Primary Collaborations

National Weather Service

Since 1990, the National Weather Service has been GSL's primary collaborator and customer. Early in the collaboration, the National Weather Service relied on GSL to develop the first AWIPS system for its forecasting offices nationwide. GSL continues to develop forecaster tools for the AWIPS enterprise, requiring close interaction with NWS forecasters at all levels for input and feedback during development, testing, and implementation. Hazard Services (HS) is a multi-year, multi-phase effort involving many project partners to produce a powerful software package that modernizes how hazardous weather products are generated by the NWS. This new forecast and hazard creation software on the AWIPS workstation replaces three existing applications, each with its own interface, menu list, and process to create a forecast or weather warning. By combining these applications into one framework with a single interface, the forecasting process is being streamlined with a unified information creation workflow that is highly configurable and customizable.

In the past 10 years, GSL has collaborated with NCEP's Environmental Modeling Center to transition into operations a total of nine versions of GSL regional short-range weather forecast models, including five versions of the 13-km Rapid Refresh (RAP) and four versions of the 3-km High-Resolution Rapid Refresh (HRRR). During the development phase of each model version, GSL provided access to and distributed these real-time experimental forecasts, thereby facilitating NWS feedback from forecast offices and national prediction centers, including annual testbed experiments. Through the Unified Forecast System Research to Operations project (UFS R2O), GSL will continue to collaborate with NWS and other organizations in the pursuit of the best regional and global model system designs for both deterministic and ensemble forecast applications. For many years, GSL has specialized in developing and improving verification tools of NWS aviation weather forecast products to fulfill performance monitoring requirements as defined by the FAA. GSL has also developed impact-based aviation weather decision support tools for use by NWS aviation forecasters. GSL highly values this collaboration with NWS and looks forward to a continuing productive synergy with NWS in the future.

Federal Aviation Administration

Thirty years ago, GSL's predecessor, the Forecast Systems Laboratory, and the Federal Aviation Administration (FAA) began a partnership that continues today. The FAA Aviation Weather Research Program (AWRP) began with the goal of producing a gridded aviation weather forecast system. This system was envisioned to consist of a high resolution and frequently updated numerical prediction model, and algorithms to translate the model output into aviation impact variables (AIVs), such as icing, turbulence, ceiling and visibility, and winds (which are a direct

model output). AWRP also funded the development of experimental tools to enable better coordination of volcanic ash advisories and to help traffic managers better visualize the effect of convection on aircraft arrivals and departures.

GSL scientists continue to serve as part of the AWRP Model Development and Enhancement Product Development Team (MDE PDT) which develops new and enhanced capabilities for weather prediction models to enable timely and precise forecasts of aviation-specific weather hazards. MDE efforts over the years have produced gains in forecast accuracy of aviation-hazard products through improvements in data assimilation techniques (including use of new observations), physical parameterizations, and model grid resolutions. AWRP supported the development of the High Resolution Rapid Refresh (HRRR) model, which became operational at NCEP in September of 2014. AWRP also continues to support a robust Quality Assessment PDT (QA PDT) which provides independent assessments of AWRP-developed aviation weather products to inform decision points during product transitions to NWS operations. These assessments depend on the development and application of new impact-based verification methodologies which take verification science beyond the traditional point forecast and observation comparisons. GSL looks forward to a continuing collaboration with the FAA, improving products for accurate aviation weather information that is so critical to aviation safety and efficiency.

Department of Energy

GSL is actively engaged with three separate line offices within the DOE: (1) Energy Efficiency and Renewable Energy (EERE) Wind Energy Technology Office (WETO), (2) Office of Electricity, and (3) Office of Science Biological and Environmental Research (BER).

