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Backup Operations, NWSI 10-2201***

SOUTHERN REGION BACKUP OPERATIONS

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The following changes were made to this issuance:

1. Provided more details.

<signed>

March 20, 2009

Bill Proenza
Regional Director Region

Date

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1. Purpose.

This document provides instructions for the transfer of essential operational responsibilities from one Weather Forecast Office (WFO), Center Weather Service Unit (CWSU), or River Forecast Center (RFC) to another during backup situations.

Written instructions cannot cover every situation and personnel must use initiative and good judgment to ensure a continuation of essential services. If there are questions about this supplement during an emergency backup situation, contact Southern Region Headquarters (SRH) Regional Operations Center (ROC) at **817-978-1100**. Extension 147 at this number is the 24-hour number for the ROC. If no one answers extension 147, leave a message, and appropriate personnel will be paged and should return your call within 15 minutes.

2. Weather Forecast Office Backup.

2.1 Definitions:

- a. **Sister Office** - Each WFO is paired with a Sister Office (see Appendix A) and is responsible for backing up all of the programs of their Sister.
- b. **Full Backup** - All of a WFO's products, services and responsibilities (e.g. warnings, grids, data collection, etc.) need to be backed up by their Sister Office. See Appendix A in NWSI 10-22 for a list of critical products.
- c. **Partial Backup** - Some of a WFO's products, services and responsibilities (e.g. warnings, grids, data collection, etc.) need to be backed up by their Sister Office. For example, if only RiverPro is down, a Sister Office may only need to backup some hydrological products.
- d. **Primary Backup Responsibility** - If an office is rendered inoperative, the Primary Backup Sister Office will assume their designated duties, as defined in Sections b and c above (Full or Partial Backup).
- e. **Secondary Backup Responsibility** - If an office is rendered inoperative, and the Primary Backup Sister Office is either rendered inoperative or unable to assume backup responsibility due to circumstances beyond their control, the Secondary Backup Sister Office will assume the designated duties, as defined in Sections b and c above (Full or Partial Backup).
- f. **Dual Backup Responsibility** - In some extreme situations, both the Primary and Secondary Backup Sister Offices may have to share backup responsibilities of the inoperative office.

2.2 Implementation.

Catastrophic equipment malfunctions, extended power outages, prolonged communication failures, planned and unplanned outages, and violent acts of nature may render an office incapable of fulfilling its operational responsibilities. The authority to invoke backup operations rests with the affected Meteorologist-In-Charge (MIC) / Hydrologist-In-Charge (HIC) or designee. If for any reason backup plans cannot be successfully implemented/invoked, such as both backup offices being down, notify SRH ROC at 817-978-1100, ext 147 immediately.

2.3 Interactive Forecast Preparation System (IFPS).

Backing up WFO grids is a necessary and important function during service backup to provide continued service to our customers. All grids are required to be prepared and disseminated during service backup. This is accomplished by importing the configuration and digital data for the site that is down from the national Central Backup Server. For specific details and instructions on setting up Graphical Forecast Editor (GFE) for service backup operations and a list of Intersite Coordination (ISC) sites for each WFO, see the following internal webpage:

<http://lucretia.srh.noaa.gov/srh/backup.html>

For service backup to function properly, it is critical that all offices ensure the latest configuration files for their site are uploaded to the Central Server after any changes are made to formatters or new software is loaded at their site.

2.4 WHFS and other Hydrology Procedures.

The WHFS support group in OCWWS/HSD at NWS HQ will provide system support for the transfer of critical information from the Initiating Site to the primary and secondary back up offices. Critical information includes RiverPro Templates and PCC files and key information in the WHFS Hydrology Data Base. This file transfer should be performed whenever significant changes are made to Critical Hydrology Information. For Coastal and first tier inland offices this process needs to be performed prior to the start of hurricane season. This process will be initiated by the office opening a trouble ticket with NCF requesting the file transfer to support service backup.

