FCM-74-2

Federal Plans For Cooperative Backup For Severe Local Storms And Aviation Winds Forecasts

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Federal Coordinator For
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CONTENTS

FOREWORD

This set of Federal Plans describes cooperative ventures involving civil and military meteorological services. It contains two of several backup plans for meteorological centers. At present, the backup plan for Operational Processing Centers is being brought up-to-date while work on a similar plan covering the communications area is expected to begin in the near future. Our long-range goal is to combine this series of backup plans into a single comprehensive document.

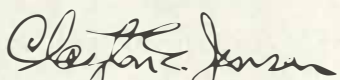
The organizations included in this Plan are components of the Department of Commerce's National Oceanic and Atmospheric Administration and the Department of Defense.

This set of Plans arranges the emergency backup for the:

(a) Preparation and issuance of severe local storm watches of the National Weather Service's Severe Storms Forecast Center at Kansas City, Mo., by the Air Force Global Weather Central at Offutt Air Force Base, Neb., and

(b) Preparation and issuance of the digital aviation wind forecasts of the National Weather Service's National Meteorological Center at Suitland, Md., by the Air Force Global Weather Central.

This document, one of a series of plans prepared by the Federal Coordinator for Meteorological Services and Supporting Research to describe present and planned services in support of specialized user groups, is issued in response to the Office of Management and Budget Circular A-62.



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I. BACKUP PLAN FOR SEVERE LOCAL STORMS FORECASTS

A. Introduction. The National Severe Storms Forecast Center (NSSFC), Kansas City, Mo., through its Severe Local Storms (SELS) unit, has the responsibility for issuing and cancelling severe local storm watches and preparing other appropriate material which is essential to the National Weather Service Severe Local Storms Warning Service. In the event that NSSFC should be incapacitated or otherwise unable to discharge its functions, it is important that there be another unit capable of stepping in, at short notice, and operating the severe local storms forecasting program until such time as NSSFC is able to resume operations.

The Air Force Global Weather Center (AFGWC) is in a unique position to provide backup for SELS. Presently AFGWC provides area and point warnings of tornadoes and severe thunderstorms for military operations within the conterminous United States and, in the process, frequently coordinates with SELS on the synoptic conditions during severe weather situations. Also, AFGWC can distribute the NSSFC products on RAREP and Warning Coordination Circuit (RAWARC) and Service A via Carswell AFB, Tex., Suitland, Md., and the Kansas City Switch (FAA's Weather Message Switching Center)

B. SELS Responsibility. In the event of a power outage or other major disruption of operations, the SELS forecaster will make telephone contact* with the designated AFGWC focal point and request backup (unless normal operations can be expected to be resumed in a short time interval during which the likelihood of severe weather is slight). The SELS forecaster will also provide AFGWC with an estimate of the duration of the outage as well as subsequent updated information when available. The number of the last valid watch also shall be provided.

C. AFGWC Responsibility. Upon notification from SELS that the Backup Plan is to be implemented, AFGWC will prepare and transmit watches, outlooks, and other advices regarding severe local storm activity as prescribed in Weather Service Operations Manual (WSOM) Chapter C-40. In addition, AFGWC will, as soon as practical, prepare and transmit the NSSFC graphic National Facsimile Network (NAFAX) products (radar summary charts and severe weather outlook graphic).

1. Announcement of Backup. The AFGWC will initiate a suitably worded message for RAWARC and Service A indicating that emergency backup procedures are in effect and that subsequent severe weather watches, etc., will be issued by AFGWC as required.

2. Teletype Products. While the backup is in effect, AFGWC will issue the following SELS products for transmission on RAWARC and Service A as required and described by WSOM C-40.

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*The telephone numbers of all key individuals and installations involved will be distributed separately.

a. Advance Information on Watch Area (C-40, Sec. 5.2.2) RAWARC only.

b. Severe Weather Watches (5.7)

c. Status Reports and All Clears (5.5)

d. Severe Weather Outlook Narrative (5.6.1) - transmitted daily near 0000Z, 0900Z and 1500Z

Aviation severe weather watches associated with tropical cyclones (5.3.1b) will not be issued by AFGWC. However, AFGWC should coordinate with the National Hurricane Center, Coral Gables, Fla., when tropical cyclones are affecting the conterminous U.S.

Part A of all AFGWC backup watches will begin as follows: "A...THE USAF AIR WEATHER SERVICE ACTING IN A BACKUP CAPACITY FOR THE NATIONAL WEATHER SERVICE HAS ISSUED A. ..., ETC."

