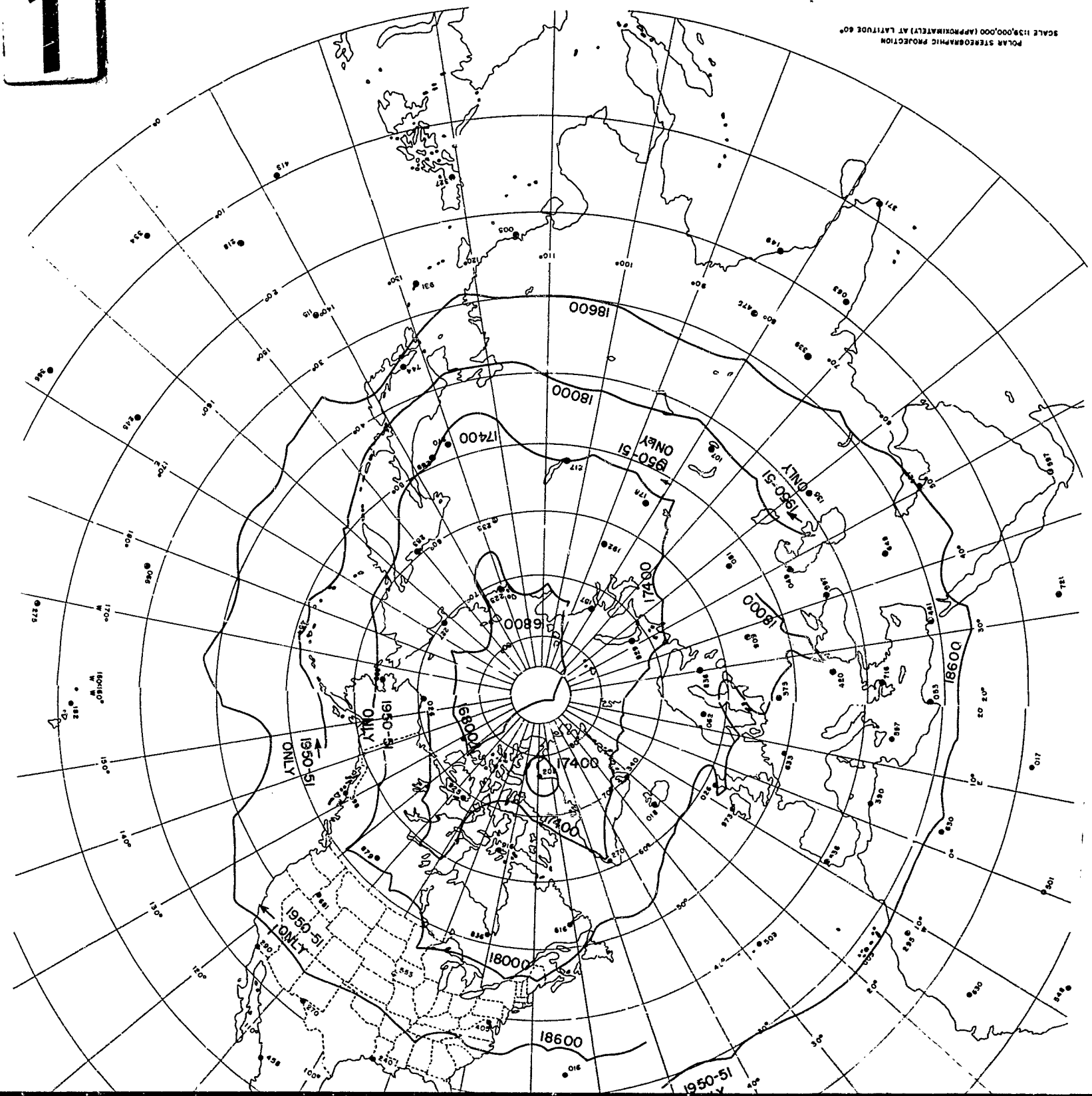
THE DATA THE CHARTS AND INDIVIDUAL THICKNESS — LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS —
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MINIMUM FEBRUARY 1947-51

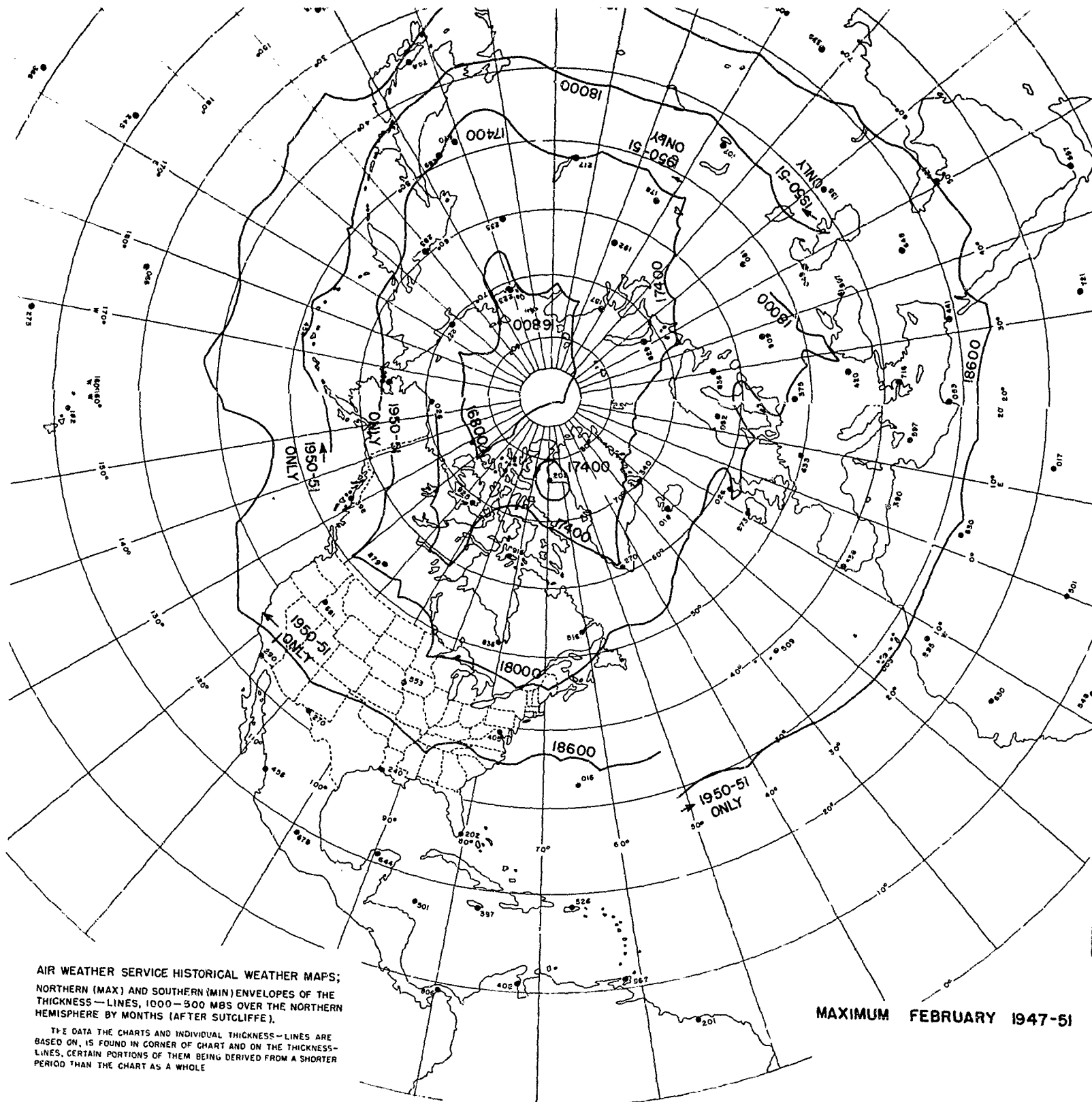
186: 1950 AND ONWARDS
 162: 1949 AND ONWARDS
 156: 1950 AND ONWARDS

2

1



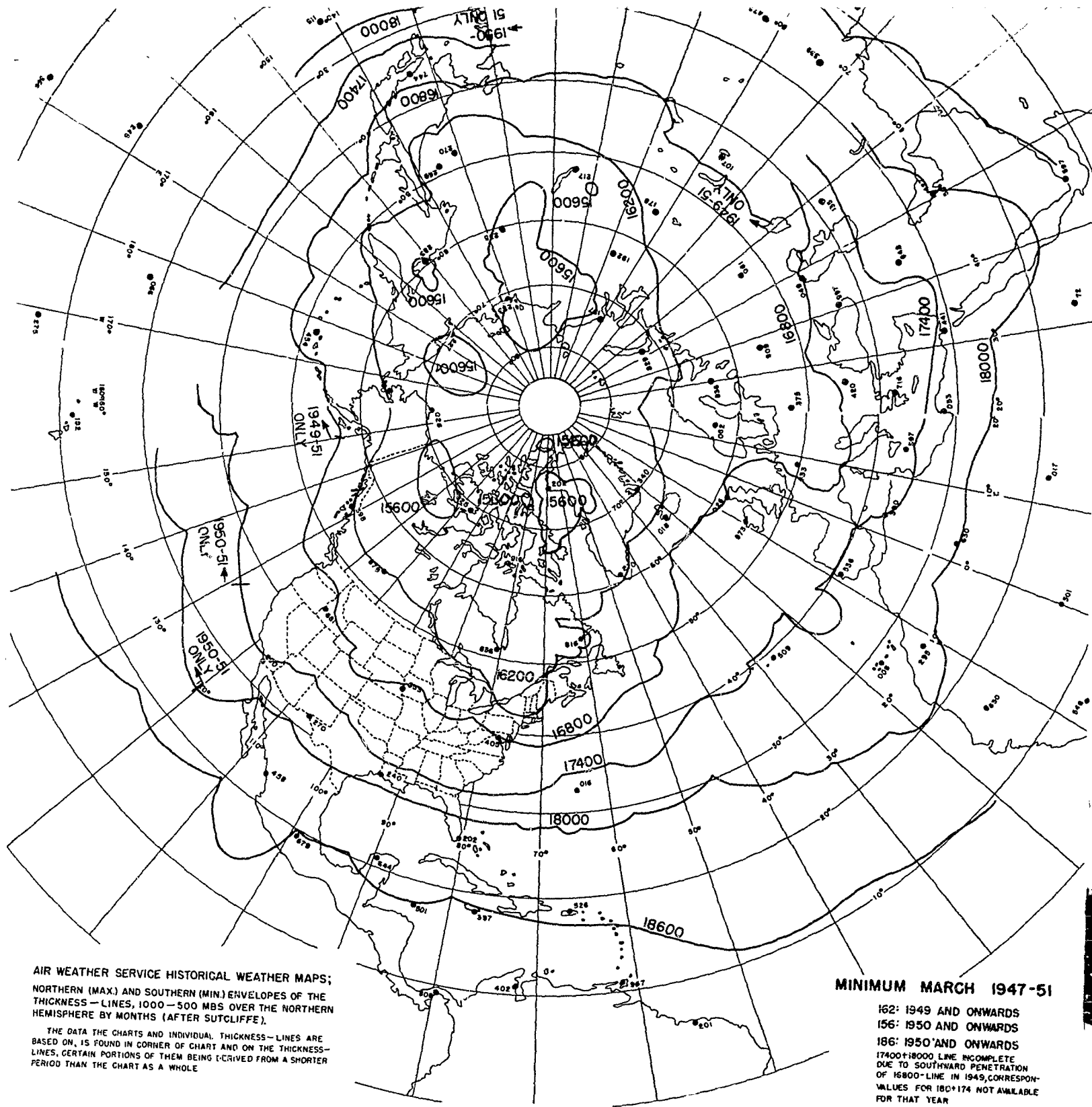
POLAR STEREOGRAPHIC PROJECTION
SCALE 1:3,000,000 (APPROXIMATELY AT LATITUDE 60°)



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).
 THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MAXIMUM FEBRUARY 1947-51

2



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

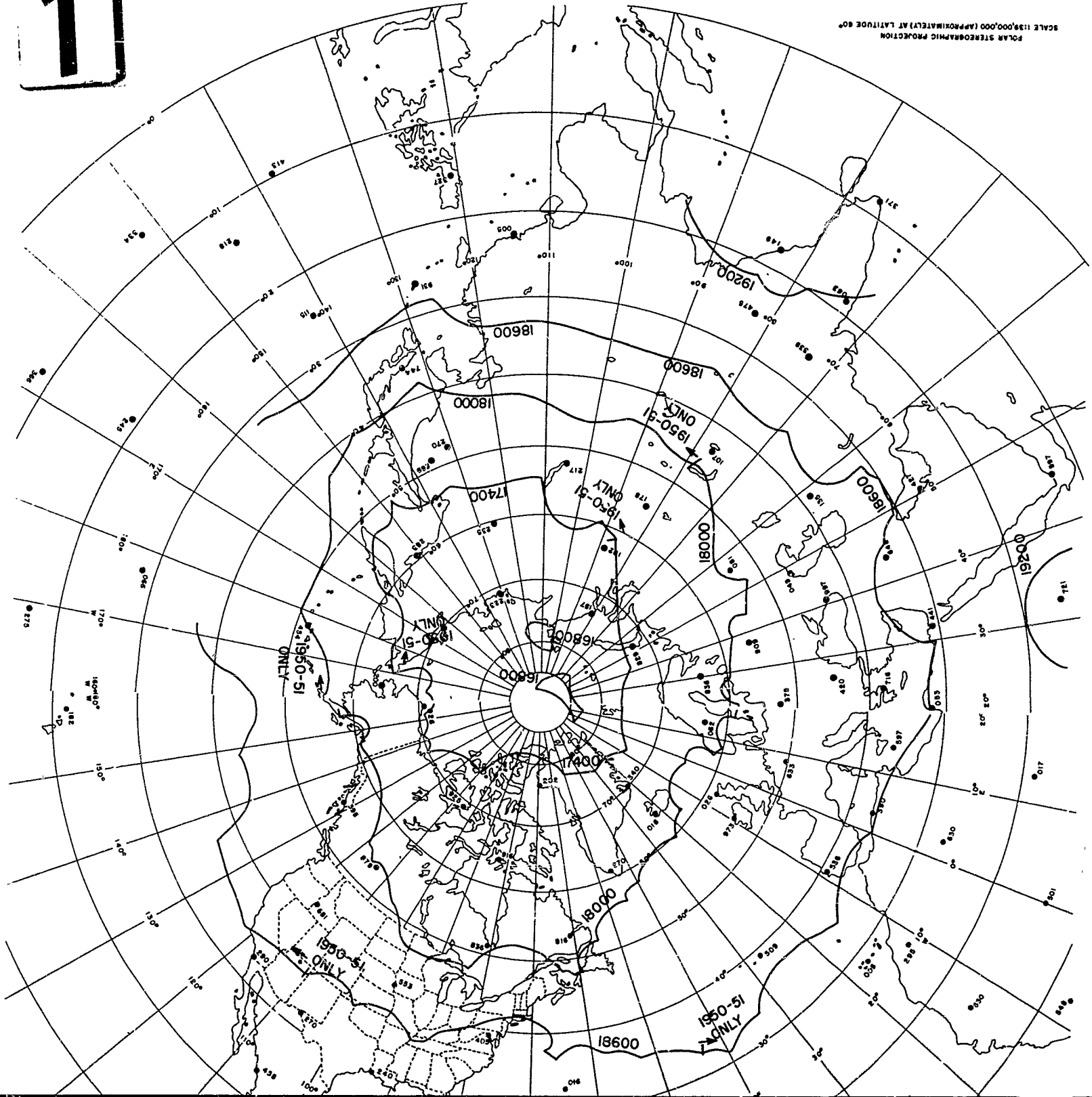
THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MINIMUM MARCH 1947-51

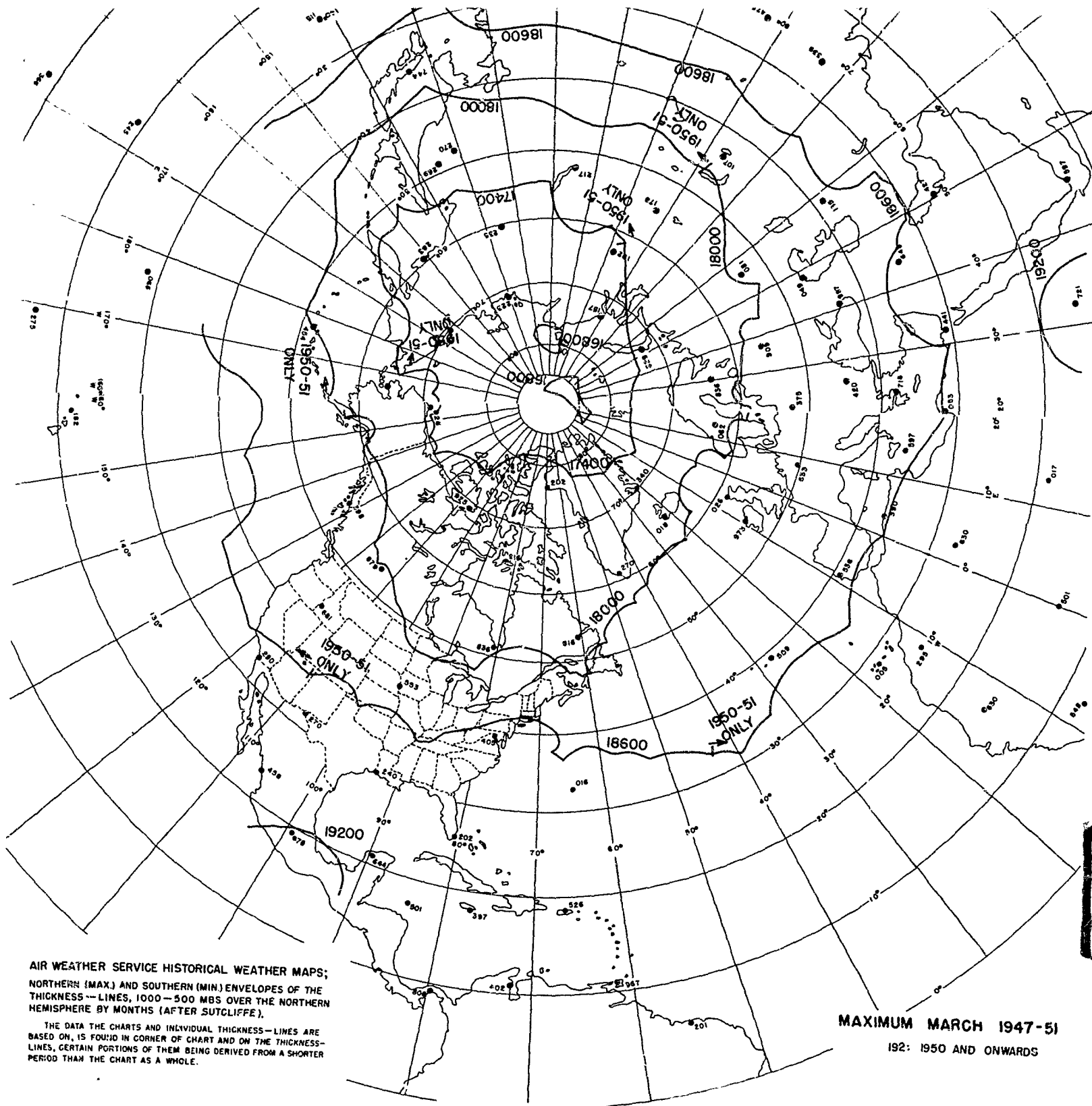
- 162: 1949 AND ONWARDS
- 156: 1950 AND ONWARDS
- 186: 1950 AND ONWARDS
- 17400+18000 LINE INCOMPLETE
 DUE TO SOUTHWARD PENETRATION
 OF 16800-LINE IN 1949, CORRESPON-
 DING VALUES FOR 180+174 NOT AVAILABLE
 FOR THAT YEAR

