Ocean Observing

The ability for decision makers to effectively do their jobs is directly dependent on the ability to integrate and analyze high quality data quickly and easily. RPS’s software and systems have been developed to meet the demands of the rapidly growing need for ocean observing and modeling. For this community, RPS has developed applications and software that range from highly specialized and niche to extensible and generic. High quality, internationally regarded models have come to depend on the observing and modeling systems that RPS has developed.

RPS's application platforms enable the generic uptake of existing data collections from disparate sources and in varying formats. For example, varying data streams such as HF Radar current data and wind observations from Weatherflow can be processed together into a real-time four dimensional model of surface and subsurface ocean conditions. Access to these resources can be used by a wide variety of applications and ultimately meet the needs of various constituencies. Additionally, the generic nature of the data collection and distribution protocols allow for simplified scaling of the systems.

**Data Management and Communications (DMAC)**

RPS, as an industry partner, participates regularly in groups developing standards and protocols for data management and communication. RPS employees are members of the IOOS Data Management and Communications (DMAC) working group, the Data Integration Framework (DIF) Web Services and Data Encodings (WSDE) working group, the IOOS Observation Registry Technical Advisory Committee, the IOOS Modeling and Analysis Steering Team (MAST), and also serve as Principal Investigator for the Mid-Atlantic Regional Coastal Ocean Observing System (MARCOOS) DMAC team.

As a result, RPS has focused on the development of software that maximizes interoperability. RPS's tools allow for the efficient management of a wide variety of data types, including formats stored in databases (e.g., PostGIS, ESRI ArcGIS Server, MSSQL), or file format data storage (ASCII, netCDF, GRIB).

Data outputs from the RPS systems meet standardized protocols and are able to be ingested in industry standard desktop GIS software (i.e., ESRI) as well as widely accepted web based GIS tools (i.e., Google Maps through KML). RPS also delivers data in standards that conform to the Open Geospatial Consortium’s specifications for Web Mapping Services, Web Feature Services, and Web Coverage Services.

Data managed by ASA through DMAC must meet rigorous metadata and quality standards. These data must have high quality metadata so that they be distributed and archived within the climate and forecasting communities. Data must also meet quality assurance standards, for example the IOOS Quality Assurance of Real Time Ocean Data (IOOS QARTOD). ASA has experience in managing real time data collection systems with real time quality controls according to these standards.
**Marine Forecasting Integration**

RPS provides services and solutions for real-time meteorological and oceanographic condition forecasting and weather integration. Our comprehensive range of forecasting services ensures absolute coverage for all offshore industries and mariners professional and recreational, allowing improved efficiency and safety. RPS develops sophisticated real-time ocean observation systems and data aggregation tools that enable us to deliver functional information for multi.industry and marine related purposes. RPS also has proprietary forecasting suites that allow for high resolution forecasting for coastal zones.

RPS provides a globally re-locatable, integrated system for real time observation, modeling, and data distribution for estuarine, coastal, shelf, and ocean waters.

RPS’s real-time weather services have been delivered as part of innovative ocean observing systems for marine response and crisis management for industry as well as research projects around the world.

**COASTMAP interface**

Example COASTMAP Web-Client screen showing forecast hydrodynamic model results, forecast model wind field, and NexRad radar output for Mid-Atlantic Coast.