3. Facsimile Products. AFGWC will prepare and transmit on NAFAX the Severe Weather Outlook Graphic at 1105Z as specified in Section 5.6.2 of WSOM C-40. In addition, radar summary charts will be prepared as required by the National Facsimile Schedule (see Section 7, C-40). Descriptions of these two products may be found in Forecasters Handbook No. 1, Charts SP-9 and SA-5 respectively. These charts should be suitably annotated to indicate they are backup.

4. Coordination. Prior to issuance or cancellation of a Watch, AFGWC will coordinate by telephone with the affected Regional Warning Coordination Centers (RWCC), if time permits. (Locations of these offices, their phone numbers, and areas of responsibility are shown in Attachment 1.) Weather Service Forecast Offices (WSFO) are instructed not to contact AFGWC directly, but to go through their respective RWCC.

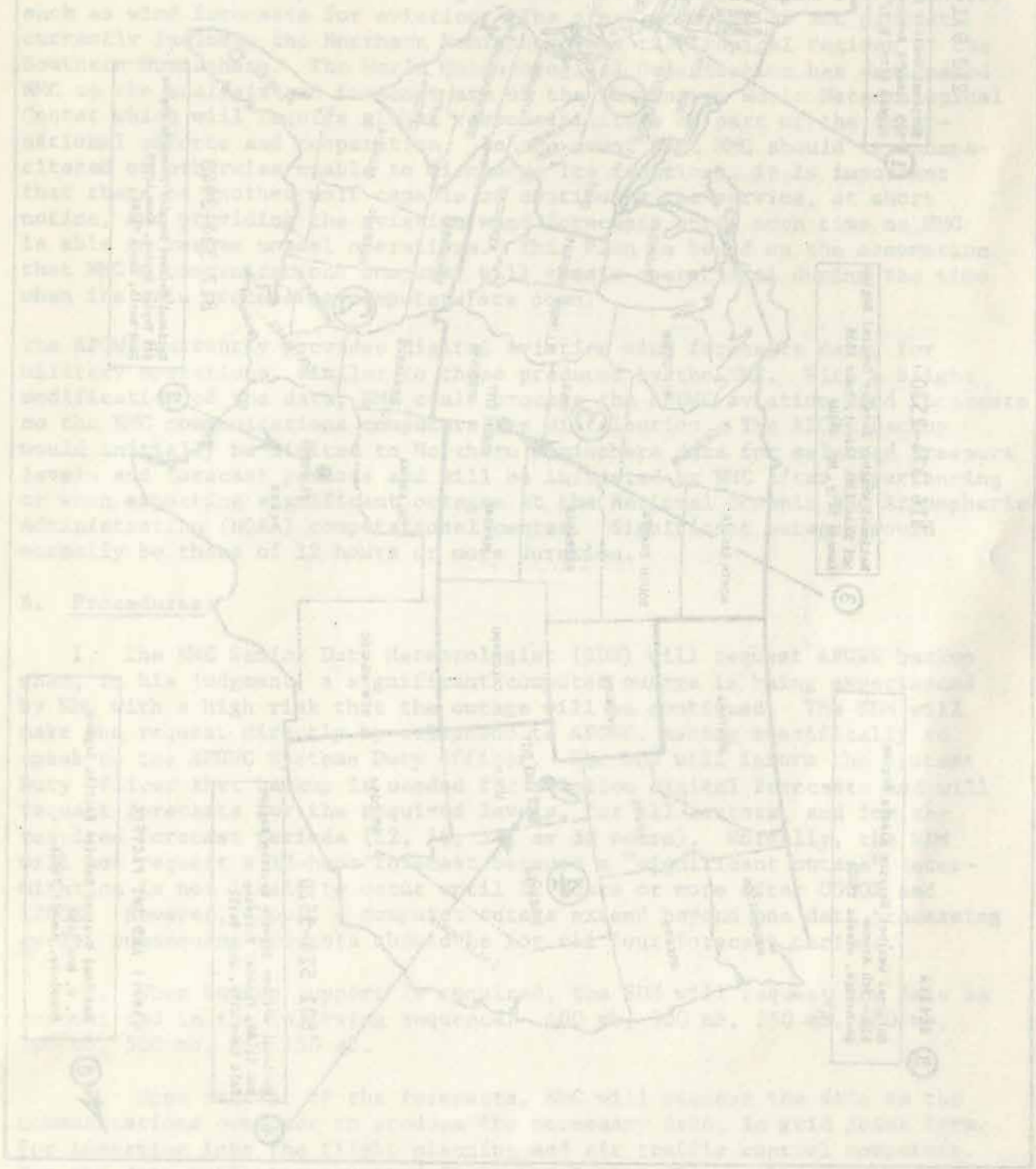
D. Communications. In case of an inoperative NSSFC communications unit:

