

E. Patents, Trademarks, and CRADAs

Trademarks

Planet Theater™

Registered Trademark Serial Number: 78512934

Registration Date: 2006-09-26

Trademark Holder: NOAA

Patents

Science On a Sphere®

Patent Number: US 6,937,210

Date of Patent: August 30, 2005

Inventor: Dr. Alexander E. MacDonald

Science On a Sphere® (SOS) is a room sized global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Dr. Alexander MacDonald invented Science On a Sphere® and researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth system science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere to explain complex environmental processes in a way that is simultaneously intuitive and captivating.

High Performance Real-Time Interactive Exploration and Visualization of Discrete Geospatial Data in Time and Space

Patent Application Number: 14866716

This invention includes tools that brings massive amounts of 4-D data, including output from multiple environmental forecast models as well as different data from different observations (surface observation, upper air, maritime observation) into one user friendly interactive display tool. This also includes a server side architecture provides a real-time stream processing system, which utilizes server-based Graphical Processing Units (GPU's) for data processing, wavelet based compression, and other preparation techniques for visualization, to minimize the bandwidth and latency for data delivery to end-users. Through these technologies, the inventors have improved accessibility to 'Big Data' along with providing tools allowing novel visualization and seamless integration of data across time and space, regardless of data size, physical location, or data format. Invention components are also known as NOAA Earth Information System™ and TerraViz™

CRADA (Cooperative Research and Development Agreement)

GPS-Meteorology (GPS-Met)

Established: April 24, 2014

Duration: Two years

Collaborator: Trimble Navigation

This agreement provides collaborative work toward GSD's intention to transfer the GSD GPS-Met Data Acquisition and Processing System and/or to verify that equivalent capabilities, held by Trimble Navigation, to meet or exceed NOAA's specifications for GPS-Met products. Completion of this CRADA will provide NOAA some assurance that the private sector can provide the desired observations. The CRADA also provides opportunities to conduct joint research and development to refine, improve, or evaluate commercial extensions of the GPS-Met technology.

Trimble Navigation has demonstrated that it can meet NOAA's specifications for GPS-Met products. NWS will conduct a competitive acquisition in early FY2016 to procure the GPS-Met products for NOAA use from a commercial vendor.

Air Quality Applications

Established: June 15, 2015

Duration: Five years

Collaborator: AURAIA, LLC

Description of Collaboration: GSD and AURAIA, LLC intend to conduct collaborative research and development on the integration of NASA MODIS Earth Observation into the High-Resolution Rapid Refresh model from NOAA to demonstrate the feasibility of achieving the highest spatial, 3x3km², and temporal, hourly, resolution of PM_{2.5} concentrations over the United States to date. If successful, AURAIA, LLC will attempt to integrate these data into AirBreath Get American Breathing Clean Air™, a revolutionary proprietary mobile application to allow individuals exposed to outdoor air pollution to find clean air and prevent health effects. In addition, GSD will produce climatological statistics of PM_{2.5} concentrations over the U.S. over time periods such as months, season, and years at 3x3km². AURAIA, LLC will develop proprietary Application Programming Interfaces and online platforms using climatological data to identify populations at risk and to enable healthcare providers to enhance prevention.

Integrated Weather Solution for Civil Aviation Stakeholders: Air Traffic Management, Airlines, and Airports

Established: Expected 1st week of November 2015

Duration: Five years

Collaborator: I.M. Systems Group (IMSG)

Description: Over the past two years, IMMSG has designed the Integrated Aviation Weather System (IAWS) with the following basic Service Functions: 1) IAWS-R for En-Route Aviation Weather; 2) IAWS-T for Terminal Area Aviation Weather and 3) IAWS-C for Collaborative Decision Making (CDM) Support. These service functions are to provide highly accurate nowcast and forecasts to support operational Aviation Weather Stakeholders including Air Traffic Management, Airlines, and Airports both within the U.S. and overseas. Integrated Support for Impacted air-Traffic Environments (INSITE), developed at NOAA/ESRL/GSD, is a web-based prototype application designed to be used in the convective weather forecast process. One goal is to incorporate INSITE into the IAWS-C system and another is to help stand up convection permitting numerical weather prediction as a component of IAWS-R. GSD is also expected to consult on radar based nowcasting techniques which are the primary component of IAWS-R and IAWS-T.

Nondisclosure Agreements

- Iberdrola Renewables, Inc.
- XCEL Energy
- GIE EUMETNET (Network of European National Meteorological Services)
- Federal Aviation Administration
- Raytheon Company, Integrated Defense Systems

