

the dawn of a new millennium...

IACs

**Directory of the Department of Defense
Information Analysis Centers**

Table of Contents

3 Introduction to the DoD Information Analysis Centers (IACs)

6 IAC Program Management Office

7 Defense Information Systems Agency (DISA), Defense Technical Information Center (DTIC)

- 8 AMPTIAC** Advanced Materials & Processes Technology IAC
- 10 CBIAC** Chemical Warfare/Chemical & Biological Defense IAC
- 12 CPIA** Chemical Propulsion Information Agency
- 14 DACS** Data & Analysis Center for Software
- 16 HSIAC** Human Systems IAC
- 18 IATAC** Information Assurance Technology Analysis Center
- 20 IRIA** Infrared IAC
- 22 MSIAC** Modeling & Simulation IAC
- 24 MTIAC** Manufacturing Technology IAC
- 26 NTIAC** Nondestructive Testing IAC
- 28 RAC** Reliability Analysis Center
- 30 SURVIAC** Survivability/Vulnerability IAC
- 32 WSTIAC** Weapon System Technology Analysis Center

35 Military Service-Sponsored IACs

- 36 APMIAC** Airfields, Pavements, & Mobility IAC
- 37 CEIAC** Coastal Engineering Defense IAC
- 38 CRSTIAC** Cold Regions Science & Technology IAC
- 39 CTIAC** Concrete Technology IAC
- 40 DTRIAC** Defense Threat Reduction IAC
- 41 EIAC** Environmental IAC
- 42 HEIAC** Hydraulic Engineering IAC
- 43 SAVIAC** Shock & Vibration IAC
- 44 SMIAC** Soil Mechanics IAC

46 References

- 47 History of DoD & Military IACs**
- 48 DoD IAC Support Capabilities**
- 49 Military IAC Support Capabilities**
- 50 Technology Index**

Information Analysis Centers



Serving the Department of Defense

As a researcher, engineer, or program manager, you have a wide range of information needs, many of which can be fulfilled by calling on an IAC. Have you found yourself short-staffed and needing analysis of large quantities of available information in a particular subject area? Do you want to ensure that any previous research is considered in your design? Are you beginning work on a new system and looking for applicable information from analogous systems? Or do you need to establish contact with leading researchers and scientists in a particular field? The IACs can help you find and analyze the information you need.

The IACs' mission is to improve the productivity of researchers, engineers, and program managers in the Defense research, development, and acquisition communities by collecting, analyzing, synthesizing, and disseminating worldwide scientific and technical information in clearly defined, specialized fields or subject areas. The IACs' secondary mission is to promote standardization within their respective fields. They accomplish these missions by providing in-

depth analysis services and creating products. IACs respond to technical inquiries; prepare state-of-the-art reports, handbooks, and databooks; perform technology assessments; and support exchanges of information among scientists, engineers, and practitioners of various disciplines within the scope of the IAC.

The IACs are formal organizations chartered by the Department of Defense (DoD) to help locate, analyze, and use scientific and technical information. The IACs are staffed by experienced technical area scientists, engineers, and information specialists. They establish and maintain comprehensive knowledge bases, which include historical, technical, scientific, and other information collected throughout the world and pertinent to their respective technical communities. IACs also collect, maintain, and develop analytical tools and techniques, including databases, models, and simulations. Thirteen contractor-operated DoD IACs are administratively managed by Office of the Program Manager, DoD Information Analysis Centers within the Defense Technical Information Center (DTIC). Ten others are managed by other DoD activities.

The IACs offer –

- **Abstracts & Indexes:**
Announcements of pertinent reports in the IAC's field of interest
- **Bibliographic Inquiry Services:**
Culled and authoritative bibliographic search reports
- **Critical Reviews & Technology Assessments:**
The latest scientific and engineering information on specific technical subjects
- **Current Awareness:**
Newsletters and literature to promote subject area awareness
- **Referrals:**
Consultation with or referral to world-recognized technical experts
- **Scientific & Engineering Reference Works:**
Useful and authoritative information in handbooks, data books, and databases
- **State-of-the-Art Reports:**
Summaries of the status of current technologies
- **Technical Area Tasks:**
Detailed expert assistance in a wide range of technical support services
- **Technical Inquiry Services:**
Expert and authoritative advice in response to technical questions

IACs

Defense Science and Technology planning at all levels, both by the operating agencies and the science and technology program developers, is geared to meeting the objectives outlined in the Annual Defense Science and Technology Strategy. These plans are built in two ways. In the first method, planners start with anticipated operational concepts and then deduce what functions might be necessary and how technology might help in securing those functional capabilities. Then, the planners devise science and technology projects that explore potential advances and solve problems. This method is known as “technology pull.” In the second method, planners start with an anticipated scientific opportunity and devise a program to explore the military utility of the technology. This approach is known as “technology push.” The IACs can help technology developers and warfighters meet the general and specific goals set forth in these plans.

The IACs provide a value-added information exchange among the researchers, technology developers, and warfighters. They can help technology developers investigate and understand functional requirements and technological capabilities and help the warfighters understand how to use, train for, and maintain new technologies.

The IACs provide a central source of research, development, and testing information that helps technology developers and warfighters facilitate teamwork. The IACs can also hold symposia, workshops, and conferences to bring all the relevant parties together. Technology developers, warfighters, and program managers can simply call the appropriate IAC to learn about the industrial and defense organizations; tools; and research, testing, evaluation, and training methods that can best contribute to fulfilling their mission.

