NWS REQUEST FOR CHANGE FORM	1. WSH TRACKING NUMBER	1A. REV LEVEL	2. DATE RECEIVED
	12654		February 23, 2011

PART A - COVER SHEET

This form is in three parts. Submitters must complete unshaded blocks in Part A, and as much of Part B and C as possible. If there is no specific required change date, enter 60 days from date submitted. Address questions to NWS Change Management at (301) 713-1373. Submit change requests to the NWSRC mailbox (External: NWSRC@noaa.gov).

3. ORIGINATOR OFFICE	4. SUBMITTING AUTHORITY	5. COGNIZANT TECHNICAL INDIVIDUAL	6. ORIGINATOR TRACKING NUMBER	7. DATE SUBMITTED
NWS/OST/MDL	Name: Phillip Shafer Routing Code: W/OST22	Name: Judy Ghirardelli Routing Code: W/OST21 Phone: 301-713-0056 x 194	MDL2011-03	February 23, 2011

8. SYSTEMS AFFECTED BY CHANGE

☐ ASOS ☒ AWIPS ☐ CSSA ☐ CRS ☒ DATA PRODUCTS

☐ EMWIN ☐ NEXRAD ☐ RRS ☒ OTHER (specify) NDGD/NCDC

9. ORD IDENTIFIER

10. TITLE OF CHANGE

Add Super/sub headers for Gridded Localized Aviation MOS Program (GLMP) products over CONUS for SBN transmission and distribution to NWSTG/NDGD/NCDC

11. CATEGORY OF CHANGE

☒ RC ☐ PECP ☐ ECP

12. TYPE OF CHANGE

☐ DOCUMENTATION ONLY ☐ HARDWARE ☒ SOFTWARE ☒ DATA

13. SITES AFFECTED

All

14. STATEMENT OF REQUIREMENT, PROBLEM, OR DEFICIENCY OF EXISTING SYSTEM

The NWS forecaster needs gridded forecast guidance for the preparation and updating of digital forecast products. Localized Aviation MOS Program (LAMP) forecasts need to be available at the WFO in gridded format to facilitate more efficient and effective use by NWS forecasters in GFE. In addition, probabilistic forecast guidance is needed in the Next Generation Air Transportation System (NextGen) via the Four-Dimensional Weather Data Cube (4-D Wx Data Cube), also known as the Weather Information Database (WIDB), to allow users to make knowledgeable decisions regarding critical planning for aviation given the likelihood of the event and the risk associated with the event.. This project has been approved through Stage 2 of OSIP as project 10-007.

15. KNOWN OR PROPOSED SOLUTION

MDL will produce Gridded LAMP (GLMP) observations (0 hour) and forecasts (1-25 hours) products in Gridded Binary version 2 (GRIB2) format for the Contiguous United States (CONUS) for the following elements:

1. Temperature 2. Dew point temperature 3. Ceiling Height 4. Visibility

In addition, MDL will produce error estimation grids for the 0-hour temperature and dew point temperature. More elements will be added at a future date. The guidance will be available on a 2.5km Lambert Conformal grid covering the same expanse as the NDFD CONUS grid. More information about the GLMP products is available at http://www.nws.noaa.gov/mdl/gfslamp/docs/glmpinfo.php. The attached document outlines the superheaders and individual headers for each GLMP element. Note that the header scheme skips letters representing the element to allow for future products. These products should be transmitted across the SBN and routed to NDGD beginning August 02, 2011.