The DOE WETO has worked closely with the Atmospheric Science for Renewable Energy (ASRE) program, which is a NOAA research program managed by GSL, to improve the representation of boundary layer processes that affect the prediction of wind speeds at turbine hub height (i.e., approximately 100 m above the ground). This collaborative effort, which has existed since 2012, has resulted in a series of Wind Forecast Improvement Projects (WFIPs) to evaluate how to better assimilate wind data at hub heights (WFIP-1), improve the understanding of atmospheric processes that affect the wind in complex terrain (WFIP-2), and will soon be studying the interactions between the ocean, coasts and hub-height winds off the east coast of the U.S. (WFIP-3). The WFIP efforts have included research staff from four DOE laboratories: Pacific Northwest National Laboratory, Lawrence Livermore National Laboratory, Argonne National Laboratory, and the National Renewable Energy Laboratory, as well as the four NOAA labs that make up the Earth System Research Laboratories (GSL, PSL, CSL, and GML). This collaboration is mutually beneficial as DOE supported research, augmented by ASRE funding, has led to multiple improvements in the High-Resolution Rapid Refresh (HRRR) numerical weather prediction model, which is run operationally by the National Weather Service. Thus, improvements from the WFIP efforts have translated directly into improved wind forecasts for the wind energy community.

In addition, ASRE researchers are working with DOE researchers at Idaho National Laboratory and the Office of Electricity to demonstrate the utility of using high-resolution weather model forecasts in the dynamic line rating (DLR) of power transmission lines. Key to the expansion of renewable energy is the ability to move energy around the electric grid safely and efficiently. It is difficult to obtain the regulatory approval and capital financing required to build new power lines, and therefore it is necessary to utilize the existing infrastructure as efficiently as possible. DLR uses weather forecasts of temperature, wind, and solar radiation to predict the amount of electric current that can be transmitted through a power line. The DLR project seeks to leverage the forecasts from weather models to better inform the transmission utilities of how much current can be safely moved through the power lines, making it possible to meet current and future demand with existing resources.

One of the main scientific goals of DOE BER is to use advanced observations, such as those at the DOE Atmospheric Radiation Measurement (ARM) sites, to characterize a wide range of atmospheric processes and improve their representation in numerical models. GSL is leading a multi-institution research project funded by the BER Atmospheric Systems Research (ASR) program to use ARM observations and GSL's HRRR model to better understand the various processes at work during the afternoon-to-evening transition (AET). Additionally, the ARM program is supporting a post-doctoral student to use the ARM observations from all around the world, but especially those in the southern oceans, to evaluate the accuracy of subgrid-scale cloud properties in NOAA's Unified Forecast System (UFS) model.

Joint Center for Satellite Data Assimilation (JCSDA)

GSL represents NOAA OAR as part of the Joint Center for Satellite Data Assimilation (JCSDA) through the JCSDA Executive Team and through in-kind contributions to JCSDA development efforts. JCSDA is a multi-agency research center to improve the use of satellite data for analyzing and predicting the weather, the ocean, the climate and the environment. Under this effort, JCSDA has led a multi-agency effort to develop a new Joint Effort for Data assimilation Integration (JEDI), a unified data assimilation framework for research and operational use. GSL contributes, along with other OAR laboratories, NWS, and other Federal agencies, toward development of JEDI. JEDI will provide a new backbone for the data assimilation framework for the Rapid Refresh Forecast System.

NOAA's Office of Education

Since the inception of Science On a Sphere® (SOS) in the early 2000s, GSL has partnered with NOAA's Office of Education to help support the program. Together they created the Science On a Sphere® Users Collaborative Network, which is composed of institutions who use SOS in an educational setting. It serves as a forum for sharing information on the creation of new content, technical improvements, and evaluations. In addition to email distribution lists and online discussion forums, the SOS network also meets in person approximately every 18 months to

share ideas at a workshop. The 10th workshop was held virtually in 2020 with over 200 registrants. Past workshops have been held at various SOS locations across the United States including Science City in Kansas City, MO and the Detroit Zoo in Royal Oak, MI. In addition to the workshops, the network hosts webinars and an education forum. The Office of Education also helped to kickstart SOS through Environmental Literacy Grants that funded the installation of SOS at museums and science centers. In all, the Office of Education has funded 16 installations. Other Environmental Literacy Grants have funded content creation for SOS as well as evaluation of SOS and it's programming.

