

Kutalmis Saylam

Professional Summary

September 29, 2023

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Professional Preparation

Academic Background

M.E. Geodesy and Geomatics Engineering (LIM/Geospatial), University of New Brunswick, Fredericton, 2000

B.S. Engineering (Agriculture & Civil/Surveying), University of Ankara, Turkey, 1997

Visiting Researcher, Remote Sensing Internship, Agricultural & Biological Engineering, University of Florida, Gainesville, Florida, 1995

Ph.D. student (2008-2013), Geomatics Engineering, University of Calgary

Professional Appointments

Present Position: RSA IV - Lidar and Remote Sensing Specialist, Bureau of Economic Geology, The University of Texas at Austin (August 13, 2012 - Present).

Team Lead, Digital Imaging Section, GeoBC, Government of BC, Victoria, BC (March 2011 - August 2012). Digital Imaging Section (DIS) is responsible for delivering the Provincial Digital Imagery framework of products and services through a series of standards and specifications.

Supervise a team of imaging professionals for all aspects of their daily tasks; prepare RFPs, evaluate and award proposals, conduct debriefing sessions; interact with contractors and manage multiple contracts (\$5,000 to \$2,000,000); responsible for budgeting, forecasting and acts as the expense authority for DIS; prepare staff employment (hiring) process and relevant HR practices; responsible for all provincial aspects of Photogrammetric, Aerial, Satellite and Lidar imagery; project champion for the development of public Lidar Repository, first of its kind in Canada (ongoing); represent Section/Branch when requested and/or required at conferences, rounds ups, gatherings; provide professional direction and present it to Ministry executives.

Standards and Development Engineer, Geospatial Reference Group, GeoBC, Government of BC, Victoria, BC (April 2007 - March 2011). The Geospatial Reference Unit (GSR) defines and manages the spatial coordinate system in the province of British Columbia to support geographic positioning activities according to established standards and professional practices.

Develop, enhance and recommend, to the Branch Executive, Geospatial policies, procedures, protocols, and other Geomatics guidance; assist Aerial Triangulation group in the branch for Remote Sensing and Lidar work; manage proposals from clients and other collaboration requests from other Canadian provinces; provide expertise and manage RTK GPS network service for the province; collaborate with GPS Operations Supervisor to maintain the province wide GPS Active Control System (BC ACS); participate in Provincial and Federal GPS Steering Committee meetings, represent the Branch and Ministry; develop and coordinate Geomatics related courses; setup, prepare and instruct training throughout the province, either to public and private industries (available online); participate in Technology Advisory Group (core member)

and provide expertise with the latest developments in Geomatics/GIS/Remote Sensing fields to the ministry; provide professional direction for the ongoing operation, maintenance and modernization of the Geodetic Reference System in the province.

Lidar Specialist, Terrestrial Survey Division, Optech Incorporated, Vaughan, Ontario (April 2004 - March 2007). Optech Inc. is the world leader in the development, manufacture and support of advanced Lidar and imaging-based survey instruments.

Provide engineering, planning, processing and support for Lidar/Remote Sensing/Geomatics and photogrammetric mapping operations; Project Manager for various domestic and international consulting assignments; Team Leader for various airborne surveying and mapping/Lidar/Remote Sensing projects; Travel locally and internationally to client's site to perform Lidar/Remote Sensing operations training and final system acceptance; have participated in various world-wide assignments for extended periods; perform QA/QC for all aspects of Lidar data acquisition missions; supervise field crew for demonstration surveys internationally.

Geomatics / Surveying Engineer, Complete Survey Solutions Inc., Mississauga, Ontario (October 2000 - April 2004). Subcontracted to various companies such as : AECON, Carwell, Con-Drain, Con-Strada, Dufferin, Graham Bros., Giffels, Microcell, Rogers, SNC-Lavalin, Stantec, TELUS, TSH, etc.

Perform research and development in GPS/Geomatics engineering fields; supervise technical staff for related GPS Land Surveying work; represent the firm in related projects as a chief and/or a coordinator and actively participate in marketing and management initiatives; provide strategic guidelines and professional advice to staff; participate actively in marketing and management initiatives of the firm; plan, prepare, review and manipulate relevant reports and engineering designs, implementations; provide technical computing hardware/software support in the firm.

