part 3

PROPOSED
EXTERNAL USER POLICIES
NATIONAL WEATHER SERVICE WEATHER AND RIVER INFORMATION

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In May 1978, we began to install the AFOS (Automation of Field Operations and Services) system in our field offices. Under this new system, the characteristics and procedures of our internal communications will change drastically. By necessity, the ways that certain users receive our information will change; by choice, many users may want to change their ways of getting our information to improve their own operations. Coincidentally, we are introducing a new facsimile service and halting three others. We deem it appropriate now for us to express our future policies as clearly as we can to enable users to plan adequately for the changes that are coming.

I. BACKGROUND

The installation of the AFOS system began in May 1978, and parts of the system will become operational in early 1979; additional National Weather Service sites will become operational at a rate of six to eight per month until all become so by the spring of 1981. As the AFOS equipment becomes operational, our offices will no longer use RAWARC nor Services A, C and O; very few will use any of the facsimile circuits.

Under AFOS all alphanumeric information will flow between our offices on a single communications line, at 2400 bits per second (bps) over most links and at 1200 or 4800 bps over some. All graphic information will flow over the same lines in vector-encoded form.

Information will not flow on a fixed schedule or in collective form for the most part. Observations and other reports will flow as individual messages under a priority/interrupt control system. The communications protocol is such that it is not amenable to the 'extension service' approach that is used on the present broadcast circuits.

As a result of this development our offices will no longer require the primary drops on the teletype circuits that will continue to exist (and to which some users now connect as secondary drops). Our requirements will gradually disappear starting in early 1979 until none remain by early 1981.

The new facsimile service (DIFAX) that we will initiate in early 1979 is a digital system that can carry the net sum of the conventional products now disseminated on NAFAX, NAMFAX and FOFAX, as well as some limited number of satellite pictures. Although we will operate NAFAX until 1983, we will discontinue the NAMFAX and FOFAX services by January, 1980. We expect that a number of other government users (primarily FAA and DOD) will switch to DIFAX prior to the time we discontinue NAFAX in January 1983.

IMPACTS ON USERS OF CURRENT SERVICES

The net impacts on those users who have access to our current services are:

- o NOAA Weather Wire Service (NWWS) - None, where the current service equals 75 wpm. (For the few lower speed circuits, see later.)

- o Services A, C, O - May have to pay charges for a longer line to access at a more distant primary drop (or drops) in order to receive the same set of observations. Our best information from the FAA is that Service A will continue to be available and that Services C and O will also remain available through 1980 at those NWS offices not yet operational with AFOS. We expect to phase out services A, C and O at all NWS sites in early 1981.

- o NAFAX - will be discontinued in January 1983 (which allows a four year transition period for users).

- o NAMFAX - will be discontinued by January 1980. (DIFAX terminal equipment costs will significantly exceed NAMFAX equipment costs.)

- o FOFAX - (See NAMFAX)

- o DIFAX - depends on current combinations of services (equipment costs will be significantly higher than NAMFAX or FOFAX alone, much higher than NAFAX alone, similar to charges for NAFAX/NAMFAX or NAFAX/FOFAX combinations; significantly higher for a satellite picture option; there may also be some added charges for a longer line to a more distant primary drop).

- o RAWARC - Terminal equipment and extension drops will be phased out at each NWS site as it becomes operational with AFOS, and each circuit will be dropped when all NWS sites on the circuit are operational with AFOS. RAWARC will be completely phased out by January 1981.

IMPACTS ON USERS CONSIDERING ACCESS TO THE AFOS SYSTEM

Interfacing with the AFOS system can be cost-effective to some users of weather information. It is most likely to be cost-effective for those users who:

- o Now have a large number of services (circuits)

- o Now must expend significant manual or procession resources to use current services ('paper') in their operations, or

- o Plan to expand their own operations and services.

II. GENERAL OUTLINE OF POLICY

We are on the threshold of a great technology change within the National Weather Service. At the same time, the users of weather services are presented with the opportunity to introduce new technology in the ways they operate and use our information. We feel an obligation to provde users this opportunity to progress with us.

At the same time, we feel that we should provide an orderly transition for those users who cannot abruptly change to an entirely new system; but in the interest of government economy, we can't maintain all services in perpetuity just because they once existed.