Earth Prediction Innovation Center (EPIC)

Since the inception of the Earth Prediction Innovation Center (EPIC, March 2020) as a concept developed by former Acting NOAA Administrator, Dr. Neil Jacobs, GSL has been a significant contributor to the overall vision and direction of establishing the program within the Weather Program Office (WPO). EPIC's mission is to be a catalyst for community based research and model development using the Unified Forecast System (UFS). Soon, the EPIC contract will be awarded and work will start to support the UFS infrastructure and accelerate the R2O process to the NWS. GSL will support the onboarding and transition of the EPIC contractor as a new UFS community member responsible for supporting open community model development, ensuring cloud-ready code, and providing access to data and tools. As a member of the community and leader in short range weather, physics, and atmospheric composition research and development, GSL will continue to contribute scientific and evidence-based model improvements to the community. We are committed to being a prominent contributor to the UFS as a way to easily work between the research and operations communities to accelerate transition of innovative science. Finally, we will gradually transition aspects of the DTC's community support efforts to EPIC, which leads us to our next topic.

Interagency Council for Advancing Meteorological Services (ICAMS)

GSL contributes to the NOAA effort as part of the Interagency Council for Advanced Meteorological Services (ICAMS), a relatively new US Federal inter-agency effort to improve its earth-system prediction capabilities. The ICAMS is the principal means within the US Government's Executive Branch to coordinate priorities across the diverse agencies that make up the Federal meteorological services enterprise. The ICAMS convenes Federal leaders and establishes clear national goals for advancing priorities and implementation. ICAMS promotes robust engagement with governmental and non-governmental stakeholders to communicate and coordinate with the broader meteorological enterprise on progress and to receive input regarding future direction. An ICAMS charter was signed in summer 2020, and GSL represents NOAA OAR with the ICAMS Committee on Research and Innovation.

Developmental Testbed Center (DTC)

The Developmental Testbed Center (DTC) is a distributed facility with staff residing at NOAA Global System Laboratory (GSL) and the National Center for Atmospheric Research (NCAR). The

fundamental purpose of the DTC is to serve as a bridge between research and operations to facilitate the activities of the numerical weather prediction (NWP) community in pursuit of their own objectives in synergistic ways. The DTC's goals are to link the research and operational communities, speed transition of research results into operations, accelerate improvement in weather forecasts, and develop and test promising new NWP techniques. All DTC activities involve extensive interactions with external partners in both the research and operational communities, such as NOAA's Environmental Modeling Center (EMC) and the Unified Forecast System Research-to-Operations (UFS R2O) project.

Three major areas of DTC activity and responsibility are community code support, testing and evaluation, and community interactions. Community code is a free and shared resource with distributed development and support. DTC staff actively develop several components, including the Common Community Physics Package (CCPP) and the extended Model Evaluation Tools (METplus), while providing code management under version control for other NWP-related software, including aspects of the UFS. Periodic releases, which include the latest in developments of new capabilities and techniques, are made available to the user community with user and developer support provided or facilitated. Some specific partnerships for physics development are with NOAA Physical Systems Laboratory (PSL), NOAA National Severe Storms Laboratory (NSSL), NOAA Atlantic Oceanographic and Meteorological Laboratory (AOML), and the Atmospheric and Environmental Research (AER) company; for CCPP with NCAR (beyond DTC) and the U.S. Naval Research Laboratory (NRL); and for METplus with the UK Met Office and the US Air Force.

