

Malcolm A. LeCompte

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Education

University of Colorado, Boulder, **Ph.D.**, Atmospheric, Planetary, and Astrophysical Sciences, 1984

University of Colorado, Boulder, **Master of Science**, Astro-Geophysics, 1980

University of Wyoming, Laramie, **Bachelor of Science**, Physics, with Honors, 1978

New York University, New York, **Bachelor of Science**, Aeronautics and Astronautics, 1969

Professional Experience

Retired from Elizabeth City State University in 2009, currently: Research Fellow at the Center of Excellence in Remote Sensing Education and Research

Elizabeth City State University, Elizabeth City, NC, Associate Professor and Research Director, Center of Excellence in Remote Sensing Education and Research, February 2004 – 2007

- Responsibility to develop a grant and contract supported remote sensing undergraduate and graduate (applied mathematics masters degree) research program.
- Write and review grant proposals for CERSER research projects.
- Foster Cooperation with other ECSU departments and institutions on collaborative research projects.
- Teach mathematics and remote sensing courses that may be offered by the Mathematics & Computer Science or Geology, Environmental and Marine Sciences departments.

AstroVision International, Inc., Bethesda, MD & NASA Stennis Space Center, MS. Founder and Chief Executive Officer, March 1992-November, 1998, Chief Scientist, **December, 1998 to June 2003.** (www.astrovision.com)

- Created concept and requirements specifications for a global constellation of CCD Focal Plane Array (FPA) multispectral camera equipped Geostationary satellites for high temporal and spatial resolution Earth monitoring with geophysical and meteorological applications (8 associated patents awarded or pending)
- **Authored initial business plans & associated financial projections**
- Validated system's commercial basis with early market research and analysis.
- **Raised over \$2 million in government contracts and private investment.**
- Recruited initial management team that raised an additional \$8 million in private investment.
- Created "state of the art" animated data simulations demonstrating AstroVision products,
- Defined satellite and sensor performance requirements in proposal requests (RFP's) issued to potential vendors for \$150 million dollar space systems.

Aerodyne Research, Inc., Billerica, MA. Senior Systems Scientist, **June 1986 to November 1996.**

- Developed, marketed, and managed contract work pioneering DOD electro-optical systems technology for passive sensing of air and surface vehicle signatures and background radiation, for target detection and identification, including target radiation signature phenomenology modeling done for Naval Air Warfare Center, Warminster PA.
- Co-authored the signature modeling tutorial chapter of the Infrared Technology Handbook (see attached publications list)
- Performed independent research that included impact assessment and system studies of the application of innovative technologies to naval aviation and space exploration,

Academic and Post Doctoral Research

Harvard College Observatory, Harvard University, Cambridge, MA. Post-Doctoral Research Fellow, **December 1984 to June 1986.**

- Modeled and analyzed atmospheric airglow, auroral and spacecraft glow processes in support of research by Dr.

Alex Dalgarno.

University of Colorado's Laboratory for Atmospheric and Space Physics, Boulder, CO. Post Doctoral Research Fellow and graduate student, **January 1977 – November 1984.**

- Modeled and analyzed airglow, auroral and spacecraft glow processes.
- Performed computer modeling of atmospheric processes and data analysis in support of planetary observations made by the ultraviolet spectrometers on NASA's Pioneer Venus Orbiter and Mariner 9 spacecraft.
- **Taught undergraduate and continuing education introductory astronomy courses**
- **Taught with & Operated CU's Fiske Planetarium and Sommers Bausch observatory (24" Ritchey-Chretien Cassegrain) using the latter for photographic and spectrographic studies..**

Commander, U.S. Naval Reserve, Retired, Active duty: **June-1970-November 1974**, Reserve duty: **March 1980-October 1998.** (Designated a Naval Flight Officer in April 1970)

- Naval War College, Newport, RI. War Games Designer, Analyst, Umpire and Controller, February 1992 to October 1998.
- Active flight duty with VAQ-129 and VAQ-136 as a weapon system operator & navigator on EA-6B aircraft
- Reserve flight duty with VP-90, VP-92 and VP-93 as tactical navigator on P-3B aircraft
- In 1974, served as E-3A AWACS Joint Test Force Navy Liaison during ECM tests.
- **As VAQ and VP Squadron Maintenance and Navigation Training Officer, created training curricula to maintain and improve professional skills, particularly for celestial navigation.**

Professional and Honorary Societies

American Geophysical Union
American Meteorology Society
U.S. Naval Institute

Patents (3 issued, 4 pending, 4 await filing)

Issued US Patent Nos. 6,217, 87, No. 6,331, 870 and 6,504,570: Direct Broadcast Imaging Satellite System Apparatus and Methods for providing real time continuous monitoring of earth from Geostationary Orbit. The latest awarded January 7, 2003.

