
Steven Quan**Research Planning, Inc.**

Coastal Geomorphologist

Mr. Quan is a coastal geomorphologist specializing in applied remote sensing and geospatial technology. Mr. Quan joined the RPI team in April 2012 and is currently working on shoreline classification for Environmental Sensitivity Index mapping. In addition, he is developing a land-use/land-cover classification system using an expert-systems approach with object-based image analysis, multi-spectral satellite imagery, digital elevation models, and geospatial vector data.

Prior to joining RPI, Mr. Quan worked as a hydrographer and LIDAR specialist at the CSU Monterey Bay Seafloor Mapping Lab. His expertise in remote sensing, geospatial technologies, and geographic information systems culminated in a masters thesis which combined state-of-the-art technologies with sound science by using a vessel-based LIDAR system to quantify coastal erosion in Monterey Bay, CA.

EDUCATION

M.S., Coastal and Watershed Science and Policy, 2011
California State University, Monterey Bay. Seaside, CA

B.S., Earth System Science, 2007
Interdisciplinary Minor in Global Sustainability
University of California Irvine. Irvine, CA

PROFESSIONAL EXPERIENCE

Coastal Geomorphologist, Research Planning, Inc. Columbia, SC. April 2012-Present

Hydrographer / LIDAR Specialist, Seafloor Mapping Lab, California State University, Monterey Bay. Seaside, CA. August 2010-April 2012.

Graduate Research Assistant / Hydrographic & LIDAR Data Technician, Seafloor Mapping Lab
California State University, Monterey Bay. Seaside, CA. September 2008– August 2010

Research Mentor, Undergraduate Research Opportunities Center, CSU Monterey Bay. Seaside, CA
January 2010-June 2011

Research Assistant, Department of Earth System Science, University of California Irvine. Irvine, CA
June 2006-November 2007

Electrician/ Lighting Technician, LA Stage Call, Hermosa Beach, CA. August 2003-August 2008

Mr.Quan’s experience is outlined below in the following technical areas

- Environmental Sensitivity Mapping
- Remote Sensing / Geospatial Technology
- Remotely Sensed Data Analysis

ENVIRONMENTAL SENSITIVITY INDEX (ESI) MAPPING

Mr. Quan served as a coastal geomorphologist for ESI projects, conducting shoreline classification for the state of Louisiana, Florida (West Peninsular 2), and Delaware Bay. In addition, he assisted in the development of new methodology for shoreline vector data integration, conducted aerial over flight photo-mapping surveys, and conducted QAQC of completed ESI geodatabases, all in support of ESI mapping projects.

REMOTE SENSING / GEOSPATIAL TECHNOLOGY

Mr. Quan served as a graduate research assistant, and then as a hydrographer / LIDAR specialist at the California State University, Monterey Bay, Seafloor Mapping Lab (2008-2012). He conducted high resolution seafloor and coastal topology mapping along the California coastline from Point Arena to Point Arguello including Elkhorn Slough, and 2 reservoirs, Loch Lomond and Los Padres.

He has extensive field experience with many forms of remote sensing / geospatial technologies and was responsible for both the offshore field acquisition and onshore in lab processing of hydrographic, oceanographic, and topographic data.

A short list of remote sensing / geospatial technologies he has experience with includes:

- RESON multibeam bathymetric SONAR systems (8101, 7111, 7125)
- SEA SWATHplus interferometric SONAR system
- Riegl terrestrial LIDAR system (LMS Z420i)
- Applanix position and orientation system (POS-MV)
- Navigation systems
- Sound velocity profilers
- Sidescans
- Remotely operated vehicles (LBV 200L)
- Trimble GPS systems and reference stations (NetR5, 5700, GeoXM series)
- Topcon total stations

Mr. Quan was one of the pioneers in developing the vessel-based LIDAR system, a traditional static terrestrial LIDAR system coupled with an inertial motion unit to allow for data acquisition on a moving vessel, one of the first on the US west coast. He was a key player in developing and refining acquisition and processing techniques for this system.

Mr. Quan also served as a research mentor, mentoring undergraduates in traditional static terrestrial LIDAR and GPS survey techniques.

REMOTELY SENSED DATA ANALYSIS

Throughout his career, Mr. Quan has gained experience manipulating a host of remote sensing and geospatial analysis software packages. A short list includes:

- eCognition
- ERDAS Imagine
- ENVI
- Fledermaus
- CARIS
- Hypack
- RiSCAN pro
- ArcGIS
- R

In support of the Haiti Watershed Initiative for National Natural Resources (WINNER) land use/land cover project (2012), Mr. Quan developed a land-use/ land-cover classification system using an expert-systems approach, object-based image analysis, multispectral WorldView2 imagery, SPOT digital elevation models, and geospatial vector data.

Mr. Quan quantified and analyzed patterns of coastal erosion in Monterey Bay, Ca by acquiring vessel-based LIDAR data and comparing those data with pre-existing aerial LIDAR data using spatial analysis techniques (2011). This work was partially funded by the Ocean Protection Council and State Conservancy's California Seafloor Mapping Project.