Testing and evaluation undertaken by the DTC provides an opportunity for the NWP community to get feedback on the performance of innovations. For example, cases selected for retrospective tests encapsulate a broad range of weather regimes ranging from null, to weak and strong events. Additionally, a Hierarchical Testing Framework (HDF) facilitates testing of components in isolation and as end-to-end modeling systems. The design for each test is created in consultation with the developers, relevant subject matter experts, and verification experts. The DTC currently conducts extensive testing and evaluation that focus on global and local mesoscale modeling, hurricane forecast models, and ensemble systems.

The DTC's community interactions include workshops, tutorials, and a visitor program. Some recent examples of workshops were the 1st Unified Forecast System (UFS) Users' Workshop, the UFS Workflows Workshop and CROW Review, and the 2018 DTC Community Unified Forecast System Test Plan And Metrics Workshop. Recent tutorials included Unified Forecast System (UFS) Medium-range Weather (MRW) Application Users' Training, AMS Short Course: Experimentation and Development of Physical Parameterizations for Numerical Weather Prediction Using a Single-column Model and the Common Community Physics Package (CCPP), METplus Tutorial, and 2018 Hurricane WRF Tutorial. The visitor program engages annually with graduate students and PIs from private companies, universities, and national laboratories. Some recent visitors worked on testing and evaluation, data assimilation (DA), mesoscale modeling, regional

ensemble, and hurricanes. Each visitor creates a final report and may also formally publish their results.

Cooperative Institute Partnerships

- Cooperative Institute for Research in the Atmosphere (CIRA)
- Cooperative Institute for Research in Environmental Sciences (CIRES)

GSL is fortunate to have productive and enduring research partnerships with both University of Colorado's Cooperative Institute for Research in Environmental Sciences (CIRES) and Colorado State University's Cooperative Institute for Research in the Atmosphere (CIRA). Both cooperative institutes actively support GSL's mission, providing expert scientists and technologists to pursue GSL's goals and objectives. A majority of GSL staff are employees of the cooperative institutes and provide new perspectives, energy, and innovation to GSL's research areas.

NOAA Partnerships

NOAA Line Offices

- National Weather Service (All Offices, Centers, and Forecasting Offices)
- National Environmental Satellite, Data, and Information Service
- National Marine Fisheries Service
- National Ocean Service
- Office of the Chief Information Officer
- Office of Education

Office of Oceanic and Atmospheric Research (OAR) Laboratories

- Air Resources Laboratory
- Atlantic Oceanographic and Meteorological Laboratory
- Geophysical Fluid Dynamics Laboratory
- Great Lakes Environmental Research Laboratory
- National Severe Storms Laboratory
- Pacific Marine Environmental Laboratory
- Global Monitoring Laboratory
- Physical Sciences Laboratory
- Chemical Sciences Laboratory

OAR Programs

- Weather Program Office
- Climate Program Office
- Unmanned Aircraft Systems

International Government Agencies

- Australia Bureau of Meteorology (BOM)
- Central Weather Bureau, Taiwan (CWB)
- Civil Aviation Administration of China
- Taiwan's Civil Aeronautics Administration (CAA)
- Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)
- Korea Meteorological Administration, Republic of Korea
- Soil and Water Conservation Bureau, Taipei, Taiwan, Republic of China
- United Kingdom Meteorological Office
- Water Resources Agency, Taipei, Taiwan Republic of China
- National Institute of Space Research, São José dos Campos, São Paulo, Brazil
- Chinese Academy of Meteorological Sciences
- Austria's state meteorological and geophysical service
- University of Pecs - Hungary

International Private Companies

- Beijing NewWeather Media Technology co., LTD
- Beijing TianYi Tech
- Globoccess AG
- Højbygaard Paper Factory, Denmark
- KBS ARTSVISION, LTD
- MITE Asia
- Our Planet Ltd.
- SIGONGtech CO., Ltd.

- Shinei Technology Co., LTD
- Tianjin Huosan Technology Co., LTD
- Trimble, Ltd.
- Vaisala Corporation, Helsinki, Finland
- Yesantek, Arastirma Gelistirma Yazilim Egitim Ve Dis Tic Ltd.