2

1



POLAR STEREOGRAPHIC PROJECTION
SCALE 1:39,000,000 (APPROXIMATELY AT LATITUDE 60°)



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

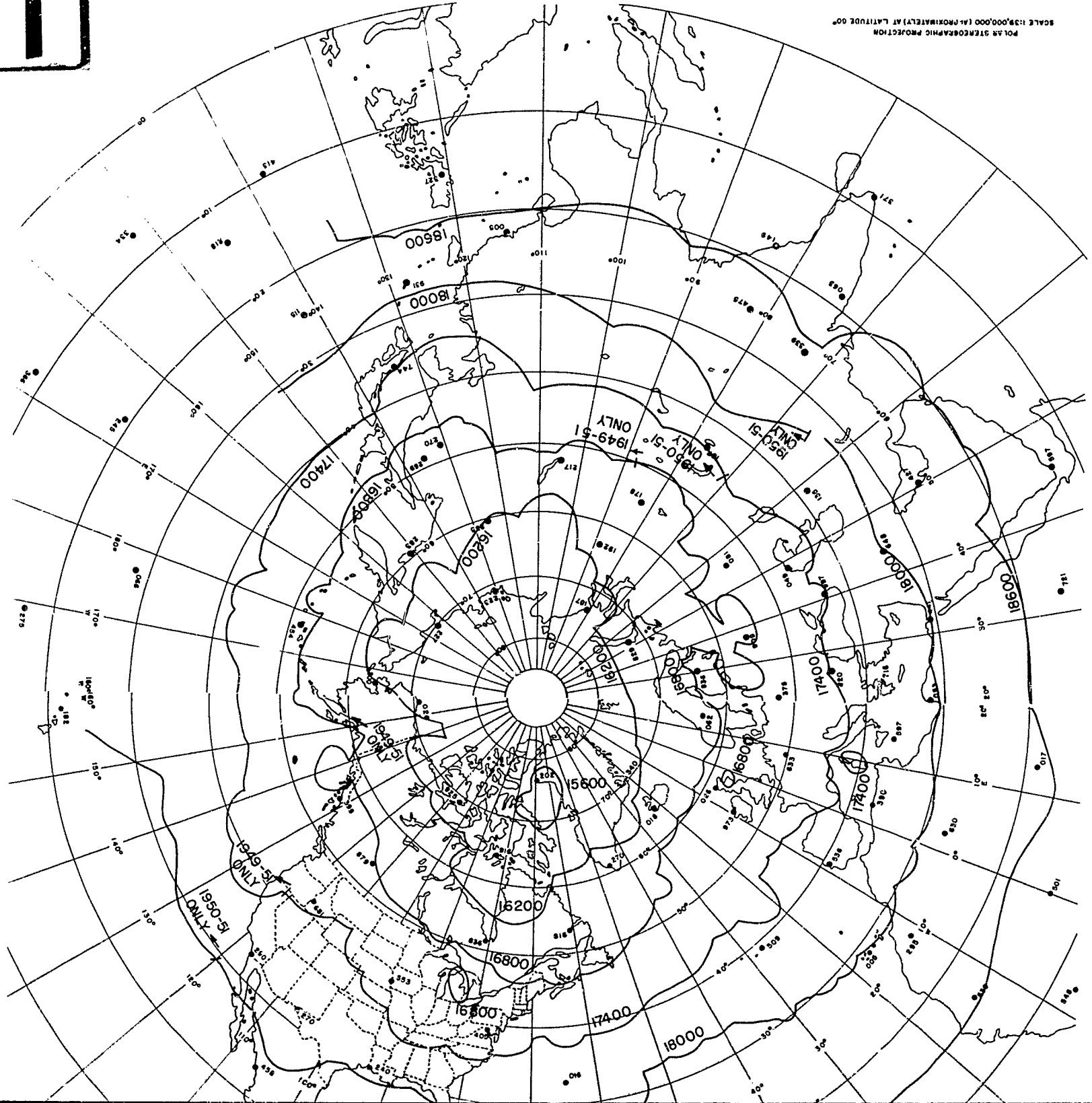
THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE.

MAXIMUM MARCH 1947-51

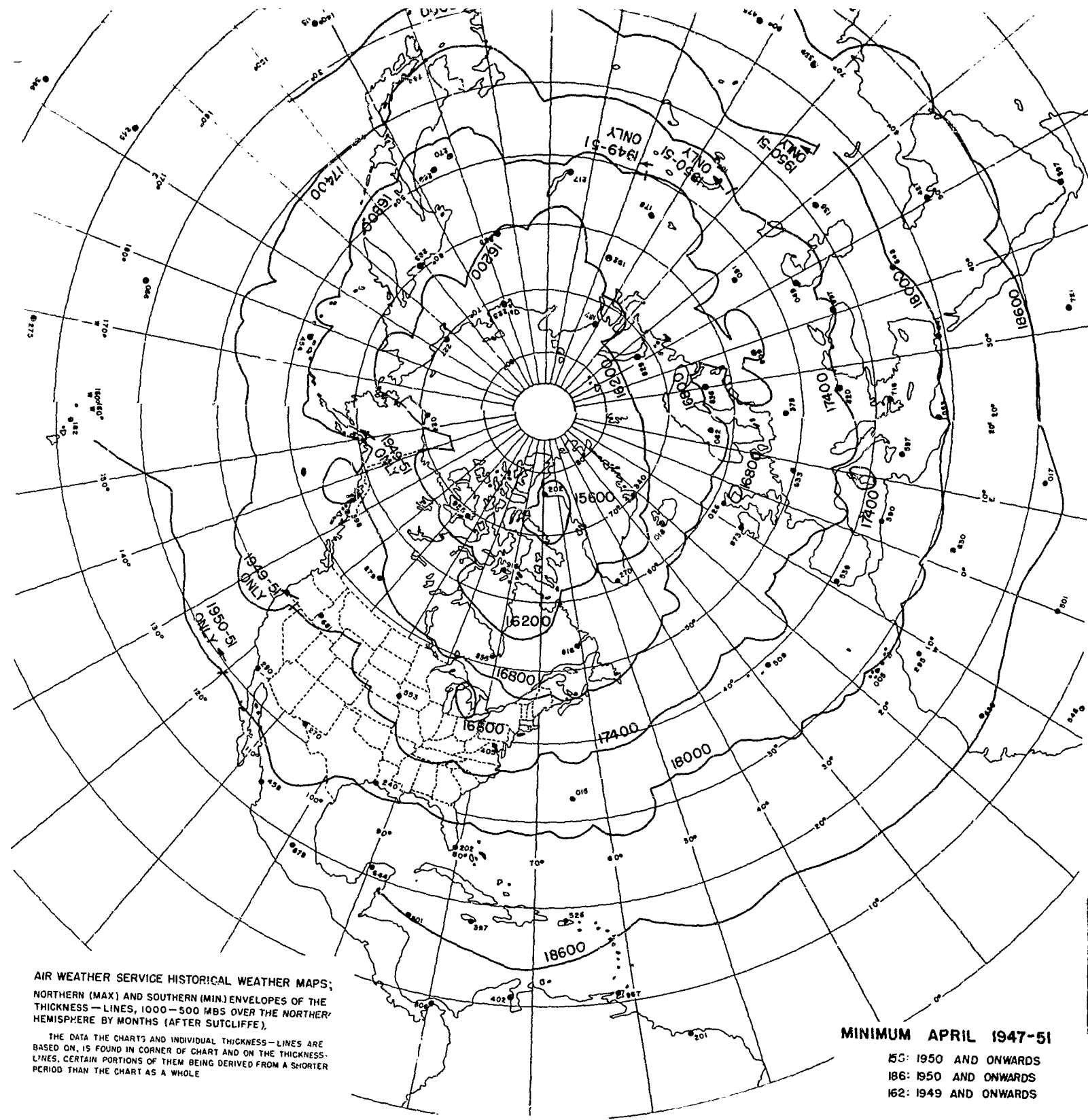
192: 1950 AND ONWARDS

2

1



POLAR STEREOGRAPHIC PROJECTION
SCALE 1:39,000,000 (APPROXIMATELY AT LATITUDE 00°)



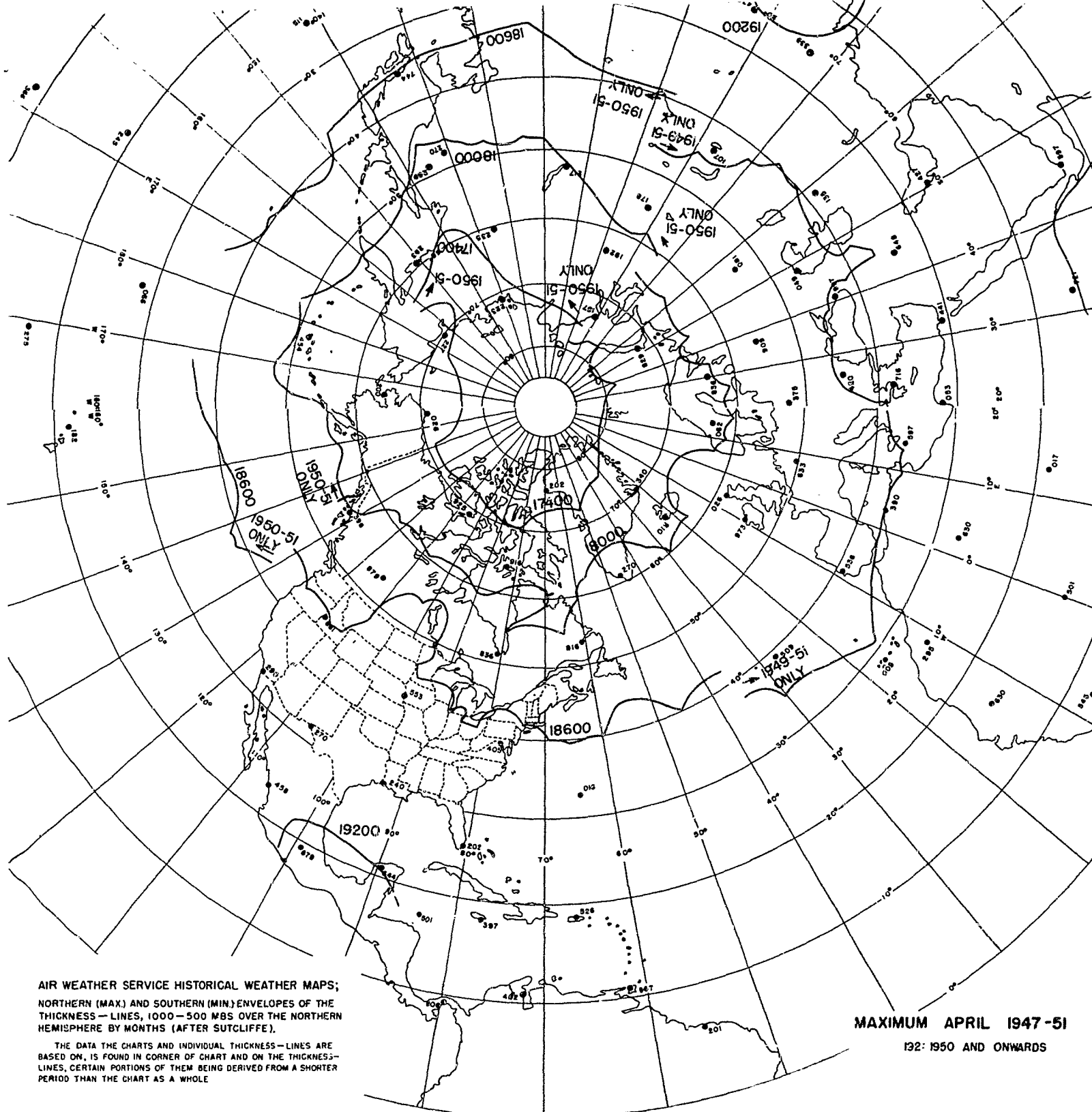
AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MINIMUM APRIL 1947-51

