



# Biography

## United States Air Force

Dr. (LtCol) Michael L. Thomas is currently assigned to Maxwell AFB, AL, USAF Cyber College as a Professor of Cyberwarfare Studies. He previously served at the Naval Space and Warfare Center (SPAWAR) Charleston as a C4ISR Systems Engineer in the Communications and Networks Division. He was stationed at Patch Barracks, Stuttgart, Germany, working in the Cyber Division as a Knowledge Management Engineer (KME). Immediately prior to the current assignment he was working ISR related projects for the Intelligence and Knowledge Directorate (IKD) of USAFRICOM. In this capacity he was responsible for the design, implementation and fielding of major network projects initiated by the Navy, sister services and other US government customers. His prior assignment with SPAWAR was in the Heidelberg Office supporting HQ USAREUR in Geospatial Engineering. From March 2007 to September 2010 he was on detached special duty after being activated and served tours at the Pentagon, as a Defense Threat Reduction Agency (DTRA) LNO to the Joint Special Operations Command (JSOC), and lastly was assigned to the Air Force Institute of Technology (AFIT) as an instructor teaching Cyberwar courses. He is also currently serving as faculty at Penn State University teaching GeoInt Courses in the graduate school.

Immediately prior to his assignment with SPAWAR, he was the Chief J-3 Technical Projects, assigned to Georgia Tech University as a Special Projects Officer (Project Manager/Applications Architect). He managed the development of multiple projects both hardware and software related and specialized in systems integration of GIS, RDBMS and embedded real time systems to increase field personnel-aircrew coordination using Rapid Application Development (RAD) development techniques. Notably among the projects included management and requirements analysis of the Digital Mapping Server (DMS) GIS Portal in coordination with the Naval Research Lab, and the day to day management of the Digital Mapping Center (DMC) which provided GIS support for and between various Federal, DoD, State and Local Law Enforcement Agencies. The technology was cited in several papers and actually is patented by the US Navy. In this assignment, Dr. Thomas also chaired the NGB Technology Consortium that included partners from Industry, Government and Academia. The DMS efforts led to recognition for DoD support to both the DEA and the FBI.

Born in Pensacola, Florida, in June, 1956, LtCol Thomas earned a Bachelor of Science degree from the University of the State of New York, a Master of Arts degree in Mathematics from the University of West Florida, a Masters of Science in Military Arts and Sciences from the Air Command and Staff College (ACSC), a Masters in Strategic Studies from the Air War College, a Masters in GIS from Penn State University and finally a Doctorate from The University of Sarasota in Information Systems. His military education includes completion of the Army Signal Officers Basic Course at Ft. Gordon, Ga, the Basic Communications Officers Course at Keesler AFB, MS, Air Command and Staff College, and Air War College at Maxwell AFB, AL.

Commissioned a second lieutenant in the Signal Corps in 1988 through Army Officer Candidate School (OCS), LtCol Thomas spent the next 12 years in a variety of command and staff positions in both Army and Air National Guard units in Florida and Alabama. He has served with the 141<sup>st</sup> SG BN, the 147<sup>th</sup> SIG BN and the 167<sup>th</sup> DPU in the ARNG, and the 115ACS, 702d CSS and the HQ 226CCG in the ANG.

Following selection for the NGB Stat Tour Program in 1995, LtCol Thomas served five years in the 702d Computer Systems Squadron at Tyndall AFB, Florida, as the Chief of Software Quality Assurance (SQA), and as Chief of Software Product Integrity for the NORAD Systems Support Facility (NSSF) – a binational organization that writes and supports the Airborne Early Warning System (AEWS) for NORAD. Notably in this timeframe, he assisted in the development of the Body of Knowledge (BOK) for the American Society for Quality Control's (ASQC) certification in Software Quality Engineering (CSQE) while leading the effort to move the NSSF towards a CMM Level 2. His follow on assignments from AWC have included the AFSO21 SPO at the Pentagon, the Defense Threat Reduction Agency (DTRA) and the Joint Special Operations Command (JSOC) at Ft. Bragg, NC.

