Operations

FUTURE NMC-AWIPS OPERATIONS

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Abstract

Future operations of the National Meterological Center (NMC) are viewed through the eyes of a Senior Duty Meteorologist (SDM). A typical daily heavy usage scenario is used to portray the depth and breath of SDM responsibility and involvement in NMC operations.

1. INTRODUCTION

The National Meteorological Center (NMC), Monitoring and Aviation Branch (MAB) scenario depicted here is intended to convey the flavor and not necessarily specific detail of a typical heavy usage day in the "Advanced Weather Interactive Processing System for the 1990s" (AWIPS–90) era. The unique functions performed by NMC include centralized data collection, processing, and dissemination (including numerical and interactively produced guidance). In essence, NMC is, and will continue to be, the data hub of the National Weather Service (NWS). The MAB mission is to monitor, Quality Control (QC), and ensure timely and error free collection, processing, and dissemination of these data, and to produce aviation forecasts for world-wide distribution. The ensuing scenario attempts to depict the AWIPS–90 involvement in this mission.

2. FUTURE DATA SYSTEMS

New and improved data systems introduced and expected to impact on AWIPS–90 over the next decade include:

a. Input Data Sources

1. Satellite Data. VIS/IR and Sounding data will be routinely available on AWIPS–90 via the "GOES-NEXT" Central Processing Facility (CPF) and used interactively in the monitoring, QC, analysis and forecast functions. When Rapid Interval Scan Operations (RISOP) are invoked, GOES VIS and IR data will be ingested every five minutes in high density data bursts. Sounding data will be routinely available every six hours for inclusion in model runs, and every hour in significant event situations.
2. Radar. "NEXRAD" Doppler radar data will be processed by the NOAA Central Computing Facility (NCCF), formatted and redistributed to the AWIPS Communications Network (ACN). Several NEXRAD doppler radar loops will be monitored simultaneously at NMC AWIPS workstations during critical weather situations via tailored macro-strung commands (Macro), and cursor site identified loop updates.
3. Profiler. These data will be available on the NMC AWIPS (2). They will likely be processed by the NCCF computers and redistributed to the ACN as gridpoint plotted and analyzed fields similar to conventional RAOB data. At NMC they will be monitored, QC'd, and used as input to numerical and interactively derived products.
4. RAOB, AIREPS, ACARS, ASDAR, and RECO. These upper air data processsed by the NCCF will become more numerous and will continue to require monitoring and QC before being used in model runs and dissemination via AWIPS–90.
5. Hourly and Synoptic Surface, Ship, and Buoy Reports. These data will also require monitoring and QC. In certain critical flash flood situations, they may be augmented by high density hydrological and automated buoy reports from a potential 7000 site data base.

b. NCCF

The NCCF will continue to function as the primary data collection, processing and dissemination center for the National Weather Service. Within this host facility are three major computer systems: (1) The Communications Computer System which itself is composed of three subsystems. They handle external data assimilation and dissemination, internal data routing, and run-stream job decramentation on the Front-End computer. (2) The Front-End computer, subdivided into three systems, serves as the main memory storage, the pre and post data decoding and the formatting processor for the Back-End mainframe computer, and the primary virtual machine for River Forecast Centers and other dedicated line users. (3) The Back-End computer which receives decoded and properly formatted data from the Front-End, performs the most complex numerical model guidance computations and passes the output to the Front-End for packing and transfer to the Communications Computers for internal routing and external dissemination.