150: 1950 AND ONWARDS
 186: 1950 AND ONWARDS
 162: 1949 AND ONWARDS

2



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

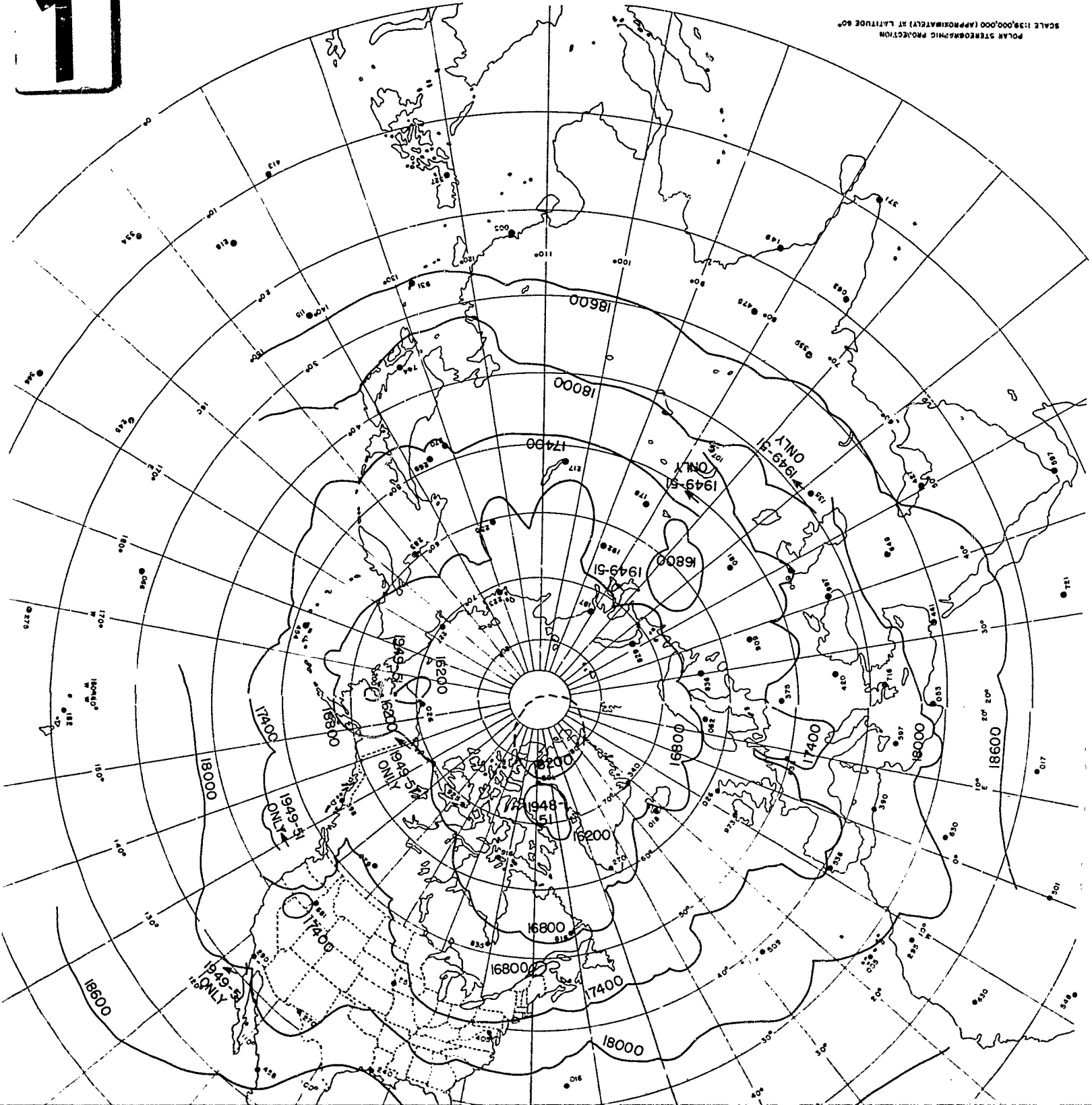
MAXIMUM APRIL 1947-51

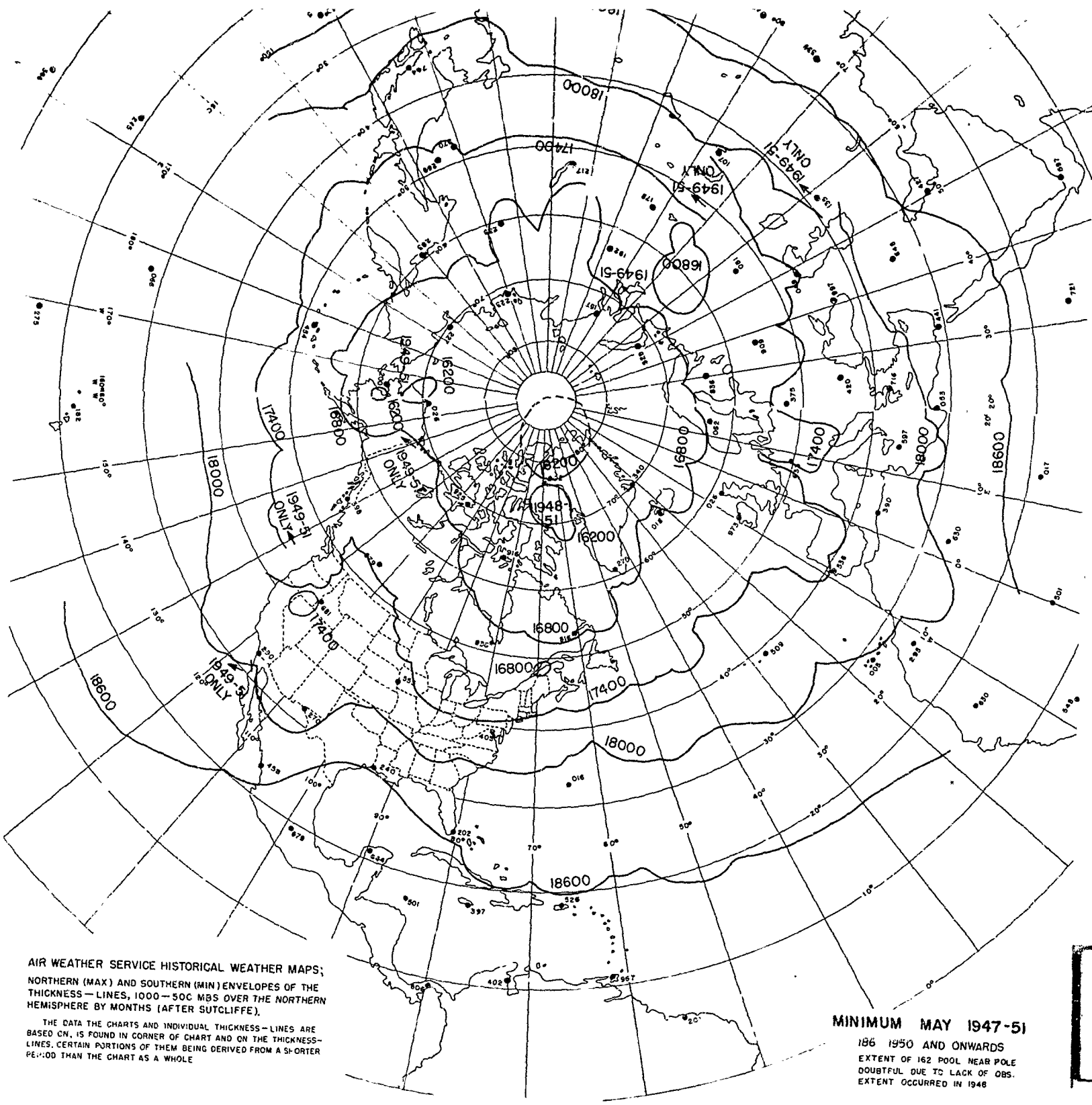
192: 1950 AND ONWARDS

2

1

POLAR STEREOGRAPHIC PROJECTION
SCALE 1:39,000,000 (APPROXIMATELY AT LATITUDE 60°)





AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS—LINES, 1000—50C MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

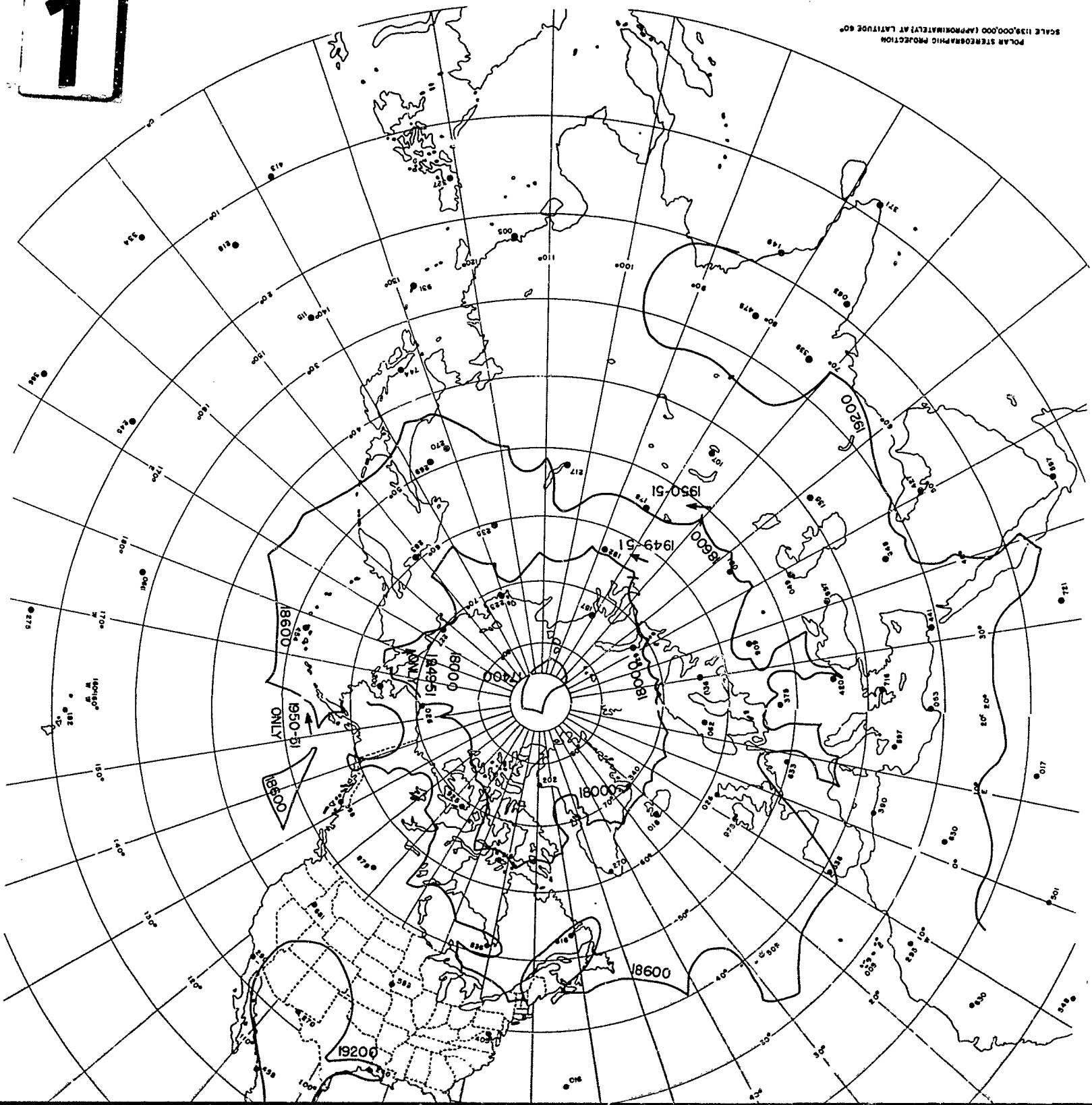
THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES. CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MINIMUM MAY 1947-51

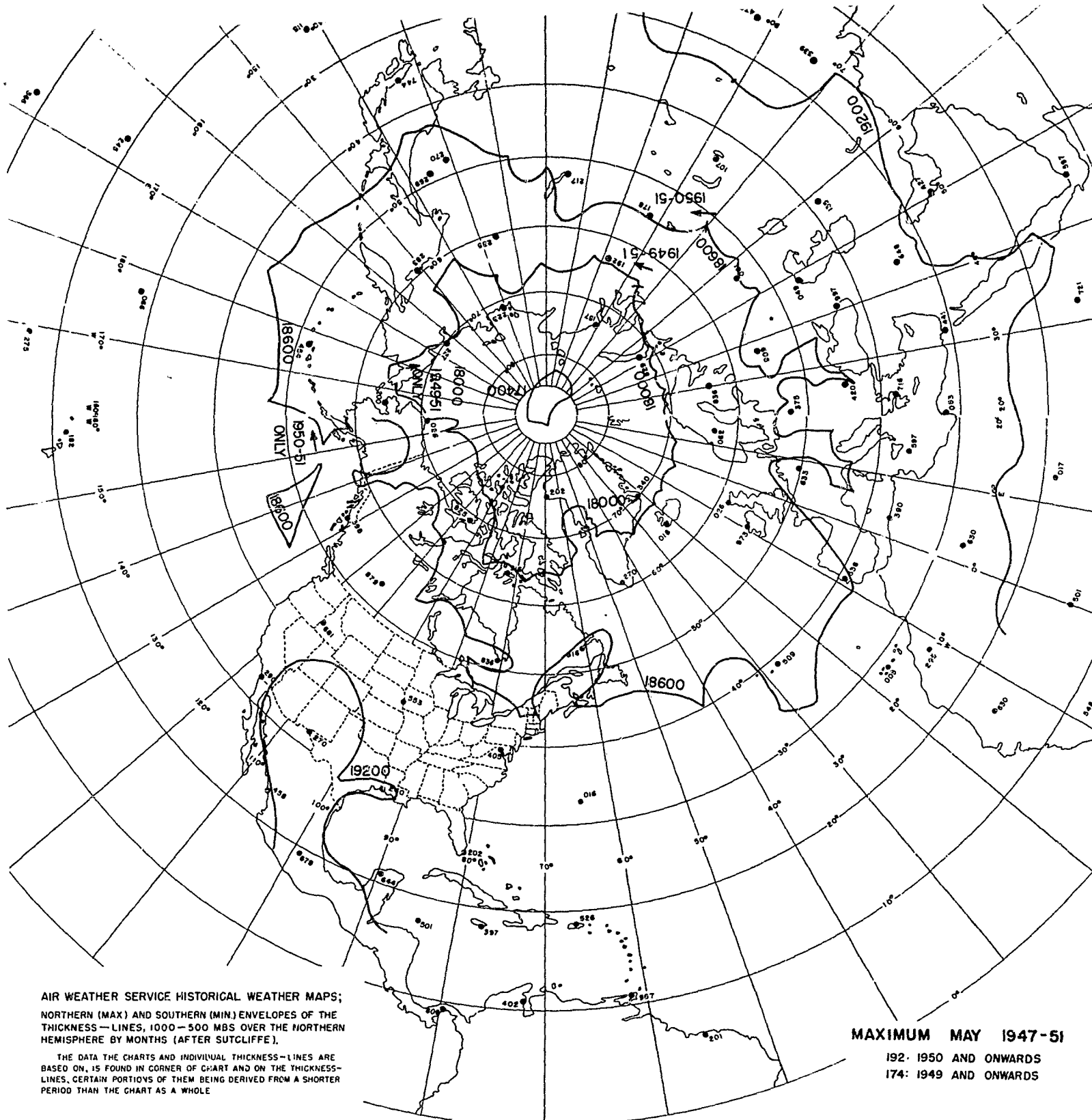
186 1950 AND ONWARDS
 EXTENT OF 162 POOL NEAR POLE
 DOUBTFUL DUE TO LACK OF OBS.
 EXTENT OCCURRED IN 1948

2

1



POLAR STEREOGRAPHIC PROJECTION
SCALE 1:129,000,000 (APPROXIMATELY) AT LATITUDE 60°

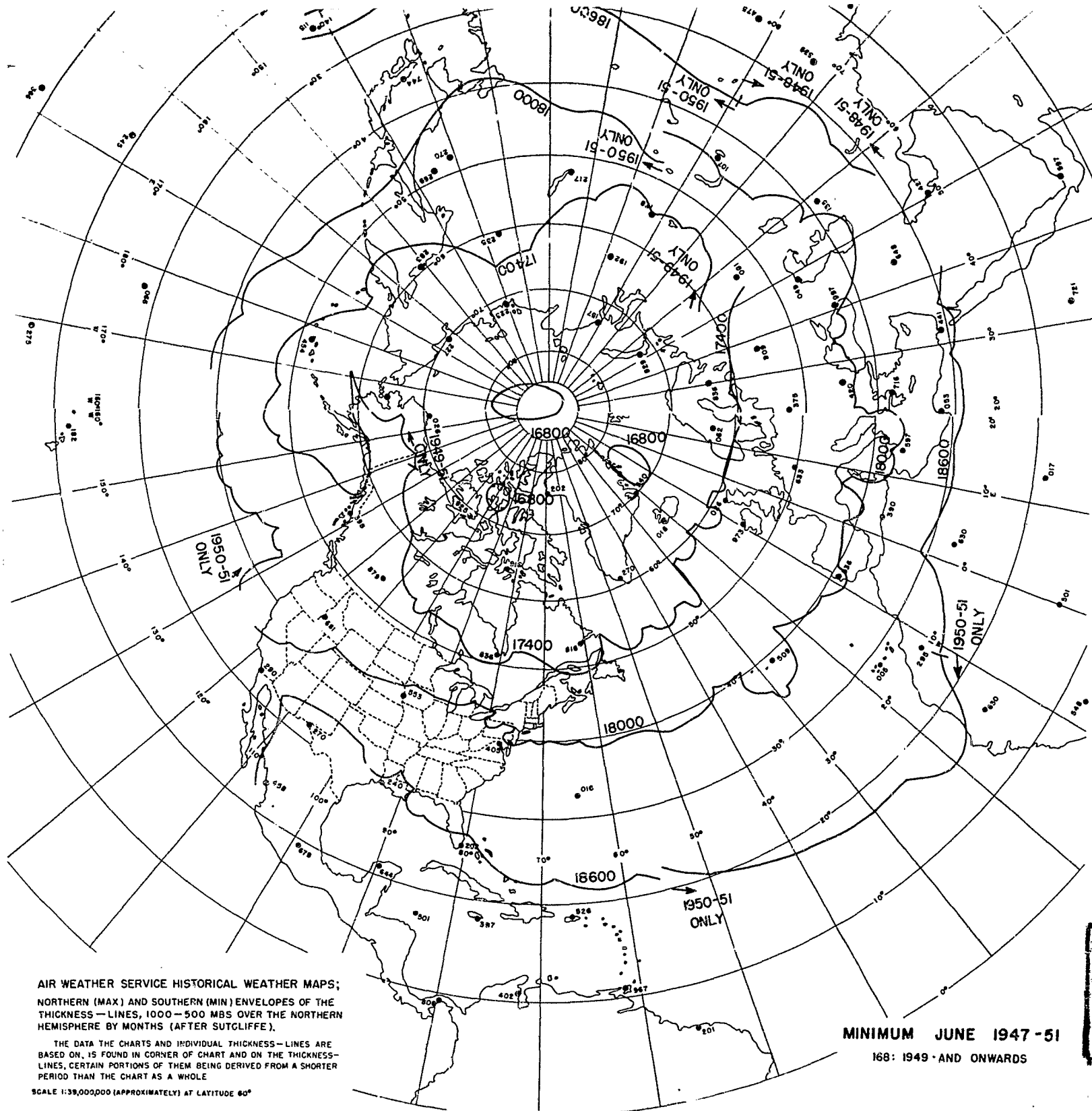


AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MAXIMUM MAY 1947-51
 192: 1950 AND ONWARDS
 174: 1949 AND ONWARDS

2



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTGLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

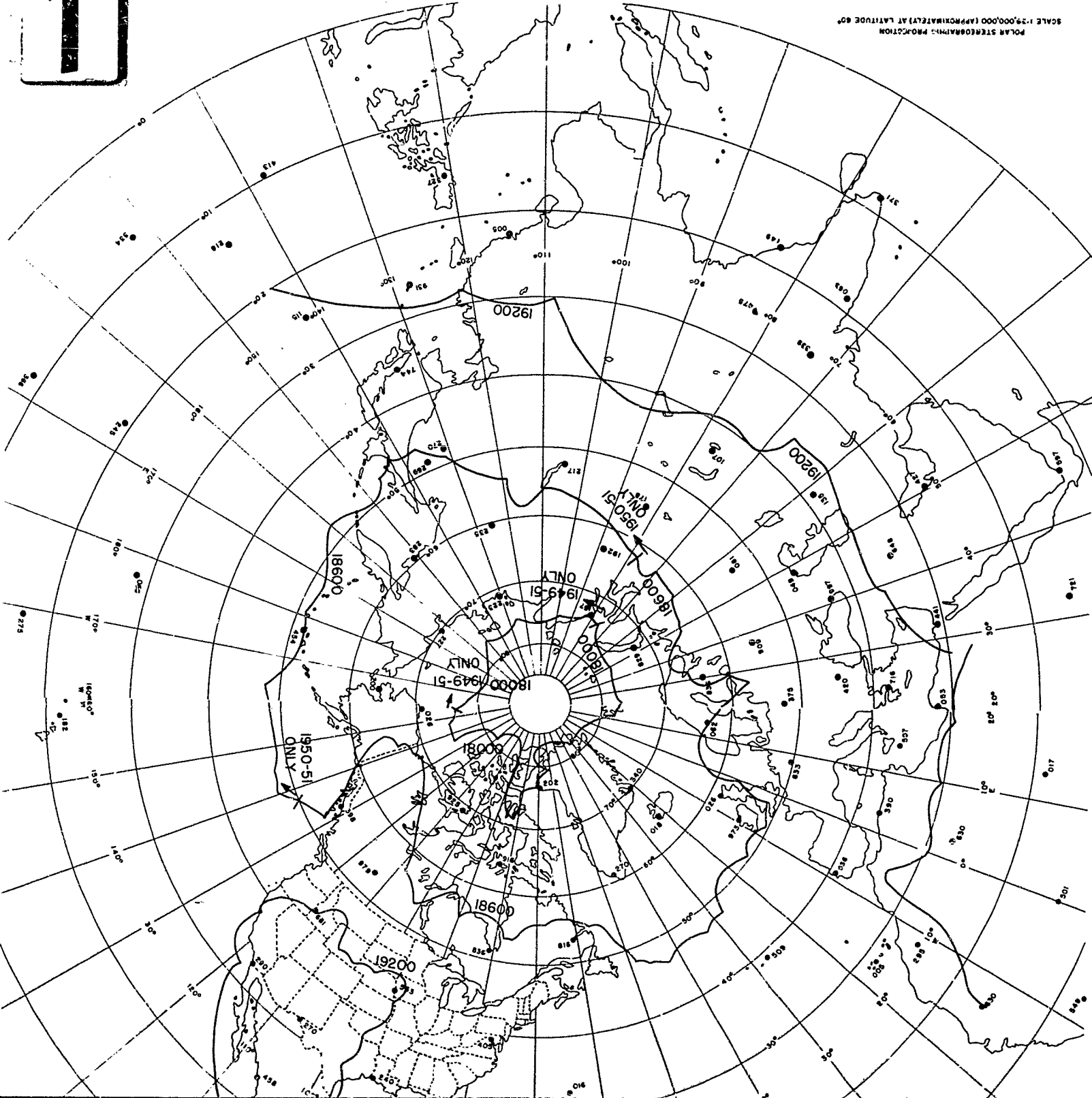
SCALE 1:39,000,000 (APPROXIMATELY) AT LATITUDE 60°