Research Assistant, Natural Resources Canada (NRCan), Ottawa, Ontario (January 1999 - October 1999). Graduate research studies for developing a conceptual framework architecture to support the Canadian Geospatial Data Infrastructure (CGDI) concept which was initiated in 1996.

Perform as a research assistant to develop a conceptual framework to support CGDI activities in the federal government.

The final report is published at:

http://www.geoconnections.org/programsCommittees/proCom_frameworkData/other/UNB_E.pdf

Teaching Assistant, University of New Brunswick, Fredericton (1998 - 1999). Assist the departmental research activities and participated in the "Delta Project" that modifies the provincial land information infrastructure management activities.

Continuing Education Courses Taken

Business Analysis Course: Certified by Royal Roads University, Victoria, BC, 2007

Certificate in Continuous Improvement and Training for Professionals (CITP: BC, 2006

Advanced Surveying with RTK GPS: Trimble, Toronto, ON, 2002

ESRI - Advanced Arc View GIS, Virtual Campus Certificate(s): 1999

Areas of Expertise

Areas of Expertise

Bathymetric Lidar and waveform analysis

Geodetic Engineering

Geomatics program management

GPS, Land & Airborne Surveying

Presentations

Presentations

Analysis of Arctic summer sea ice heights to validate ICESat-2 measurements with airborne lidar technology: presented to public, presented at International Glaciology Society Symposium 2023, Bremerhaven, Germany, June 5-9, 2023.

Applying bathymetric GPR, borehole logging, passive seismic, lidar and structure-from-motion methods in hydrogeologic studies of the Devils River, southwestern Texas: presented at 35th Symposium on the Application of Geophysics to Engineering and Environmental Problems, New Orleans, La., April 4, 2023.

Assessment of Depths Drived by Airborne Lidar and Multi-band Satellite Imaging the Support Hydrographic Mapping in Shallow Coastal Estuaries with Varying Environmental Conditions (in Turkish: Degisken Çevresel Kosullu K?y?lar ve Nehir Ag?zlar?nda Havadan (Airborne) Lidar Teknolojisi ile Gerçekleştirilen Hidrografik Haritalamay? Desteklemek İçin Çok Bantlı Uydu Görüntüleri ile S?g Derinliklerin Degerlendirilmesi): presented to online to audience, presented at International Geography Symposium, International Geography Symposium, October 12-14, 2022.

Assessment of Depths Derived by Airborne Lidar and Multi-band Satellite Imaging the Support Hydrographic Mapping in Shallow Coastal Estuaries with Varying Environmental Conditions: presented to BEG audience, Nano Talks, presented at 8th Annual Bureau Research Symposium, BEG Conference Room, September 30, 2022.

Quantifying depths in a shallow, hypersaline estuary with airborne Lidar, sonar and satellite bathymetry: Laguna Madre, Texas: presented to audience in oral, presented at Canadian Hydrographic Conference, Gatineau, Quebec, June 6-9, 2022.

GPR for bathymetry of the Devils River, Texas: presented at 33rd Symposium on the Application of Geophysics to Engineering and Environmental Problems, online, March 18, 2021.

Multispecies watershed-based conservation of native fishes in the Devils River, Texas: presented to Southern Division of the American Fisheries Society, presented at Annual Meeting, Galveston, Tex., January 24-27, 2019.

Rapid response on the Texas coast: acquiring post-Harvey lidar and imagery to assess storm impact and monitor recovery: presented to Texas Chapter American Shore & Beach Preservation Association, presented at ASBPA Texas Chapter 2018 Symposium, Corpus Christi, Texas, April 24, 2018.

Airborne lidar bathymetry: assessing quality assurance and quality control methods with Leica Chiroptera examples: presented at ILMF / ASPRS 2018, Denver, Colo., February 5-7, 2018.

Quantifying the bathymetry of the lower Colorado River basin, Arizona, with airborne Lidar: presented at American Society of Photogrammetry and Remote Sensing (ASPRS), Baltimore, Md., March 12-15, 2017.

Colorado River Lower Basin Airborne Lidar Bathymetry (ALB) Survey: presented at Geosystems track, Hexagon Live 2016, Anaheim, California, June 13-15, 2016.