2.5 Backup Preparations.

For backup plans to be implemented in an orderly and efficient manner, each office will supply its sister backup offices with a current copy of its Station Duty Manual (SDM) or office instructions. One backup drill is required per year (see Section 8 for more information), but frequent drills are highly recommended. See Appendix B for further backup preparatory activities.

3. Backup Procedures.

3.1 Procedures for an Inoperative Office.

It is critical to notify surrounding offices and SRH when (A) backup procedures have been invoked and (B) when normal operations are restored. Follow the procedures below to insure proper notification:

a. When an office is rendered inoperative, its staff will do the following:

(1) **Notify the Sister Office of the situation.**

If your telephone lines are inoperative, use the office emergency cellular phone, National Warning System (NAWAS) or a personal cellular telephone. The cost of any personal calls will be reimbursed. If you are unable to reach the Sister Office, call SRH for assistance. Call SRH ROC at 817-978-1100, ext 147. If no one answers, leave a message, **and** a call-back number, and SRH personnel will be automatically paged. If commercial telephone circuits and cellular phone services are out-of-service, the office staff must become resourceful to make contacts. There have been cases where ham radios were used to ask an amateur radio point-of-contact to call the backup office or SRH. Offices should document actions taken while invoking backup procedures.

(2) **Send SRHADASRH.**

If at all possible, send an Administrative Alert message (SRHADASRH) addressed to ALL [in the AWIPS header block text window] notifying other offices that the backup process has been initiated. In the forwarding "TO" line of the ADA, include the three-letter ID of the surrounding Offices. Do not specify the reason for the backup in the ADA. All Offices need to ensure SRHADASRH is locally configured to *alarm audibly* on the Advanced Weather Interactive Processing System (AWIPS) Text Workstation.

Example:

NOUS74 KEHU 152104
ADASRH

ALERT ADMINISTRATIVE MESSAGE
NATIONAL WEATHER SERVICE SOUTHERN REGION
HEADQUARTERS
404 PM EST SAT MAR 15 2003

TO: MOB...TBW...FFC...BMX...JAX
FROM: NWS WFO TALLAHASSEE

NWS WFO JACKSONVILLE IS BACKING UP WFO TALLAHASSEE.
WILL ADVISE WHEN WE HAVE RETURNED TO NORMAL
OPERATIONS.

\$\$

(3) **Contact SRH ROC.**

If not already notified and time permits, call SRH ROC at 817-978-1100, ext 147 to notify about the situation.

b. Once operations are restored:

(1) **Send SRHADASRH.**

Send the SRHADASRH to ALL notifying your office has resumed normal operations. Example:

NOUS74 KEHU 152153
ADASRH

ALERT ADMINISTRATIVE MESSAGE
NATIONAL WEATHER SERVICE SOUTHERN REGION
HEADQUARTERS
453 PM EST SAT MAR 15 2003

TO: MOB...TBW...FFC...BMX...JAX
FROM: NWS WFO TALLAHASSEE

NWS WFO TALLAHASSEE HAS RESUMED NORMAL OPERATIONS.

\$\$

(2) **Notify SRH ROC.**

Inform them of the return to normal operations.

3.2 Procedures for a Backup Office when Supporting an Inoperative Office:

The Backup Office will assume the operations of the inoperative office and will also notify surrounding offices and contact the SRH ROC.

a. When an office is backing up an inoperative office, its staff will do the following:

(1) **Send an SRHADASRH,**

If the inoperative office has not sent out an SRHADASRH product, send the SRHADASRH product to ALL notifying others your office has assumed operational responsibility for your Sister Office. This step is to ensure offices are aware of the backup situation. Example:

NOUS74 KEHU 152105
ADASRH

ALERT ADMINISTRATIVE MESSAGE
NATIONAL WEATHER SERVICE SOUTHERN REGION
HEADQUARTERS
405 PM EST SAT MAR 15 2003

TO: MOB...TBW...FFC...BMX
FROM: NWS WFO JAX

WFO JAX HAS ASSUMED OPERATIONAL RESPONSIBILITY FOR WFO TAE UNTIL FURTHER NOTICE.