MINIMUM JUNE 1947-51

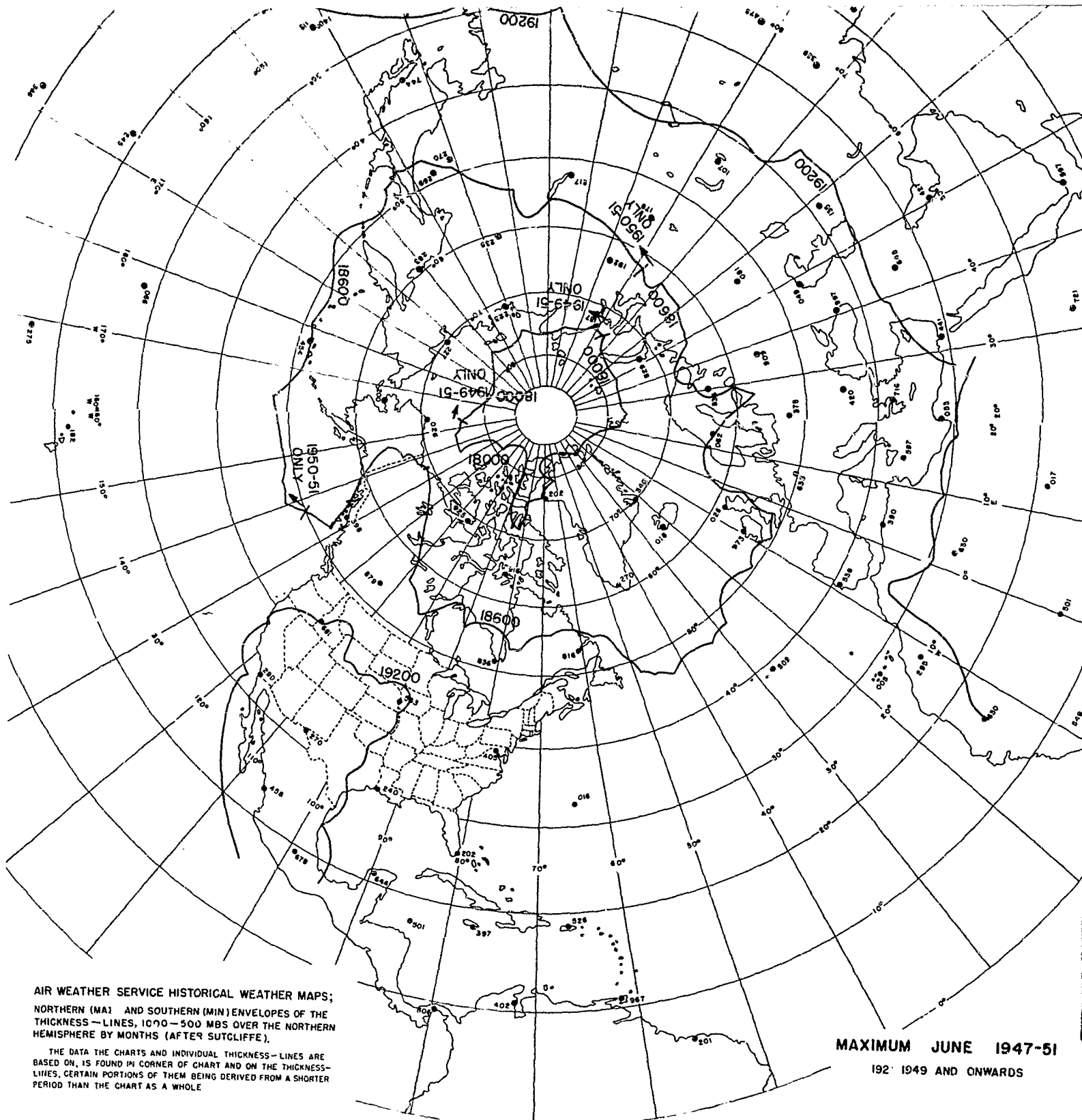
168: 1949 AND ONWARDS



1



POLAR STEREOGRAPHIC PROJECTION
SCALE 1:25,000,000 (APPROXIMATELY) AT LATITUDE 60°



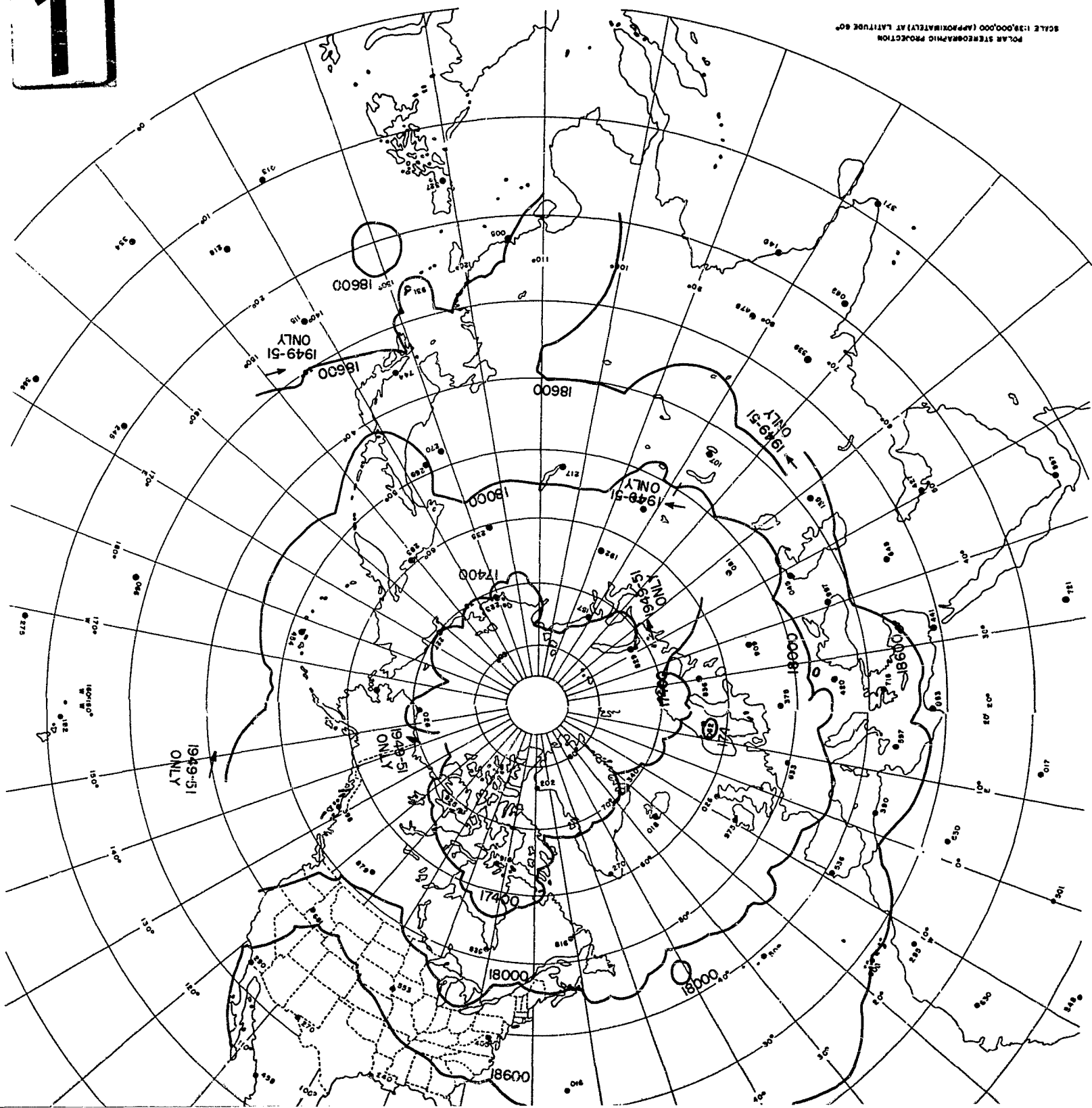
AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS-LINES, 1070-500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS-LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS-
 LINES. CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

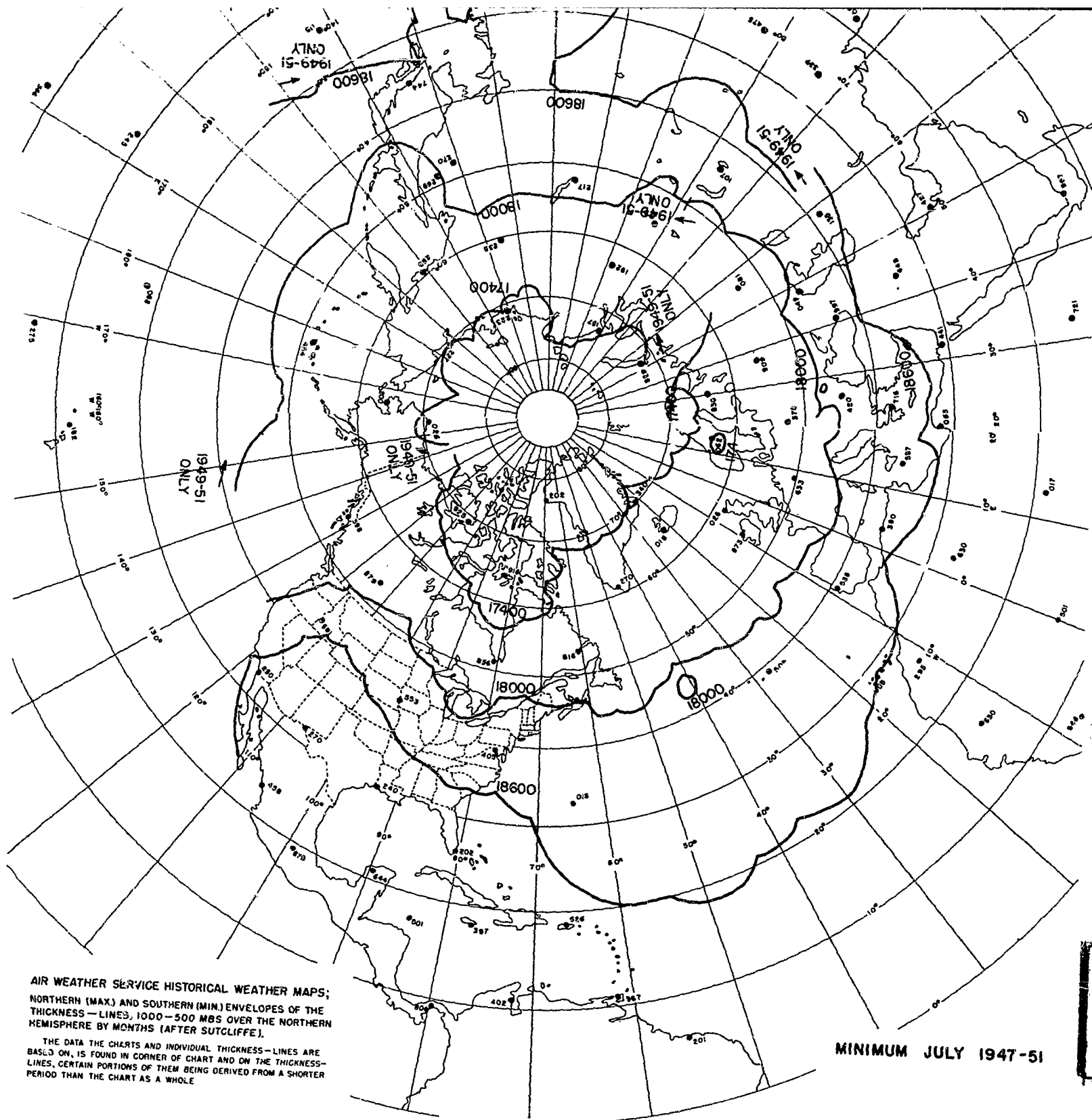
MAXIMUM JUNE 1947-51
 192° 1949 AND ONWARDS



1



POLE STAR STEREOGRAPHIC PROJECTION
SCALE 1:38,000,000 (APPROXIMATELY AT LATITUDE 80°)