Please see page 2 for continuation of this section…

16. ALTERNATE SOLUTIONS

None

17. REQUIRED CHANGE DATE	18. RATIONALE FOR REQUIRED CHANGE DATE	19. PRIORITY
08/02/2011	TIN requires 120-day notice. TIN estimated to be issued April 1, 2011 (OSIP Gate 3 is scheduled for March 22, 2011). 120 days after April 1 is July 30, 2011. NCEP implements changes on Tuesdays, and August 02, 2011 is the first Tuesday after July 30, 2011.	☒ ROUTINE ☐ URGENT ☐ EMERGENCY

DRG/CCB/PMC/CMB DECISION

20. DECISION AUTHORITY AND IMPACT LEVEL

☐ PMC or NWS CMB DECISION REQUIRED ☒ CCB LEVEL ONLY ☐ FAST TRACK ☐ MAJOR CHANGE ☐ MINOR CHANGE

21. CCB LEVEL DECISION

☒ APPROVED ☐ DISAPPROVED ☐ RECOMMEND APPROVAL ☐ REFERRED TO OSIP

SIGNATURE

Tim Hopkins

DATE RE-SIGNED

April 14, 2011

FOR USE ONLY WHEN PMC or NWS CMB DECISION REQUIRED

22. PMC OR NWS CMB DECISION

☐ APPROVED ☐ DISAPPROVED

SIGNATURE/DATE

Continuation of Section 15: KNOWN OR PROPOSED SOLUTION

To facilitate the addition of these products to NDGD, we are requesting that new subdirectories (GT.glmp) be added to the operational areas of the NDGD ftp server:

ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.glmp/AR.conus/RT.XX (XX=00-23)
ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.glmp/AR.conus/VP.001-003

The addition of these products to the SBN and NDGD will be advertised in a future TIN. We anticipate these products to add roughly 100 MB of data to the SBN and NDGD server once per hour at approximately 29 to 40 minutes past the hour.

This RC also plans for the TOC to distribute GLMP products to the National Climatic Data Center (NCDC). However, at the time of this RC, the NWS Telecommunications Operations Center (TOC) hardware cannot process the GLMP file sizes listed in Table 1 (attached) for NCDC distribution in a manner that would not tax the NCDC servers and file listings. Therefore, once the TOC has the upgraded hardware in place to accommodate the GLMP file sizes (possibly Summer 2011 when GLMP becomes operational), the TOC will give notification when the GLMP products can be distributed to NCDC. See Figures 1 and 2 for GLMP data routing from NCEP to TOC and SBN without and with TOC hardware upgrades.

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PART A - DATA PRODUCTS SUPPLEMENT

This information is required for Data Products submissions.

3. INTERNAL NWS USE ONLY	4. PRODUCT SOURCE	5. AWIPS DATA TYPE
☐ YES ☒ NO	NCEP CCS	Grids (GRIB2)

6A. NOTIFICATION	6B. CHANGE NOTICE NUMBER	6C. ISSUE DATE	6D. TEST DATE	6E. IMPLEMENT DATE
SBN/NOAAPort				
EMWIN				
NWWS				
NDGD				
NCDC				

Please see attached documents for complete header and product size/projection information

7. NODE ID	8. AWIPS ID NNNXXX	Header: 9. WMO HEADER	10. ADD REV DEL	11. SEAS Y/N	12. CHAR PER MSG	13. FREQUENCY	Description: 14. NWSTG DISTR
		0-hour Observations					
		LAUAii KMDL	Add	N	1 MB/file	Once hourly	Temperature
		LAUBii KMDL	Add	N	0.75 MB/file	Once hourly	Temperature Error Estimation
		LBUAii KMDL	Add	N	1 MB/file	Once hourly	Dew Point
		LBUBii KMDL	Add	N	0.75 MB/file	Once hourly	Dew Point Error Estimation
		LCUAii KMDL	Add	N	1 MB/file	Once hourly	Ceiling Height
		LDUAii KMDL	Add	N	1 MB/file	Once hourly	Visibility
		1-25 hour Forecasts					
		LKUZ98 KMDL	Add	N	20 MB/file	Once hourly	Temperature
		LLUZ98 KMDL	Add	N	20 MB/file	Once hourly	Dew Point
		LMUZ98 KMDL	Add	N	25 MB/file	Once hourly	Ceiling Height
		LNUZ98 KMDL	Add	N	25 MB/file	Once hourly	Visibility
		Total data volume per cycle:			**~ 95.5 MB**		
		Total data volume per day:			**~ 2.292 GB**		