Data processing at the NCCF will become even more complex in the 1990s, and will, therefore, require even more efficient monitoring, diagnostic and problem solving equipment and techniques. The MAB AWIPS–90 workstation is expected to fill part of this need. Developments at the NCCF which will necessitate this include:

1. Simultaneous use of two Back-End Cyber 205's or Class 7 computers operating in tandem; one for operational runs and the other for R/D. The added computing power will be taxed to its limit with the development of more sophisticated higher resolution models operating more frequently (four times a day at 0000,0600,1200, and 1800 GMT) on an ever increasingly dense temporal and spatial data base.
2. This may, in turn, necessitate the upgrading of the current Front-End "NAS-9000" computers, the Communication "4341" Computers and other components of the NCCF.
3. The "Gateway" data monitoring and control function, for data transfer between the NCCF and the ACN, will become even more important with the ever increasing data flow in the AWIPS–90 era. NEXRAD, Profiler, DCP and Sounding data in addition to interactively prepared guidance will likely be funneled to the NCCF, and higher resolution, higher frequency, raw and processed data, including numerical and interactively prepared guidance will flow in the reverse direction through Gateway to the ACN. Mon-

myriad data processing steps through and between the above systems will likely require a more decentralized, yet highly coordinated command and control structure.

3. OPERATIONS CONCEPT

Inherent in these new data systems are new working environments, responsibilities, and methods. Improved model guidance for instance, will allow less human intervention in the 12-48-hour range. At the same time, new interactive technology will permit redeployment of personnel toward the short range (<12-h) and longer range (>48 hours) forecasting problems. In the aviation arena, short range prog sets will be issued four times daily out to 18 hours with a 6-h overlap in leap frog fashion. Each set will consist of a 6-, 12-, and 18-h forecast. New satellite dissemination technology will permit transmission of these products directly to cockpits in flight as well as to aviation service and control centers worldwide. Future method changes will include less dependence on paper charts and more use of multiple simultaneous interactive displays. This will be achieved in large part with AWIPS via eight split screen color displays from two monitors, and a large central screen for detail enhancement, coordination and briefings. The MAB AWIPS workstation will in addition have a port for peripheral graphic product preparation and dissemination equipment, a unique direct link to all NCCF computers for real-time monitoring and QC and extensive hotline and conference communications capability. The following AWIPS–90 scenario attempts to incorporate the preceding Future Data System and Operations Concept assumptions.

4. THE NMC/MAB SCENARIO

a. Time Frame

A typical heavy usage scenario will likely occur in late summer—early fall when the combined synoptic probability of hurricanes, flash floods, severe weather, heavy snow, and even a local power interruption is most plausible. The data selected is Wednesday, 20 September 1995. This is the day scheduled weekly changes are made to the operational NCCF run-stream and the day the branch normally prepares an afternoon map discussion, thus adding additional stress to the system. The time selected is 1200–1700 GMT when peak daily demand is placed on the system in processing the 1200 GMT data cycle, when frequent R&D job check-out and implementation usually occur, and when operational interactive interrogations, product preparation and dissemination are most active.

b. Initial Synoptic Situation

At 1200 GMT Hurricane Pedro is approaching the North Carolina coast while in the Pacific, Hurricane Fritz is meandering toward Hawaii. Specially prepared high resolution NMC Movable Fine Mesh (MFM) numerical forecast guidance from the 0600 GMT model run has already been delivered to the MIA and HNL forecast centers. Neither system is immediately threatening a coastal area at this time; however, Pedro may do so later in the day. A deep upper level trough over the Great Basin has a strong vorticity max and short wave over Colorado moving northeastward out of the base of the trough. It is riding into and over a blocking ridge centered over the upper Midwest. This short wave has a deep tropical moisture channel fed by the blowoff from Fritz and advected by the subtropical jet into an upper level diffluent zone immediately to the east of the short wave. A heavy rain/flash flood situation is setting up in the central plains for later that evening. Low level upslope over cold air in the northern U. S. Rockies is developing heavy snow over western Montana and Wyoming. In the local Washington DC area, light showers have just begun as the advance moisture shield from Pedro approaches from the southeast.

