Section 13
VOLCANIC ASH ADVISORY CENTER (VAAC) PRODUCTS

The Volcanic Ash Advisory Center (VAAC) may issue two products when there is a volcanic eruption: the Volcanic Ash Advisory Statement (VAAS) and forecast charts of ash dispersion. The U.S. VAACs are the AAWU in Anchorage, Alaska, and the Washington, D.C. VAAC located in Camp Springs, Maryland. Other international centers contribute to the tracking of volcanic ash events. The VAACs do not issue routine products but create and issue them when a volcanic eruption occurs. The products are based on information from PIREPs, MWO SIGMETs, satellite observations, and volcanic observatory reports. Since the products are triggered by the occurrence of an eruption, pilot reports concerning volcanic activity are extremely important.

VOLCANIC ASH ADVISORY STATEMENT (VAAS)

Usually the first VAAC product to be issued is the Volcanic Ash Advisory Statement(VAAS). The VAAS is required to be issued within 6 hours of an eruption and every 6 hours after that. However, it can be issued more frequently if new information about the eruption is received. The VAAS summarizes the currently known information about the eruption. It may include the location of the volcano, height of the volcano summit, height of the ash plume, a latitude/longitude box of the ash dispersion cloud, and a forecast of ash dispersion. The height of the ash cloud is estimated by meteorologists analyzing satellite imagery and satellite cloud drift winds combined with any pilot reports, volcano observatory reports, and upper-air wind reports. The VAASs are transmitted to users via the Global Telecommunications System (GTS), the World Area Forecast System (WAFS), the Aeronautical Fixed Telecommunications Network (AFTN), the FAA communications system (WMWCR), and the NWS Family of Services. In addition, VAASs are available on several Internet sites listed on the last page of this document.

Example of a VAAS:
FVAK20 PANC 190323
VOLCANIC ASH ADVISORY - ALERT
ALASKA AVIATION WEATHER UNIT
NATIONAL WEATHER SERVICE ANCHORAGE AK
ISSUED 0300 UTC SUNDAY JULY 19 1998 BY ANCHORAGE VAAC

VOLCANO: KARYMSKY (1000-13) 98-01
KAMCHATKA 54.05N 159.43E 1486 M 4875 FT

SOURCES OF INFORMATION: PILOT REPORT

ERUPTION DETAILS: ERUPTION TO FL100 REPORTED BY PILOT REPORT AT 19/0200 UTC VIA WASHINGTON DC VAAC.

ASH CLOUD DESCRIPTION: N/A

ASH CLOUD TRAJECTORY: NE 10 KT.

12 HOUR OUTLOOK: IF ASH PERSISTS ALOFT AT 12 HOURS THE FORECAST AREA FROM THE PUFF MODEL BELOW 15000FT IS 56N 161E, 55N 166E, 54N 165E, 55N 162E.

ADDITIONAL INFORMATION: NO ERUPTION VISIBLE ON SATELLITE IMAGERY DUE TO CLOUD IN AREA.

THIS WILL BE THE ONLY ADVISORY ISSUED FOR THIS EVENT.

DAC JUL98 AAWU

VOLCANIC ASH FORECAST TRANSPORT AND DISPERSION (VAFTAD) CHART

The Volcanic Ash Forecast Transport and Dispersion (VAFTAD) Chart, Figures 13-1 and 13-2, is generated by a three-dimensional time-dependent dispersion model developed by the National Oceanic and Atmospheric Administration (NOAA) Air Resources Laboratory (ARL). The VAFTAD model focuses on hazards to aircraft flight operations caused by a volcanic eruption with an emphasis on the ash cloud location in time and space. It uses National Centers for Environmental Prediction (NCEP) forecast data to determine the location of ash concentrations over 6-hour and 12-hour intervals, with valid times beginning 6, 12, 24, and 36 hours following a volcanic eruption. This computer-prepared chart is not issued on a routine basis, but only as volcanic eruptions are reported. Since the VAFTAD chart is triggered by the occurrence of volcanic eruption, PIREPs concerning volcanic activity are very important. Initial input to the VAFTAD model run and the resulting chart include: geographic region, volcano name, volcano latitude and longitude, eruption date and time, and initial ash cloud height. Utilizing the NCEP meteorological forecast guidance, volcanic ash particle transport and dispersion are depicted horizontally and vertically through representative atmospheric layers. The charts from an actual eruption will be labeled with ALERT. Another possible reason to generate a chart could be for potential volcanic eruption. This chart would be labeled WATCH as shown on Figure 13-1.

