

# METEOROLOGICAL WORKSTATION SYSTEMS AT THE NOAA SCIENCE CENTER

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## Extended Abstract

For the past 20 years a number of independent efforts have been under way within the National Oceanic and Atmospheric Administration (NOAA) to develop useful interactive workstation systems for the environmental sciences. In 1990, a cooperative agreement was reached between three components of the agency (National Weather Service; National Ocean Service; and National Environmental Satellite, Data, and Information Service) to form the NOAA Science Center in Camp Springs, Maryland U.S.A.

The goal of the NOAA Science Center is to: develop closer working relationships among the operational, research, and technique development communities engaged with meteorology, climatology, oceanography, and hydrology applications; move toward "open architecture" hardware and software using government standards; and increase interconnectivity between systems through the establishment and use of Wide Area Networks.

### 1. BACKGROUND

In the fall 1991, the Director of the National Meteorological Center in the NOAA Science Center announced the formation of a Workstation Development Project which will define all future workstation development at the NOAA Science Center.

This paper focuses on the variety of workstations which exist or are under development at the NOAA Science Center. These systems range from simple animation devices to PC-based interactive workstations to workstations connected to mainframe computers to high order smart workstations.

Simple animation devices in use at the NOAA Science Center such as the Northern Video Graphics (NVG) and Satellite Weather Information System (SWIS) are primarily utilized by meteorologists in viewing image animation of satellite data. Although these devices were once a primary tool of the forecasters, they are gradually being phased out as the "power" of the interactive workstation increases.

PC based interactive workstations are relatively new at the NOAA Science Center and are primarily used in specialized applications using uniquely developed software. Some of these systems are; the Interactive Digital Image Display and Analysis System (IDIDAS) used for NOAA Coastwatch Stations and Volcano monitoring, and the Satellite SST Image Processing System (SSIPS) used by the National Ocean Service in oceanographic analysis. These systems use multi-spectral imagery from NOAA AVHRR Polar data and foreign satellites to prepare analyses.

One of the primary operational systems currently in use at the NOAA Science Center is the VAS Data Utilization Center (VDUC). This mainframe/interactive workstation configuration based on McIDAS technology, supports the day-to-day operations of the NOAA Science Center. Another primary system in use is the Intergraph Computer System used by the National Weather Service for the preparation and transmission of operational products.

Smart workstation development has been under way a number of years in various offices in the NOAA Science Center. Systems such as: Apollo, Silicon Graphics, and MicroVAX, are examples of ongoing development platforms.

## 2. NOAA SCIENCE CENTER WORKSTATION DEVELOPMENT PROJECT

The NOAA Science Center Workstation Development Project will take advantage of resources in each of the organizations within the Center. The project will also focus the development activities that are occurring in different parts of the Center. There are several main points to the development approach:

1. The development will be compatible with the overall National Weather Service Modernization, particularly for integration with AWIPS, the Advanced Weather Information Processing System.

2. The overall approach is to move data rather than products, and allow for distributed processing for producing products from data.

3. The development will be done to meet written requirements that come from each of the offices within the Center.

4. Standards will be adopted to ensure that the system is easy to maintain and enhance.

5. The development activities will be hardware independent whenever possible, and efforts will be made to insulate applications from both data formats and hardware dependencies.

6. A toolbox of routines will be developed for standard computational functions, such as objective analysis, parameter computations, and diagnostic functions.

The primary elements of the workstation that have been identified for the phased development and implementation are the following: Data flow, Data access, Data display, Analysis and diagnostic routines, product generation, product launch and track, and User interface. (Figure 1)

# ELEMENTS OF THE WORKSTATION

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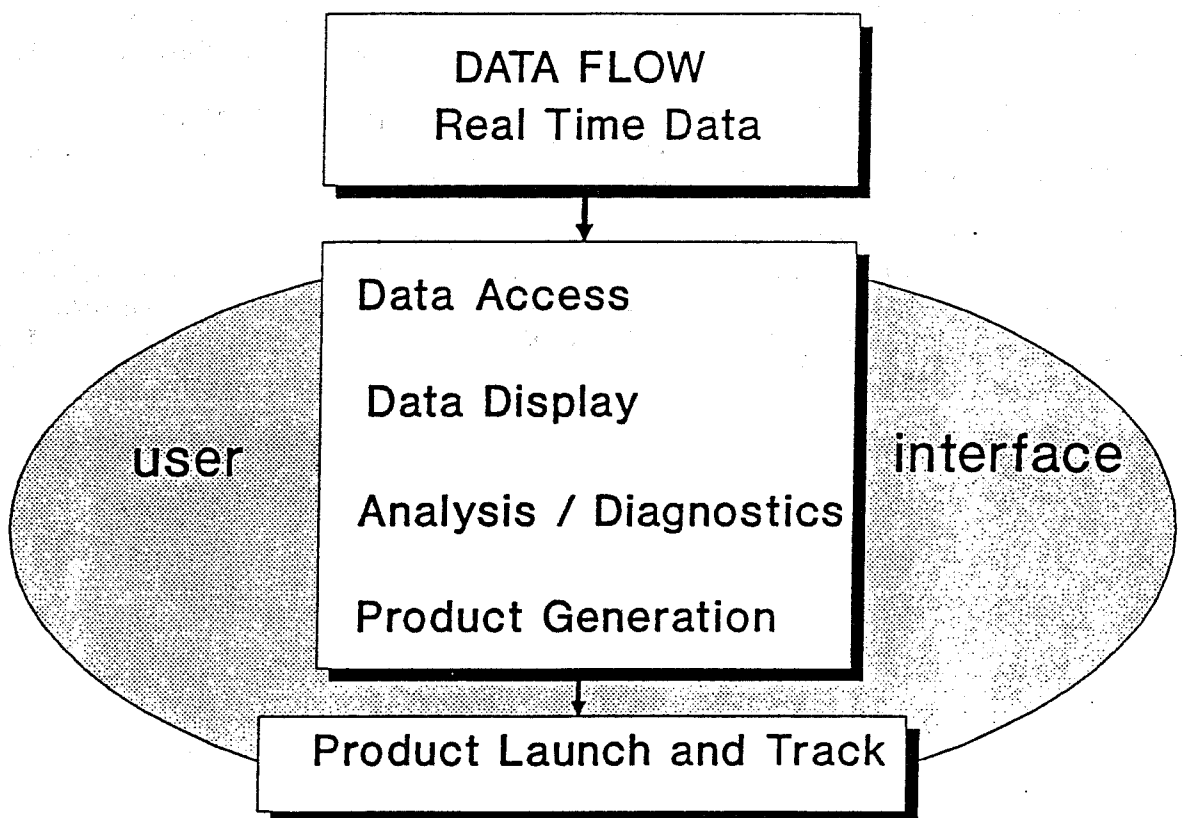


Figure 1