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WMO Headings for Gridded LAMP (GLMP) Products

WMO headings have the format of $T_1T_2A_1A_2$ii CCCC

1. The CCCC for all Gridded LAMP (GLMP) product WMO headings is **KMDL**.

2. The T_1 for all GLMP products is **L**.

3. The T_2 represents the weather element type designator.

Values for 0-hour observation T_2 are:

A = temperature at sensor height (nominally, 2 m)
B = dew point temperature at sensor height (nominally, 2 m)
C = ceiling height
D = visibility

Values for 1-25 hour forecast T_2 are:

K = temperature at sensor height (nominally, 2 m)
L = dew point temperature at sensor height (nominally, 2 m)
M = ceiling height
N = visibility

Note that T_2 skips letters between 0-hour observation and 1-25 forecast grids so that elements can be added in the future and subsequent to the appropriate list, observations or forecasts.

4. The A_1 designates the geographical area. This implementation is over CONUS only and therefore A_1=**U**

5. As there are multiple grids for GLMP 0-hour temperature and dew point elements and there is the possibility of multiple grids for the GLMP elements in the future (i.e. forecast probability grids), A_2 for individual element headers will represent those multiple grids per element. The ii will represent the cycle time for the observation grids and number of hours past cycle time for the forecast grids.

6. Since there will be multiple GRIB2 messages for the GLMP forecast grids in the same file, they will be grouped under a superheader where the A_2 and ii will be "**Z**" and "**98**", respectively, when being routed to the tgftp at the TOC for NDGD. As there will only be one grid per header for the GLMP observations, superheaders will not be necessary for those grids.

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GLMP 0-hour observation grids:

LAUAii KMDL - Temperature
LAUBii KMDL - Temperature Error Estimation
LBUAii KMDL - Dew Point
LBUBii KMDL - Dew Point Error Estimation
LCUAii KMDL - Ceiling Height
LDUAii KMDL - Visibility

ii = valid UTC hour (00-23)

GLMP 1-25 hour forecast grids:

LKUAii KMDL - Temperature
LLUAii KMDL - Dew Point
LMUAii KMDL - Ceiling Height
LNUAii KMDL - Visibility

ii = forecast projection (01-25)

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Table 1: Superheaders and individual headers and product sizes for Gridded LAMP products to be routed to NDGD beginning on August 2, 2011.

Element	Super-header	Product Headers	Geographical Area	No. of Products per cycle	Projections (hr)	Bytes per header/ cycle
0-hr Observed Temperature	N/A	LAUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
Error Estimate of 0-hr Observed Temperature	N/A	LAUBii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	0.75MB/0.75MB
0-hr Observed Dew Point	N/A	LBUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
Error Estimate of 0-hr Observed Dew Point	N/A	LBUBii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	0.75MB/0.75MB
0-hr Observed Ceiling Height	N/A	LCUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
0-hr Observed Visibility	N/A	LDUAii KMDL ii = valid hour in UTC (00-23)	CONUS	1	N/A	1MB/1MB
Forecasted Temperature	LKUZ98 KMDL	LKUAii KMDL ii = forecast projection (01-25)	CONUS	25	1-25 (in increments of 1 hour)	0.8MB/20MB
Forecasted Dew Point	LLUZ98 KMDL	LLUAii KMDL ii = forecast projection (01-25)	CONUS	25	1-25 (in increments of 1 hour)	0.8MB/20MB
Forecasted Ceiling Height	LMUZ98 KMDL	LMUAii KMDL ii = forecast projection (01-25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Forecasted Visibility	LNUZ98 KMDL	LNUAii KMDL ii = forecast projection (01-25)	CONUS	25	1-25 (in increments of 1 hour)	1MB/25MB
Totals				106		95.5 MB/cycle (each hour)