LtCol Thomas' awards and decorations include the NORAD System Support Facility (NSSF) Company Grade Officer of the Year (CGO) of the Year, 1<sup>st</sup> Air Force CGO of the Year, 1<sup>st</sup> Air Force Nominee for the Edwin W. Rawlings Award for his work in Information Operations (IO), the Air National Guard (ANG) Communications and Computer Professionalism Award, the Defense Meritorious Service Medal (DMSM), Meritorious Service Medal (MSM), Air Force Commendation (AFCOM) Medal with Oak Leaf Cluster, Air Force (AF) Outstanding Unit Award (with oak leaf cluster), AF Reserve Meritorious Service Medal, AF Organizational Excellence Award with Valor device, the Global War on Terrorism Medal (GWOT), and the National Defense Service Medal with Oak Leaf Cluster. He has also been awarded the Small Arms Expert Marksmanship Ribbon and while supervising the NGB CDX Technology Team, and was recognized for outstanding combat support to Task Force Legion, Combined Joint Special Task Force, Arabian Peninsula, Iraq. At Air War College he was awarded the 8<sup>th</sup> AF Cyber Award for outstanding research in the field of Cyberspace and Cyberspace policy.

Dr. Thomas is married and has three children.

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**PROFESSIONAL EMPLOYMENT**

Jul 2018 to Present **PROFESSOR OF CYBERWARFARE STUDIES.** Maxwell AFB, AL.

Oct 2010 to Jul 2018 **C4ISR and GEOSPATIAL SYSTEMS ARCHITECT.** SPAWAR Charleston, Civilian C4ISR engineer with the Communications and Networks division. Designs and implements communications projects for the USN, sister services and other US government customers. Serves in the European Division in Stuttgart, Germany, provides support as a Systems Engineer in Knowledge Management (KM) for the Headquarters USEUCOM. He also serves as adjunct faculty at Pennsylvania State University, teaching courses in the graduate GeoInt program.

Oct 2008 to Sep 2010 **DTRA LNO to Joint Special Operations Command (JSOC).** on detached duty from SPAWAR assigned in an active duty status as an LNO from the Defense Threat Reduction Agency (DTRA) to the Joint Special Operations Command (JSOC) at Ft Bragg, NC. His primary duties involved coordinating R&D efforts between DTRA and all US Special Forces components.

Apr 2007 to Oct 2008 **AIR WAR COLLEGE** – attended Senior PME in residence. Served as Lean Six Sigma SME for USAF AFSO 21 program. Awarded 8<sup>th</sup> AF Research Award for research in Cyber Warfare. Final paper was “*OPERATING AT THE CONVERGENCE OF SEA POWER AND CYBER POWER - BRINGING THE FLEET RESOURCES TO THE JOINT FORCE COMMANDER.*”

Jun 2005 to Mar 2007 **C4ISR SYSTEMS ARCHITECT.** SPAWAR Charleston, Civilian C4ISR engineer with the Communications and Networks division. Designs and implements communications projects for the USN, sister services and other US government customers. Previously in the European Division, provided support as a Systems Engineer (Architecture) Systems Engineer for Headquarters US Army in Europe (HQUSAREUR). In this capacity he was responsible for the design, implementation and fielding of C2ISR projects initiated by the US Army in Europe, as part of the worldwide effort to make C2 available at all levels of deployed forces.

Jan 2001 to May 2005 **CHIEF J-3 TECHNICAL PROJECTS.** Assigned to Georgia Tech University as a Special Projects Officer (Project Manager/Applications Architect). Multiple projects both hardware and software related. Specialized in systems integration of GIS, RDBMS and embedded real time systems to increase field personnel-aircrew coordination using Rapid Application Development (RAD) techniques. Current projects include the Digital Mapping Server GIS Portal and the C130 RORO Sensor Pallet. Worked as Technical Liaison between various Federal, DoD, State and Local Law Enforcement Agencies. Chaired the NGB Technology Consortium that included partners from Industry, Government and Academia. Additionally teaching online quantitative management skills for grad students such as Statistical Methods, Earned Value for Management and various methods of expressing ROI.

Jan, 1995 to Jan 2001 **NORAD SYSTEMS SUPPORT FACILITY.** Assigned as the Chief of Software Standards, NSSF, Tyndall AFB. Responsible for the analysis of software processes, selection and analysis of software metric data, and the training of Facility personnel in SQA theory and techniques from both the CMM and ISO 9000 criteria. NSSF was certified as a CMM Level 2 organization in May 1996.