Therefore, we propose to strike what we believe to be a proper median course. In the most general terms:

- o Most users of a limited amount of information (NWWS users) are affected very little, if at all.
- o Hard copy graphics (facsimile) will continue to be provided for at least 5 years (i.e. NAFAX until January, 1983, and DIFAX at least through 1983). While cost increases in this period cannot be avoided, we are attempting to provide for a reasonable limit.
- o We provide for a transition period for the heavier alphanumeric users - again with some provisions for limiting cost increases.
- o We provide a means of access for those who wish to upgrade their system in the near future.

The specific policies as discussed in Section III apply to those users who are receivers only. Separate negotiations will be made with those organizations with whom we have two-way communications agreements.

III. SPECIFIC SERVICE POLICIES

The specific policies as they apply to each of our services* (present and future) will be discussed in two parts - those to be maintained or established, and those to be phased out.

A. SERVICES MAINTAINED OR ESTABLISHED

1. FACSIMILE

a. **NAFAX:** This service will be retained until January 1983. As AFOS is installed and becomes operational, the backbone circuit will be reconfigured by discontinuing those primary drops no longer required by NWS offices (i.e., the NWS supported drop to which external users are connected.)

b. **DIFAX:** A digital facsimile circuit will be established in early 1979 and maintained at least through 1983. This service will carry the types of materials now available on NAFAX, NAMFAX and FOFAX along with some limited number of satellite pictures.

Our strategy for implementing DIFAX calls for the backbone circuit to consist of some 30 NWS drops nitially. However, as AFOS is installed and DIFAX is no longer required at some of thes sites, the configuration of the backbone circuit will change. The final backbone will have one primary drop per NWS forecast area or state as needed to meet government (NWS, FAA, DOD, etc.) requirements. Once this configuration of the backbone is achieved, it will not be extended into other areas.

We will review NWS and user DIFAX requirements and the cost effectiveness of our dissemination system in 1981, which will help us determine what changes, if any, are necessary beyond 1983.

2. OTHER DATA AND PRODUCT SERVICES

a. **NWWS:** Statewide circuits will be retained and operated at a standard speed of 75 wpm. We plan to expand NWWS (subject to budgetary approval) to make this service available in all forty-eight conterminous states.

b. **Access to our National Distribution Circuit (NDC):** Although our plans are not fully detailed at the present time, we plan to procure a special computer system in 1979 which will act as a buffer to provide users an access to the operational weather and river information that flows on our NDC. Figure 1 shows the general operational characteristics of the buffer. A private enterprise(s) serving multiple users would provide a 4800 bit per second communications line to a synchronous port in the buffer to receive all operational alphanumeric and vector encoded

graphic data originated by the NWS, essentially at the same time it is received at our field offices. The data transfer over the interfacing line will be quality controlled through the use of the Advanced Digital Communications Control Protocol (ADCCP). Thus the interface will be maintained in a synchronous mode at 4800 bits per second under ADCCP control.

The range of capabilities available to a user served by the private enterprise connection to the buffer is defined by the terminal/processor equipment at the receiving end. It could range from an alphanumeric-only service (using a relatively low-cost but high-speed intelligent terminal) to the full capability of processors and consoles similar to those employed in our AFOS system.

We are encouraging the service company approach to provide a practical limit to the number of ports needed at the buffer and to offer an opportunity for end users to cost-share the communications, storage and processors required to interface with the buffer. This approach also offers the opportunity for the supporting private facility to serve a community of end users who have diverse requirements.

Ports will be allocated through a written agreement with interested private enterprises on a first-come, first-serveed basis. There will be a nominal charge per port (expected to be $1-3K per year) to defray NWS operational expenses. We expect to activate the buffer in January, 1980, with the probable location being our System Monitoring and Coordination Center at Suitland, Maryland.

B. **NWS SERVICES TO BE PHASED OUT**

1. **FACSIMILE**

   a. NAFAX will be phased out in January, 1983.

   b. NAMFAX and FOFAX will be phased out during the 1979 calendar year with both services terminated by January, 1980.

2. **OTHER DATA AND PRODUCT SERVICES**

   a. RAWARC: Specific equipment at NWS sites will be phased out as AFOS becomes operational; each complete circuit will be eliminated as all NWS stations on it become operational in AFOS. All RAWARC will be eliminated by January 1981.

   b. All NWWS and public service circuits at speeds slower than 56.9 b/s (75 wpm) will be upgraded or phased out as AFOS becomes operational at the serving sites.

   c. Public service circuits (local loops) will be discontinued where they are redundant with NWWS.

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*Services A, C, and O are controlled and operated by the FAA. The impacts as described on page 2 are expected to prevail through the early 1980's. However, further changes in the availability of these services should be anticipated by 1983 or 1984 as a result of modernization programs being planned by the FAA.