International Non-Profit Organizations

- American Institute in Taiwan (AIT)
- European Center for Medium Range Weather Forecasts
- Nanjing University, Nanjing, China

U.S. Government Organizations

- Amtrak
- National Aeronautics and Space Administration (NASA)
- National Interagency Fire Center (NIFC)
- National Institute of Standards and Technology (NIST)
- U.S. Air Force Base Vandenberg
- U.S. Air Force Space and Missile Command
- U.S. Air Force Weather Agency
- U.S. Army Research Laboratory
- U.S. Department of Agriculture – Forest Service
- U.S. Department of Energy – National Renewable Energy Laboratory
- U.S. Department of Energy - Idaho National Laboratory
- U.S. Department of Energy – ARM
- U.S. Department of Homeland Security – Science and Technology Directorate
- U.S. Department of the Interior – Bureau of Land Management
- U.S. Department of Transportation/Federal Aviation Administration
- U.S. Department of Transportation/Federal Highways Administration
- U.S. National Geodetic Survey
- US Navy Research Lab

State Government Organizations

- California Department of Water Resources (AQPI)
- California local and regional governments
- Alameda County Public Works Agency
- Alameda County Zone7
- Alameda County Water District
- Contra Costa County Public Works
- East Bay Discharge Association
- East Bay Discharge Association
- East Bay Municipal Utilities District
- East Bay Parks
- Marin County Flood Control
- Marin County Municipal Water District
- Napa County Flood and Water Resources
- Napa City
- San Francisco Public Utilities Commision
- San Francisco Waste Water
- San Mateo County Public Works
- Santa Clara Valley Water District
- Solano County Water Agency
- Sonoma County Flood Control
- Sonoma County Water Agency
- Coastal Carolina University
- Colorado State University/Cooperative Institute for Research in the Atmosphere (CIRA)
- City of Denver (DIA)
- Iowa State University
- George Mason University
- State of Colorado
- North Carolina State University

- University of Alaska - Fairbanks
- University of California, Berkeley
- University of Colorado, Boulder/Cooperative Institute for Research in the Environmental Sciences
- University of Maryland
- University of Michigan
- University of Oklahoma
- Princeton University, Princeton, NJ
- University of Wisconsin/Cooperative Institute for Meteorological Satellite Studies
- Mississippi State University
- State University of New York, Albany
- University of Miami
- Purdue University

U.S. Private Companies

- Ace Info Solutions, Inc.
- Atmospheric and Environmental Research, Inc.
- AvMet Corp
- BW Color Prints LLC
- Cherokee Services Group
- Cirrascale
- Cray
- The Elumenati, LLC
- FedWriters Inc.
- Global Imagination
- General Dynamics Information Technology
- IBM
- Intel Corp.
- NVIDIA
- Raytheon
- Trimble Navigation

- Spire global
- IMSG (IM Systems Group)

MADIS Data Providers

- 93 Mesonet Data Providers
- 306 Mesonet Sub Providers
- 8 Hydrological surface date providers
- 24 Automated Flood Warning System providers
- 37 Snow data providers
- 4 Multi-Agency (CAP) Profiler Providers

U.S Non-Profit Organizations

- University Corporation for Atmospheric Research (UCAR)
- National Center for Atmospheric Research (NCAR)
- NCAR's Weather Risks and Decisions in Society (WRaDS)

Science On a Sphere® Installations

Listed chronologically in order of installation

- NOAA Earth System Research Lab, Boulder, CO
- Nauticus - The National Maritime Center, Norfolk, VA
- The Science Museum of Minnesota, St. Paul, MN
- Bishop Museum, Honolulu, HI
- The Tech Museum of Innovation, San Jose, CA
- The Maryland Science Center, Baltimore, MD
- NASA Goddard Space Flight Center, Visitors Center, Greenbelt, MD
- Great Lakes Maritime Heritage Center, Alpena, MI
- Imiloa, Astronomy Center of Hawaii, Hilo, HI
- James Madison University, Harrisonburg, VA
- McWane Science Center, Birmingham, AL
- Fiske Planetarium and Science Center of Colorado University, Boulder, CO