Peer Reviewed Research Papers

W. C. Mahaney, D. H. Krinsley, C. C. R. Allen, J. Ditto, K. Langworthy, A. D. Batchelor, M. Lecompte, M. W. Milner, K. Hart, S.S. O'reilly, B. P. Kelleher, and R. G. V. Hancock, (2014), Reassessment of the Microbial Role in Mn-Fe Nodule Genesis in Andean Paleosols, *Geomicrobiology Journal*, Vol. 32, pp. 27-41.

Yingzhe Wu, Mukul Sharma, M.A. LeCompte, M. Demitroff, J. D. Landis, (2013) Origin and Provenance of Spherules and Magnetic Grains at the Younger Dryas Boundary, *Proceedings of the National Academy of Sciences*, Vol. 110, E3557-E3566

M.A. LeCompte, R.A. Bindschadler, L.B. Hayden, M. Jefferson, Y. Bridgers, R. Lawrence, J. Bevins, J. Brownlow, R. Evans, K. Hawk and G. Koch, Reduction and Loss of an Ice Shelf in Elizabeth City State University Bay, Antarctica: 1972-2003 and appears in volume 6, no. 3, June 2013 issue of the *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, pages 1509 to 1515

M. A. LeCompte, A. C. Goodyear, M. N. Demitroff, D. Batchelor, E. K. Vogel, C. Mooney, B. N. Rock, A. W. Seidel. 2012, Independent evaluation of conflicting microspherule results from different investigations of the Younger Dryas impact hypothesis, *Proceedings of the National Academy of Sciences*, PNAS Plus: DOI: 10.1073/pnas.1208603109

M.A. LeCompte; T.R. Meyer; J. Horsewood; C.P. McKay; D.D. Durda, 2012, Early, Short-Duration, Near-Earth Asteroid Rendezvous Missions, *Journal of Spacecraft and Rockets*, vol. 49 no. 5, pp 731-741.

Julie Williams et al., 2011, Building a Model of Collaboration Between Historically Black and Historically White Universities, *Journal of Higher Education Outreach and Engagement*, 15, 2, pp 35 - 55.

M.A. LeCompte, L.J. Paxton, and A.I. Stewart, 1989, Analysis and Interpretation of Airglow at 297 nm in the Venus

Thermosphere, Journal of Geophysical Research, Vol-94, No. A1, pp.208-216.

T.E. Cravens, J.C. Gerard, M.A. LeCompte, 1985, The Global Distribution of Nitric Oxide in the Thermosphere as Determined by the Atmosphere Explorer D Satellite," Journal of Geophysical Research, Vol-90, pp 9862-9870.

Papers Presented

LeCompte, M.A., A.C. Goodyear, M. Demitroff, D. Batchelor, C.B. Mooney, E. Vogel, B. Rock, Unusual material in early Younger Dryas age sediments and their potential relevance to the YD Impact Hypothesis, International Quaternary Assoc. Abstract 60 - 1813, presented at the XVIII Congress, held in Bern Switzerland, July21-27, 2011.

LeCompte, M., Hayden, L. Smith, E., Forde, J., Historical Observations of Coastal Upwellings along the Northern Beaches of the North Carolina Outer Banks, 8th International Conference on Remote Sensing of Coastal and Marine Environments, Nova Scotia Canada May 2005

LeCompte, M., Hayden, L., Rorie, D., Coastal Upwelling Along the Northern Beaches of the North Carolina Coast, IEEE- Geoscience and Remote Sensing Society IGARSS Conference, Seoul, Korea, July 2005.

M.A. LeCompte, AVStar High Temporal and Spatial Resolution Imaging from Geostationary Orbit, Proceedings of the 52nd International Astronautical Congress, Toulouse, France, Oct 1, 2001.

M.A. LeCompte, How Live Satellite Images Will Effect Local Weather Reporting, presented at the 30th American Meteorology Society (AMS) Conference on Broadcast, Meteorology, Minneapolis, MN, June 25, 2001

M. A. LeCompte, Monitoring Natural Disasters from Geostationary Orbit, presented at the First International Conference on Geospatial Information in Agriculture and Forestry, Lake Buena Vista, FL, June 2, 1998. Session Co-Chairman

A. Dalgarno, Y-H Yee, , and M.A. LeCompte, 1985, The Atmosphere Explorer and Shuttle Glow, 1985, Proceedings of the Second Workshop on Spacecraft Glow, held at NASA Marshall, Huntsville, AL, NASA Conference Publication 2391, May 6, 1985

M.A. LeCompte, A.I. Stewart and L.J. Paxton, 1983, Limb Observations of Venus at 297 nm, presented at the 1983 Fall Meeting of the American Geophysical Union, Abstract published in EOS Transactions of the AGU, Vol. 64, no.45, November 8, 1983.

