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MESOS DATA ANALYSIS SOUTHERN REGION NOTE NUMBER 1
THE USE OF THE MESOS DATA ANALYSIS ROUTINES

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With the implementation of the MESOS programs (SRH Technical Memorandum 114) it has become apparent that the meteorologist needs an effective plan to assimilate this new data in an orderly and timely fashion. This inaugural note offers recommendations on which programs to run and how often to run them. Please remember that except for the upper-air data in the stability index calculations, the data are surface derived. There are instances (mostly at night) when surface derived fields may not represent what is occurring aloft.

First a note about selecting the filter weight to be used in the command line of the program MESOS (the local switch W). Generally, once selected for your station, you need not change it. The distance filter weights in the objective analysis MESOS correspond to the average stations spacing (printed out by the program BLDWXD). Using the same filter weight (day and night) allows for the computation of grid point changes (program OACHG) every three hours (see Fig. 2).

The weights correspond as follows:

Weight 1 - Average station spacing of 100 km.
Weight 2 - Average station spacing of 125 km.
Weight 3 - Average station spacing of 150 km.

It is desirable to pick a filter weight corresponding to a distance larger than the average station spacing. Try to allow for the fact that some stations will close at night and increase the average station spacing.

Fig. 1 depicts what I will term the "First Look". The stability is examined as soon as the upper-air data is in. Based on the stability diagnosis (NMCGPHSSL, NMCGPHSSU, NMCGPHSTW), and the expected type of weather for the day, one of two modes of operation can be selected. These two modes, the operational and standby modes, are detailed in Fig. 2. The operational mode would be selected for a day when significant weather was expected. The standby mode is only for routine monitoring of the weather. Quite often, the

contoured field of altimeter change (NMCGPHSAC) can reveal very subtle features. Most of us have experienced the case where convection has unexpectedly broken out and/or increased. It is for cases like this that plotting the stability (NMCGPHSSL), moisture convergence (NMCGPHSMC), or altimeter change (NMCGPHSAC) might assist the meteorologist in rapidly developing weather situations.

Figs. 1 and 2 certainly do not preclude other methods of operation or the use of other data, they represent only a suggested "short form" for assimilating the data.