Sep, 1993 to Jan, 1995 **AIR FORCE QUALITY INSTITUTE.** Employed as a Mathematical Statistician at the Air Force Quality Institute, Maxwell AFB. Performs statistical research in support of the Air Force wide deployment of TQM principles. Utilizes SPSS for data analysis.

Feb, 1993 to Sep, 1993 **AIR FORCE LEGAL SERVICES AGENCY.** Served as the DataBase Administrator for the USAF on-line legal databases. Managed the input, format and day to day operation of over 25 gig of legal information, and the conversion of historical legal information from an IBM mainframe environment to a UNIX environment. Served as the Statistical Analyst for performance and usage issues. Authored the Software Security Plan for system used by AFLSA.

Dec, 1991 to Feb, 1993 **AIR FORCE SOFTWARE REUSE CENTER.** Responsible for an annual administrative budget of over \$200k in support of Software Engineering Services. Also served as a Software Engineer in the acquisition, technical and quality evaluation, and re-engineering of Ada software components for the Software Reuse Center. Served as the primary government data analyst for software metrics for the New Technology Branch of the System Software Division.

Dec, 1990 to Dec, 1991 **AIR FORCE MEDICAL SYSTEMS PROGRAM OFFICE.** Served as Data Systems Analyst and Engineer for the worldwide implementation of standardized medical information systems. Duties included installation, performance measurement, and quality assurance of accounting and appointment information systems in both UNIX and VMS environments.

Jun, 1990 to Dec, 1990 **1973RD COMM GP, COMPUTERS AND COMMUNICATIONS ANALYST, PLANS AND PROGRAMS DIVISION.** Coordinated configuration design and installation of a UNIX based local area network designed to automate day to day personnel tasks. Supervised the survey of existing customer requirements, communications capabilities and identified shortfalls that would hamper the deployment of Personnel Concept III.

Jan, 1990 to Jun 1990 **AIR FORCE STANDARD SYSTEMS CENTER, COMPUTERS AND COMMUNICATIONS ANALYST, OPERATIONS DIRECTORATE.** Coordinated configuration design and installation for multiple mainframe computers. Performed as an Operations Research Analyst in the scheduling and design of a replacement elevated computer room floor. Implemented the use of the SAS Ops Research/Program Management package to support the project.

May 1989 to Dec 1990 **AIR FORCE STANDARD SYSTEMS CENTER, COMPUTERS AND COMMUNICATIONS ANALYST, PROFESSIONAL DEVELOPMENT DIRECTORATE.** Served as a Computer Systems Analyst in support of computer training for over 1800 personnel. Designed a database to track training histories and designed a customer survey/appraisal system that standardized the directorates ability to compare computer training services and products from multiple sources.

Aug, 1988 to May 1989 **UNIVERSITY OF FLORIDA, GAINESVILLE, FLORIDA, GRADUATE TEACHING/RESEARCH ASSISTANT, DEPT OF STATISTICS.** Taught multiple sections of Elementary Statistics and served as a statistical research consultant for multiple department directed research projects. Supervised 4 international graduate teaching assistants in evaluation of undergraduate performance. Utilized SAS for data analysis.

Jan, 1986 to Aug 1988 **UNIVERSITY OF WEST FLORIDA, PENSACOLA, FLORIDA, GRADUATE TEACHING/RESEARCH ASSISTANT, DEPT OF STATISTICS.** Taught multiple sections of Elementary Statistics, and Quantitative Research Methods. Served as a statistical research consultant for a department directed research project contracted by the US Navy. Utilized SAS for data analysis.

Aug 1980 to Jan 1986 **SCHLUMBERGER LTD, MELUN, FRANCE, FIELD ENGINEER & QUALITY CONTROL ANALYST, MANUFACTURING DIVISION.** Served in the Division of Quality Control, performing testing on industrial equipment designed for use on offshore oil platforms in the U. K. sector of the North Sea. Evaluated international NDT manufacturing standards and coordinated results of these evaluations for presentation to Lloyd's Register of Shipping in pursuit of Certification by Lloyds for insurance purposes.