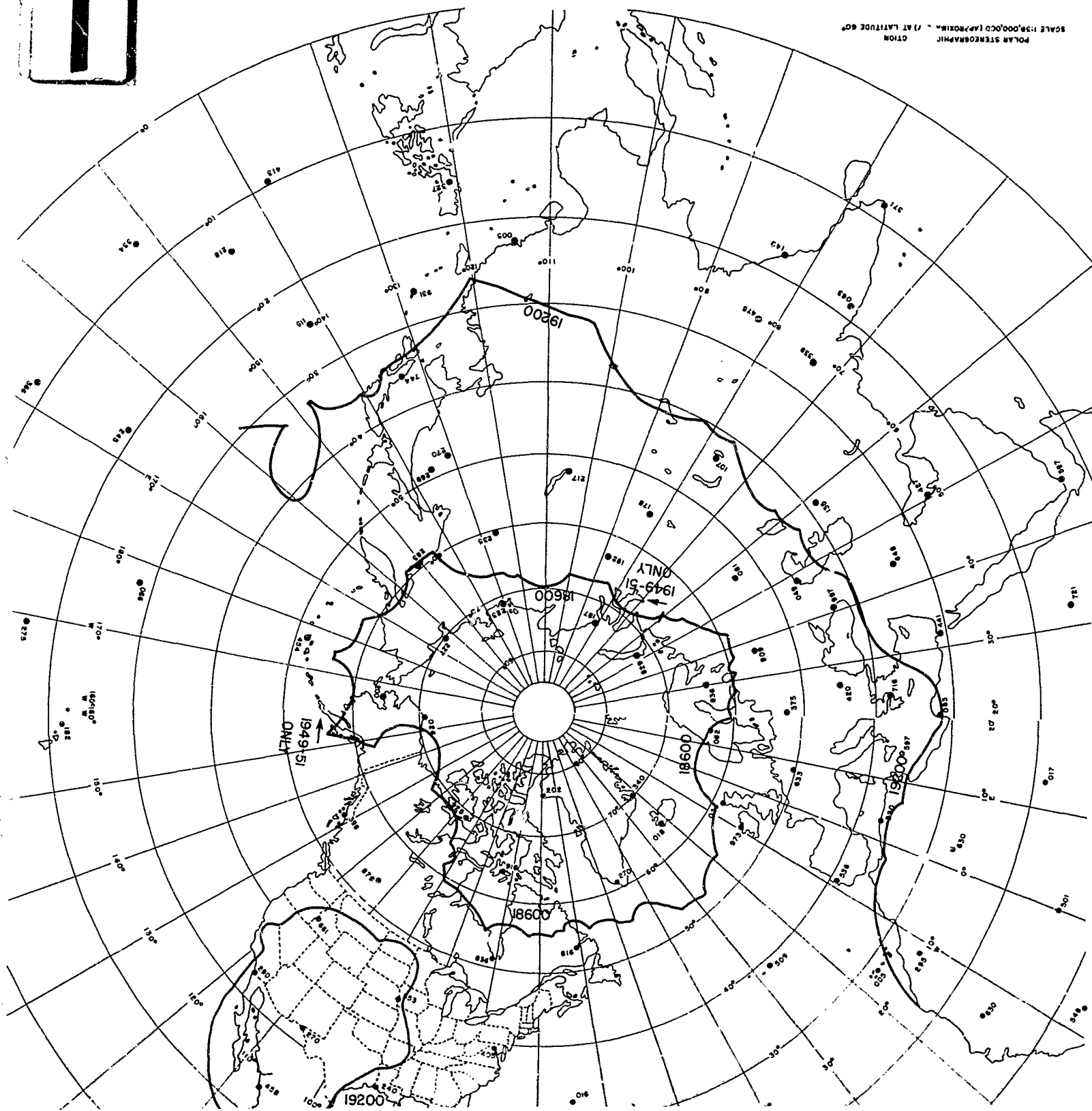


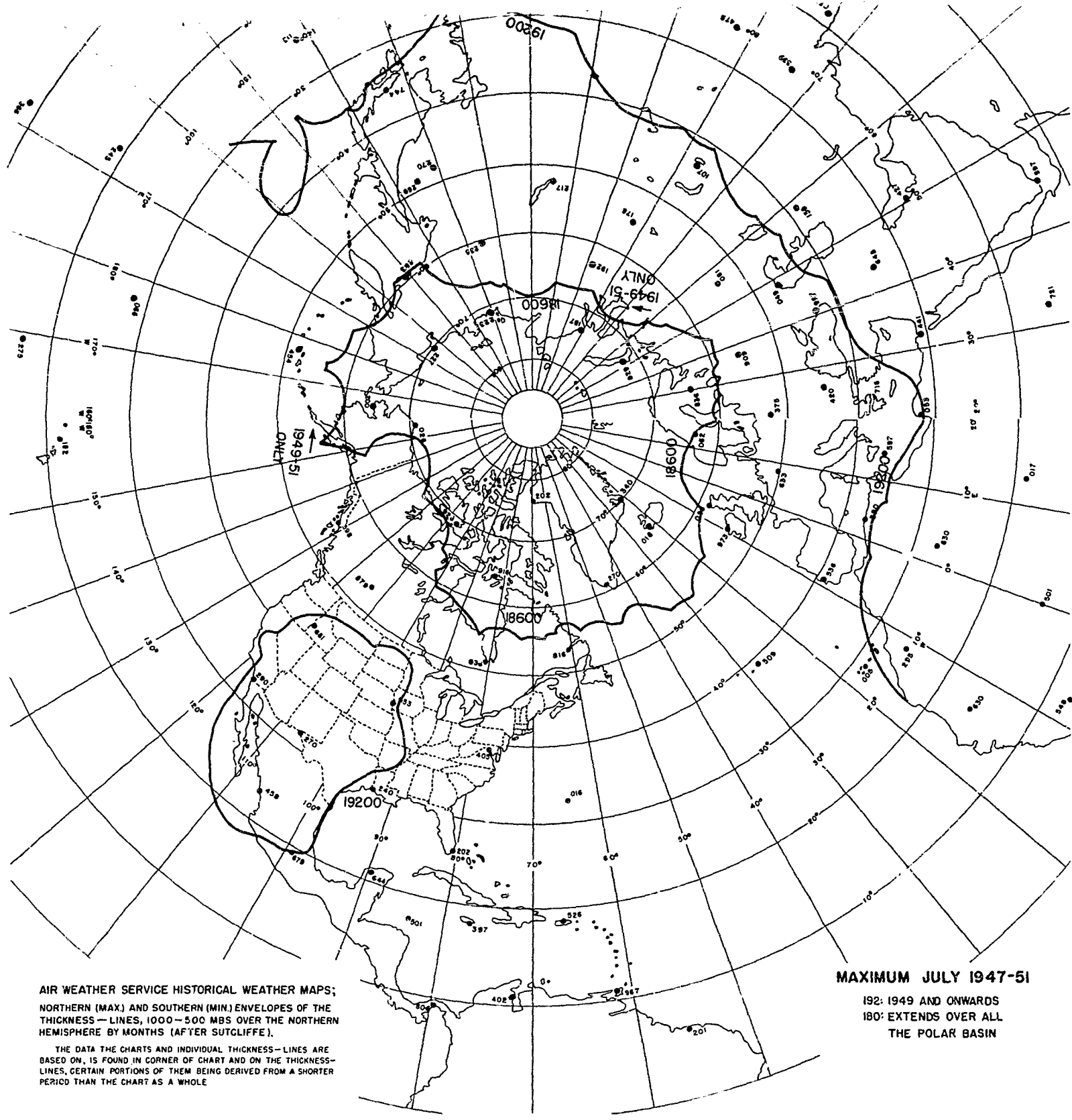
AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS-LINES, 1000-500 MB OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).
 THE DATA THE CHARTS AND INDIVIDUAL THICKNESS-LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS-
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MINIMUM JULY 1947-51



1



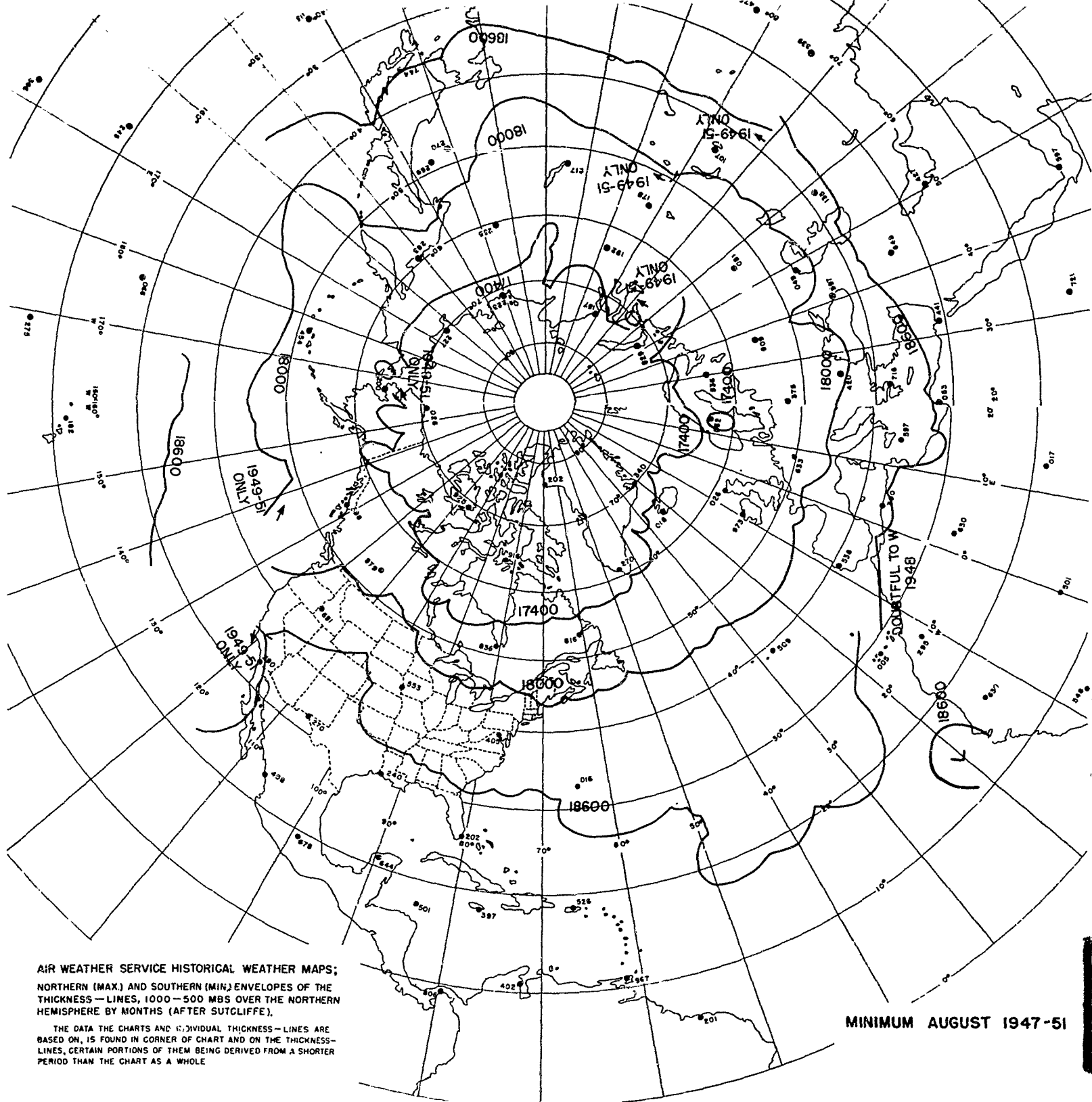


AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MAXIMUM JULY 1947-51
 192: 1949 AND ONWARDS
 180: EXTENDS OVER ALL
 THE POLAR BASIN

2



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

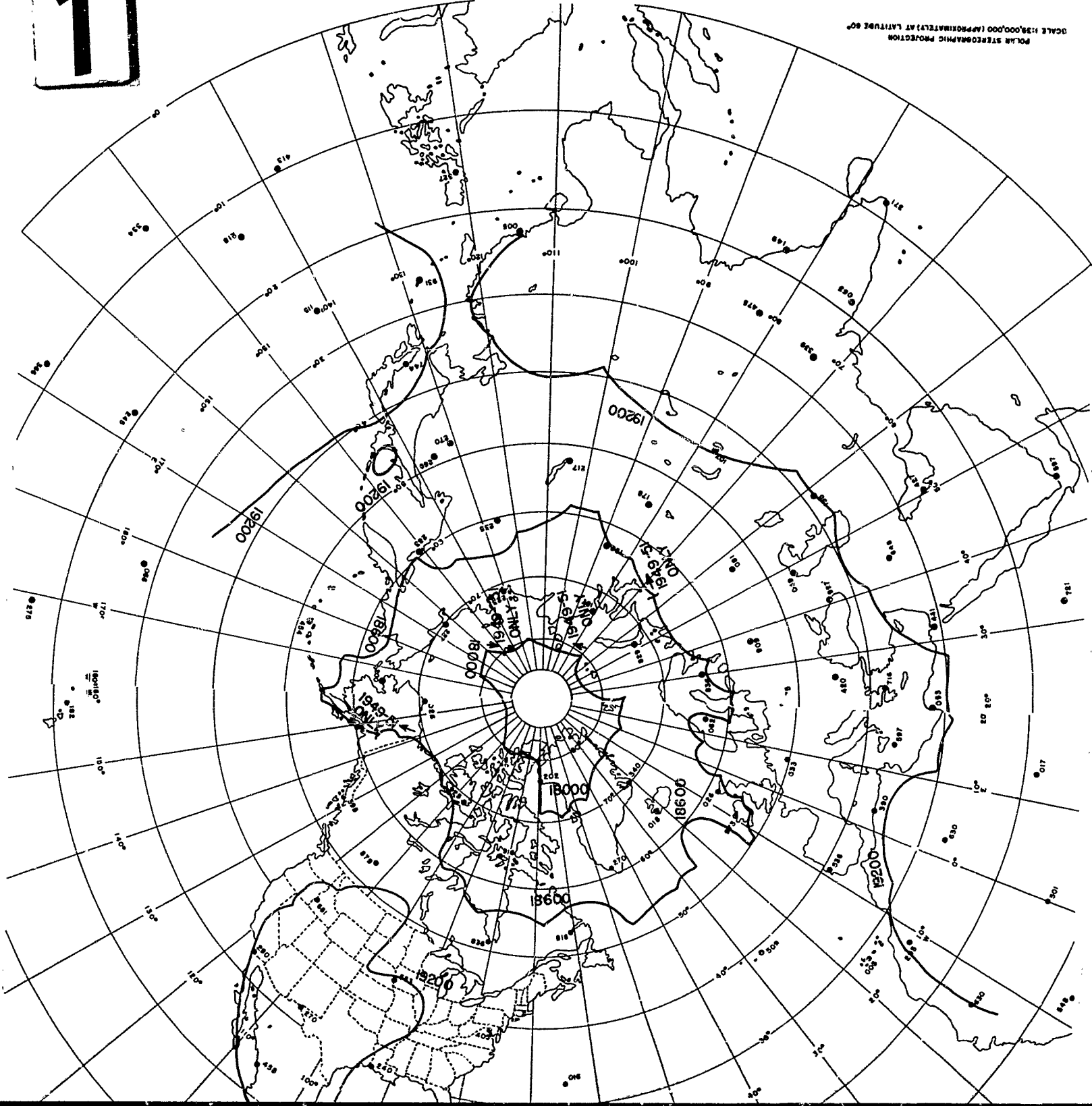
THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

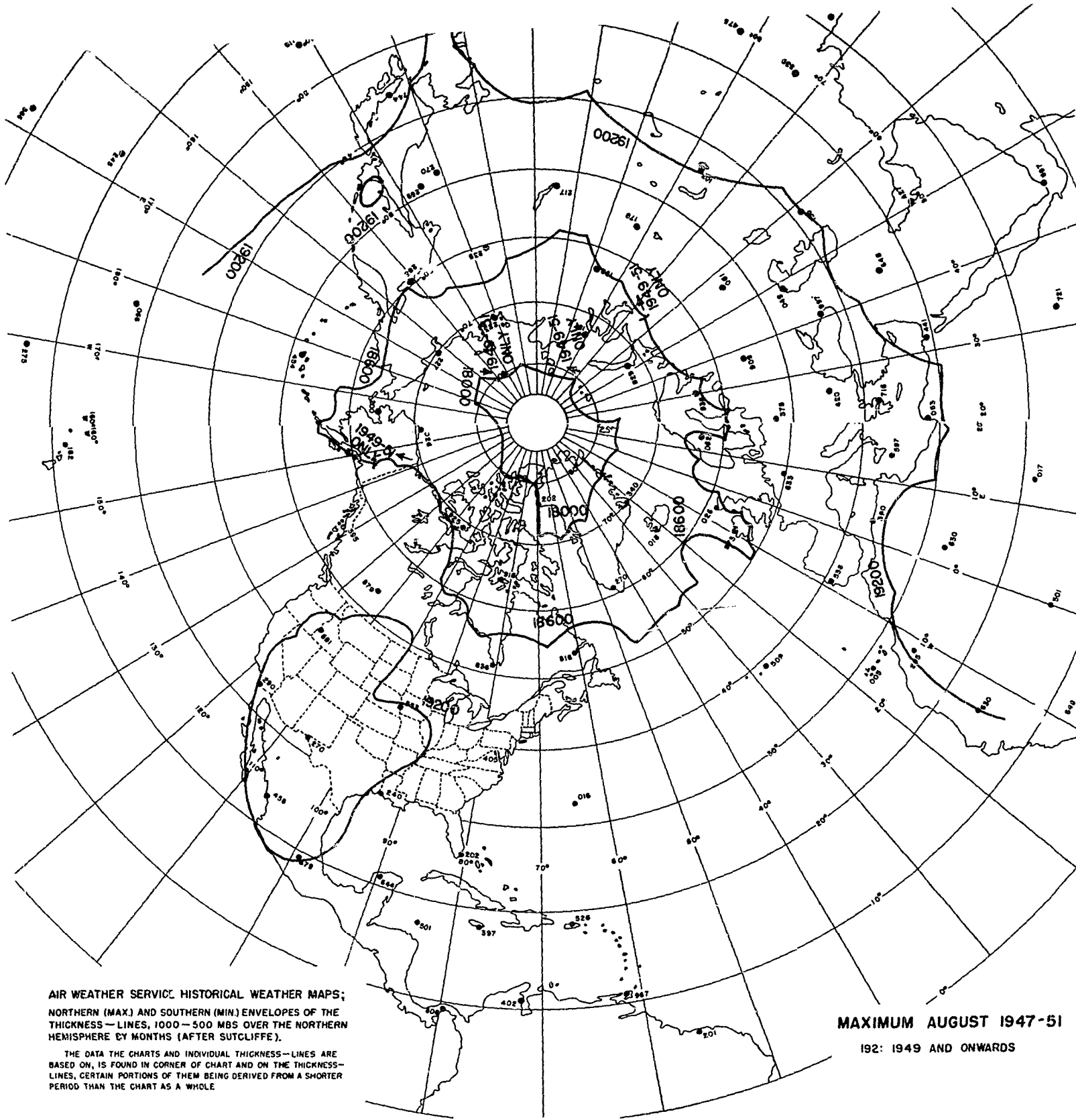
MINIMUM AUGUST 1947-51

2

1

SCALE: 1:39,000,000 (APPROXIMATELY AT LATITUDE 60°)
POLAR STEREOGRAPHIC PROJECTION



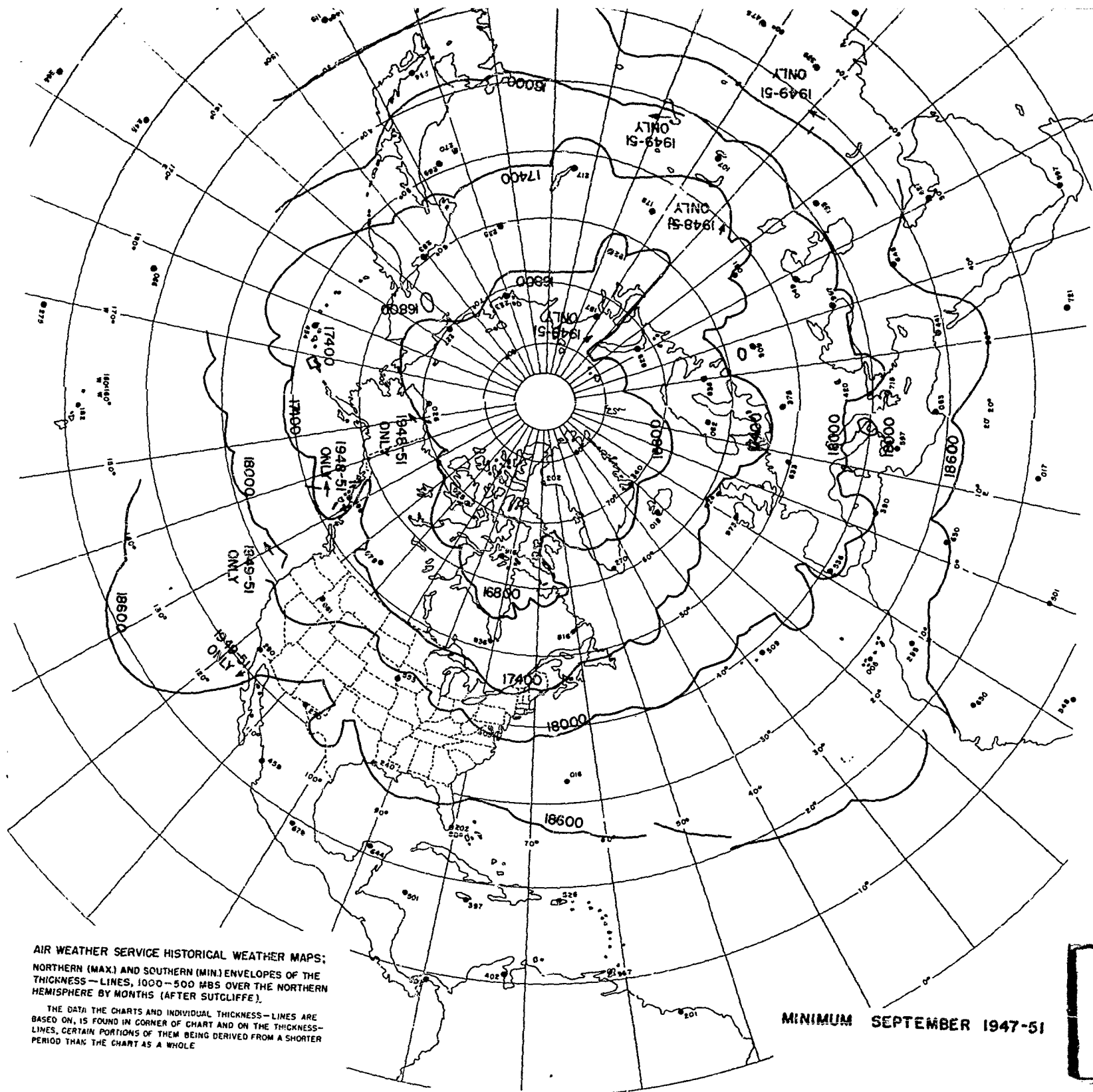


AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MAXIMUM AUGUST 1947-51
 192: 1949 AND ONWARDS