- Orlando Science Center, Orlando, Florida
- The Museum of Science and Industry, Chicago, IL
- NOAA's National Severe Storms Laboratory, Norman, OK
- Clark Planetarium, Salt Lake City, UT
- Lawrence Hall of Science, Berkeley, CA
- National Museum Of Natural Science, Taichung, Taiwan, R.O.C
- Gwacheon National Science Museum, Gwacheon, Republic of Korea
- Smithsonian National Museum of Natural History, Washington, D.C.
- International Museum of Art & Science, McAllen, TX
- Microsoft Visitor Center, Redmond, WA
- Ted Stevens Marine Research Institute (NMFS), Juneau, AK
- NASA Visitor Center, Wallops Island, VA
- Boonshoft Museum of Discovery, Dayton, OH
- Harsco Science Center, Harrisburg, PA
- North Carolina Aquarium, Manteo, NC
- Smithsonian's National Zoo, Washington, D.C.
- Alaska State Museum, Juneau, AK
- Infinity Science Center, Stennis Space Center, MS
- South Denver University of Colorado, (formerly The Wildlife Experience), Parker, CO
- Cite des Sciences et de l'Industrie, Paris, France
- Oregon Museum of Science and Industry, Portland, OR
- Heureka, The Finnish Science Centere, Vantaa, Finland
- Houston Museum of Natural Science, Sugarland, TX
- Discovery Cube Orange County, Santa Ana, CA
- NASA Ames Exploration Center, Moffett Field, CA
- Climate Institute, Mexico City, Mexico
- US Astronaut Hall of Fame, Titusville, FL
- Beijiko Meteorological Museum, Nanjing, PRC
- Cite de l'espace, Toulouse, France
- Denver Museum of Nature and Science, Denver, CO
- Point Reyes National Seashore, CA
- Central Weather Bureau, Taipei, Taiwan

- Bay Education Center, Rockport, TX
- Climate Institute, Cuernavaca, Mexico
- Pacific Science Center, Seattle, WA
- Danville Science Center, Danville, VA
- Science Museum, London, UK
- Climate Institute, Chilpancingo, Mexico
- Climate Institute, Atlacomulco, Mexico
- Climate Institute, Metepec, Mexico
- Climate Institute, Casa de la Tierra, Aquacalientes, Mexico (formerly in Veracruz)
- Climate Institute, Planetario de Morelia, Morelia, Mexico
- Science Museum of Virginia, Richmond, VA
- Climate Institute, Acapulco, Mexico
- Aquarium of the Pacific, Long Beach, CA
- Detroit Zoological Society, Royal Oak, MI
- Beijing Huaxinchuanzi Technology Co.,Ltd., Beijing, PRC
- KIGAM Geological Museum, Daejeon, Republic of Korea
- Nurture Nature Center, Easton, PA
- Visual Climate Center, Holeby, Denmark
- Climate Institute, Texcoco, Mexico
- Climate Institute, Valle de Bravo, Mexico
- Climate Institute, Villahermosa, Mexico
- Museum of Natural History, Halifax, Canada
- Aldo Leopold Nature Center, Monona, WI
- China Weather Channel, Huafeng Building, Beijing, PRC
- Grand Canyon Visitors Center, AZ
- China Maritime Museum, Shanghai, PRC
- St. Paul's School, Concord, NH
- Science Centre Singapore, Singapore
- Science City at Union Station, Kansas City, MO
- Daegu National Science Museum, Daegu, Republic of Korea
- Climate Institute, Oaxaca, MX
- Instituto Oceanografico da Universidade de Sao Paulo, Sao Paulo, Brazil