## EDUCATION

2012 Pennsylvania State University, **MSGIS**, March 2012.

2008 Air University, Maxwell AFB, AL, **MS Strategic Studies**, May 2008. (AWC in Residence)

2003 Univ Of Sarasota, Sarasota, FL, **Doctorate in Information Systems.**  
Dissertation Title – *“Software Development Effectiveness Based on CMM and SPI Frameworks”*  
Sep2003.

2000 Air University, Maxwell AFB, AL, **MS Military Operational Art and Science**, June 2000. (ACSC In Residence)

- 1993 Air Force Institute of Technology, Wright-Patterson AFB, Ohio, Post Graduate Certification in Software Engineering
- 1989 University of Florida, Gainesville, Fl. 1 year Post Masters Education in pursuit of a PhD in Statistics.
- 1988 University of West Florida, Pensacola, Fl., **MA in Applied Statistics.**
- 1984 University of the State of New York, Albany, N.Y., **BS Mathematics**

### **ORGANIZATIONS, AWARDS & CERTIFICATIONS**

- 2016 DoD Systems Engineering Acquisition Level II certification
- 2012 Certified Geospatial Information Systems Professional (GISP)
- 2008 8<sup>th</sup> AF Cyber award for excellence in research in the field of Cyberspace while in residence at AWC
- 2007 Lean Six Sigma Blackbelt for IT
- 1996 Certified Software Quality Engineer (CSQE) ASQ
- 1993 Certified Quality Engineer (CQE), ASQ
- 1988 Institute for Electrical and Electronic Engineers, Member, Pensacola, Florida
- 1988 American Statistical Association, Member, Pensacola, Florida
- 1985 Institute for Petroleum Engineers, Member, Melun, France

### **PUBLICATIONS:**

Hallman, S., Thomas, M., Stahl A., Plaisent, M., Bernard, P. Thorpe, J. (2008). “*The Causes, Preventive Actions, and Security Issues of Data Integrity.*” Journal of Global Management Research, Vol. 18, article 02, 2008, ISBN #pending, [www.gmrJournal.com](http://www.gmrJournal.com).

Haran, Terence L.; Higgins, Melinda K.; Thomas, Michael L. (2004). “*Handheld Thermal Imaging for Law Enforcement and Counterdrug Applications,*” 2004 SPIE National Conference, July 2004, Orlando, Fl. <http://proceedings.spiedigitallibrary.org/proceeding.aspx?articleid=843443>

Higgins, Melinda (U.S. Department of Defense); Thomas, Michael L. (U.S. Department of Defense) Panel on GIS and Mapping highlighting “*National Guard Digital Mapping Server Portal: National GIS Integration and Mapping Support,*” The Sixth Annual International Crime Mapping Research Conference, NIJ, 2002, Denver, Co.

Higgins, Melinda, (GTRI); Thomas, Michael L.; Faust, Nick; McCreedy, Frank; Sample, John; Shaw, Kevin; Thomas, Rickey; “*National Guard Bureau Digital Mapping Portal – Embodying a GIS One Stop Approach,*” NIJ Crime Mapping Conference, April 2004, Denver Co.

McCreedy, Frank P; Sample John T.; Ladd William P.; Thomas Michael L.; Shaw, Kevin B. “*Searching and Exploitation of Distributed Geospatial Data Sources via the Naval Research Lab’s Geospatial Information Database (GIDB®) Portal System,*” 2005 SPIE National Conference, July 2005, Orlando, Fl.

Proceedings of SPIE Volume: 5778 Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Security and Homeland Defense IV, Editor(s): Edward M. Carapezza, “*Searching and exploitation of distributed geospatial data sources via the Naval Research Lab’s Geospatial Information Database (GIDBTM) Portal System*” Frank P. McCreedy, John T. Sample, Will Ladd, Michael L. Thomas, Kevin B. Shaw

STREAM DATA MANAGEMENT Edited by Nauman A. Chaudhry, University of New Orleans; Kevin Shaw, Naval Research Lab; Mahdi Abdelguerfi, University of New Orleans; Book Chapter 7 “*Managing Distributed Geographical Data Streams with the GIDB Portal,*” Sample, John T.; McCreedy, Frank P.; Thomas, Michael L.; Kluwer Academic Publishers Boston/Dordrecht/London, May 2005. [http://link.springer.com/content/pdf/10.1007/0-387-25229-0\\_7.pdf#page-1](http://link.springer.com/content/pdf/10.1007/0-387-25229-0_7.pdf#page-1)

Sample, John T.; Thomas, Michael L.; McCreedy, Frank P.; Shaw, Kevin B., “*The National Guard Bureau’s Digital Mapping System Portal System,*” 2003 SPIE National Conference, July 2003, Orlando, Fl.

