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Market Integration and the Health of Amazonian Amerindians

Many Amazonian peoples are currently undergoing transitions from subsistence to market based economies. Along with these changes in subsistence, come changes in diet, disease, and sociality. Here, I discuss work with two Amazonian populations, the Shuar of Ecuador and the Tsimane of Bolivia. Both have lived traditionally through small scale horticulture, hunting, fishing, and gathering, and both groups have seen substantial changes in market integration over the past decade. However, these changes have not been distributed uniformly in space. Often, those living closer to or with greater access to towns and roads experience market integration more quickly, while those living more remotely continue traditional livelihoods. We use this spatial distribution as a proxy for changes through time, to examine how market integration impacts children's growth, body composition, disease transmission, acculturation, fertility, and other health outcomes.

Bio: Aaron Blackwell is Professor of Anthropology at the University of California, Santa Barbara. He is a human biologist and behavioral ecologist whose research examines health and life history in small scale Amazonian societies. His research examines how immune function develops in populations exposed to high levels of pathogens and how early life experiences shape health later in life in both small scale and industrialized populations. His research incorporates both field and laboratory work to examine biological outcomes. Blackwell's other interests include examining how market integration affects health and development, senescence and aging, and ecological effects on parental investment and growth.



David Kerr

M.D. FRCPE
Director of Research
Sansum Diabetes Center

A Diabetes Digital Village

For clinicians, scientists and diabetes industries, the online diabetes **#wearenotwaiting** community is making it clear that the traditional approach to healthcare is not providing the quality and outcomes that are desired by adults and children living with diabetes. One opportunity that has to the potential to

improve diabetes care is the use of the smartphone as a platform for care delivery. The challenge is to make sure that this disruptive approach will **(a)** be used by the target audiences, **(b)** provide measurable “metrics of success,” and **(c)** has a sustainable return on investment. With the smartphone this will generate vast amounts of new information not limited by geography, economics or culture. Data will be empowering and it will also change the “balance of power” in favor of the patient-as-a-consumer which may be uncomfortable for the professions. The digital revolution is at an embryonic stage but its growth and influence, will, like the technologies themselves, be exponential.

Bio: David Kerr is Director of Research at Sansum Diabetes Center. He is a UK trained physician and endocrinologist and has spent many years trying to help people “tame the beast” that is diabetes. His research focuses on modifying and creating technology to benefit the maximum number of people with diabetes for the longest period of time and with the minimum disruption to their lives. Kerr is Fellow of the Royal College of Physicians of Edinburgh, Visiting Professor at Bournemouth University and for many years has held a Gold Clinical Excellence Award from the National Health Service in the UK.



Susan Cassels

Ph.D., M.P.H.

Assistant Professor, Department of Geography

Research Associate, Broom Center for Demography

University of California, Santa Barbara

Susan Cassels, plenary session moderator, is an assistant professor of Geography and a research associate at the Broom Center for Demography at the University of California Santa Barbara. Her work spans many disciplines, including demography, epidemiology, and geography. Cassels’ research interests are in the areas of population health, migration, epidemic modeling, HIV/AIDS, and sexual networks. Currently, Cassel’s research is focused on migration and residential mobility and its effects on sexual risk behavior, sexual network structure, and HIV transmission. She has ongoing projects among heterosexuals in Ghana and among men who have sex with men in Seattle and Los Angeles.



Presenter: **Jay Hackett**

Harris Corporation

Title: **Geiger-Mode Lidar and Applications**

Three-Dimensional LiDAR is a well-known remote sensing and measurement technology for capture and creation of 3D point clouds of the earth's surface. Traditionally, commercial 3D LiDAR systems have been built on linear-mode detectors/receivers. Harris has built and developed an innovative new commercial LiDAR technology built on Geiger-Mode detectors. A significant advantage of this technology includes substantial increases in collection rates at much higher altitudes. This presentation will include a discussion of: Geiger-mode LiDAR technology, advantages and disadvantages of Geiger-Mode LiDAR, the Harris Corporation IntelliEarth™ LiDAR and processing solution, sample LiDAR results from recent collections, and applications to which Geiger-Mode LiDAR can be employed.

Bio: Jay Hackett, M.S. and B.S. Computer Science, University of Central Florida

Operations Lead, Lidar Programs, GeoSpatial Solutions, Harris Corporation, Melbourne, FL

Jay Hackett earned B.S. and M.S. Degrees in Computer Science from the University of Central Florida. His area of focus is image processing, computer vision, and remote sensing. He worked at Lockheed Martin for 5 years in the Image Processing Laboratory (IPL) with focus on real-time target detection. Jay then went on to work as V.P. for Engineering with DI/MAC Technologies which specialized in custom machine vision hardware and algorithms. Mr. Hackett has since been employed with Harris Corporation for 20 years where he has served as Chief Systems Engineer, Project Engineer, Advanced Programs Engineer, Engineering Manager of the Image Processing Department, Lead Engineering Manager of Software Development at Harris Government division, Program Manager for Advanced Studies in the Ground and Payload Systems, Chief Technologist for Geospatial Solutions, and currently as Operations Lead for Lidar Programs. His current focus is in technology development, strategy development, and execution of Lidar programs for Government and Commercial Geospatial solutions. He has published over 20 research papers and holds 5 patents.