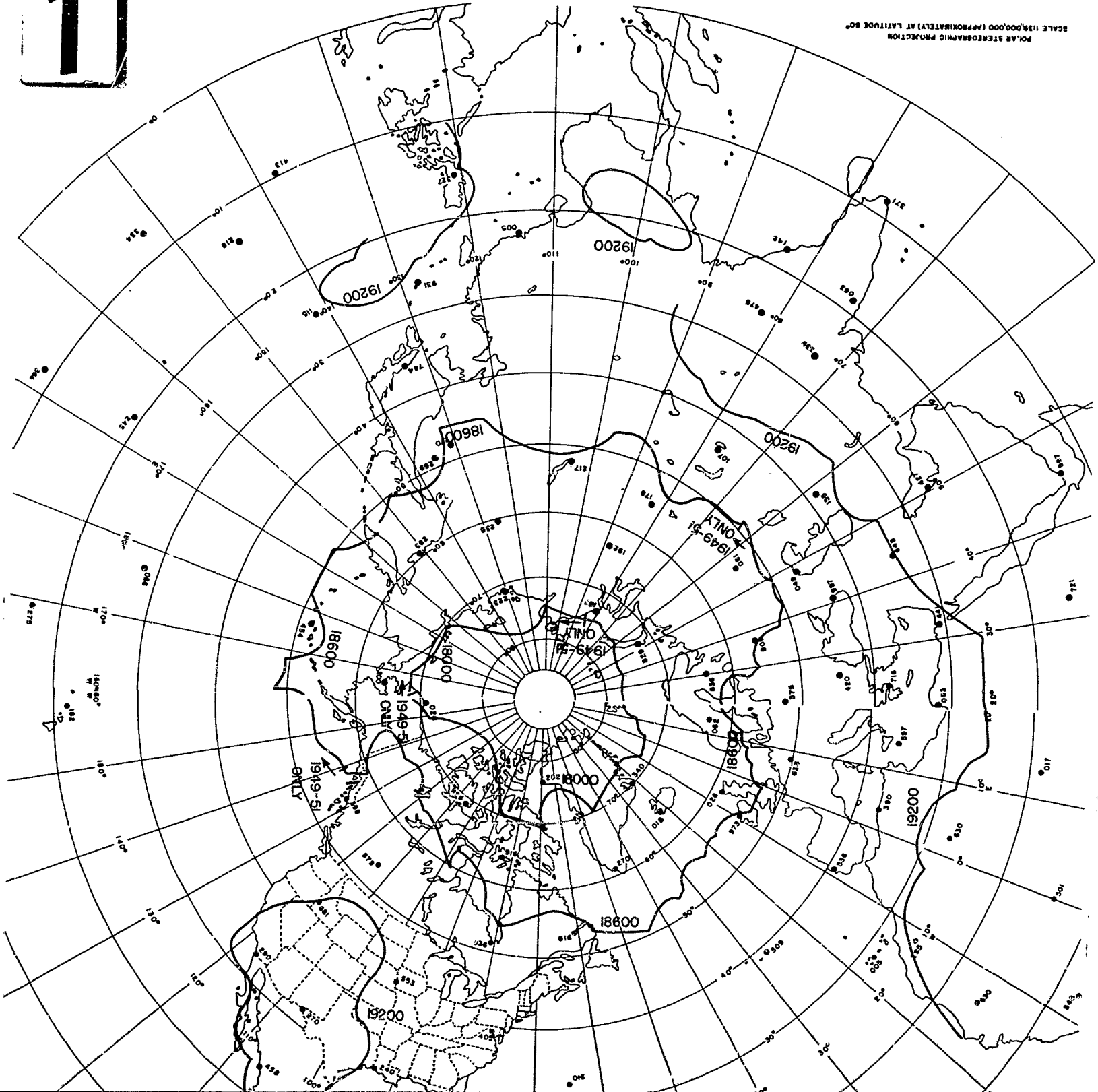
AIR WEATHER SERVICE HISTORICAL WEATHER MAPS:
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

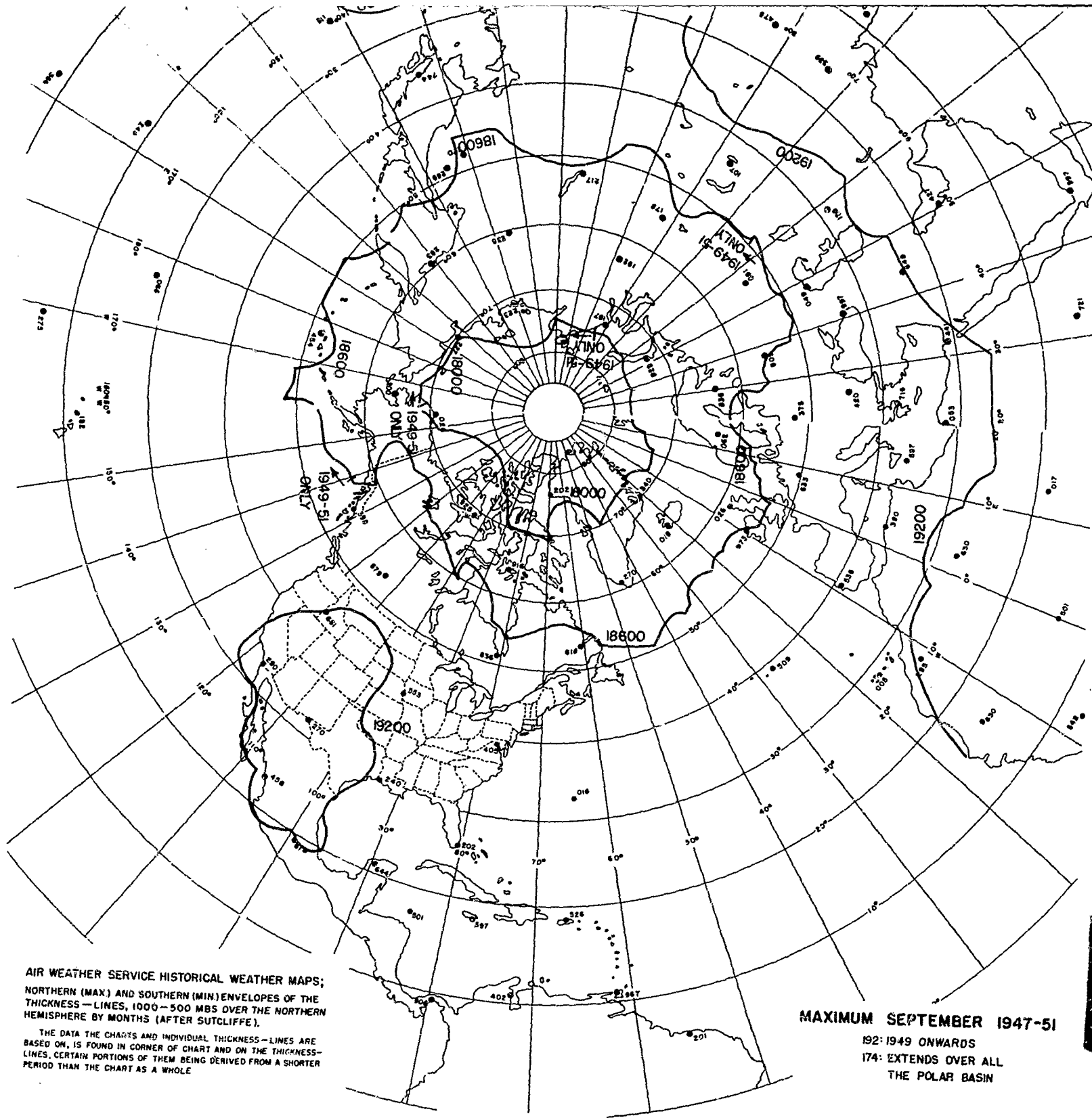
MINIMUM SEPTEMBER 1947-51



1



POLAR STEREOGRAPHIC PROJECTION
SCALE 1:125,000,000 (APPROXIMATELY) AT LATITUDE 60°



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

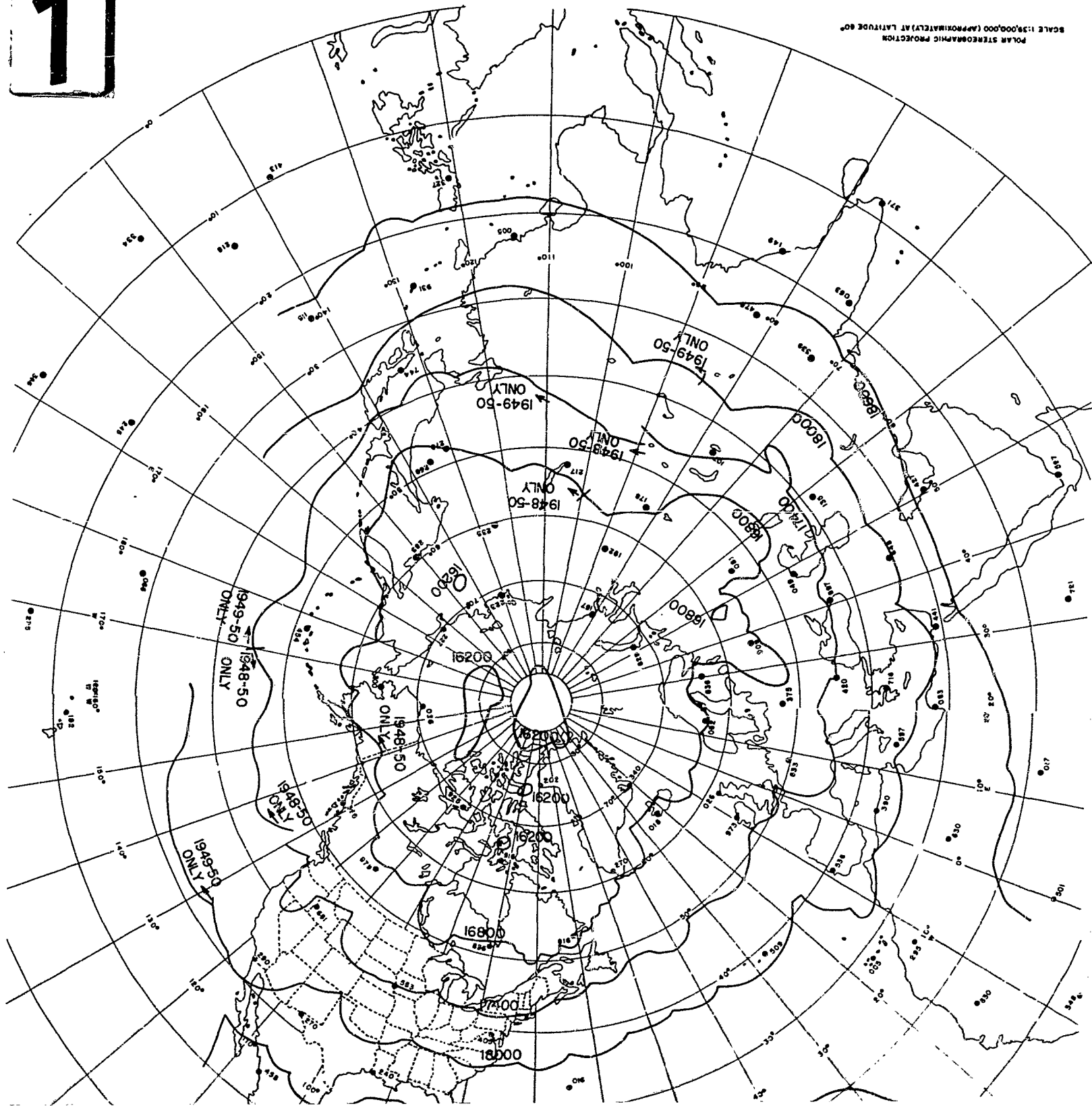
MAXIMUM SEPTEMBER 1947-51

192: 1949 ONWARDS

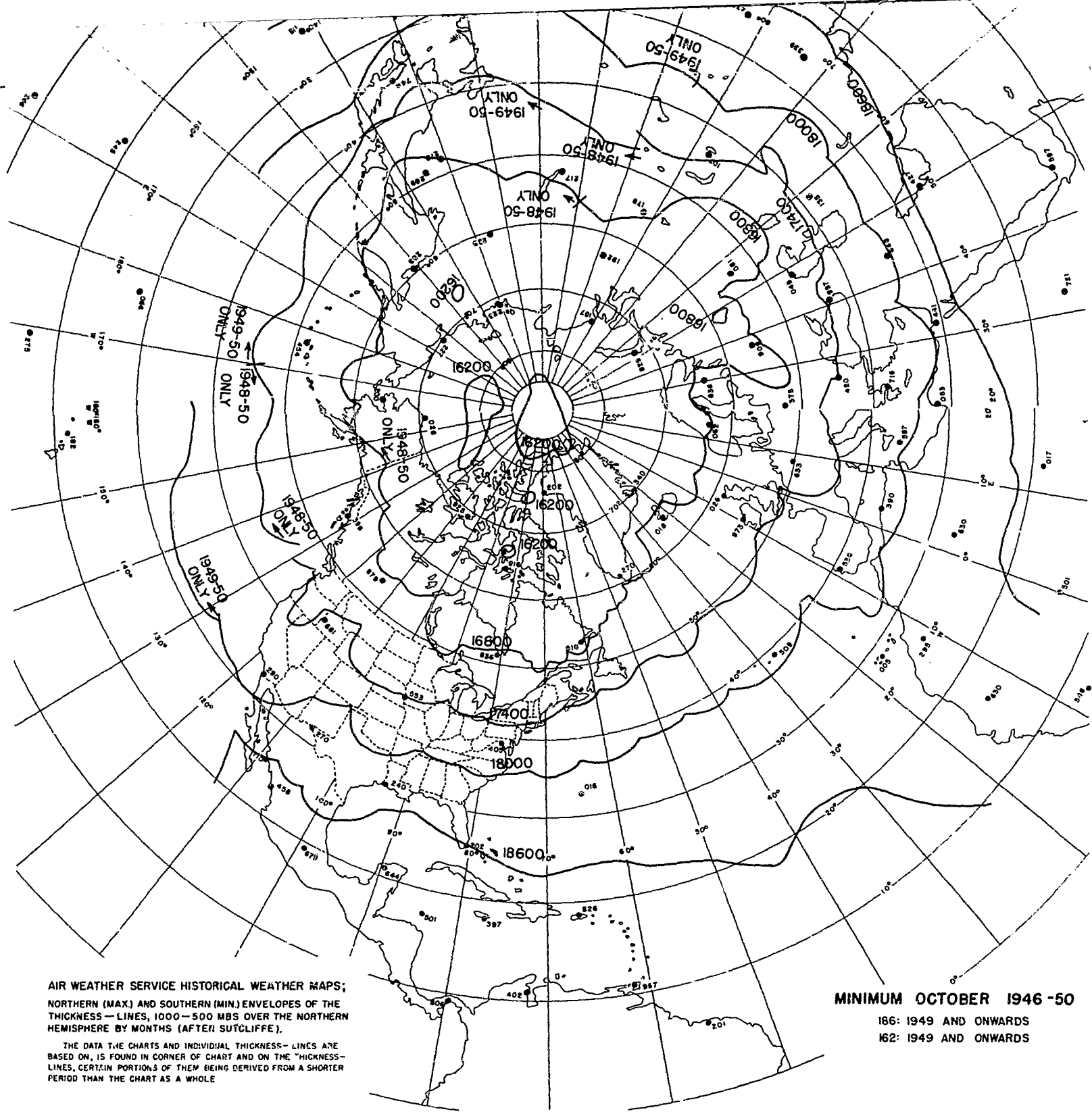
174: EXTENDS OVER ALL
 THE POLAR BASIN

2

1



POLAR STEREOGRAPHIC PROJECTION
SCALE 1:39,000,000 (APPROXIMATELY AT LATITUDE 60°)



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS — LINES, 1000 — 500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS — LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS —
 LINES. CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