Sample, J., McCreedy, F. and Thomas, M, "*Managing Distributed Geographical Data Streams With the GIDB Portal.*" Kluwer Academic Publishers, December 2004. NRL/7440--03-1001.  
<http://www7440.nrlssc.navy.mil/dmap/pubs/publications.jsp>

Shaw, K., McCreedy, F., Ladner, R., Wilson, R., Warner, E., Katikaneni, U., Sample, J. and Thomas, M.; "*An Introduction To NRL's Geospatial Information Database (GIDB) Portal System.*". Published in Domain Magazine, March 2003. NRL/JA/7440—03-1002. <http://www7440.nrlssc.navy.mil/dmap/pubs/publications.jsp>

Sample, John, Thomas, Michael L., McCreedy, Frank, Shaw, Kevin B.; "*The National Guard Bureau's Digital Mapping System Portal System.*" Presented at the SPIE Defense & Security Symposium, Orlando, FL, April 12-16, 2004. Pages 33-39. NRL/PP/7440--04-1010.  
<http://proceedings.spiedigitallibrary.org/proceeding.aspx?articleid=843358>

Tanner, Mark A. Director, Foreign Terrorist Tracking Task Force, Federal Bureau of Investigation; LtCol. Michael L. Thomas, NGB J-3 Technical Projects Officer; Dr. Melinda K. Higgins, Senior Research Scientist, Georgia Institute of Technology. "*Comprehensive and Affordable GIS Resources – GIS Resources at No Cost*" IACP 29<sup>th</sup> Annual Law Enforcement Information Management Training Conference and Exposition May 23-27, 2005 Greensboro, North Carolina.

Thomas, Michael; Plaisent, Michele; Bernard, Bernard, Hallman, Steve; "*Using GIS and IT to Locate Illegal Crops,*" 2004 IIMA Conference, July 2004, Chicago Illinois. **(Selected as best conference paper.)**

Thomas, Michael; Plaisent, Michele; Bernard, Prosper; Hallman, Steve; "*Current Endeavours and Future Ramifications of Global Positioning Systems*" Journal of Global Management Research vol 3 no 1 June 2007 issn=1488-4569, p 29-38.

Thomas, Michael; Hallman, Steven, & Stahl, Al; (2010). "*Implications of Global Positioning Systems for Managers,*" Journal of Digital Enterprise, Issue 26. <http://www.cyber-gestion.com/html/1776-2960%20R262.htm>

Thomas, Michael, "*NGB CD Geographic Information Systems (GIS) Mapping Tools,*" Plenary Session 3: Information for State and Local Public Safety: Focus on Information Sharing Technologies, National Institute of Justice Annual Technology Conference, 2003, St Louis, Mo.

Thomas, Michael, "*Software Development Effectiveness based on CMM and SPI Frameworks,*" Sep 2003, a Dissertation in Partial Fulfillment for the Requirements of the Doctor of Business Administration, University Of Sarasota.

Thomas, Michael, "*NGB Digital Mapping Technologies in Support of ONDCP Efforts,*" 2003 ONDCP International Technology Symposium; July 2003, San Diego, California.

Thomas, Michael, "*Using GIS for Counterdrug Law Enforcement – a One Stop Approach,*" ESRI Conference 2003, San Diego, California.

Thomas, M.L. (2010) "*Considerations of GPS Vulnerabilities, Potential Impacts, and a Possible Mitigation Strategy.*" A Research Paper Submitted to Pennsylvania State University. July 21, 2010.