c. Initial Equipment and Personnel Status

All machines and systems are operating normally at shift change time—1130 GMT. The relief crew has arrived and attends a 5–10 minute briefing by the midnight Crew Chief to the Director and Division Chiefs of NMC on the status of the operation and significant weather problems. The crew consists of the crew chief-Senior Duty Meteorologist (SDM), one Assistant Duty Meteorologist (ADM), two Aviation Forecast Meteorologists (AFM), and one Meteorological Technician (*Met Tech*). After the briefing, initial 1200 GMT run checkout begins. The SDM runs an interactive system diagnostic checkout procedure via AWIPS, which polls various components and communication links within the NCCF and reports on their operational readiness. The SDM then initiates a conference call to other data control centers to check on their operational status. The ADM likewise surveys status of on-site equipment. Meanwhile the *Met Tech* updates and insures that all surface and upper air data monitoring files are zeroed out and correctly flagged for the 1200 GMT run. The ADM then graphically compares competing 6-h "First Guess" model forecasts for fidelity with the latest surface and upper air data; then selects the model with the best overall fit for input to the 1200 GMT Optimum Interpopulation (OI) analysis and initialization for the upcoming 1200 GMT model runs. This comparision is done level by level via an automated procedure which displays forecast, OI analysis and difference fields along with available 1200 GMT plotted data, satellite imagery, and statistical correlation computations all via AWIPS. The 1200 GMT model run is ready to begin.

d. The Unfolding Scenario—Early Stages

1200–1230 GMT

Upper air data monitoring begins with the ADM checking and flagging incoming Sounding data. This is accomplished by displaying Sounding derived plots and OI analyses for standard heights/temperatures on each of the eight split screen displays. These data fields are transferred one at a time to the large central display screen for detail investigation. Using a Macro routine specifically designed for this function, they are now scrutinized for vertical, horizontal, and temporal consistency first within themselves and then with the other overlaid related data fields such as the first guess, post 0900 GMT ship and aircraft (AIREPS, ACARS, ASDAR and RECO) reports, and available 1200 GMT RAOBS. Difference fields are plotted with each check and those Sounding data exceeding threshold values are automatically flagged. With the cursor placed over a suspect Sounding retrieval, an automated hydrostatic check may be performed for vertical consistency, or a vertical sounding plotted on one of the display monitors. Stepping through multiple overlay VIS, IR, and Sounding retrieval loops lends further insight into resolving differences. Ultimately a decision is made to post a quality flag or bogus value to either the Sounding retrieval or other data where threshold differences exist. Once flagged, the upper air data field(s) in question are then interactively re-analyzed to resolve inconsistencies. In this scenario three Sounding retrievals were rejected and two other retrievals at 300 and 250 mb off the Pacific Northwest coast appear erroneous in comparison to the first guess and 12-h change fields. A final decision, however, will await further 1200 GMT RAOBs for validation. The AWIPS alarm flashes indicating some Sounding data off Baja is missing. This is particularly crucial considering the tropical moisture blowoff from Fritz. The ADM notifies the SDM who in turn checks Sounding data progress through the system and the status of Sounding transmission circuits via the interactive system diagnostic checkout program and another interactive interrogations which track the progress of specified data through the

NMC system. The SDM determines that the missing data blocks got hung up at the GOES-NEXT CPF before being transferred to the NCCF Communication Computers and requests retransmission of the missing data. The SDM then checks the resumed progress of Sounding data through the system and verifies receipt via the SDM AWIPS-90 console.

1200–1300 GMT

The SDM and the Met Tech meanwhile continuously check RAOB data as they are received. The Met Tech checks for data volume, incomplete or garbled reports via AWIPS interrogations of raw and decoded data, makes corrections where possible and informs the SDM of unresolved data problems. The SDM meanwhile quality checks these data via AWIPS using graphical techniques identical to Sounding data checking. Two bad profiler reports are identified and hydrostatically corrected interactively via AWIPS. Pacific northwest RAOBS support the Sounding retrievals in that area and the information is passed to the ADM for flagging.

1215–1300 GMT

The 1200 GMT hourly Profiler and buoy data flow are monitored by the Met Tech for incomplete and garbled reports. Some buoy data files for the northeast seem to be missing; the SDM is notified.