Bathymetric lidar waveform analysis at turbid and unknown water conditions: presented at Digital Earth 2015, Bathymetric Lidar Session, Halifax, Nova Scotia, October 8, 2015.

Determining lake depths and volumes and classifying wetlands using airborne lidar and satellite imagery on the North Slope, AK: presented at Geospatial session, Hexagon, Las Vegas, NV,

June 1-4, 2015.

Determining depths and sizes using airborne lidar and imagery on the North Slope, Deadhorse, Alaska, 2014: presented at International Lidar Mapping Forum (ILMF), Denver, CO, February 22-25, 2015.

Determining depths and sizes using airborne lidar and imagery on the North Slope, Deadhorse, Alaska, 2014 -- Field campaign and preliminary bathymetric results: presented at The University of Texas at Austin, Bureau of Economic Geology Friday Seminar Series, October 17, 2014.

Activities of a Professional Nature

Professional Societies

American Society for Photogrammetry and Remote Sensing

Association of Professional Engineers and Geoscientists of B.C.

Canadian Institute of Geomatics (CIG)

Activities of a Professional Nature

Distinguished peer reviewer, International Journal of Applied Earth Observation and Geoinformation, Elsevier. (April 1, 2016-Present)

Funding

Research Support

PI: Airborne Lidar Surveys to Quantify Greenland Arctic Summer Sea Ice Heights and Bathymetry of Cryospheric Melt Ponds, NASA (June 2022-June 2023; \$635000).

PI: Assessment of depths using airborne Lidar and multi band satellite imagery in Laguna Madre, TX, Texas Water Development Board (February 2020-February 2021; \$125000).

PI: Multi-sensor approach to improve bathymetric lidar mapping of semi-arid groundwater-dependent streams: Devils River, Texas, Texas Parks and Wildlife Department (April-December 2019; \$175000).

PI: Quantifying airborne lidar bathymetry quality-control measures: a case study in Frio river, Texas, Texas Water Development Board (March-September 2018; \$60000).

PI: Airborne lidar survey of Lower Colorado River - bathymetric and topographic, Survey and Mapping Inc (SAM) Austin TX (February-November 2016; \$185000).

PI: Wetland and permafrost feature mapping at Alaskan North Slope, Great Bear Petroleum LLC (May 2014-March 2015; \$745000).

PI: Coastline and feature mapping using airborne Lidar in Monterey, California, Advanced Research Labs (ARL) (June-December 2014; \$85000).

PI: Wetlands and features mapping with airborne Lidar in Wax Lake Delta, Patterson, LA, University of Illinois (March-September 2013; 55000).

Publications

Peer Reviewed Journal Articles

Saylam, K., Averett, A. R., Costard, L., Wolaver, B. D., and Robertson, S., 2020, Multi-Sensor Approach to Improve Bathymetric Lidar Mapping of Semi-Arid Groundwater-Dependent Streams: Devils River, Texas: Remote Sensing, v. 12, no. 2491, 24 p., <http://doi.org/10.3390/rs12152491>.

Caudle, T., Paine, J. G., Andrews, J. R., and Saylam, K., 2019, Beach, dune, and nearshore analysis of southern Texas Gulf Coast using Chiroptera LIDAR and imaging system: Journal of Coastal Research, v. 35, no. 2, p. 251-268, <http://doi.org/10.2112/JCOASTRES-D-18-00069.1>.

Saylam, K., Hupp, J. R., Andrews, J. R., Averett, A. R., and Knudby, A. J., 2018, Quantifying Airborne Lidar Bathymetry quality-control measures: a case study in Frio River, Texas: *Sensors*, v. 18, no. 12, p. 4153, <http://doi.org/10.3390/s18124153>.

Saylam, K., Hupp, J. R., Averett, A. R., Gutelius, W. F., and Gelhar, W. B., 2018, Airborne lidar bathymetry: assessing quality assurance and quality control methods with Leica Chiroptera examples: *International Journal of Remote Sensing*, v. 39, no. 8, p. 2518-2542, <http://doi.org/10.1080/01431161.2018.1430916>.