L.J. Paxton, M.A. LeCompte and J.C. Gerard, 1983, Mg⁺ in the Upper Atmosphere of Venus: A Meteor Ablation-Cluster Ion Theory, presented at the 1983 Fall Meeting of the American Geophysical Union, Abstract published in EOS Transactions of the AGU, Vol. 64, no.45, November 8, 1983.

M.A. LeCompte, L.J. Paxton and J.C. Gerard, 1982, MgII Airglow in the Atmosphere of Venus, Observations and Theory, presented at the 1982 Fall Meeting of the American Astronomical Society, Abstract published in the Bulletin of the American Astronomical Society, Vol. 14, no.3.

Posters Presented

M.A. LeCompte et al., Carolina Bays: Younger Dryas Time Capsules, International Quaternary Assoc. Abstract 60 - 3134, presented at the XVIII Congress, held in Bern Switzerland, July21-27, 2011.

LeCompte, M.A., A.C. Goodyear, M. Demitroff, D. Batchelor, C.B. Mooney, An Independent Review of the Younger Dryas Extraterrestrial Impact Hypothesis And Its Recent Re-Evaluation By Surovell Et Al., American Quaternary Assoc. Abstracts of the 21st Biennial Meeting, held at the University of Wyoming, Laramie WY, August 13-15, 2010, page 120.

Aircraft Infrared Signature Phenomenology (Publications and Presentations)

"Aircraft Infrared Signature Polarization: Modeling and Measurements," M.A. LeCompte, M.R. Hess, and D.B. Nichols, Invited Paper, Proceedings of the Workshop Infrared and Millimeter Wave Polarimetry, Army Redstone Arsenal, Huntsville, AL, December 5, 1995. (Session Chairman)

"SPIRITS AC3: A Model for Calculating Polarized Infrared Signatures," M.A. LeCompte, M.R. Hess, and J DeAngelis, Proceedings of the 1995 JANNAF 4th SPIRITS User Group Meeting, Huntsville, AL, October 23, 1995.

"Multispectral IR Signature Polarimetry for Detection of Mines and Unexploded Ordnance (UXO)," M.A.

LeCompte, F.J. Iannarilli, D.B. Nichols, and R.R. Keever, Proceedings of the SPIE Conference on Detection Technologies for Mines and Mine-like Objects, Orlando, FL (SPIE #2496) April 17, 1995.

“Aircraft Infrared Signature Polarization Measurements at LONG JUMP ’94,” M.R. Hess, M.A. LeCompte, D.B. Nichols, R.R. Keever, W.B. Shepherd, and H.R. Woodman, Proceedings of the IRIS Symposium on Targets, Backgrounds, and Discrimination, Cocoa Beach, FL, January 31, 1995.

“Infrared Signature Polarization Detection of Theater Ballistic Missiles,” M.A. LeCompte and F.J. Iannarilli, Proceedings of the 1994 National Fire Control Symposium, Boulder Colorado, CO, August 2, 1994.

“Predicted Performance of Counter-Air Target ID Using IR Polarimetry,” F.J. Iannarilli and M.A. LeCompte, Proceedings of the IRIS Specialty Group on Targets, Backgrounds, and Discrimination, Monterey, CA, February 1, 1994.

“Measurement and Analysis of Aircraft Infrared Signature Polarization,” M.A. LeCompte, F.J. Iannarilli, M.R. Hess, G.A. Freund, D.L. McMaster, D.B. Nichols and J.E. Rice, Proceedings of the IRIS Specialty Group on Targets, Backgrounds, and Discrimination, Monterey, CA, February 1, 1994. (Classified)

“Signature Prediction and Modeling,” Chapter 6 of the The Infrared & Electro-Optical Systems Handbook, Vol. 4 - Electro-Optical Systems Design, Analysis, and Testing, J.A. Conant and M.A. LeCompte, edited by Michael C. Dudzik, Environmental Research Institute of Michigan, SPIE Optical Engineering Press, Bellingham WA 1993.

“Maritime Infrared Integrated Analysis Model (MIRIAM),” M.A. LeCompte, M.R. Wohlers, and J.A. Conant, Proceedings of the IRIS Specialty Group on Targets, Backgrounds, and Discrimination, Monterey, CA, January 28, 1992.

“Infrared Signature Polarization for passive Non-Cooperative Target Recognition,” M.A. LeCompte, and F.J. Iannarilli, Proceedings of the IRIS Specialty Group on Targets, Backgrounds, and Discrimination, Monterey, CA, January 28, 1992. (Classified)

“Target Identification using Passive Infrared Signature Polarization,” M.A. LeCompte and J.A. Conant, Proceedings of the IRIS Specialty Group on Targets, Backgrounds, and Discrimination, January 1990.