1220–1240 GMT

The AFMs begin Surface Data monitoring for each of their respective Atlantic and Pacific Ocean areas of responsibility. Several times each hour raw unprocessed observed data are batched for collection, decoding, and formatting into useable alpha-numeric, and graphic plot files and OI analyses by the Front-End computer. Upon release of the first such raw data dump (RW1) for 1200 GMT, the surface data plot files and OI analysis are automatically transferred to and alarm the AFM workstations. Coastal land, ship and buoy reports reports are plotted and compared against satellite imagery and the RW1 OI analysis via duplex communication with peripheral graphic preparation and display equipment. Ship and buoy reports are highlighted and flagged where they differ from the RW1 OI analysis by 4 millibars or more. The AFMs then invoke a Macro routine which displays 12-h NH final surface analysis and isalobaric field loops, and paired VIS/IR satellite loops on their respective split screen monitors. These displays are moved to and overlaid on their central high resolution display screens for queued transfer to the peripheral workscreen. The cursor is then placed over a suspect ship or buoy report for generation of a 24-h chronological listing of that report. This listing includes past positions, observations and their departures from the corresponding final analysis. The data are assigned a quality flag and the cursor moved to the next suspect report to repeat the process. An interactive OI analysis using these flagged data is performed to test the impact of these changes. If deemed necessary, the RW1 OI analysis can be manually altered via the peripheral graphic workstation.

1230–1245 GMT

The SDM runs a diagnostic checkout program which reveals data not passing from the communications computer to the Front-End computer; problem appears to be a JCL error; responsible programmer is notified and an administrative message is composed and disseminated via AWIPS explaining the buoy data glitch.

1255 GMT

A programmer notifies the SDM that a buoy program change has "abended"; the JCL error was rectified, and the problem resolved. The SDM asks the Met Tech to notify him when missing 1200 GMT buoy data are received.

1200–1300 GMT

The two AFMs are interactively preparing first guess 1800 GMT and 0000 GMT high level SIG Weather update forecasts for their respective Atlantic and Pacific Tropical regions. These products are scheduled for 1500 GMT dissemination and will be checked once again and tied in with the Northern Hemisphere Aviation forecast prior to dissemination. The emphasis here is to use real time data prior to receipt of the AVN model guidance to update the previous forecasts. Satellite, aircraft and RAOB data are the primary tools used. The forecaster invokes a Macro exec display program tailored to the tropical High-Level SIG Weather domain. This Macro controls and automatically updates displays on the 8 display monitors. Information displayed include: location and tops of CB's derived from enhanced IR; tropopause height; horizontal thermal and vertical velocity gradients, and turbulence indexes from Sounding retrievals; and real time aircraft and upper air report plots from ACARS, ASDAR, RECO and RAOB sources. Transfer and overlay of these fields to the main console workscreen enables the forecaster to interactively compare and contrast any combination and make sound forecast judgments.

1300 GMT

The Met Tech informs the SDM that missing buoy reports have come through. The SDM then sends an administrative message to that effect and asks the Atlantic AFM to quality check these data. The LFM/NGM dumps kick off on time.

1305–1320 GMT

The 1200 GMT "One Dot" upper air plots received at the SDM AWIPS workstation are printed and hand analyzed by the SDM, ADM, and the two AFM's. One bad report noted and corrected before the NGM "Two Dot" data dump is executed.

1315 GMT

The surface analyst informs the SDM that ship reports are not on the 1200 GMT RW3 NH surface plot. The SDM notes that there was a schedule change implemented on the 1200 GMT cycle affecting ship report post processing. Responsible programmer could not be reached. The SDM authorizes the Communications Computer operator to reload the old ship program for inclusion in the 1200 GMT RW4 data dump. The LFM ends on time, it is checked and disseminated via AWIPS, FAX, and external user channels.