Saylam, K., Brown, R., and Hupp, J. R., 2017, Assessment of depth and turbidity with airborne Lidar bathymetry and multiband satellite imagery in shallow water bodies of the Alaskan North Slope: *International Journal of Applied Earth Observation and Geoinformation*, v. 58, no. C, p. 191-200, <http://doi.org/10.1016/j.jag.2017.02.012>.

Young, M. H., Andrews, J. H., Caldwell, T. G., and Saylam, K., 2017, Airborne LiDAR and aerial imagery to assess potential habitats for the desert tortoise (*Gopherus agassizii*): *Remote Sensing*, v. 9, no. 458, 16 p., <http://doi.org/10.3390/rs9050458>.

Peer Reviewed Book Chapters

Paine, J. G., Costard, L., Andrews, J., Averett, A., Saylam, K., and Hupp, J., 2021, Determining annual to decadal subsidence areas and rates using airborne lidar, GPS surveys, and topographic maps at the Wink sinkholes, West Texas, in Johnson, K. S., Land, L., and Decker, D. D., eds., *Evaporite karst in the Greater Permian Evaporite Basin (GPEB) of Texas, New Mexico, Oklahoma, Kansas, and Colorado*: Norman, Oklahoma, Oklahoma Geological Survey, Circular, v. 113, p. 93-103.

Paine, J. G., Andrews, J. R., Saylam, K., and Tremblay, T. A., 2015, Airborne LiDAR-based wetland and permafrost-feature mapping on an Arctic coastal plain, North Slope, Alaska, in Tiner, R. W., Lang, M. W., and Klemas, V. V., eds., *Remote sensing of wetlands: applications and advances*: London, CRC Press, p. 413-434.

Non Peer Reviewed Journal Articles

Saylam, K., 2016, A tale of two airborne LiDAR scanners--Lower Colorado River Basin Survey: *Lidar*, v. 6, no. 8, p. 34-37.

Saylam, K., Andrews, J. R., and Hupp, J. R., 2016, Inventory and characterization of more than 4,500 shallow-water bodies: Lidar bathymetry on the Alaskan North Slope: *Hydro International, Focus on Shallow Water*, v. 20, no. 3, p. 22-25.

Paine, J. G., Andrews, J. R., Saylam, K., Tremblay, T. A., Averett, A. R., Caudle, T. L., Meyer, T., and Young, M. H., 2013, Airborne lidar on the Alaskan North Slope: wetlands mapping, lake volumes, and permafrost features: *The Leading Edge*, v. 32, no. 7, p. 798-805.

Conference Proceedings

Saylam, K., Hupp, J. R., and Averett, A. R., 2017, Quantifying the bathymetry of the lower Colorado River basin, Arizona, with airborne Lidar, *American Society of Photogrammetry and Remote Sensing (ASPRS), IGTF 2017*, Baltimore, Md., 12 p.

Saylam, K., 2016, Mapping the last frontier, *Hexagon 2016, Reporter*, v. 75, no. 3, Heerbrugg, Switzerland, 3 p.

Saylam, K., 2009, Quality assurance of Lidar systems: mission planning, *American Society of Photogrammetry and Remote Sensing Conference, 75th anniversary*, Baltimore, Md., 9-13 p.

Contract Reports

Saylam, K., and Briseno, A., 2022, Airborne Lidar bathymetry and multi-band satellite imaging analysis of Lower Laguna Madre, TX: Texas Water Development Board, Contract report final prepared for TWDB, under contract no. 2101792506, 77 p.

Wolaver, B. D., Saylam, K., Caldwell, T., Bongiovanni, T., Andrews, J. R., Pierre, J. P., and Hupp, J. R., 2018, Airborne Lidar bathymetry survey and aquatic habitat evaluation for Devils River minnow and Texas hornshell mussel in the Devils River: BEG Year 1 Interim Report (Feb. 20, 2018, to Sept. 30, 2018) prepared for Texas Parks and Wildlife Department, under contract no. 507663, 8 p.

Brown, R., Paine, J. G., Saylam, K., Tremblay, T. A., Andrews, J. R., and Averett, A. R., 2016, Mangrove monitoring using airborne VNIR in the Espiritu Santo Bay area, central Texas coast: Bureau of Economic Geology, The University of Texas at Austin, Final Report prepared for General Land Office, under contract no. 14-078-000-7946, 38 p.