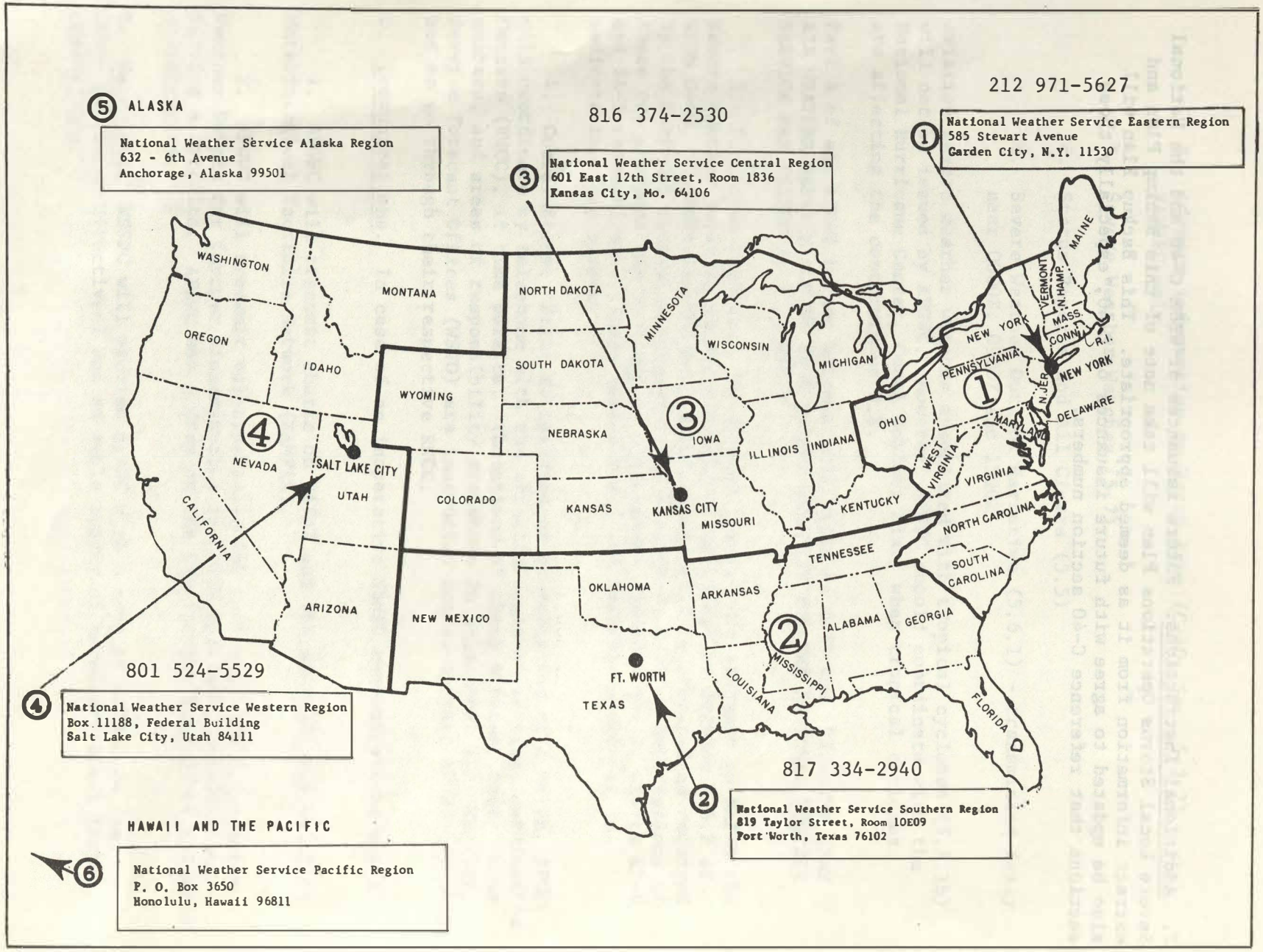
1. AFGWC will transmit charts on NAFAX and the National and Aviation Meteorological Facsimile Network (NAMFAX).

2. AFGWC will transmit teletype bulletins to the Carswell Automated Weather Switch for further dissemination (by AFCS and FAA) on RAWARC and Service A circuits. AFGWC has a drop on the FTS for the purpose of reliable coordination.

E. Materials. NSSFC will provide AFGWC with a copy of WSOM C-40 (and other pertinent directives) and an ample supply of necessary blank forms, charts, etc.