- The Wild Center, Tupper Lake, NY
- Tauese P.F. Sunia Ocean Center, Pago Pago, American Samoa
- Space Foundation Visitors Center, Colorado Spring, CO
- The Climate Corporation, San Francisco, CA
- Telus World of Science, Edmonton, Canada
- Universidad Autónoma de Coahuila, Saltillo, MX
- Gwangju National Science Museum, Gwangju, Republic of Korea
- National Youth Space Center, Goheung, Republic of Korea
- Great Valley Museum - Modesto Junior College, Modesto, CA
- China Science and Technology Museum, Beijing, PRC
- South Florida Science Museum, West Palm Beach, FL
- Fuzhou Science and Technology Museum
- E. O. Wilson Biophilia Center, Freeport, Florida
- Indiana University, Bloomington, IN
- Museo delle Scienze, Trento, Italy
- Techmania, Pilsen, Czech Republic
- NOAA Headquarters, Silver Spring, MD
- Science Central, Fort Wayne, IN
- National Museum of Marine Science & Technology, Keelung City, Taiwan
- Galaxy Elementary School, Delray Beach, FL
- NOAA Inouye Regional Center, Honolulu, HI
- Climate Institute, Ciudad Victoria, MX
- Dongguan Meteorology and Astronomy Museum, Dongguan, PRC
- Discovery Center, Higashimatsushima, Japan
- Imagination Station Science Museum, Wilson, NC
- St. Charles High School, Waldorf, MD
- Climate Institute, Monterrey, MX
- Visvesvaraya Industrial & Technological Museum, Bangalore, India
- Exploreum, Pasay City, Philippines
- Climate Corporation, St. Louis, MO (formerly Precision Planting, Tremont, IL)
- Discovery Cube Los Angeles, Sylmar, CA
- MTA Natural History Museum, Ankara, Turkey

- Children's City, Dubai, U.A.E.
- Climate Institute, Reynosa, Mexico
- Hong Kong Maritime Museum, Hong Kong, Hong Kong SAR
- GulfQuest Maritime Museum of the Gulf of Mexico, Mobile, AL
- Earth Day Texas, Dallas, TX
- EcoParque Los Yarumos, Manizales, Colombia
- Alternator Science Center, Trebic, Czech Republic
- Wings of Eagles Discovery Center, Horseheads, NY
- Chongqing Museum of Natural History, Chongqing, PRC
- Museum of Arts and Sciences, Macon, GA
- Rochester Museum and Science Center, Rochester, NY
- Baotou International Convention and Exhibition Center Science Museum, Baotou, PRC
- Panasonic Avionics Corporation, Lake Forest, CA
- Governor's Office, Manado, North Sulawesi, Indonesia
- Sanya Meteorological Bureau, Sanya, PRC
- Energy Science Center, Dhahran, Saudi Arabia
- Macao Science Center, Macau
- Science City KolKata, Kolkata, India
- National Science Centre, New Delhi, India
- Discovery Museun, Bridgeport, CT
- JiangXi Weather Bureau, Nanchang, PRC
- Yan'an Science and Technology Museum, Yan'An City, PRC
- Fair Oaks Farms, Fair Oaks, IN
- Nehru Science Centre, Mumbai, India
- Kalamazoo Valley Museum, Kalamazoo, MI
- National Media Museum, Bradford, UK
- Keesler Air Force Base, Biloxi, MS
- Santa Fe Community College, Santa Fe, NM
- Climate Planet, Aarhus, Denmark
- Morristown-Beard School, Morristown, NJ
- KSBB Biodiversity Museum, Trivandrum, Kerala, India