Saylam, K., Hupp, J. R., Andrews, J. R., and Averett, A. R., 2016, Colorado River Lower Basin, Airborne Lidar Bathymetry Survey: The Bureau of Economic Geology, Final contract report prepared for The U.S. Bureau of Reclamation, under contract no. UTA15-001236, 31 p.

Saylam, K., Andrews, J. R., and Young, M. H., 2015, Desert tortoise habitat research using airborne lidar: Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin, Contract prepared for Clark County, Nevada, under contract no. 26-8274-8312, 31 p.

Saylam, K., Andrews, J. R., Hupp, J. R., Averett, A. R., Brown, R., and Young, M. H., 2015, Determining lake depths and volumes and classifying wetlands using airborne lidar and satellite imagery on the Alaskan North Slope, Deadhorse area, Alaska: Bureau of Economic Geology, University of Texas at Austin, Contract report prepared for Great Bear Petroleum (LLC), under contract no. UTA12-0000752, 69 p.

Caudle, Tiffany, Tremblay, T. A., Paine, J. G., Andrews, J. R., Saylam, K., 2014, Final report: Beach and dune analysis using Chiroptera imaging system, South Padre and Brazos Islands, Texas Gulf Coast: The University of Texas at Austin, Bureau of Economic Geology, report to the Texas Coastal Coordination Council pursuant to NOAA Award No. NA12NOS4190021, final report prepared for General Land Office under contract no. 13-030-000-6895, June 2014, 68 p., 34 figs., 3 tables.

Saylam, K., and Andrews, J. R., 2014, Hydraulic fracture pits existing and potential volume calculation with airborne bathymetric lidar: The University of Texas at Austin, Bureau of Economic Geology, final technical report prepared for Pioneer Natural Resources USA, Inc., under research agreement UTA-000693, 50 p.

Saylam, K., Andrews, J. R., Averett, A. R., Hupp, J. R., Young, M. H., and Ekercin, S., 2014, Determining lake depths and area sizes on the North Slope, Deadhorse area, Alaska: The University of Texas at Austin, Bureau of Economic Geology, contract report prepared for Great Bear Petroleum LLC, under contract no. UTA14-000820, 27 p.

Saylam, K., Andrews, J. R., Hupp, J. R., Caudle, T., Brown, R., Young, M. H., and Ekercin, S., 2014, Clark County Desert Conservation Program, Desert Tortoise Habitat Research, Lidar Point Cloud Data, CIR Image Delivery & Calibration Report: Bureau of Economic Geology, The University of Texas at Austin, Data delivery report prepared for Clark County, Nevada, under contract no. 26-8274-8312, 18 p.

Paine, J. G., Andrews, J. R., Saylam, K., Tremblay, T. A., Young, M., Abolt, C., Bradford, B., Caudle, Tiffany, Meyer, T., and Neuenschwander, A. L., 2013, Determining wetlands distribution, lake depths, and topography using airborne lidar and imagery on the North Slope, Deadhorse area, Alaska: The University of Texas at Austin, Bureau of Economic Geology, final technical report prepared for Great Bear Petroleum Operating LLC, under, sponsored research agreement UTA12-0000752, 76 p.

Nichols, S., Coleman, D., and Saylam, K., 1999, Developing a conceptual framework architecture to support the Canadian Geospatial Data Infrastructure: University of New Brunswick, Fredericton, contract report prepared for the GeoConnections Secretariat, Geomatics Canada, Ottawa.

Published Abstracts

Costard, L., Saylam, K., Averett, A., Wolaver, B., and Robertson, S., 2021, GPR for bathymetry of the Devils River, Texas (abs.): SAGEEP 2021: 33rd Symposium on the Application of Geophysics to Engineering and Environmental Problems, March 14-19, online, p. 177, <http://doi.org/10.4133/sageep.33-088>.

Paine, J. G., Averett, A. R., Andrews, J. R., Caudle, T., Hupp, J., and Saylam, K., 2019, Rapid response on the Texas coast: acquiring post-Harvey lidar and imagery to assess storm impact and monitor recovery (abs.): 45th International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC) Annual Conference and 29th SAIL Regional Meeting, Port Aransas, Texas, October 20-25, p. 22.