1320 GMT

The SDM receives a report that there are two cars in the parking lot with their lights still on. The ADM makes the announcement over the PA system. Both MIA and HNL call the SDM to request MFM runs from the 1200 GMT data base on Pedro and Fritz. The SDM keys in a program to run these jobs.

1300–1400 GMT

The AFM's inspect the new 1200 GMT Sounding, RAOB, and profiler data for their respective areas of responsibility and make a first attempt at a 0000 GMT update forecast.

1325 GMT

The two MFMs end normally, are checked by the SDM and are sent to MIA and HNL via AWIPS.

1330 GMT

The NGM fails! The Communications Computer operator calls and informs thet SDM that the communications link between the Front- and Back-End computers is down—the NGM cannot be run. The problem appears to be in the Front-End, and is being IPL'd. The start of the AVN pre-processing on the Front-End is being delayed as a result.

1340–1345 GMT

The SDM is beginning to suspect a gathering storm. He quickly calls a conference with the AFM's and the Forecast Branch duty

forecasters and informs them of difficulties with the NGM. All agree on the extreme necessity to have the NGM available ASAP, considering the unusually threatening weather. The new MIA forecast storm track just passed to conferences indicates Pedro will make land fall in southern Virginia later tonight. That clinches it. The SDM declares this a critical weather day, and informs the NCCF supervisor and the NMC Division Chiefs. This action cancels all non-operational processing and scheduled changes to the operational run stream on the NCCF computers.

e. The Unfolding Scenario—Mid-Stage

1400 GMT

The Front-End operator calls to say the IPL on the Front-End computer was NOT successful in reestablishing the communications link. The SDM requests that the link to the R/D Back-End computer be used instead. This works; the NGM continues on to the Back-End as the AVN begins pre-processing on the Front-End.

1405 GMT

The PWM forecaster phones the SDM to complain that 1300 GMT buoy reports are not on AWIPS. The ADM checks and confirms this. Further AWIPS tracking indicates these data failed to pass across the "gateway" data link between the NCCF communications computers and the onsite AWIPS monitoring and control facility. The SDM requests the AWIPS and the NCCF data communication controllers to check their equipment. They respond: "all looks okay." Meanwhile the SDM discovers via AWIPS interrogrations that these data are piling up in the NCCF dissemination queue and are in danger of being overwritten if not released soon. The missing programmer is finally located and notified of the critical problem. The SDM asks to be advised of remedial actions ASAP, and in the meantime issues an administrative message via AWIPS concerning this.

1400–1500 GMT

The AFMs, aided by the Met Tech, are interactively preparing 6- and 12-h (1800 GMT and 0000 GMT) short range Northern Hemisphere High-Level Significant Weather update forecasts. Increased turbulence intensity and thunderstorm areal coverage are among the forecast changes being prepared for the central plains as a potent upper level diffluent area begins to develop in the left front quadrant of the subtropical jet. This is the tie-in area between the two AFM overlapping areas of responsibility thus requiring twice the normal interactive processing. Update forecast preparation is also required for each ocean area as Hurricanes Pedro and Fritz manifest themselves. The SDM and ADM during this period prepare the 6 and 12-h (1800 GMT and 0000 GMT) Low Level Significant Weather Forecasts for North America. The techniques utilized in the preparation of these products include Macro controlled monitor display loops of: (1) Paired VIS/IR satellite imagery, and selected Sounding derived turbulence index fields; (2) Standardized SFC/UA plots and analyses; (3) Model forecast guidance packages from the NGM and AVN; (4) Manually prepared NMC analysis and forecast products; (5) Pilot reports displayed by type, time, and altitude; (6) National Weather Radar/Profiler summaries and horizontal Weather Depictions; and, (7) Terminal weather reports and forecast products issued by other centers. These data are selectively transferred to the central display screen where interactive composite plots, and analyses are created. This montage is transferred to the peripheral graphic preparation workscreen and used as background for interactive adjustments to the previous manual forecasts. When complete, these update forecasts are routed back through the AWIPS work-station for dissemination to all users. The MAB Branch Chief at this time begins interactive investigation and collection of data for the afternoon NMC map discussion. Select image and graphic frames are gathered. Previous versions/iterations are automatically retrieved and compiled for looping purposes.