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(2) **Contact SRH ROC.**

As weather conditions permit and if the inoperative office has not already done so, call SRH ROC at 817-978-1100, ext 147 and notify them of the details of the situation.

(3) **Monitor Weather.**

Monitor the weather across the County Warning Area (CWA) of the inoperative office, issue grids and issue routine and/or warning products as needed until the office has resumed functions.

As specified in Directive 10-1701, Section 4.2.3, all products issued by a backup office will contain the product identifiers and mass media headers of the office being backed up. For example, if WFO Midland experiences an outage requiring backup, WFO San Angelo will issue the Midland zone forecast using the appropriate Midland product identifier, along with an ISSUED BY NATIONAL WEATHER SERVICE SAN ANGELO TX line. This will insure proper dissemination. The mass media header format should follow the examples shown in NWSI 10-1701.

3.3 Planned Outages.

For planned outages (for example, an AWIPS upgrade), follow the same procedures in Sections 3.1 and 3.2, but notify the Sister Office ahead of time so appropriate measures can be taken (for example, provide for adequate staff and/or plans to deploy forecasters to a nearby office).

3.4 Evacuations.

If an office is evacuated, notify BOTH your backup office and SRH as soon as possible upon departure and upon return. Call SRH ROC at 817-978-1100, ext 147. If no one answers, leave a message, and call-back number, and SRH personnel will be automatically paged. If commercial telephone circuits and cellular phone services are out-of-service, the office staff must become resourceful to make contacts.

4. Backup Assignments for WFOs.

Appendix A details the Sister Office backup pairings. Appendix B lists important preparatory backup activities for Sister Offices.

5. Radar Data Dissemination Backup.

It is now possible to reliably provide service backup for an inoperative office's radar products. The assumptions are that the inoperative office is still on the AWIPS WAN and that the WSR-88D is still functional. If a site has a scheduled, or non-scheduled, outage expected to last for several hours or more, a site's radar backup can act as the transmission site for the downed office's radar data.

More detailed information regarding the setup of radar backup can be found in your site's Radar File Help Sheet maintained by the Radar Operations Center. Each office's Radar Focal Point and ESA should have access to this documentation. Appendix C shows the radar backup sites for the Southern Region.

Before entering into or terminating radar backup, site(s) should contact the NCF for support.

6. River Forecast Center (RFC) Backup.

- a. If an RFC goes into backup, send the SRHADASRH product to ALL. When you return to normal operations, send out another SRHADASRH to notify surrounding offices.
- b. If an extended disruption in services is expected, contact the SRH ROC at 817-978-1100, ext 147. If no one answers, leave a message, and SRH personnel will be automatically paged.
- c. RFCs will ensure that staff are trained in the use of the mobile RFC backup system, including procedures to serve as the "sister dissemination office" to another RFC.
- d. RFCs should use the mobile (or stationary) RFC backup system during AWIPS system or communication outages. The service backup can originate from the local office or a location remote from the collocated facility dependent on the type of outage.
- e. RFCs will identify external facilities to conduct RFC backup operations. RFCs should ensure that they have access to a reliable Internet Service Provider and an adequate telephone system to support RFC backup operations.
- f. RFCs will determine the best off-site location to store their mobile RFC backup system. Since off-site RFC backup will require the relocation of RFC staff to an alternate location, WFOs should be prepared to handle hydrologic situations without RFC support for up to 24 hours. RFCs must provide information to ensure that the WFOs can meet these forecast requirements for the 24-hour period specified.
- g. RFCs will periodically upload observed and model data to a SRH server system, as necessary, to initialize the backup forecast system in a reasonable time period. It is recommended that uploads take place at least once per day.