- National Center for Weather and Climate Prediction, College Park, MD
- Raman Science Center, Nagpur, India
- The Regional Science Centre, Guwahati, Guwahati, India
- Liberty Science Center, Jersey City, NJ
- Shrikrishna Science Centre, Patna, India
- MOD. at the University of South Australia, Adelaide, Australia
- Second Institute of Oceanography, Hangzhou, PRC
- Marine Education Center, Gulf Coast Research Laboratory at the University of Southern Mississippi, Ocean Springs, MS
- Zhongdiantou Power Engineering Co., Ltd, Shanghai, PRC
- American Airlines C.R. Smith Museum, Ft. Worth, TX
- Queensland Museum, Brisbane, Australia
- Kerala State Science and Technology Museum, Thiruvananthapuram, India
- Plantation Key School, Tavernier, FL
- Orange Coast College Planetarium, Costa Mesa, CA
- Museum of Life and Science, Durham, NC
- Shenzhen Meteorological Bureau, PRC
- Tamilnadu Science and Technology Centre, Chennai, India
- Tianjin Lovel Heavy Industry CO,. LTD, Tianjin, PRC
- Museum of the Southwest, Midland, TX
- Beijing Science Center, Beijing, PRC
- China Science and Technology Museum - Polar Experience Hall, Mohe, PRC
- The IMAG History and Science Center, Fort Myers, FL
- Ministry of Oceans and Fisheries, Sejong City, Korea
- Lewis Center for Educational Research, Apple Valley, CA
- Metropolitan Community College, Omaha, NE
- Binhai Cultural Center, Binhai, PRC
- Michigan State University Museum, East Lansing, MI
- ITAIPU Binacional, Parana, Brazil (Permanent SOS System)
- ITAIPU Binacional, Parana, Brazil (Quick Deploy SOS System)
- Florida State University, EOAS Building Tallahassee, FL
- Virginia Commonwealth University, Richmond, VA

SOS Explorer Installations

Listed chronologically in order of installation

- NOAA Gateway, Silver Spring, MD
- Columbia River Maritime Museum, Astoria, OR
- Mote Marine Laboratory, Sarasota, FL
- EcoExploratorio, Puerto Rico
- Nurture Nature, Easton, PA
- Climate Planet APS, Denmark (traveling)
- University of New Mexico - Taos, Taos, NM
- SEEC at CU, Boulder, CO
- University of Michigan, Ann Arbor, MI
- NOAA Office of Ed, Silver Spring, MD
- University of Alaska Fairbanks, Fairbanks, AK
- Orange Coast Community College, Costa Mesa, CA
- Beijing Huafeng Innovation Network Technology
- Sanctuaries - Olympia Coast Nat Marine Sanctuary, Port Angeles, Washington State
- NOAA Recruitment Office, Washington DC
- NOAA Inouye Research Center, Ford Island, HI
- Dawson School, Lafayette, CO
- NOAA Wallops, Lafayette, CO
- Kalamazoo Valley Museum, Kalamazoo, MI
- Porter School, Tel Aviv, Israel
- CIRES, Boulder, CO
- Rookery Bay NERR - National Estuarine Research Reserve, Naples, FL
- Boulder History Museum, Boulder, CO
- Palmyra Cove, Palmyra, NJ
- New Mexico Military Institute, Roswell, New Mexico
- BWC Visual Technology, Upper Marlboro, MD
- Monte L. Bean Museum, Provo, UT

- Madatech, Israel National Museum of Science, Technology and Space, Haifa, Israel
- University Federal Acre Brazil (Woods Hole partner), Acre, Brazil
- American Samoa National Marine Sanctuary, Pago Pago, AS
- Papahanaumokuakea Marine National Monument, Hilo, HI
- University of Texas Marine Science Institute, Texas
- NOAA Fisheries, Pascagoula, MS
- Penn Yan School District, Penn Yan, NY
- Lafayette Science Museum, Lafayette, LA
- Snow College, Ephraim, UT
- NWS in Vermont, South Burlington, VT
- Clark Planetarium, Salt Lake City, UT
- NAROM, Andenes, Norway