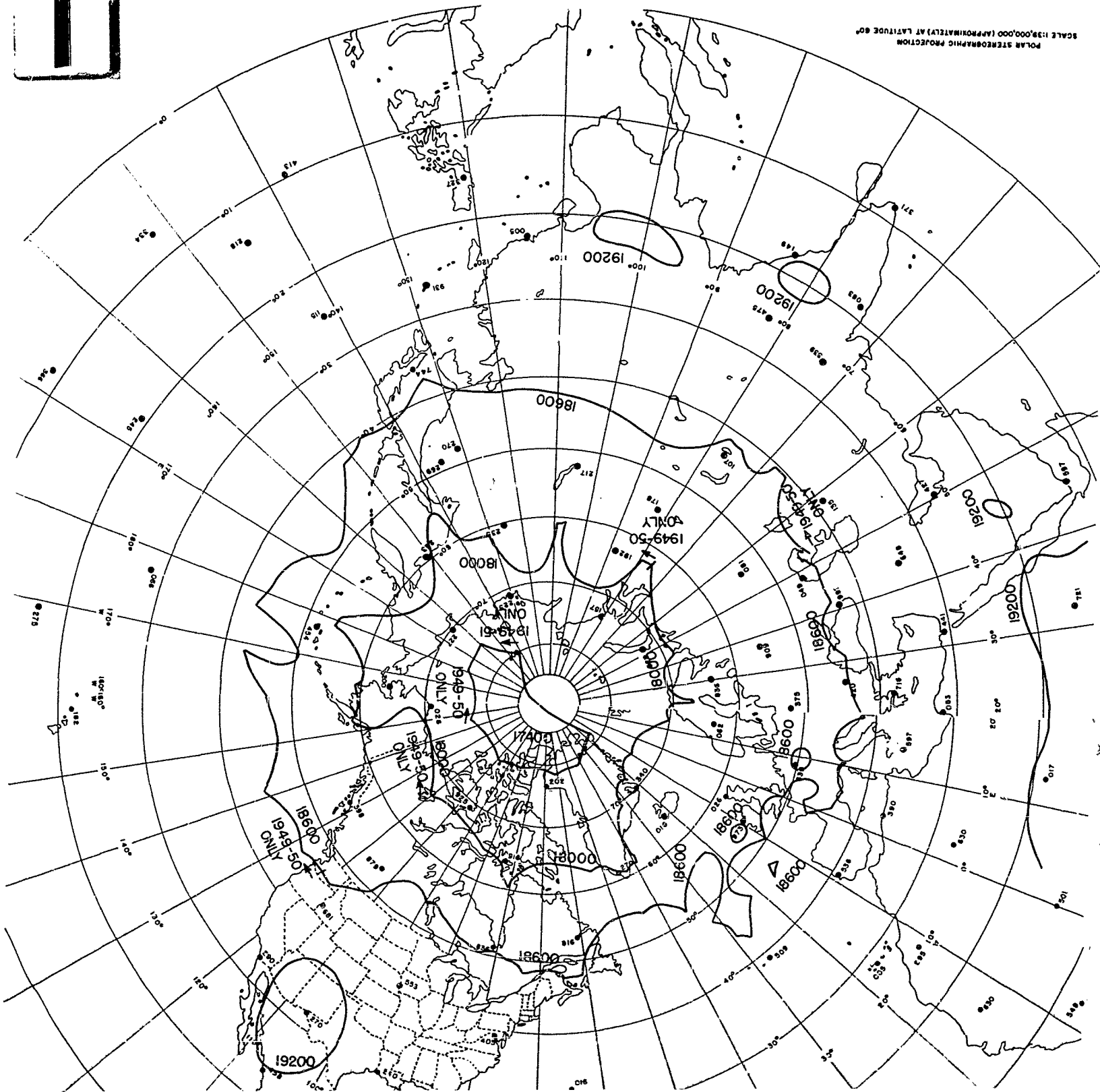
MINIMUM OCTOBER 1946 -50

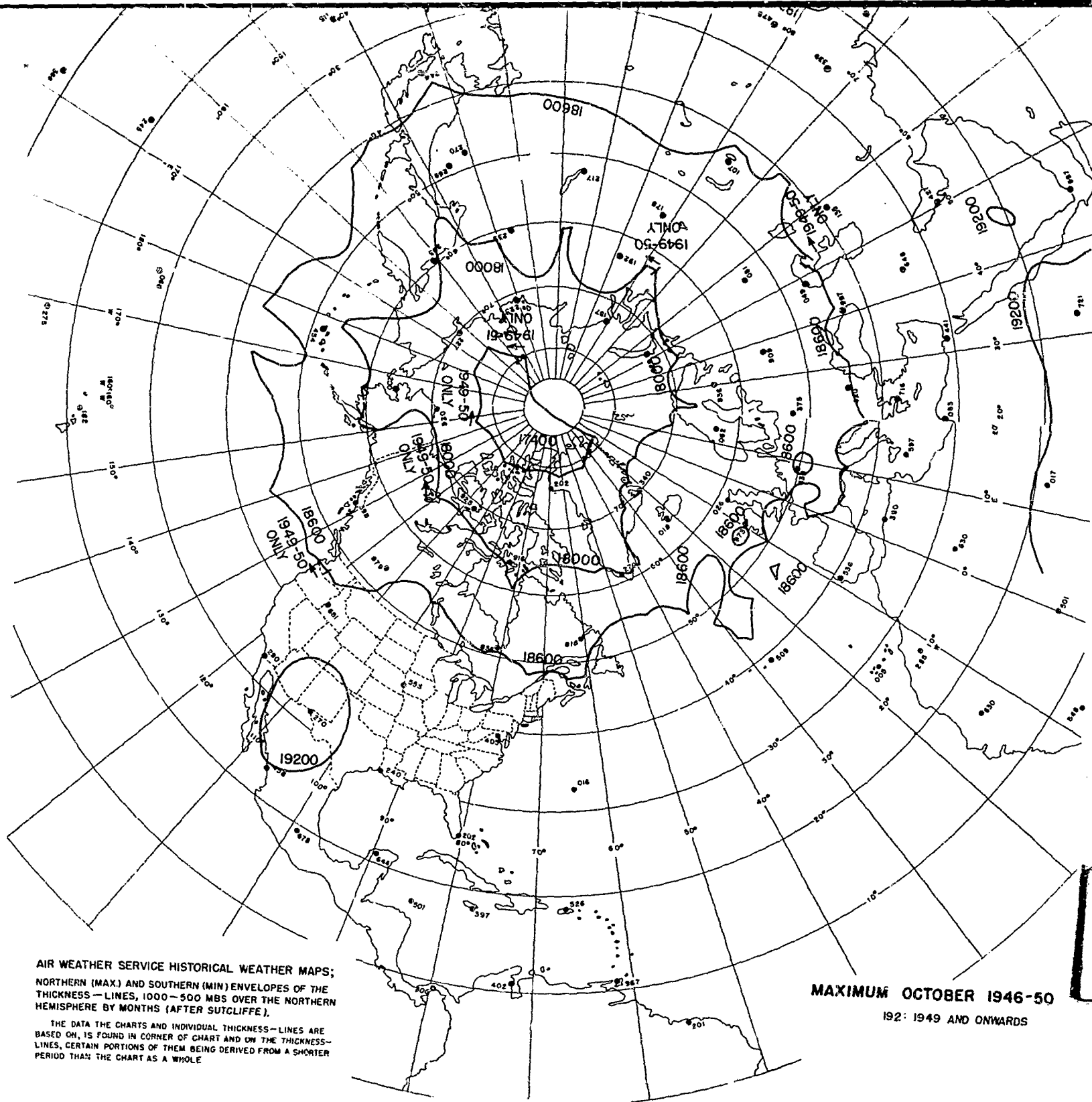
166: 1949 AND ONWARDS
 162: 1949 AND ONWARDS

2

1

POLAR STEREOGRAPHIC PROJECTION
SCALE 1:39,000,000 (APPROXIMATELY) AT LATITUDE 60°





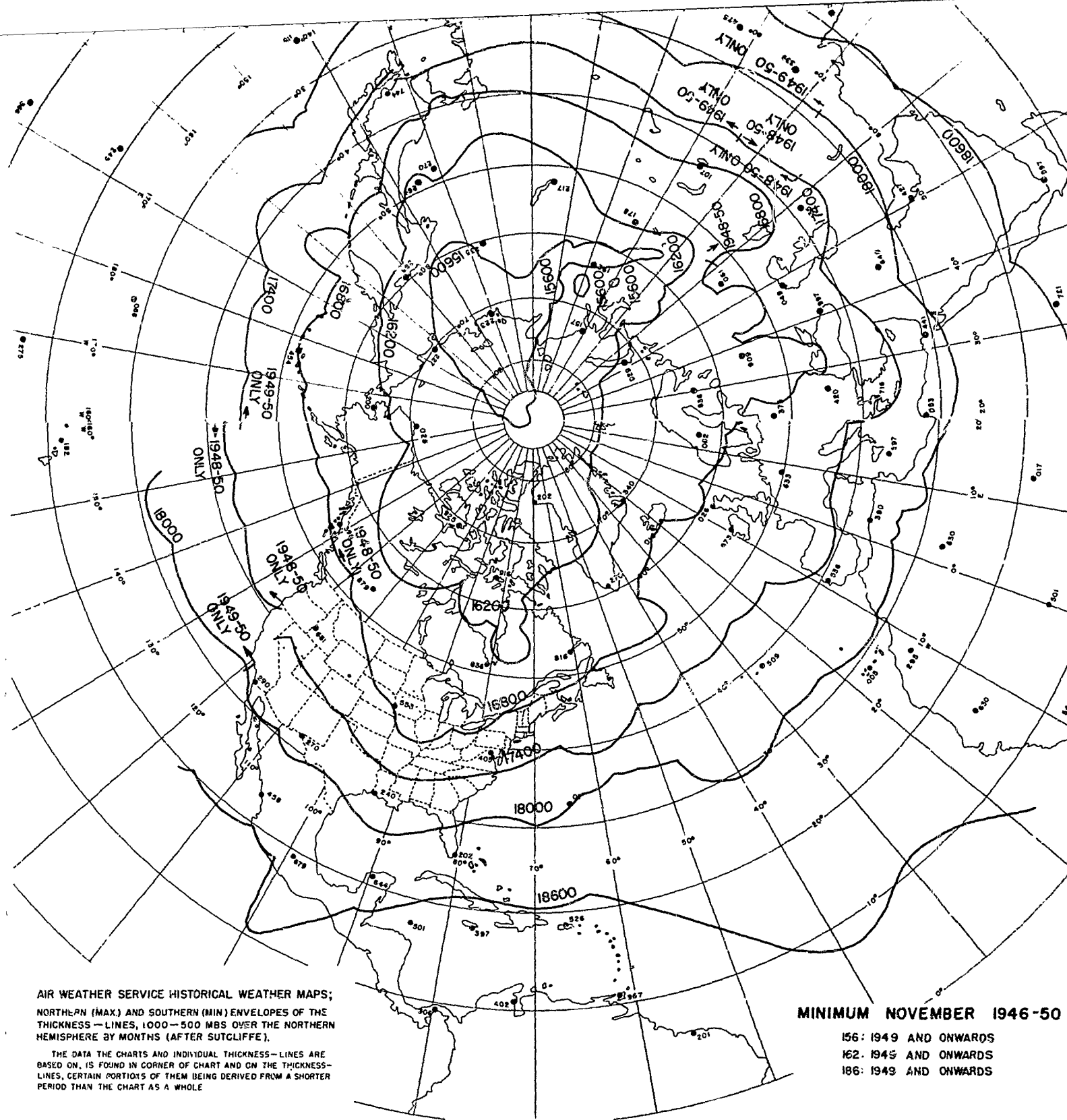
AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MAXIMUM OCTOBER 1946-50

192: 1949 AND ONWARDS

2



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS — LINES, 1000 — 500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

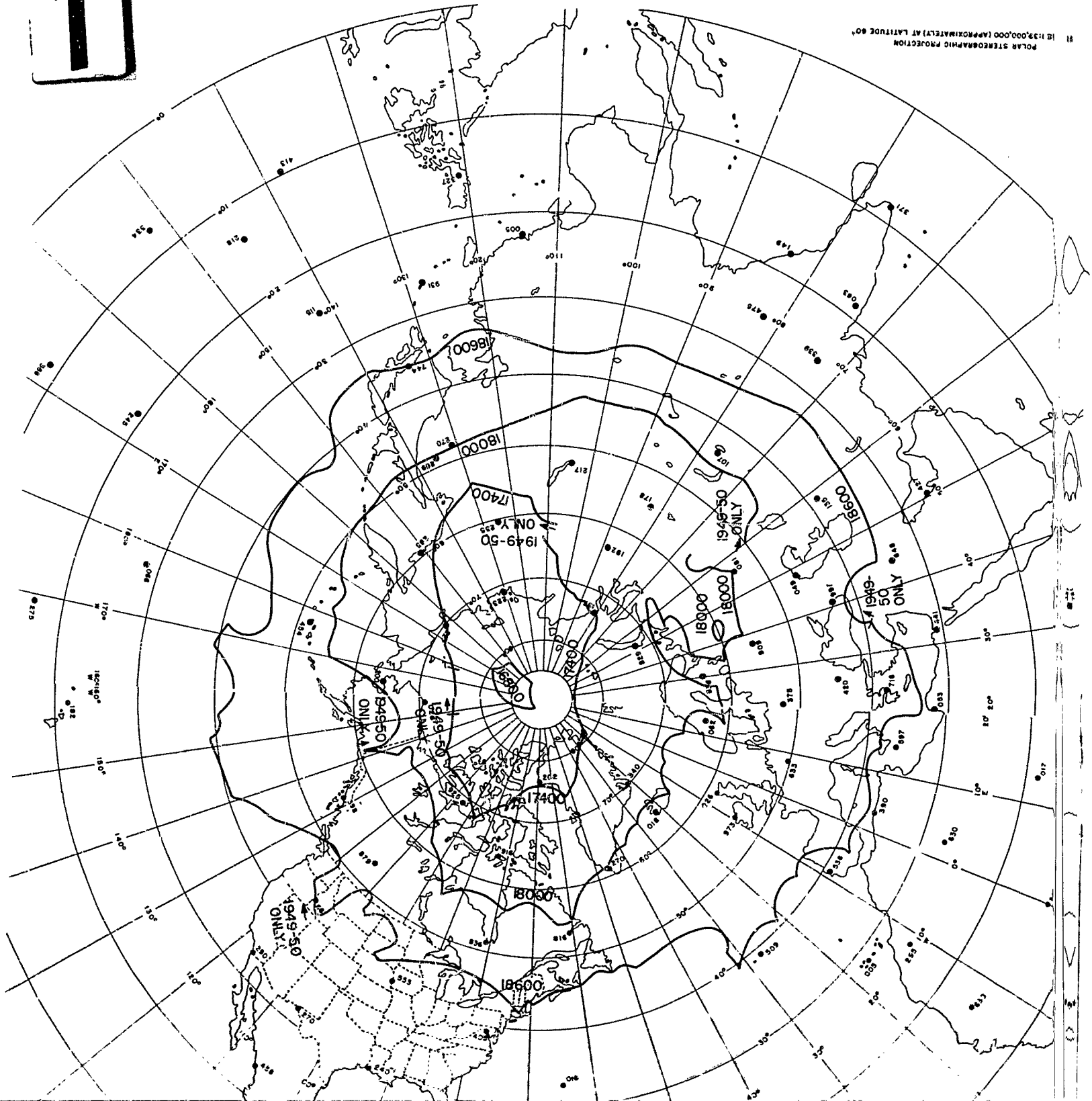
THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MINIMUM NOVEMBER 1946-50

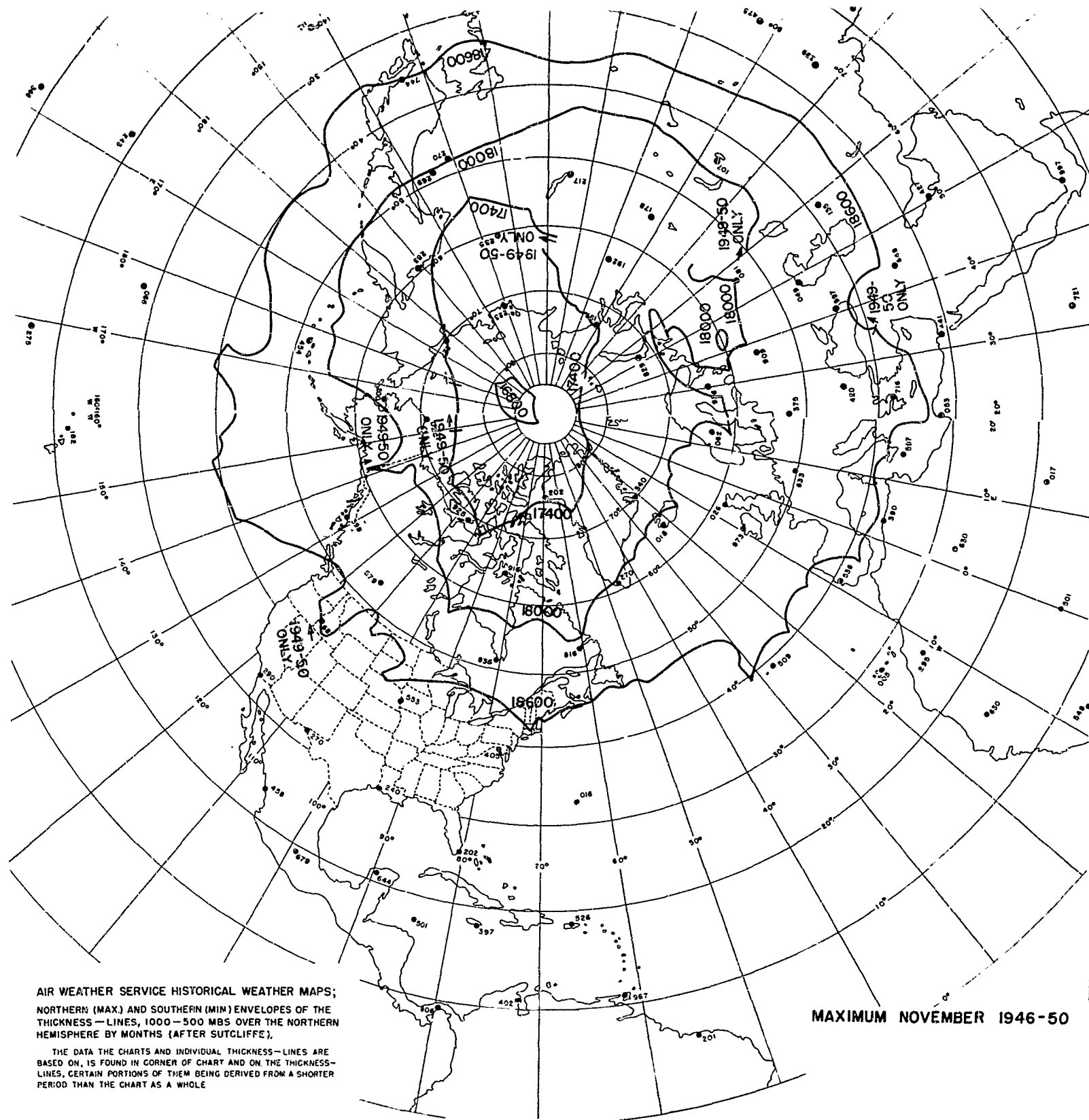
- 156: 1949 AND ONWARDS
- 162: 1948 AND ONWARDS
- 186: 1949 AND ONWARDS



1



POLAR STEREOGRAPHIC PROJECTION
1:13,000,000 (APPROXIMATELY AT LATITUDE 60°)