Figure 1. GLMP data product routing with present TOC hardware

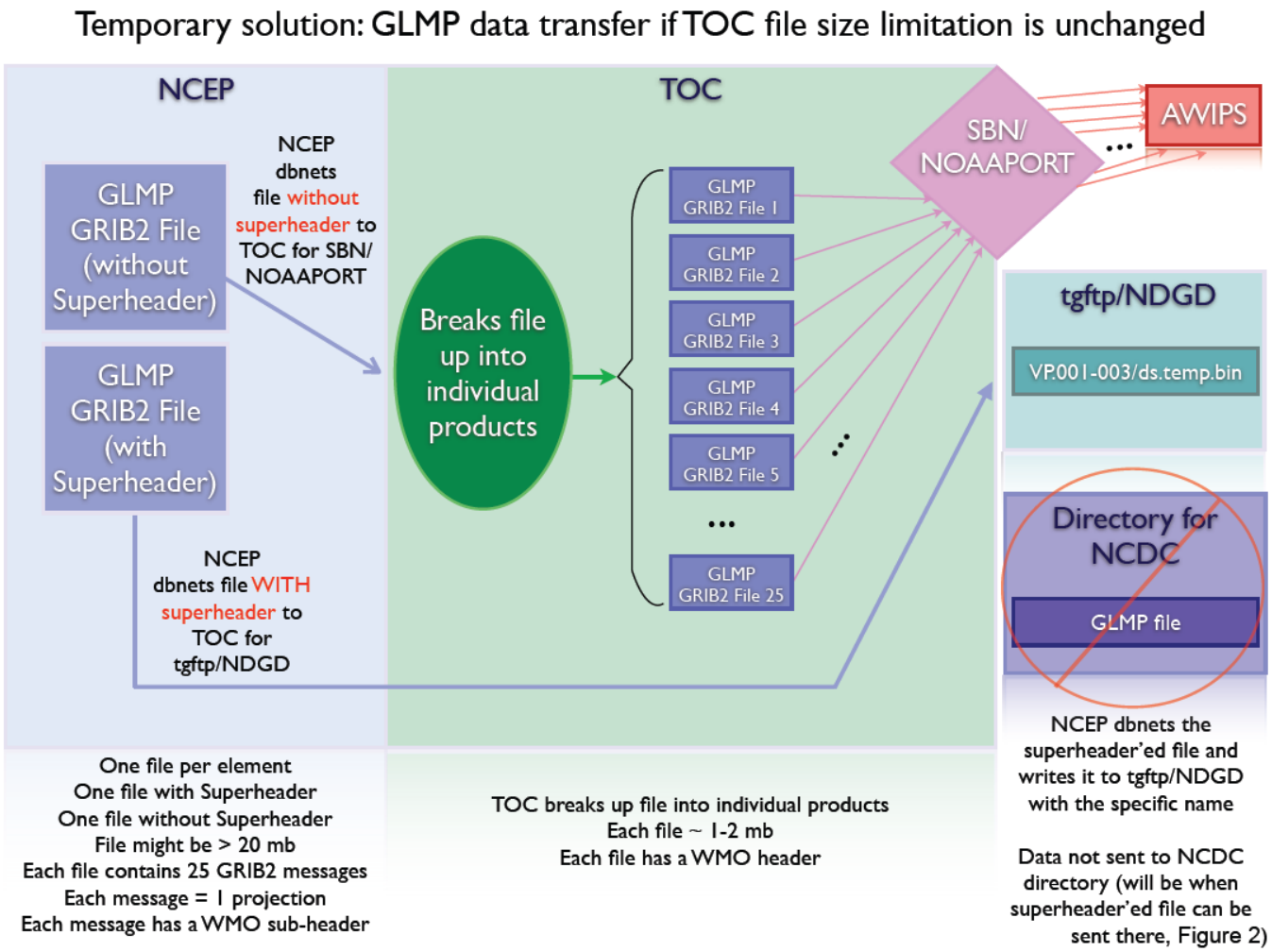