- h. RFCs will use the mobile (or stationary) RFC backup system to generate and disseminate a core suite of hydrologic products to support WFO hydrologic operations. See Appendix A in NWSI 10-2201 for a list of critical products.
- i. RFCs will ensure that the mobile RFC backup system is configured with the latest software (e.g., NWS River Forecast System, local applications, etc.) to support hydrometeorological operations at the RFC. If required, ABRFC will provide technical support for the RFCs.
- j. RFCs will conduct a test of the mobile RFC backup system on a semi-annual basis. This will allow staff members to gain experience and confidence with the mobile RFC backup system. The results of the test will be forwarded to the Hydrologic Services Branch.
- k. SRH, in coordination with the Hydrologic Services Branch and the RFCs, will provide information technology support for RFC backup operations.
- l. Primary Backup RFC offices are responsible for running the LDAD dissemination software for the RFC in backup mode. The assignment of RFC backup dissemination offices are as follows:

Office in Backup Mode	Primary Backup Dissemination Office
ABRFC	WGRFC
LMRFC	SERFC
SERFC	LMRFC
WGRFC	ABRFC

- 7. Center Weather Service Unit (CWSU) Backup.
CWSU backup information is located in Appendix B of NWSI 10-803.

Notify SRH ROC if an extended disruption in services is expected by calling the Regional Operations Center directly at 817-978-1100, ext 147. If no one answers extension 147, leave a message, and SRH personnel will be automatically paged.

CWSUs should ensure they are set up to receive the SRHADASRH product.

- 8. Drills.
Service backup is a complex operation that requires the staffs at Sister Offices to be familiar with each other's programs and responsibilities. It is a requirement of offices to conduct at least one service backup drill annually. Notification of offices being backed up by another, even during tests, requires an SRHADASRH. See Section 3.1 for details.

It has been shown that more frequent drills prepare staff for unplanned events. During hurricane situations, unplanned communication outages, late night storms, etc. the offices that have practiced backup are better prepared, able, and confident for these situations.

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Appendix A - Sister Offices

Disabled WFO	Primary Backup	Secondary Backup
ABQ	EPZ	AMA
AMA	LUB	ABQ
BMX	FFC	HUN
BRO	LCH	EWX
CRP	EWX	HGX
EPZ	ABQ	MAF
EWX	CRP	BRO
FFC	BMX	MRX
FWD	SHV	OUN
HUN	JAN	BMX
HGX	LCH	CRP
JAN	HUN	SHV
JAX	TAE	KEY
KEY	MFL	JAX
LCH	HGX	LIX
LIX	MOB	LCH
LUB	AMA	SJT
LZK	MEG	TSA
MAF	SJT	EPZ
MEG	LZK	OHX
MFL	KEY	TBW
MLB	TBW	SJU
MOB	LIX	TAE
MRX	OHX	FFC
OHX	MRX	MEG
OUN	TSA	FWD
SJT	MAF	LUB
SJU	MFL	MLB
SHV	FWD	JAN
TAE	JAX	MOB
TBW	MLB	MFL
TSA	OUN	LZK

Appendix B - Sister Offices Preparatory Activities

The goal of Sister Office Backup is to ensure continuation of essential products and services and to ensure offices are familiar with the programs, products, and customers of their backup partner. Sister Offices were selected on the basis of similar service programs, weather regimes, and proximity. Familiarity with each other's programs and responsibilities ensures an effective backup process. The following is a list of activities Sister Offices should strongly consider:

- 1) Exchange Station Duty Manuals (SDM) or office instructions.
- 2) Keep current examples of the various products your Sister Office issues.
- 3) Make sure the Administrative Alert messages (SRHADASRH) from all affected ISC sites (including from other regions) are alarmed on AWIPS.
- 4) Notify emergency managers and other core partners of the backup plan.
- 5) Ensure all minor format differences between your products and your Sister Office's products are completely understood.
- 6) Make sure AWIPS is configured to support the duties of your Sister Office.
- 7) Provide your Sister Office with a list of emergency managers and storm spotters in your CWA along with necessary phone numbers and email addresses.
- 8) Share any local applications.
- 9) Make sure to have all maps and backgrounds for any computer programs, such as WarnGen, etc.
- 10) Conduct seminars and training sessions with your Sister Office.
- 11) Share local climatology and meteorological nuances that your office has discovered through experience and any rules-of-thumb or local forecasting techniques.
- 12) Introduce your Sister Office to your emergency managers.
- 13) Play a vital role in staff training. An example is a new MIC being assisted by the Sister Office MIC.
- 14) Share with your Sister Office lessons learned from severe weather or unusual weather events/forecasts.
- 15) Promote staff participation in Sister Office visitations.
- 16) Have mutual customer service workshops or customer advisory committee meetings.
- 17) Coordinate active customer service outreach programs.
- 18) Conduct a meteorological case study with someone in your Sister Office.
- 19) Coordinate any focal point activity with your Sister Office (e.g. severe weather, hurricane, hydrology, AWIPS, marine, aviation, radar, weather radio, climatology, etc.).
- 20) Develop a forecaster exchange program. Forecasters can be exchanged for a day or two to fully experience the programs of their Sister Office.
- 21) Make sure the office emergency phone is charged and everyone knows where it is located, know how to use it, and that the number is accessible. Ensure necessary #s are preprogrammed into the phone.
- 22) Share web-based capabilities like Intranet webpages or severe weather email links.
- 23) Ensure ham radio operators can help others in other CWAs.
- 24) Have a ready-to-go Emergency Manager Kit available/ready. This could be very helpful for the office you are backing up.
- 25) Utilize 12Planet and NWSChat during backup events.

The following should be made available to their Sister Offices:

- 1) E-19s that provide flood damage information, historical crests, and other hydrological information.
- 2) Listings of automated gages, sensors, and Automated Surface Observing System (ASOS) units with associated phone numbers, etc.
- 3) Listings of meteorological, hydrological, and RFC products on AWIPS.
- 4) Any additional materials the backup office may require to fulfill their backup responsibilities.

Appendix C

NWS Southern Region Radar Backup Assignments

WFO System	Provides Primary “radar” backup for...	and Secondary “radar” backup for ...
ABQ	KEPZ & KHDX	KAMA
AMA	KLBB	KABX & KFDX
BMX	KFFC & KJGX	KHTX
BRO		KEWX & KDFX
CRP	KEWX & KDFX	KHGX
EPZ	KABX & KFDX	KMAF
EWX	KCRP	KBRO
FFC	KBMX & KMXX	KMRX
FWD	KSHV	KTLX, KFDR & KVNK
HUN	KDGX & KGWX	KBMX & KMXX
HGX	KLCH & KPOE	KCRP
JAN	KHTX	KSHV
JAX	KTLH & KEOX	KBYX
KEY	KAMX	KJAX & KVAX
LCH	KBRO & KHGX	KLIX
LIX	KMOB & KEVX	KLCH & KPOE
LUB	KAMA	KSJT & KDYX
LZK	KNQA	KINX & KSRX
MAF	KSJT & KDYX	KEPZ & KHDX
MEG	KLZK	KOHX
MFL	KBYX & TJUA	KTBW
MLB	KTBW	TJUA
MOB	KLIX	KTLH & KEOX
MRX	KOHX	KFFC & KJGX
OHX	KMRX	KNQA
OUN	KINX & KSRX	KFWS & KGRK
SJT	KMAF	KLBB
SJU		KMLB
SHV	KFWS & KGRK	KDGX & KGWX
TAE	KJAX & KVAX	KMOB & KEVX
TBW	KMLB	KAMX
TSA	KTLX, KFDR & KVNK	KLZK