F. Additional Instructions. Future issuances of WSOM C-40 and the National Severe Local Storms Operations Plan will take note of this Backup Plan and extract information from it as deemed appropriate. This Backup Plan will also be updated to agree with future issuances of C-40, especially those sections that reference C-40 section numbers.





Attachment 1

II. BACKUP PLAN FOR AVIATION WIND FORECASTS

A. Introduction. The National Meteorological Center (NMC), Suitland, Md., has the responsibility for issuing a number of meteorological end products, such as wind forecasts for aviation. The areal coverage of NMC products currently includes the Northern Hemisphere and the tropical regions of the Southern Hemisphere. The World Meteorological Organization has designated NMC as the analysis and forecast arm of the Washington World Meteorological Center which will require global responsibilities as part of the international efforts and cooperation. In the event that NMC should be incapacitated or otherwise unable to discharge its functions, it is important that there be another unit capable of continuing the service, at short notice, and providing the aviation wind forecasts until such time as NMC is able to resume normal operations. This Plan is based on the assumption that NMC's communications computer will remain operational during the time when its main processing computers are down.

The AFGWC currently provides digital aviation wind forecasts data, for military operations, similar to those produced by the NMC. With a slight modification of the data, NMC could process the AFGWC aviation wind forecasts on the NMC communications computers for distribution. The AFGWC backup would initially be limited to Northern Hemisphere data for selected pressure levels and forecast periods and will be initiated by NMC after experiencing or when expecting significant outages at the National Oceanic and Atmospheric Administration (NOAA) computational center. Significant outages would normally be those of 12 hours or more duration.

B. Procedures:

1. The NMC Senior Duty Meteorologist (SDM) will request AFGWC backup when, in his judgment, a significant computer outage is being experienced by NMC with a high risk that the outage will be continued. The SDM will make the request directly by telephone to AFGWC, asking specifically to speak to the AFGWC Systems Duty Officer. The SDM will inform the Systems Duty Officer that backup is needed for aviation digital forecasts and will request forecasts for the required levels, for all sectors, and for the required forecast periods (12, 18, 24, or 30 hours). Normally, the SDM will not request a 12-hour forecast because a "significant outage" determination is not likely to occur until 12 hours or more after 0000Z and 1200Z. However, should a computer outage extend beyond one data processing cycle, subsequent requests should be for all four forecast periods.

2. When backup support is required, the SDM will request the data be transmitted in the following sequence: 400 mb, 300 mb, 250 mb, 850 mb, 700 mb, 500 mb, and 150 mb.

3. Upon receipt of the forecasts, NMC will process the data on the communications computer to produce the necessary data, in grid point form, for insertion into the flight planning and air traffic control computers. For the data bulletins required for subsonic jet flight planning and air

traffic control, NMC will add the tropopause height information derived from the preceding NMC computer run. (Note: The tropopause height is not included in the AFGWC model.)

C. Digital Aviation Wind Forecasts Format and Content

Data time.

Data base time.

Forecast period.

U & V wind components (U/2 & V/2 kts.).

Temperatures (Degrees C, see sign convention Attachment 2).