1410 GMT

The NGM finishes and output queued for dissemination. Data begins flowing to AWIPS and other distribution circuits. Scheduled administrative message sent by the ADM to all users on the status of NCCF model runs.

1420 GMT

The SDM is informed that due to approaching convective activity there will be a change to backup power at 1450 GMT. The ADM makes the initial announcement over the PA system while the SDM sets the warning timer on AWIPS. The AVN run ends successfully. The Severe Local Storms (SELS) unit at Kansas City declares RISOP! Increased data flow begins to saturate AWIPS.

1440 GMT

One external user, "XYZ Corp.," calls to complain that central U.S. flash flood warnings and advisories are not available on their "family of services" circuits. Specific bulletin headers are requested and checked via AWIPS. These products seem stuck at the Kansas City Switch, not having been received at the NCCF. The SDM calls and confirms that the problem is indeed at Kansas City. It is a hardware problem and maintenance has been called. This information is passed to the external user on hold on the other phone.

1445 GMT

Five minute power change warning announced on PA system. AWIPS and other sensitive equipment are powered down. Some NMC 1500 GMT manual forecast products will be delayed as a result.

1450 GMT

The power change occurs; AWIPS and other equipment are powered up.

1455 GMT

A programmer notifies the SDM that the buoy data problem has been resolved. The SDM asks the Met Tech to check AWIPS to verify data receipt. All seem okay. An administrative message is sent via AWIPS by the SDM advising that: (1) buoy problem has been cleared up, and (2) some delay in scheduled 1500 GMT NMC interactively prepared manual guidance is expected.

1500 GMT

Intensive interactive overuse of AWIPS by all forecasters causes the NMC AWIPS to crash. A reboot is necessary. This takes 5-minutes. Upon completion, each NMC manually prepared product is queued for 60-second delayed dissemination and concurrently passed to the SDM/ADM AWIPS workstations for alarm, display and final QC. The product may either be placed on hold, cleared for immediate dissemination or allowed to proceed uninterrupted through the 60-second dissemination queue. The ADM, however, detects some inconsistency between two NMC products, places a hold on them, and notifies the SDM who, in turn, confers with the forecasters involved to resolve the differences.

1510 GMT

A second check by the SDM indicates differences are resolved. The products are cleared for immediate dissemination. Final 1500 GMT products being disseminated via AWIPS, 10-minutes late.

f. The Unfolding Scenario—Final Stage

1500–1530 GMT

The Met Tech checks the automated AWIPS aviation forecast verification files to insure decoded data entries are complete and correct and then assist in the preparation of the 24-h wind amend-

ment forecast. The ADM finalizes and disseminates the 24-h "GRIB-CODE" and "FD" wind amendments.

1530–1700 GMT

NMC forecasters during this time are busy preparing 18-48-h forecast products interactively on AWIPS. The ADMs concentrate on preparing 18-h forecasts for their respective Tropical and Northern Hemisphere High Level Significant Weather areas of responsibility. Interactive techniques used differ from those employed in the short range forecast preparation in that in this time frame model guidance now becomes the predominant influence. Tailored Macro programs are invoked which display various standard level model guidance loops such as: (1) comparative model (NGM vs. AVN) 12-48-h standard level forecast verification valid at 1200 GMT; (2) comparative model 1200 GMT initialization; (3) standard model forecast packages (NGM and AUN) including current graphical difference fields from the 1200 GMT run; (4) composite 6-, 12-, and 18-h model and manually adjusted aviation forecast charts valid 1200 GMT and overlaid with verifying data such as aircraft turbulence reports, initialized model jet stream and tropopause height analyses, satellite derived CB areal coverage and maximum top estimates, and (5) new 1200 GMT model guidance consisting of composite 12- and 18-h aviation forecast charts. Any combination of these split screen displays may be copied/overlaid on the central work-screen and also transferred to the peripheral graphic preparation workstation in compatible remapped polar stereographic projection for product preparation.

