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PROTEUS

[Editor's Note: You may have heard of PROTEUS and wondered what it is. The following attachment, reprinted with permission, is from the Alaskan Region Staff Notes and explains what PROTEUS consists of.]

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LOOK.....it's a bird, it's a plane, no it's PROTEUS (prototype realtime operational test, evaluation, and user simulation)!!

In reality, it's not quite that exciting but PROTEUS is a development project that departs from the traditional way of doing development work. The primary goal of PROTEUS is to demonstrate, test, and evaluate unique features of hydrologic forecasting and other hydrologic operational requirements to be satisfied by AWIPS. Special emphasis will be placed on the following features:

- Use of Commercial Data-Base Management systems in hydrology
- Automatic handling and monitoring of the so-called "event data"
- Interactive use of hydrologic models (now largely batch operations)
- Integration and analysis of NEXRAD data for hydrologic forecasting
- Hydrologic graphics

These features will be incorporated for use in the most important hydrologic functions at the RFCs and WFOs and must work to the forecaster's satisfaction when AWIPS is delivered to the field. If we were to ask the AWIPS contractor to develop these functions, there is a significant risk that the products delivered would not satisfy the forecaster. The philosophy behind PROTEUS is to develop prototypes of these functions so that they can be tested in an operational environment by forecasters prior to their inclusion in AWIPS. So, PROTEUS has the added goal of reducing the risk associated with implementing hydrologic functions in the AWIPS. From this view point, a project like PROTEUS is essential.

Parts of the development work are taking place at the RFCs in Kansas City, Salt Lake City, Harrisburg, Anchorage, and Tulsa, as well as the Office of Hydrology. Other offices may become involved as time progresses. It is the operational setting at these offices that will provide the initial forecaster evaluation. Later this year when the

DAR3E II program starts up at Denver, some portion of the PROTEUS prototypes will be tested in the RFC-WSFO interface environment.

The departure from traditional methods of development is manifest in the use of off-the-shelf hardware and software as much as possible. The components for each function are assembled in an initial prototype and tried out operationally. Chances are the first cut will not be satisfactory. Feedback from the forecaster will determine the suitability and deficiencies of the prototype. Improvements are made based on this feedback. A perfected prototype should evolve by iterations of this process.

The final products of PROTEUS will be what are called "deliverables" to the AWIPS contractor. Deliverables will consist primarily of hydrologic techniques in one of three categories:

(1) Working computer code in machine readable form, and any additional documentation
(2) Plain language description plus related code in machine readable form, and user documentation
(3) Plain language description

The bulk of the deliverables are expected to be in category (2), which the AWIPS contractor will modify for incorporation into the AWIPS MARD prototypes. MARD is the Modernization and Associated Restructuring Demonstration that will involve about 10 sites in the central part of the country which will test the AWIPS preproduction models of the equipment and software prior to full-scale field implementation of AWIPS-90.

A project like PROTEUS where field offices participate in the development and evaluation of software systems will pose an additional strain on an already full schedule at these offices. However, there is a worthwhile tradeoff. It has been our experience in the Alaska Region that software systems developed in the operational environment are generally, but not always, superior to turnkey systems furnished by non-operational entities. The NWS requirements for AWIPS represent a large enough technological advance in our way of doing business that we really have no practical choice other than taking the bull by the horns and getting involved in the development. The alternative is to have a system delivered that doesn't work satisfactorily and then end up spending several months or years trying to rectify the deficiencies.

If you have read this far, I will tell you that Proteus is also the son of Poseidon, god of the sea in Greek mythology. Proteus was supposed to see into the future and have the ability to change form rapidly, as the situation required. Sounds like an appropriate moniker for a few other subjects we have all run into over the years.