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Organization Summary:

ASA's GIS and data integration projects have originated from a rich history of marine response and coastal management related work from the start of ASA. The company's founding in 1979 was focused on the core service of advanced numerical 3-dimensional hydrodynamic modeling to solve marine environmental problems. ASA has been involved in developing and utilizing environmental data management and Geographic Information Systems for more than 25 years. ASA has confronted and met the challenge of integrating disparate environmental data often stored in non-GIS data formats and by a wide array of data providers by developing integration tools and support for normalizing and homogenizing various data formats. GIS and data management is essential in every corner of our business, especially our work in the marine environment.

Important Issues:

Based on the preliminary agenda's focus items, it is hard to pin point just a few issues that most affect our work. Data infrastructure and management underpin all of the work that we do from numerical modeling to presentation and delivery of analyses. Much of our work is enabled by providing common inter-operable interfaces to a wide variety of ocean and meteorological data. Being able to efficiently combine different data file formats and data types fuels our work in oceanography, fates and transport modeling, coastal hazard and sustainable energy.

As more and more data are being collected from a growing number of sources, it is pivotal for the community to assess how best to keep up. Both open source and enterprise quality ESRI solutions contribute significant capabilities to scientists and engineers throughout the ocean community. The more communication between the open source world and ESRI, the better and more useful products will be in helping us do our work.

We see multi-dimensional data formats (specifically netCDF and HDF) as essential formats for storing a variety of different types of data and often map netCDF data to the shapefile data model and back. OpenDAP is a game changer as far as the traditional model for data distribution is concerned. It allows for fast, dynamic and distributed data access to large volumes of data from a variety of clients in different languages and technologies. However, we acknowledge that the flexibility of these specifications creates some ambiguity for developers attempting to adopt them. (Examples we currently face include mapping a variety of types of ocean observing sensor data (gliders, drifters, ships/autonomous vehicles, etc.) into netCDF using the *CF* model of netCDF conventions, and applying complex topological relationships of numerical model grids to netCDF files with the *CF* conventions.)

We are also exploring new approaches for storing transport model data and for performing related calculations in 3-d space through modern volumetric descriptions of data, and would like to do so in a way consistent with the community.

As we move to support Linux and Mac systems in our work and as we try to utilize web and cloud based systems, tools that support these approaches are invaluable. ArcServer and web services are an incredibly useful step in this process. Distributed web service based tools and on-demand science is changing the pace and availability of ocean science and we hope to leverage the technologies that make this possible.