VAFTAD PRODUCT

The VAFTAD product presents the relative concentrations of ash following a volcanic eruption for three layers of the atmosphere in addition to a composite of ash concentration through the atmosphere. Atmospheric layers depicted are: surface to flight level (FL) 200, surface to FL550 (composite), FL200 to FL350, and FL350 to FL550. Figure 13-1 shows 8 panels of ash cloud relative concentrations for 12 to 24 hours; and Figure 13-2 shows 18 to 24 hours after a volcanic eruption. Note that the first 6 hours after the volcanic eruption are not depicted. An appropriate SIGMET will be issued by an MWO for that period concerning the volcanic eruption and the area affected by the ash cloud. The four panels in any column are valid for the same time interval (specified and located below the third panel). The top three panels in each column provide the ash location and relative concentrations for an atmospheric layer, identified by top and bottom flight levels. The highest layer is at the top of the chart. Volcano eruption information is given in the legend at the lower left (see Figure 13-1) which includes the volcano name (with location symbol), latitude and longitude, eruption date and time, duration, and ash column height.

USING THE CHART

The VAFTAD chart is strictly for advanced flight planning purposes. It is not intended to take the place of SIGMETs regarding volcanic eruptions and ash.

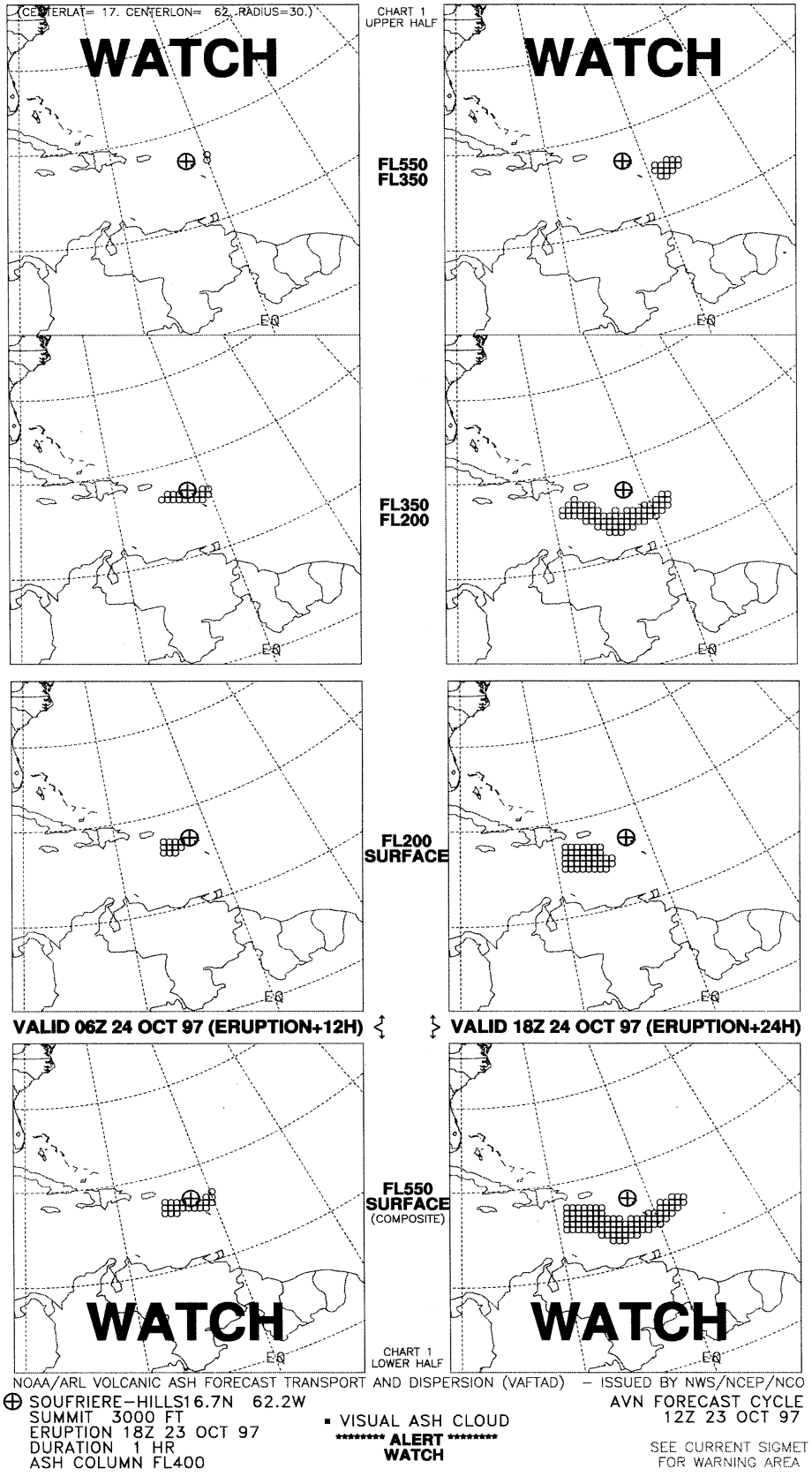

Figure 13-1. Volcanic Ash Forecast Chart.