Thomas, Michael, "*National Guard GIS and Related Technologies for Counterdrug Law Enforcement,*" ESRI Conference 2002, San Diego, California. <http://proceedings.esri.com/library/userconf/proc02/pap0752/p0752.htm>

Thomas, Michael L., "*Statistical Process Control In Software Development*" Joint Statistical Meetings in Toronto, August 15-18, 1994, American Statistical Association. <http://ftp.uni-bayreuth.de/math/statlib/joint94/Abstracts/0017>

Thomas, Michael L., LtCol (Dr), USAF (USN); Pfeifle, William, CDR, USN; McElhannon, Jacqueline V., CDR (Dr), USN; (MAY 2008); *“Operating At The Convergence Of Sea Power And Cyber Power - Bringing The Fleet Resources To The Joint Force Commander”*; Professional Studies Paper submitted to the faculty of Air War College in partial fulfillment of the graduation requirements. [HTTP://PSUGEO.ORG/PUBLICATIONS/PSP%20V9.1.DOC](http://PSUGEO.ORG/PUBLICATIONS/PSP%20V9.1.DOC)

Thomas, Michael, *“Beyond GPS,”* Geospatial Intelligence Forum 2011 Volume: 9 Issue: 5 (July/August). <http://www.uscgf-kmi.com/mgt-home/333-gif-2011-volume-9-issue-5-julyaugust/4451-beyond-gps.html>

Thomas, Michael (2011). *“Evolution of GPS Systems Architecture and Its Impacts.”* Communications of the IIMA 2010 Volume 10 Issue 4.

[http://www.iima.org/index.php?option=com\\_phocadownload&view=category&download=303:evolution-of-gps-systems-architecture-and-its-impacts&id=53:2010-volume-10-issue-4&Itemid=68](http://www.iima.org/index.php?option=com_phocadownload&view=category&download=303:evolution-of-gps-systems-architecture-and-its-impacts&id=53:2010-volume-10-issue-4&Itemid=68)

Thomas, Michael, Session Chair and co-author, *“Panel on National Guard Counterdrug Programs for Marijuana Eradication,”*

- 1) *Marijuana Growth Model and Remote Sensing Technologies for Marijuana Eradication*, Co-Presenters: Dr. Craig Daughtry (USDA - Beltsville, MD) and Mr. Nick Faust (Georgia Tech Research Institute - Atlanta, GA)
- 2) *The National Guard's Decision Support System for Marijuana Eradication*; Presenter: Mr. Jim Matthews (Center for Higher Learning - Stennis Space Center, MS),
- 3) *Digital Mapping Support for the National Guard Counterdrug Programs* Presenter: Mr. Kevin Shaw (Naval Research Lab - Stennis Space Center, MS); DEA National Conference, April 2003, San Antonio, TX.

Thomas, Michael L. LtCol (Dr) (August 2012). *“Mapping Evil – A GIS Analysis of the Lord’s Resistance Army 2009-2011.”* A presentation and interview, ESRI Conference 2012, San Diego, California.

Thomas, Michael (2012). *“Mapping Evil: A GIS Analysis of the Lord’s Resistance Army of Uganda,”* GEOWORLD, OCTOBER 2012 Issue. Available at <http://geoplace.com/ME2/dirmod.asp?sid=&nm=&type=MultiPublishing&mod=PublishingTitles&mid=13B2F0D0AFA04476A2ACC02ED28A405F&tier=2&did=0F90D20050924DDB8EEA02056614EDAE&dtxt=October+%2D+2012>

Thomas, Michael L. LtCol (Dr) (August 2012). *“Cybergeomatic Intelligence – Bridging the Digital Divide”* Mapping The Internet Conference, Dept of Geog, San Diego State University, (Sponsored by the National Science Foundation ) San Diego, California.

Thomas, Michael L. LtCol (Dr) (August 2013). *“CyberGeography in War and Peace”* Geog597I, a 10 week elective in the Pennsylvania State University MSGIS program. [https://www.e-education.psu.edu/geog597i\\_01/](https://www.e-education.psu.edu/geog597i_01/)

Thomas, Michael L. Dr. (2012). *“Educating at the Speed of GeoInt: Specialized knowledge is critical for today’s GEOINT professionals to understand and exploit the world’s rapidly expanding volume of geospatial data.”* Earth Imaging Journal. 2012 <http://eijournal.com/2012/exploring-geoint-education-opportunities> .

**REFERENCES:** TS/SCI Security Clearance. Other references available upon request.