PUBLICATIONS AND RESEARCH REPORTS

- Quan, S.**, Kvittek, R.G., Smith, D.P., and Griggs, G.B., 2013. Using Vessel-Based LIDAR to Quantify Coastal Erosion during El Niño and Inter- El Niño Periods in Monterey Bay, CA. *Journal of Coastal Research*, 29(3), 555-565.
- Quan, S.**, Kvittek, R.G., Smith, D.P., and Griggs, G.B., 2011. Using Vessel-Based LIDAR to Quantify Coastal Erosion during El Niño and Inter- El Niño Periods in Monterey Bay, CA. Seaside, California: California State University, Monterey Bay, Masters thesis. 39 p.
- Daniels, M., Frank, D., Holloway, R., Kowalski, B., Krone-Davis, P., **Quan, S.**, Stanfield, E., Young, A., and Watson, F., 2010. Evaluating Good Water Quality Habitat for Steelhead in Carmel Lagoon: Fall 2009. The Watershed Institute, California State Monterey Bay, Publication No. WI-2010-03, 42 p.
- Smith, D.P., Daniels, M., Frank, D., Holloway, R., Kowalski, B., Krone-Davis, P., **Quan, S.**, Stanfield, E., and Young, A., 2010, Can Los Osos Valley Groundwater Basin Provide a Sustainable Water Supply?: Prepared for The Los Osos Valley Sustainability Group. The Watershed Institute, California State University Monterey Bay, Publication No. WI-2010-04. 78 p.
- Smith, D.P., Kvittek, R., Aiello, I., Iampietro, P., **Quan, S.**, Endris, C., Paddock, E., and Gomez, K., 2009. Fall 2008 Stage Volume Relationship for Los Padres Reservoir, Carmel Valley, California: Prepared for the Monterey Peninsula Water Management District. The Watershed Institute, California State University Monterey bay, Publication No. WI-2009-2. 30 p.

ABSTRACTS / PRESENTATIONS

- Quan, S.**, Kvittek, R.G., and Smith, D.P., 2011. An application of vessel- based LIDAR to quantify coastal retreat in southern Monterey Bay, CA during the 2008-2009 year and the 2009-2010 El Niño. Association of Environmental Professionals Conference: Adaptation to climate change and coastal hazards. Monterey, CA. (Poster).
- Quan, S.**, Kvittek, R.G., and Smith, D.P., 2010. An application of vessel-based LIDAR to quantify coastal retreat in southern Monterey Bay, CA during the 2008-2009 year and the 2009-2010 El Niño. American Geophysical Union Fall Meeting. San Francisco, CA. (Poster).
- Quan, S.**, Kvittek, R.G., and Smith, D.P., 2010. Application of vessel-based LIDAR to quantify coastal retreat in southern Monterey Bay, CA. Monterey Bay National Marine Sanctuary Symposium. Seaside, CA. (Poster).
- Alfasso, A.C., Bauerlein, D.A., Cannon, D.A., Carrillo, J.I., Corcoran, K.R., Davis, A.C., Figueroa, G.A., Gomez, J., Gossard, D.J., Hilton, S.E., Jeffries, S.V., Madsen, T.A., Mueller, C.B., Ross, E., Williams, J.S., Alanezi, A., and **Quan, S.**, 2010. Persistence and Change of Geomorphology in Near Shore Rippled Scour Depressions and Rocky Habitat on the Continental Shelf of Monterey Bay, California. Monterey Bay National Marine Sanctuary Symposium. Seaside, CA. (Poster).
- Quan, S.**, Kvittek, R.G., and Smith, D.P., 2009. An application of vessel-based LIDAR to quantify coastal retreat in southern Monterey Bay, CA. American Geophysical Union Fall Meeting. San Francisco, CA. (Poster).
- Smith, D.P., Kvittek, R.G., **Quan, S.**, Iampietro, P., Paddock, E., Richmond, S., Gomez, K., Aiello, I., and Consulo, P., 2009. Skiff-based SONAR/LIDAR Survey to Calibrate Reservoir Volumes for Watershed Sediment Yield Studies: Carmel River Example. American Geophysical Union Fall Meeting. San Francisco, CA. (Poster).

Quan, S., Kvitek, R.G., and Smith, D.G., 2009. An application of vessel- based LIDAR to monitor offshore dredge efforts at Ocean Beach, San Francisco, CA. State of the San Francisco Bay Estuary Conference. Oakland, CA. (Poster).

Quan, S., Kvitek, R.G., and Smith, D.G., 2009. California State University Monterey Bay Seafloor Mapping Lab's mobile marine laser scanner. California Shore and Beach Preservation Association Conference: Recent advances in coastal management affecting California, Pacifica, CA. (Invited Talk).

CERTIFICATIONS

Trimble GPS certification (2009)

NOAA approved Marine Mammal Observer (2010)

ICS-100 (2013)

ICS-700 (2013)

PROFESSIONAL AFFILIATIONS AND SERVICES

American Geophysical Union (2009)

American Society of Photogrammetry & Remote Sensing (2011)

Coastal Education and Research Foundation (2012)

Reviewer: Journal of Coastal Research