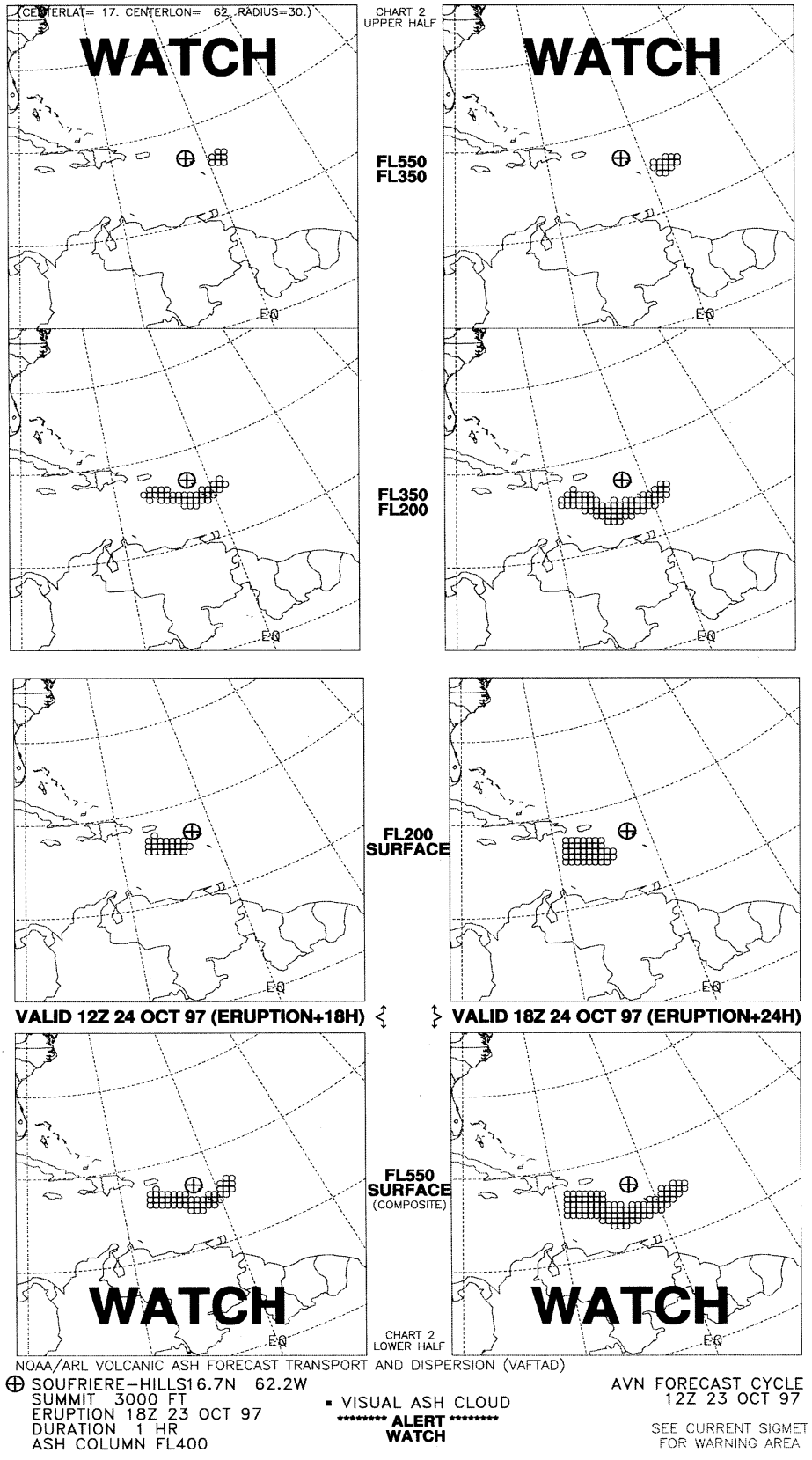

Figure 13-2. Volcanic Ash Forecast Chart.