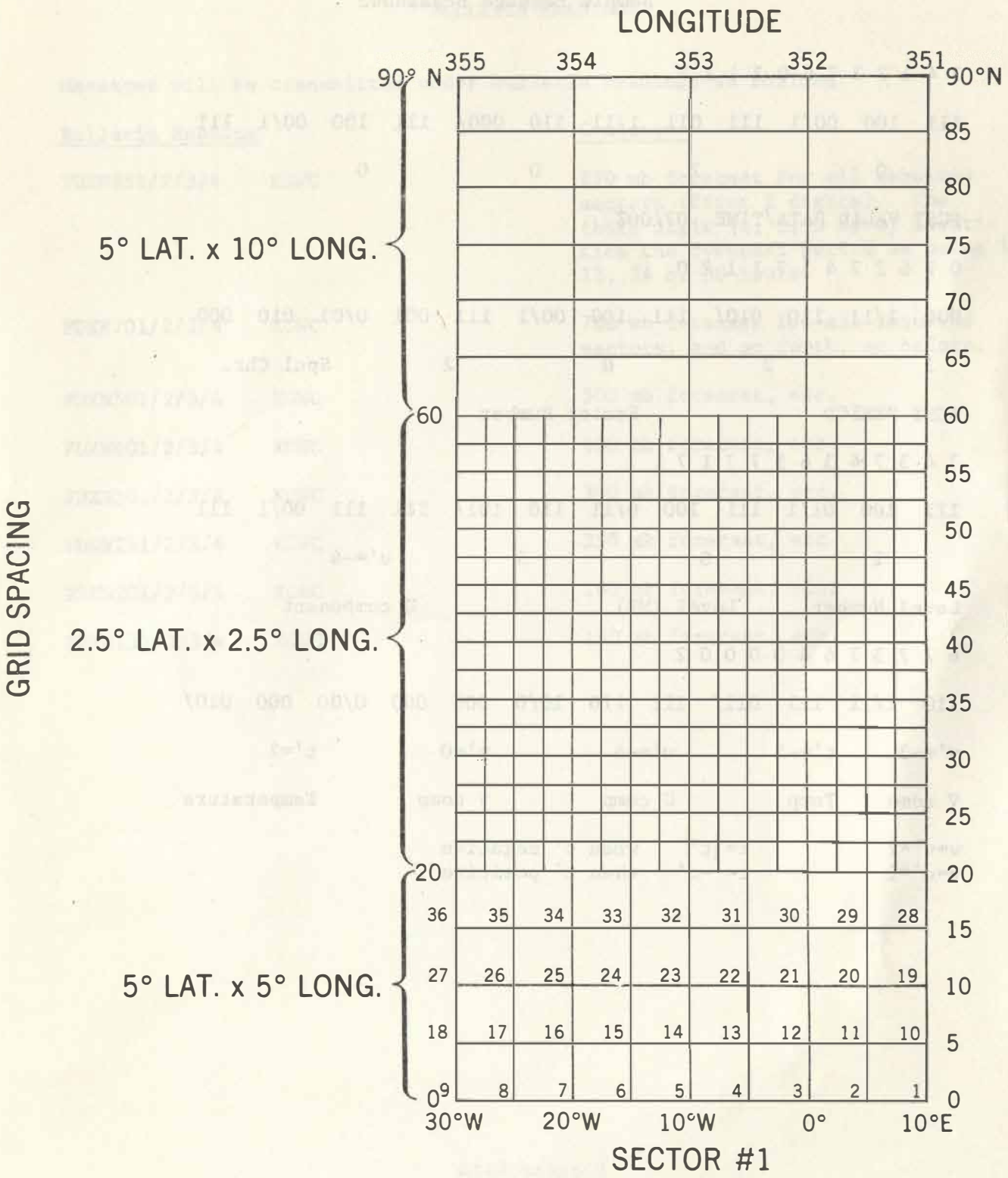
Grid: As described by Attachment 1.

Message Format: As described by Attachment 2.

Bulletin Headings: As described by Attachment 3.

Transmission Method: High speed data link via the Carswell Air Force Base communications computer to NMC.

Volume: Approximately 8,700 bits per sector record or approximately 78,000 bits per data field (one level for one forecast period).



NOTE: Nine sectors per hemisphere, 355 points per sector. Point #1 is lower right and Point #355 is upper left.

Attachment 1

Sample Message Breakdown

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7 4 1 7 3 7 6 0 7 4 1 7

111  100  00/1  111  011  1/11  110  000/  111  100  00/1  111

     0             7            0            0

FCST VALID DATA/TIME  07/00Z

0 7 6 2 7 4 1 7 1 1 2 0

000  1/11  110  010/  111  100  00/1  111  001  0/01  010  000

  1           2           0           2        Spcl Chr.

FCST PERIOD                Sector Number

7 4 3 7 4 3 6 5 7 7 1 7

111  100  01/1  111  100  0/11  110  101/  111  111  00/1  111

     1            8            5          u'=-4

Level Number      Level (MB)                U component

6 7 7 3 7 6 4 0 0 0 0 2

110  1/11  111  011/  111  110  10/0  000  000  0/00  000  010/

v'=-3     t'=-5        u'=-6          v'=0          t'=2

V comp    Temp         U comp         V comp        Temperature

v=v'*2          t=|t'|    when t' negative
u=u'*2          t= -t'    when t' positive
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Attachment 2

BULLETIN HEADINGS

Messages will be transmitted under bulletin headings as follows:

Bulletin Heading		Contents
FDXN851/2/3/4	KGWC	850 mb forecast for all required sectors (first 2 digits). The third digit (1, 2, 3 or 4) identifies the forecast period as being 12, 18, 24 or 30 hours.
FDXN701/2/3/4	KGWC	700 mb forecast for all required sectors, and so forth, as before.
FDXN501/2/3/4	KGWC	500 mb forecast, etc.
FDXN401/2/3/4	KGWC	400 mb forecast, etc.
FDXN301/2/3/4	KGWC	300 mb forecast, etc.
FDXN251/2/3/4	KGWC	250 mb forecast, etc.
FDXN201/2/3/4	KGWC	200 mb forecast, etc.
FDXN151/2/3/4	KGWC	150 mb forecast, etc.

Attachment 3