

1. Could you expand on your answer to #9 "Many of our customers make extensive use of community based modeling and are looking for ways to expand their sources of Earth science data. We hope ESIP can help in these areas."

ERT is currently supporting several NOAA modeling and forecast programs, including the National Weather Service (NWS) National Water Model, the NWS Climate Prediction Center operational climate prediction models, the NWS Advanced Weather Interface Processing System and the Oceanic and Atmospheric Research (OAR), Air Research Lab Hygeia Model. We also provide Space Weather modeling support to the Air Force Research Laboratory. As the demands for severe weather and climate prediction capabilities increase, NOAA's need for observational data increases, particularly in the under-observed oceans and tropospheric atmosphere. We are hoping to find federal, state and commercial partners to increase NOAA's access to observational data.

2. Could you provide a bit more information on the answer to #10 "We have developed NOAA's first cloud based computing systems for very large data sets."

ERT performed planning, architecture design, implementation and optimization/sustainment of the NOAA National Environmental Satellite, Data, and Information Service (NESDIS) Common Cloud Framework (NCCF), a novel enterprise cloud computing and storage system for NOAA satellite data.

ERT is supporting the migration of NWS CPC products and systems to the cloud environment, enabling our customers to accomplish much more than possible with their on-premises system. Fortran-based on-prem applications are being refactored into Python and hosted on AWS to address the limited on-prem computing resources.

ERT provided system architecture and software engineering to design and develop cloud-native data processing and dissemination capabilities as part of the Precision Navigation Data Processing and Dissemination System (PNDP&DS). ERT deployed PNDP&DS to combine tides, currents, weather, and bathymetry in the AWS cloud.

The National Ocean Service's Office of Coast Survey's nowCOAST offers real-time ocean and meteorological observations, forecasts, and warnings through a web-based portal. ERT's migration of nowCOAST to the cloud allowed for efficient resource allocation, on-demand scaling, and the potential to optimize costs based on actual usage. By migrating to AWS, nowCOAST gained advantages such as scalability, reliability, and access to a wide range of cloud services.

3. For question #11, could you address the "How" of the question of how you can contribute to the clusters that you listed?

ERT's on-staff experts in these areas are able to share lessons learned and best practices, expand existing partnerships and networks, provide updates and interpretation on public policy and regulation, and share tools used to successfully support these areas.

4. Could you provide distinct answers to Questions 9 and 12?

As NOAA's largest services contractor, ERT works with a broad range of geospatial data, from Atlantic Wright whale movement in the Gulf of Maine to post storm bathymetry to volcanic plume tracking. Our federal customers' need for observational data exceeds their capacity to collect. We are hoping ESIP can help us to identify additional sources of data, including smallsats/cubesats, commercial shipping and transportation based data platforms, drones and marine UAVs.