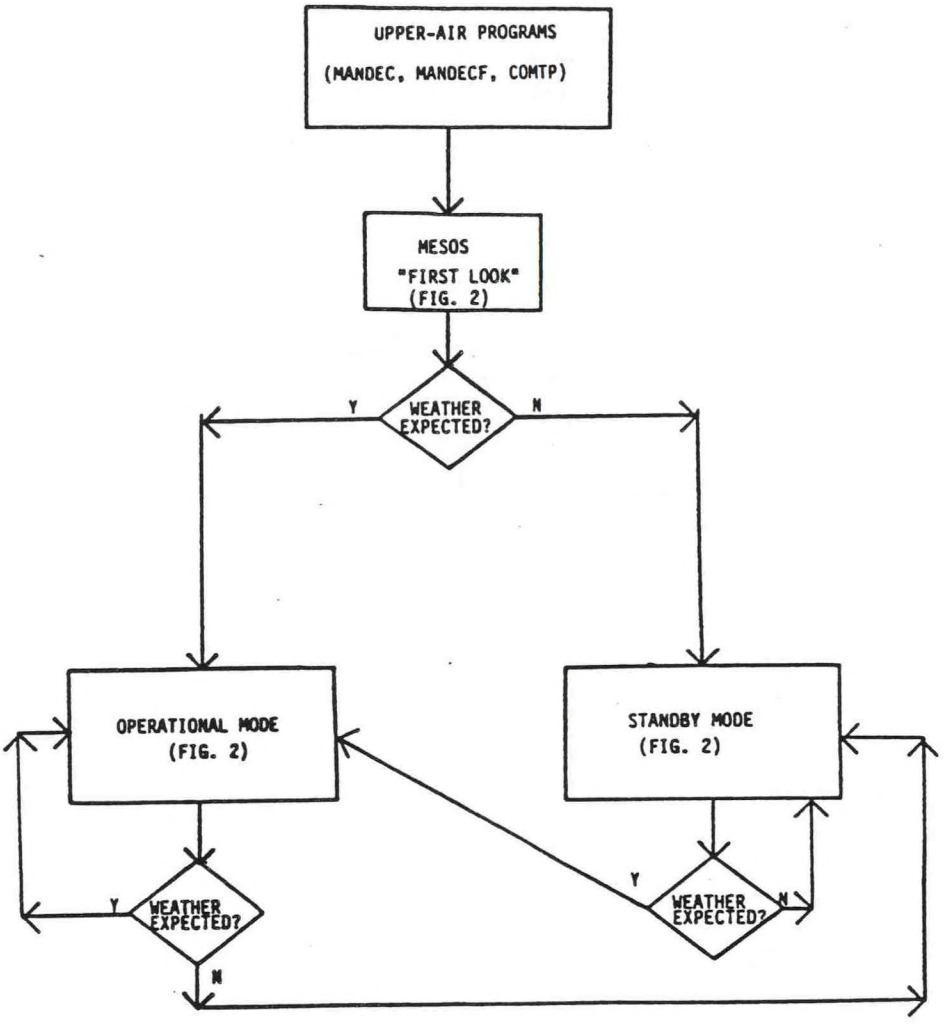
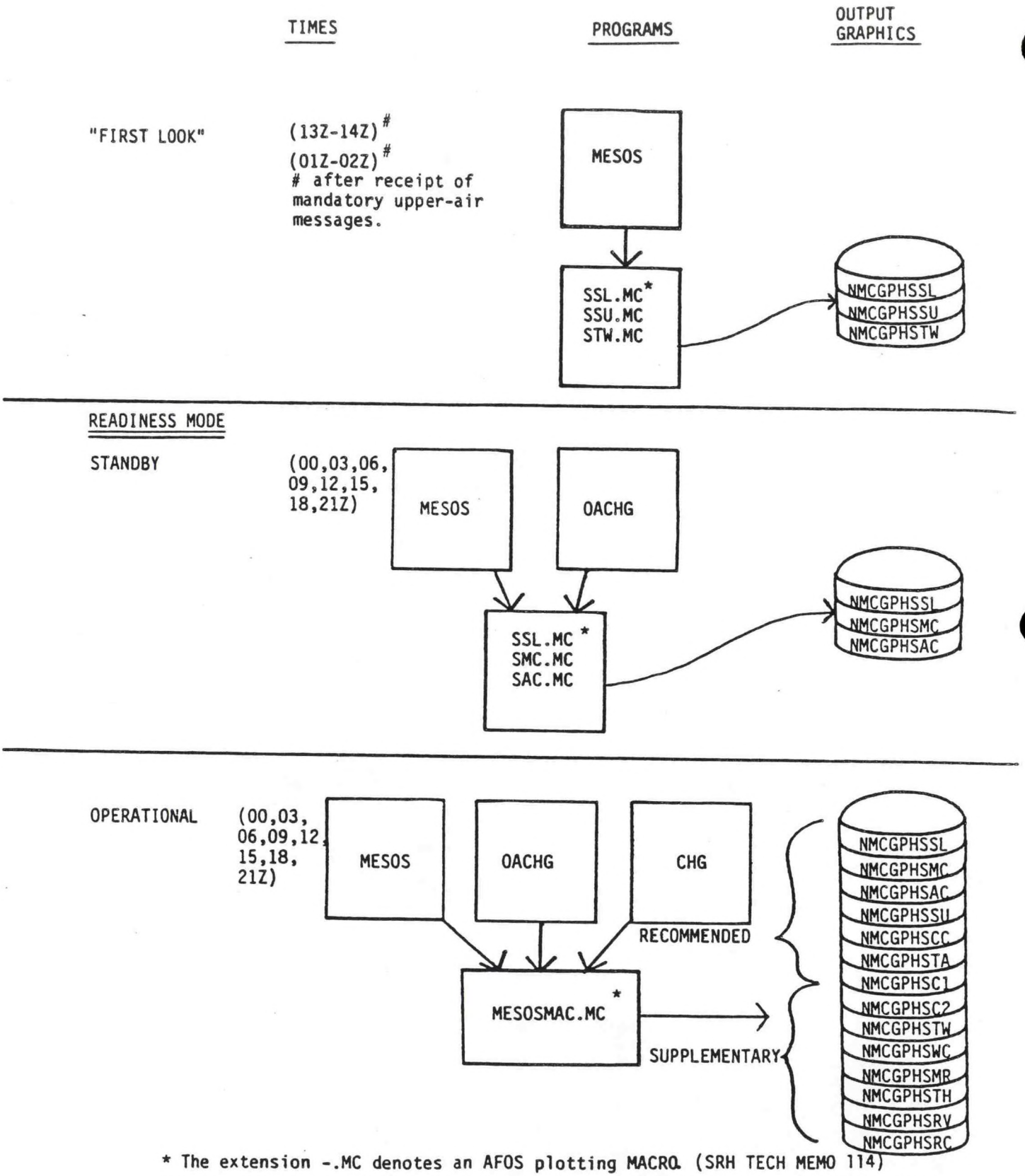


Fig. 1 Sequence depicting determination of OPERATIONAL or STANDBY mode. See also Fig. 2.



* The extension -.MC denotes an AFOS plotting MACRO. (SRH TECH MEMO 114)

FIG. 2 SEQUENCE OF PROGRAMS INCLUDING FIRST LOOK, STANDBY AND OPERATIONAL MODES.