1540 GMT

The NCCF communications computer operator informs the SDM that the link to the operational Back-End computer has been restored.

1550 GMT

The SDM suspends the critical weather day declaration for two hours until the next model runs at 1800 GMT. This frees the R/D Back-End computer from operational use during this period.

1600 GMT

The MIA and HNL offices each request another special NMC MFM model run from upcoming 1800 GMT data. This program request is keyed in by the SDM.

1600–1700 GMT

The SDM and ADM now turn to preparing their respective 18-h North American Low Level Significant Weather forecasts. Techniques used are similar to those used in the 18-h Northern Hemisphere High Level Significant Weather forecasts, but are tailored to this specific domain. Additional Macro displays are invoked including: (1) National Radar/Profiler, and Weather Depiction Summary loops; (2) Statistical categorical forecast guidance loops; and (3) Detailed North American hourly surface plot/analysis loops. Tie-ins with the 18-h manual synoptic weather prog provides final guidance for model interpretation and also another excellent opportunity for manual output QC.

1630–1700 GMT

The SDM assesses and documents highlights of the preceding events in the AWIPS log file.

1700 GMT

Time to take a well deserved break and get ready for the next onslaught at 1800 GMT.

NOTES AND REFERENCES

1. David Mannarano has been a Senior Duty Meteorologist for the past two years, and has been at the National Meteorological Center for the past seven years. Prior to that he worked one year as Meteorological Operations Manager in the private sector, and has served 12 years in the USAF as an operational Weather Officer. He has also served as past Editor of the National Weather Digest.

2. Smith, Brian G., 1986: Planned Use of Wind Profilers, Nat. Wea. Dig. *Vol. 11 No 4 pp. 28–32.*

APPENDIX

ACARS	Aeronautical Radio, Inc., (ARINC) Communication Addressing and Reporting System
ACN	AWIPS Communication Network
ADM	Assistant Duty Meteorologist
AFM	Aviation Forecast Meteorologist
AFOS	Automated Field Operations System
AIREPS	Aircraft Reports
ASDAR	Aircraft to Satellite Data Relay
AWIPS-90	Advanced Weather Interactive Processing System for the 1990s
CPF	Central Processing Facility operated by NESDIS to control GOES data distribution
DCP	Data Collection Platform (Carried aboard the GOES satellite)
GATEWAY	The data link between the NCCF communications computer and the ACN
GOES	Geostationary Operational Environmental Satellite
GLOBAL IPL	Initial Program Load. This is a MAJOR re-start of the computer.
IPL	Initial Program Load. This is a partial re-start of the computer.
IR	Infrared derived satellite data.
JCL	Job Control Language
LFM	Limited Area Fine Mesh computer model
MAB	Monitoring and Aviation Branch
MFM	Movable Fine Mesh model forecast.
NCCF	NOAA Central Computer Facility
NESDIS	National Environmental Satellite, Data and Information Service
NEXRAD	Next Generation Weather Radar
NMC	National Meteorological Center
NOAA	National Oceanic & Atmospheric Administration
NGM	Nested Grid (computer) Model
NWS	National Weather Service
OI	Optimum Interpolation technique for data analysis
QC	Quality Control
RADID	Radar Information Display
RAOB	Radiosonde (upper air) Observations
RAFS	Regional Analysis & Forecasting System (of which the NGM is a part)
R/D	Research & Development
RECO	Reconnaissance Aircraft Observations
RISOP	Rapid Interval Scan Operations for GOES satellite data
SDM	Senior Duty Meteorologist
SELS	Severe Local Storms unit at Kansas City
VAS	VISSR Atmospheric Sounder
VIS	Visible satellite data
VISSR	Visible/Infrared Spin Scan Radiometer equipment carried aboard Polar Orbiting and GOES satellites.