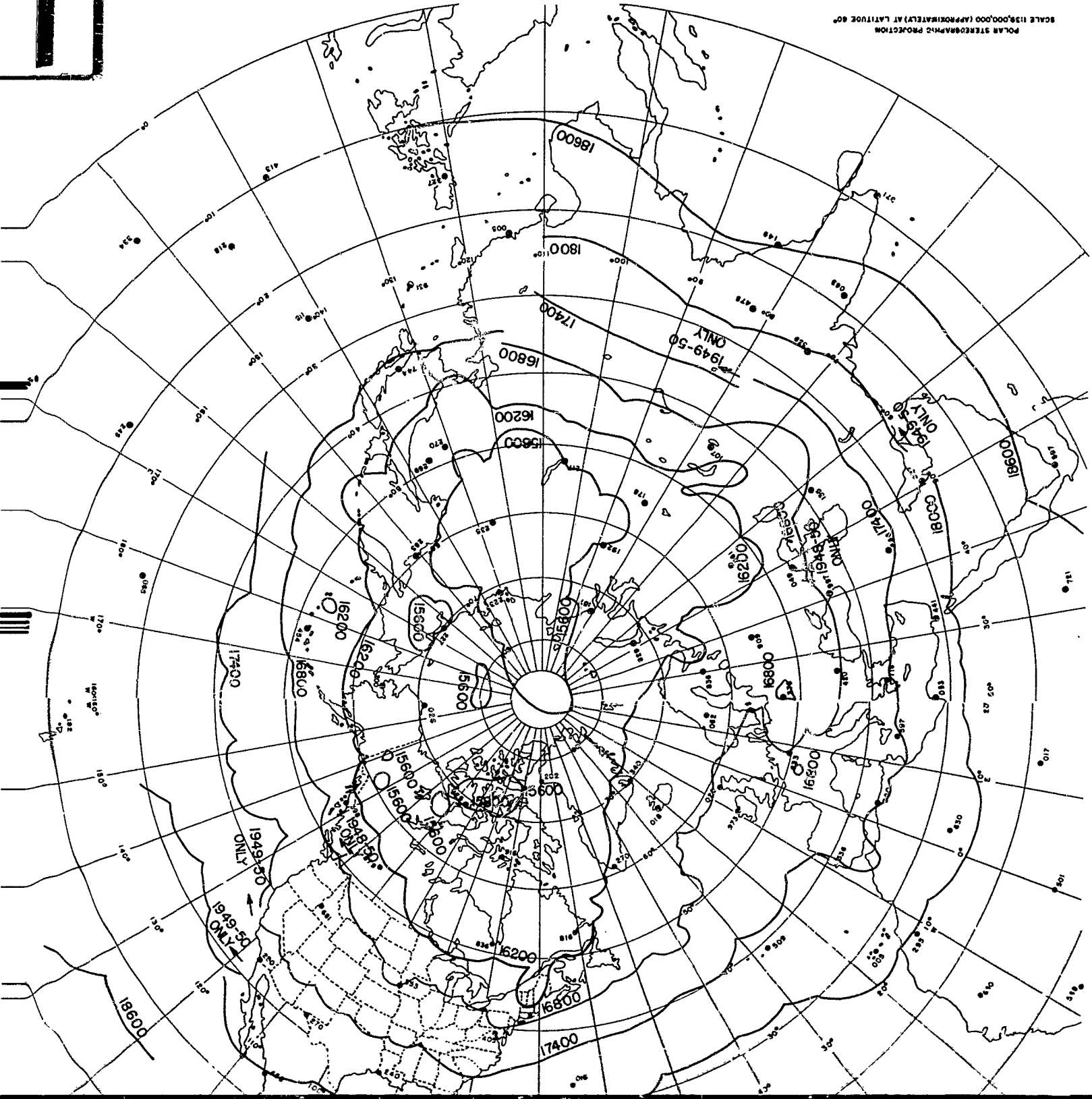


AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

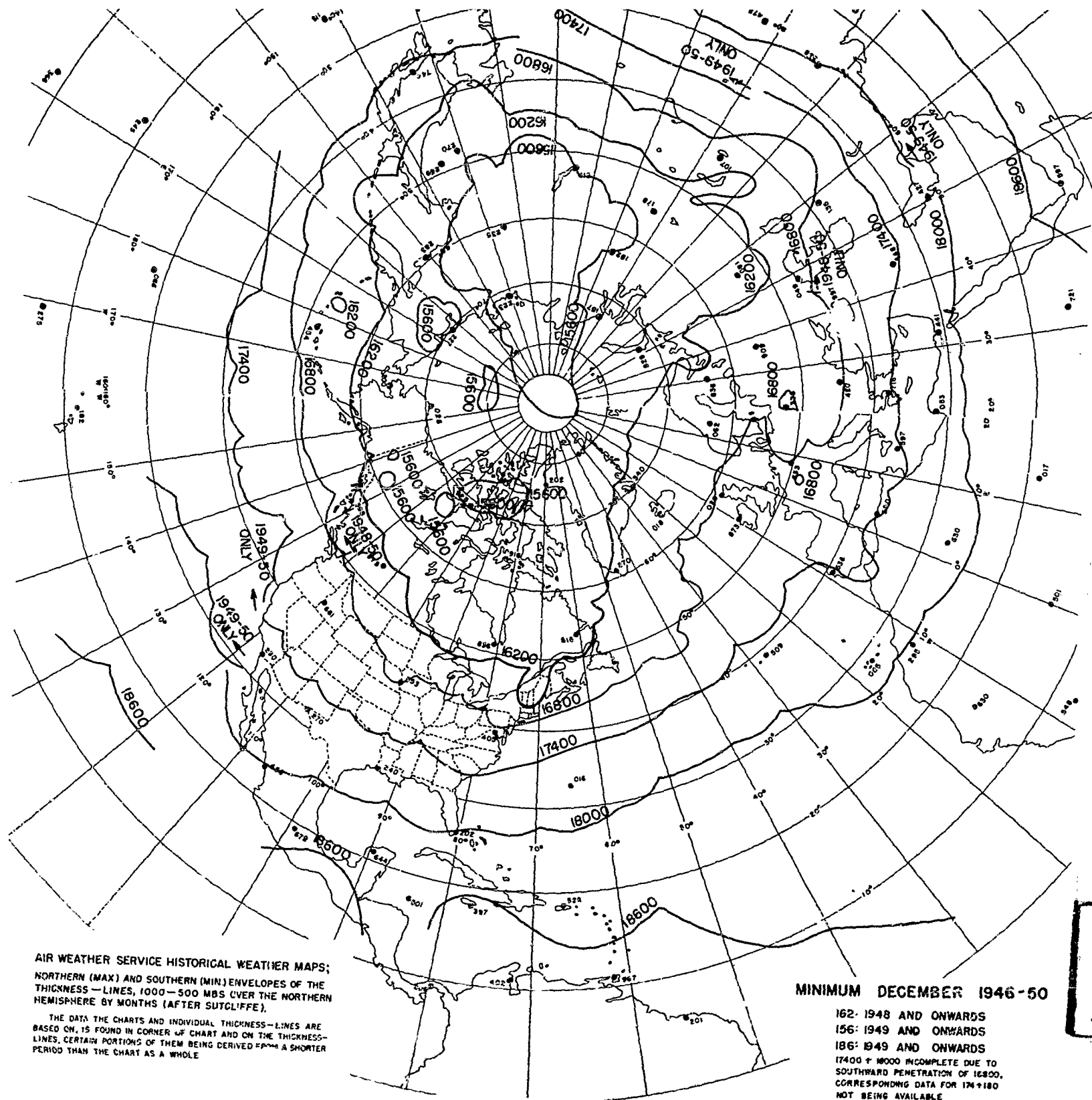
THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MAXIMUM NOVEMBER 1946-50





POLAR STEREOGRAPHIC PROJECTION
SCALE 1:128,000,000 (APPROXIMATELY) AT LATITUDE 60°



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX) AND SOUTHERN (MIN) ENVELOPES OF THE
 THICKNESS—LINES, 1000—500 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS—LINES ARE
 BASED ON, IS FOUND IN CORNER OF CHART AND ON THE THICKNESS—
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MINIMUM DECEMBER 1946-50

162: 1948 AND ONWARDS

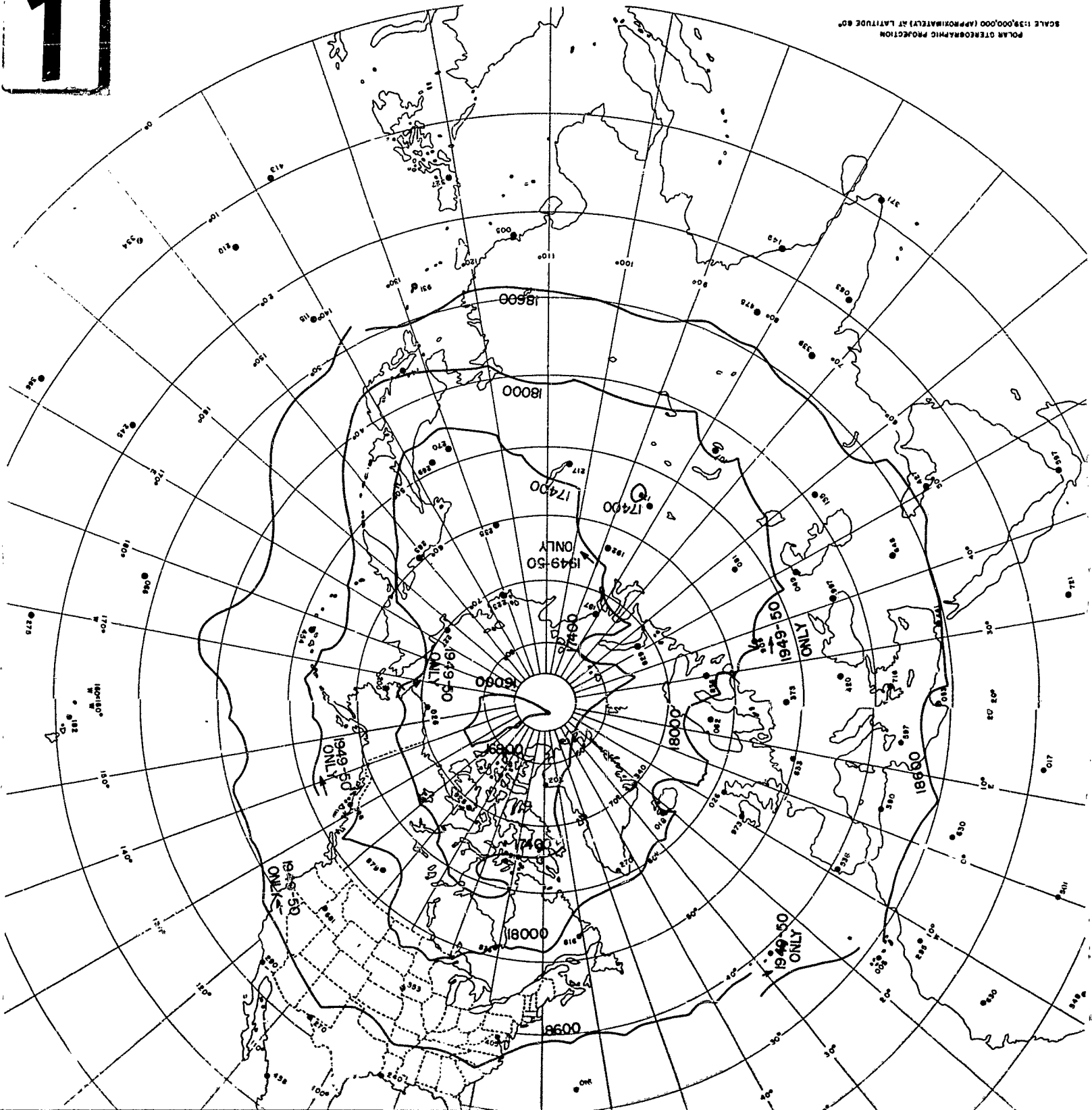
156: 1949 AND ONWARDS

186: 1949 AND ONWARDS

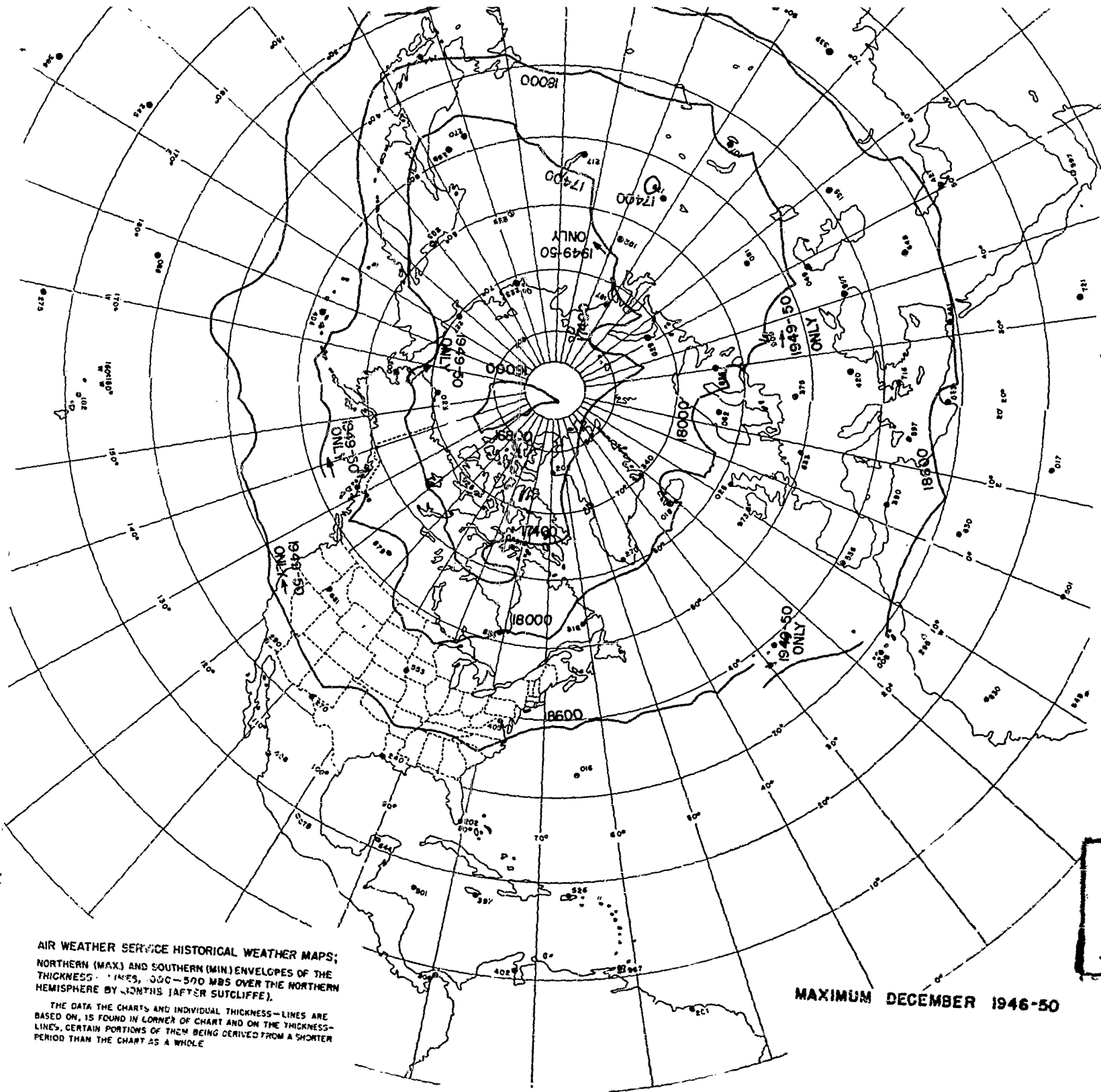
17400 + 18000 INCOMPLETE DUE TO
 SOUTHWARD PENETRATION OF 16800,
 CORRESPONDING DATA FOR 174+180
 NOT BEING AVAILABLE

2

1



POLAR STEREOGRAPHIC PROJECTION
SCALE 1:39,000,000 (APPROXIMATELY AT LATITUDE 60°)



AIR WEATHER SERVICE HISTORICAL WEATHER MAPS;
 NORTHERN (MAX.) AND SOUTHERN (MIN.) ENVELOPES OF THE
 THICKNESS LINES, 500-570 MBS OVER THE NORTHERN
 HEMISPHERE BY MONTHS (AFTER SUTCLIFFE).

THE DATA THE CHARTS AND INDIVIDUAL THICKNESS-LINES ARE
 BASED ON, IS FOUND IN LOWER OF CHART AND ON THE THICKNESS-
 LINES, CERTAIN PORTIONS OF THEM BEING DERIVED FROM A SHORTER
 PERIOD THAN THE CHART AS A WHOLE

MAXIMUM DECEMBER 1946-50

2



DEPARTMENT OF THE AIR FORCE

**AIR FORCE COMBAT CLIMATOLOGY CENTER (AFWA)
ASHEVILLE, NORTH CAROLINA 28801-5002**

4 April 2006

MEMORANDUM FOR DTIC-OQ

ATTENTION: LARRY DOWNING
8725 JOHN J. KINGMAN ROAD
FORT BELVOIR, VA 22060-6218

FROM: Air Force Weather Technical Library
151 Patton Ave, Rm 120
Asheville, NC 28801-5002

SUBJECT: CHANGE CLASSIFICATION AND DISTRIBUTION STATEMENTS

1. AD353247 – Least dispersion of the Mark 12 re-entry vehicle, Sep 1964.
2. AD819674 – Climatic data summaries for selected Asian and Pacific stations; Republic of Vietnam stations, Apr 1967.
3. AD256922 – Bibliography of documents prepared by weather staff sections of Headquarters Army Air Corps and Headquarters Army Air Forces, 1937-June 1945, Apr 1961.
4. AD259710 – Technical publications and documents of Air Weather Service field activities, Part one: 1945-61 with a chronology of AWS organizations, 1945-61, June 1961.
5. AD156453 – Charts of maximum and minimum thickness lines 1000/500 MB, Northern hemisphere, 1946-1950, Sep 1952.
6. AD244550 – Technical publications and documents of Air Corps and AAF Field weather activities, Part two: 1937-1945 with a chronology of AC and AAF Weather regional organizations, 1937-1945, Sep 1960.

All the above documents need to be changed to "Approved for Public Release, Distribution Unlimited" please.

A handwritten signature in cursive script, appearing to read "Susan A. Tarbell".

SUSAN A. TARBELL
Librarian, Classified Custodian,
DTIC Point of Contact