Young, M. H., Caldwell, T., Andrews, J. R., and Saylam, K., 2017, Airborne lidar and aerial imagery to assess potential burrow locations for the desert tortoise (*Gopherus agassizii*) (abs.): Presented at the European Geosciences Union Annual Meeting, Vienna, Austria.

Andrews, J. R., Paine, J. G., Caudle, T., and Saylam, K., 2016, Topographic and bathymetric lidar applications in coastal research at the Bureau of Economic Geology (abs.): Gulf Coast Association of Geological Societies Transactions, v. 66, p. 911.

Paine, J. G., Collins, E. W., Yang, D., Andrews, J. R., Averett, A. R., Caudle, T., and Saylam, K., 2015, Quantifying monthly to decadal subsidence and assessing collapse potential in a Texas oilfield using airborne lidar, radar interferometry, and microgravity (abs.): American Association of Petroleum Geologists and Society of Exploration Geophysicists International Conference and Exhibition, Melbourne, Australia, September 13-16, 2015, no. 2212411, 1 p.

Paine, J. G., Collins, E. W., Yang, D., Andrews, J. R., Caudle, T., and Saylam, K., 2015, Quantifying subsidence and assessing sinkhole potential in the Hendrick Field, Permian Basin, Texas, using airborne lidar, radar interferometry, and microgravity (abs.): American Association of Petroleum Geologists Annual Convention and Exhibition, Denver, Colorado, May 31-June 3, abstract no. 2102176, CD-ROM, 1 p.

Paine, J. G., Collins, E. W., Yang, D., Andrews, J. R., Averett, A. R., Caudle, T., and Saylam, K., 2015, Quantifying monthly to decadal subsidence and assessing collapse potential near the Wink sinkholes, West Texas, using airborne lidar, radar interferometry, and microgravity (abs.): Geological Society of America, South-Central Section 49th Annual Meeting.

Paine, J. G., Andrews, J. R., Saylam, K., Averett, A. R., Caudle, T., Collins, E. W., and Yang, D., 2014, Quantifying monthly to decadal subsidence rates and magnitudes near the Wink sinkholes, west Texas, using airborne lidar and radar interferometry (abs.): Proceedings, 27th Annual Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP), Boston, Massachusetts, March 16-20.

Paine, J. G., Collins, E. W., Yang, D., Andrews, J. R., Averett, A. R., Caudle, T., and Saylam, K., 2014, Quantifying monthly to decadal subsidence and assessing collapse potential near the Wink sinkholes, west Texas, using airborne lidar, radar interferometry, and microgravity [invited] (abs.): American Geophysical Union Fall Meeting, San Francisco, California, December 18, 2014.

Caudle, Tiffany, Tremblay, T. A., Paine, J. G., Andrews, J. R., and Saylam, K., 2013, Tracking shoreline and geomorphic-unit change on South Padre Island, Texas, using newest generation of lidar mapping and imagery capture (abs.): in American Shore and Beach Preservation Association, Digital Program with Abstract, October 23-25, http://www.asbpa.org/conferences/conf_fall_13_sessions.htm.

Paine, J. G., Andrews, J. R., Saylam, K., Tremblay, T. A., Averett, A. R., Caudle, Tiffany, Meyer, T., and Young, M. H., 2013, Airborne lidar on the Alaskan North Slope: wetlands mapping, lake volumes, and permafrost features (abs.): Extended Abstracts, Society of Exploration Geophysicists Annual Meeting, DOI <http://dx.doi.org/10.1190/segam2013-1488.1>, p. 5250-5251.

Paine, J. G., Young, M. H., Saylam, K., Andrews, J. R., Averett, A. R., Caudle, T., Karlsson, T., Meyer, T., and Tremblay, T. A., 2013, Determining wetlands distribution, lake depths, and topography using airborne lidar and imagery on the North Slope, Alaska (abs.): Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems, Denver, Colorado.

Saylam, K., 1999, Canadian Geospatial Data Infrastructure (CGDI) (abs.), in GIS '99 Conference, Vancouver.