ANDREW J. BRENNER, PHD
Senior Program Director
Photo Science

Education
PhD/Environmental Physics/University of Edinburgh, UK/1991
BS/Soil Science and Agriculture/University of Reading, UK/1986

Professional Affiliation
- American Society of Photogrammetry and Remote Sensing (ASPRS)
- Improving Michigan Access to Geographic Information Networks (IMAGIN) Board Member.

Years of Experience: 22
Years with Photo Science: 2

Dr. Brenner is a Senior Program Director for Photo Science. In this role Dr. Brenner brings together the skills of the company to produce solutions to client problems in the realm of geospatial analysis. Dr. Brenner's 20 years of experience in GIS and mapping have enabled him to provide geospatial tools that can be adapted to a wide variety of issues. His teams have mapped land cover over a billion acres of land throughout the United States. His clients have ranges from small cities to US wide federal programs.

He has experience managing imagery programs for both aerial and satellite platforms, and acquiring and processing multispectral, LiDAR, hyperspectral and thermal imagery to provide the correct solution to a problem. His work on feature extraction has led to the creation of data sets that including specific crop identification, ecological alliances and vegetation health assessments for federal mapping programs such as the National Land Cover Dataset (NLCD) for USGS and the Coastal Change Analysis Program (C-CAP) for NOAA Coastal Services Center.

Dr. Brenner is also a specialist in natural resource management, with experience in forestry and agriculture in tropical and temperate environments. He has led projects on forest inventory, watershed modeling, wildlife species habitat assessment, wildfire risk assessments and forest health. In addition to his remote sensing work he has conducted user need assessments, supported the design and worked on the implementation of enterprise GIS systems using both Citrix and Web technologies.

EXPERIENCE

FEDERAL CLIENTS
National Land Cover Dataset, USGS EROS Data Center, Sioux Falls, SD. Program Manager. Dr. Brenner coordinated the response and management of the creation of the National Land Cover Dataset 2001 that included land cover, impervious and canopy density across 1.9 million square miles, the duration of the project was two years.

LANDFIRE Products for Alaska and Hawaii, LANDFIRE Program, Missoula, MT. Program Manager. Dr. Brenner developed technical approach and coordinated the completion of vegetation and fire products for all mapping zones in Alaska and Hawaii for the LANDFIRE program. These were the only products developed by staff outside the LANDFIRE program.

C-CAP Moderate Resolution, NOAA Coastal Services Center, Charleston, SC. Program Manager. Dr. Brenner coordinated and managed the mapping of land cover and land cover change across five NOAA mapping zones for the coastal change assessment program using LANDSAT TM imagery.

C-CAP High Resolution, NOAA Coastal Services Center, Charleston, SC. Program Manager. Dr. Brenner developed the technical procedures and production methods associated with creating the high resolution C-CAP from Digital Globe Imagery. His program then created land cover maps for CSC for the Islands of Hawaii, Northern Marianas Islands, Guam, American Samoa, Virgin Islands, and Jobos Bay in Puerto Rico.

Fort AP Hill Forestry Inventory and Land Cover, Fort AP Hill, Caroline County, VA. Project Manager. Dr. Brenner working with LandMark Systems developed an approach using remote sensing and forest inventory to create a stratified inventory with stand level inventory predictions, using a method called "stand parameterization." This approach was applied successfully to stands within the forest and supported the inventory for a lower cost than in- stand inventory. In a separate project the impervious and land cover for the base were mapped including invasive species such as Autumn Olive.

STATE CLIENTS

Massachusetts Land Use, MassGIS, Boston, MA. Project Manager. Dr. Brenner managed the creation of a land use map using an innovative semi-automated process that combined GIS and remote sensing to cut the production time by half and cost by two thirds over manual delineation for the whole of the State of Massachusetts.

Rhode Island Land Use, RIGIS, Providence, RI. Project Manager. Dr. Brenner managed the creation of a land use map and statewide impervious for the State of Rhode Island. He was instrumental in developing the approach that pioneered the semi-automated process, where previously all land use maps had been developed using heads up digitizing.

State of Maine Impervious Change, Maine Department of Fish and Wildfire, Bangor, ME. Senior Consultant. Dr. Brenner developed the approach that would allow for the analysis of the change of impervious between 2004 and 2008 for the inhabited parts of Maine to assess habitat fragmentation.

Kentucky Landscape Snapshot and Kentucky Landscape Census, Commonwealth of Kentucky, Office of Technology, Frankfort, KY. Project Manager. Dr. Brenner led the development of two NASA funded projects that updated the land cover of Kentucky at a number of different scales, and developed tools for user communities ranging from local governments to forestry organizations. The tools involved desktop GIS applications and OGC compliant web services.

Land Use Update and Impervious for Delaware, State of Delaware, Dover, DE. Project Manager. Dr. Brenner managed the creation of an impervious dataset and a land use update using automated change detection to find areas of change. The updates were created manually using photo-interpretation.

Florida Risk Assessment Canopy Inventory Project (FRACIP), Department of Forestry, State of Florida, Tallahassee, FL. Senior Consultant. Dr. Brenner developed the methods and oversaw the implementation of those methods for mapping the State of Florida for the risk of canopy fires. The project developed four canopy layers, canopy height, canopy bulk density, canopy base height and canopy closure from a combination of Landsat, SRTM, LiDAR and field measurement information.