Presenter: **Rocky Rudolph**

National Park Service, CIRGIS Vice-President & Board Member

Title: **2017–2018 Aerial Imagery Project Needs Assessment & Market Research**

The purpose of this project is to perform a needs assessment and market research study in support of a potential aerial imagery project in 2017 or 2018 within the Santa Barbara and Ventura County geographic areas of Southern California.

Bio: Having grown up in the National Park Service as a “park brat,” **Rocky Rudolph** has a long history of blending technology with playing outside. As a kid, after games on his Atari ST computer, he would play in the outdoors under the shadow of Half Dome in Yosemite. Today he uses tech to help preserve and manage wild places by working at Channel Islands National Park as the GIS specialist. For the past 10 years he has worked on a wide range of geospatial data projects related to threatened species, invasive plants, cultural and historic artifacts, and protection of park visitors and resources.

Presenter: **Zacharias Hunt**

ZWorld GIS, Inc., CIRGIS Past-President & Board Member

Title: **2015 Aerial Imagery Project Completion—What went Wrong, What went Right?**

The purpose of this presentation is to share our recent experience with the 2015 Aerial Imagery project, and the lessons learned. The project proved to be very challenging technologically and administratively. But CIRGIS was able to deliver a great project to participating member agencies.

Bio: **Zacharias Hunt** has been working in the Geospatial Technology industry for 16 years. He received his Bachelor’s Degree in Geography from the University of California, Santa Barbara and a Master’s Degree in Public Administration from California State University of Northridge. Zacharias also has certification in the use of Global Positioning Systems (GPS) from Ventura College, California.

Zacharias is currently a GIS Manager for ZWORLD GIS, a geospatial consulting business, which provides a wide array of Geospatial Information System services and solutions, assisting agencies through every aspect of a GIS system. Zacharias has helped the company expand with his unique experience in GIS data development, mapping, GIS data maintenance, and larger enterprise GIS program needs such as strategic planning, enterprise implementation, and project/program management.

Zacharias formerly worked as the Geographic Information Officer (GIO) for Santa Barbara County, where he managed all aspects of a County Enterprise GIS program which included development and implementation of a County GIS Strategic Plan; managing GIS web based applications for both internal County staff as well as the public; implementation of GIS policy and standards; annual budgeting and procurement process for GIS; developing sustainable GIS revenue opportunities. He also recruited and trained GIS staff; managed the County GIS Internship program; and coordinated GIS based systems for the County Office of Emergency Services (OES).

Zacharias participates in the Channel Island Regional GIS (CIRGIS) Collaborative, and served as President (2010–2015). With a background in both private and public sector geospatial projects and government contracts, Zacharias has been integral in the development of fiscal strategy and planning for regional collaborative geospatial projects.

Zacharias lives in Santa Barbara, California and volunteers his time to the local elementary schools giving fourth grade student Geography lesson plans. He is an avid outdoorsman, sports enthusiast, and enjoys participating in the local art community.

Presenter: **Hassan Kasraie**

Kasraie Consulting, CIRGIS President & Board Member

Title 1: **2016 LiDAR 3D Elevation Project Update**

The first presentation will discuss the CIRGIS LiDAR 3D Elevation Data Acquisition project from its inception in 2014 to present time. Currently 11 local public entities in Ventura and Santa Barbara

Counties are actively participating in a major local effort to acquire LiDAR elevation data meeting USGS Quality Level 1 accuracy standards (8 points per square meter, far exceeding the USGS 3DEP minimum requirements).

Title 2: Change Detection Using LiDAR, A Case Study-Ojai 2005 vs 2016

The second presentation shares the results of a case study to explore and detect topographic change for one of the above participating agencies; the City of Ojai. The new 2016 3D elevation data City-wide was compared with the elevation data from a 2005 Lidar project. Areas of elevation difference or change were mapped and classified. Two specific locations with major changes in grading were examined in more detail.

Bio: Hassan Kasraie is a Water Resources professional and the Principal of Kasraie Consulting. He has over thirty-one years of professional civil engineering and mapping experience in Southern California. He is a licensed hydrologist and a certified floodplain manager. Hassan was on the CIRGIS Board of Directors for two years before becoming the President in 2016.

Kasraie Consulting is a local Ventura County-based civil engineering/hydrology consulting firm. We've been in business for over 13 years. We provide conceptual drainage design, hydrology, hydraulics, floodplain management, engineering plan checking, analysis, GIS mapping, and LiDAR topography services to the local municipalities, water agencies, private development and the engineering community.