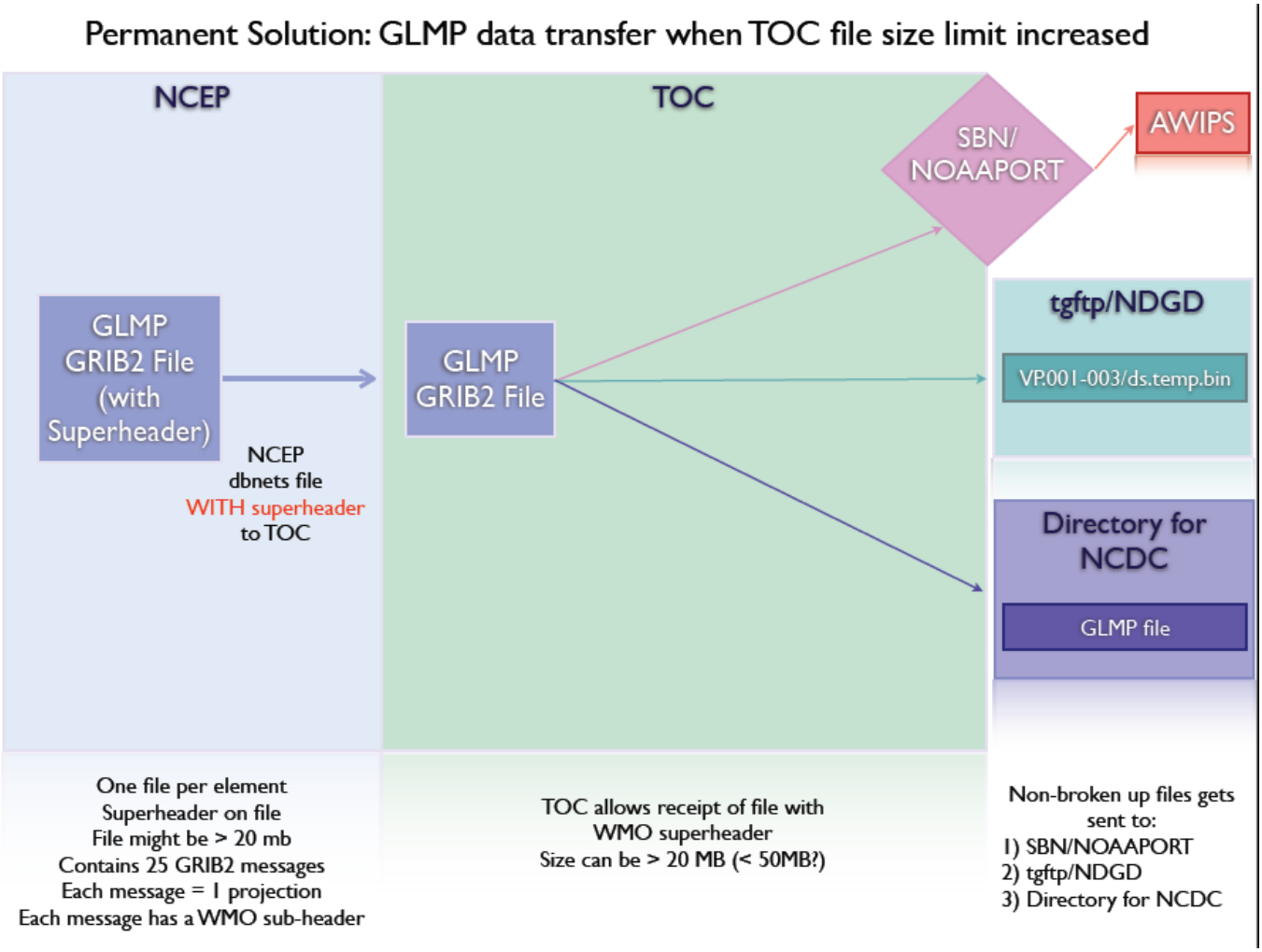
Figure 2. GLMP data product routing when TOC hardware upgrade is in place