LOCAL CLIENTS

Impervious and Canopy, City of Bishop, CA. Senior Consultant. Dr. Brenner led development of technical approach for the creation of impervious, canopy and land cover datasets from 2011 digital imagery and LiDAR for urban planning for the City of Bishop.

Impervious and Impervious Updates for Storm Water Utilities, City of Ann Arbor, Ann Arbor, MI. Project Manager. Dr. Brenner led the creation of a highly accurate impervious dataset in 2006 for storm water utility assessments, then led the update in 2010 both dataset were developed from digital imagery.

Impervious and Land Use and its Update, Anne Arundel County, Annapolis, MD. Project Manager. Dr. Brenner develop the methodology and led the creation of an impervious and semi-automated land use product for Anne Arundel County, the first dataset was developed from IKONOS satellite imagery and the second was developed from aerial imagery.

Agricultural Land Use for Tax Assessment, Muskingum County, Zanesville, OH. Project Manager. Dr. Brenner developed the methods and managed the project to extract agricultural classes from SPOT 5 imagery. This land classification was used for assessment of property taxes in combination with soil types and ownership boundaries.

Mobile Bay Planning Framework, Mobile Bay Chamber of Commerce, Mobile, AL. Project Manager. Dr. Brenner worked with Michael Gallis and Associates to develop the first part of a resiliency plan for Mobile Bay. The framework looked at 12 systems that characterize the Bay as the first step to develop a long term development plan.

Irrigated Land Use Mapping, City of Castle Rock, Castle Rock, CO. Senior Consultant. Dr. Brenner developed the methods and monitored the progress on the project to create a map of the irrigated lands over Castle Rock, Colorado. The information was used to support water conservation initiatives in the City.

Vegetation Mapping, City of Greenwich, Greenwich, CT. Senior Consultant. Dr. Brenner supported the development of methods to create a detailed vegetation map for the City of Greenwich, Connecticut to characterize the parks and natural areas, including wetlands and meadows.

Impervious Mapping for Storm Water Utilities, City of Corpus Christi, Corpus Christi, TX. Senior Consultant. Dr. Brenner led the creation of a highly accurate impervious dataset in 2009 for storm water utility assessments from digital imagery.

Canopy Cover and Commercial/Industrial Impervious, Prince William County, Woodbridge, VA. Senior Consultant. Dr. Brenner developed methods and monitored the creation of an impervious dataset for the industrial and commercial properties for a storm water utility and also developed a countywide canopy map.

Impervious and Canopy Assessment, City of Bellevue, Bellevue, WA. Project Manager. Dr. Brenner developed both a highly detailed impervious and a vegetation map for the City of Bellevue for storm water modeling and environmental planning using the CITYgreen software.

OTHER CLIENTS

Impervious Surface Mapping, Southwest Florida Water Management District, FL. Senior Consultant. Dr. Brenner led development of technical approach for the creation of an impervious dataset from 2011 digital imagery and LiDAR for storm water management.

Detection of Failing Septic Systems, Huron River Watershed Council, Ann Arbor, MI. Project Manager. Dr. Brenner is developing the approach and managing the production on the detection of failing septic systems from digital imagery. A number of sensors are being compared for this project.

Evaluation of Different Green Infrastructure Approaches, Greening of Detroit, Detroit, MI. Project Manager
Dr. Brenner is working with the Greening of Detroit to evaluate the change in canopy over the period of 2004 – 2008 and what green infrastructure (GI) options the City has for redeveloping GI to deal with the storm water runoff problems for the City.

Land Cover Mapping for CITY Green Analysis, American Forests, Washington, DC. Program Manager. Dr. Brenner coordinated the program with American Forests to create the input data to their CITYgreen program that evaluates the value of GI for the community in terms of water and air quality, and water quantity. He was involved in City of San Antonio TX, City of Ottawa, Canada, Flower Mound, TX, Detroit & SE Michigan, Salisbury, NC, Palm Beach County, FL, Wellington, FL, and Miami Dade County, FL projects.

Land Cover Mapping, Alliance of Rouge Communities, Detroit, MI. Project Manager. Dr. Brenner managed the project to produce GI over the Rouge Communities in SE Michigan so that they could assess opportunities for improving the River through changing the land cover.

Land Cover Mapping, Alliance of Downriver Watersheds, Wayne, MI. Project Manager. Dr. Brenner managed the project to produce GI over the Downriver Watershed Communities in SE Michigan so that they could assess opportunities for improving their watershed water quality by changing the land cover.

Forest Inventory Project, Ohio Department of Natural Resources, LandMark Systems, LLC, Tallahassee, FL. Project Manager. Dr. Brenner developed the stand parameterization approach to produce a stand level inventory for the cost of a stratified inventory. This project used canopy heights developed using auto-correlation of the aerial imagery.

Thermal Survey of Robins AFB, MACTEC, Robins, AFB, GA. Senior Consultant. Dr. Brenner advised on sensors and analysis methods for the collection of a thermal survey over the AFB. These data were used to identify hot spots for heat loss from facility buildings.