IAC analytical services can contribute to the production of affordable systems. Program managers can capitalize on the specific skills of their staff and maximize their tight budgets by utilizing the unique and specialized skills of the IACs. The

IACs provide program managers with affordable short- and long-term analytical services using premier commercial and government scientific and technical databases; government lessons-learned databases; and internally developed special-need databases. IAC staff members can help prevent unnecessary duplication of work by locating and analyzing data, information, and tools that were used in the development of similar systems throughout the world. IAC analytical services can also help scientists in basic research efforts by uncovering the necessary background data and information.

The IAC areas of expertise cover the full spectrum of Defense Science and Technology. A review of this directory and the scope of the individual IACs will reveal the depth and breadth of the subject areas they cover. Technology developers and warfighters will find that no matter how the Defense Science and Technology Plans change, the IACs can help them overcome the challenge.

The four tables in the reference section provide a quick reference to IACs keyed to current Defense Science and Technology Strategy areas.

Introducing the DoD Information Analysis Centers

The IAC Charter

The IACs are government organizations regulated by DoD Directive 3200.12; DoD Scientific Technical Information (STI) Program (STIP), dated 11 February 1998; and DoD Instruction 3200.14, Principles and Operational Parameters of the DoD Scientific and Technical Information Program, dated 13 May 1997.

Policy oversight of the IACs is provided by the Office of the Secretary of Defense, Director of Defense Research and Engineering. Administrative and operational management is provided through the Defense Information Systems Agency (DISA) by DTIC. Technical management is provided by an appointed Contracting Officer's Technical Representative (COTR) from technical host organizations.

Cost-Recovery Fees

Many IAC services are available at little or no cost. Some abstracts and indexes, current awareness products, and technical inquiry services are free.

To offset the costs of collecting, analyzing, and disseminating information, IACs may charge fees for their products and services. These fees are established according to guidance provided by the DoD. Fees vary with

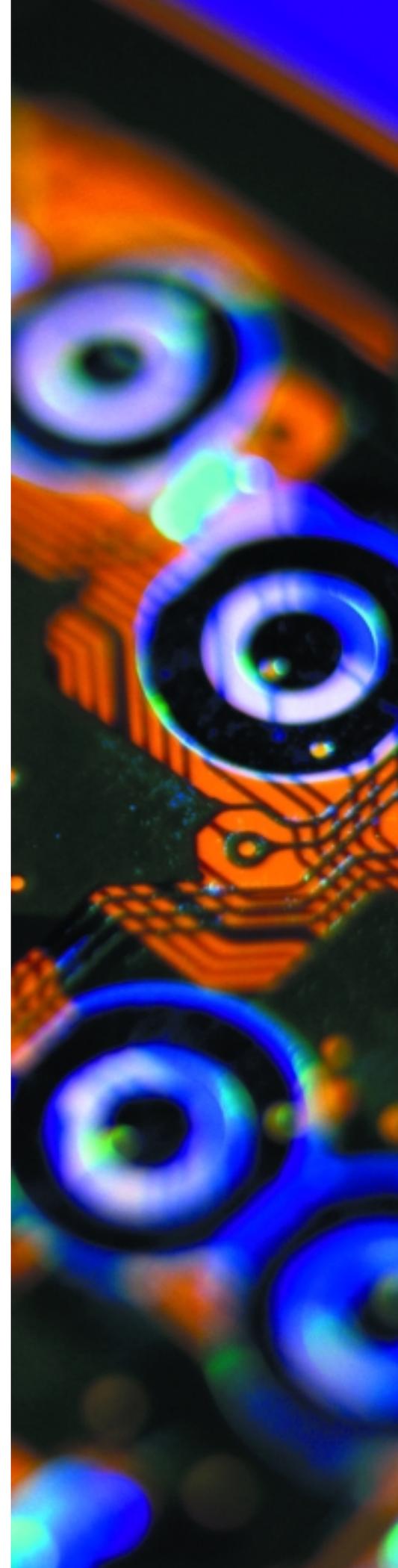
the product or service required, ranging from a few dollars for a bibliography to several hundred dollars for a multi-volume state-of-the-art report.

There are several payment options, including subscription accounts, deposit accounts with the National Technical Information Service (NTIS), blanket purchase agreements, and Military Interdepartmental Purchase Requests.

Technical Area Tasks

Unlike other IAC products and services, Technical Area Tasks (TATs) are separately funded work efforts over and above basic IAC products and services. Each proposal for a TAT has both a technical and cost component. TATs are very flexible and can vary from a fraction of a staff year to several staff years. Costs may vary from a few thousand dollars to several million dollars.

Tasks may be ordered by any DoD component. Subject to appropriate agreement, U.S. Government agencies and departments may also order TATs. For additional information contact the individual IAC.



IAC PMO

IAC Program Management Office



DTIC may be reached at:

Address:

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Fort Belvoir, VA 22060-6218

Phone: (703) 767-9120
DSN: 427-9120
Fax: (703) 767-9119
E-mail: iac@dtic.mil
URL: <http://www.dtic.mil/iac/>

Individual IACs should be contacted directly for information requiring technical expertise or expert judgment in their particular area.

The IAC Program Manager may be reached at:

Ronald E. Hale

Defense Technical
Information Center
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DSN: 427-9120
Fax: (703) 767-9119
E-mail: rhale@dtic.mil

The IAC PMO is the information hub of the IACs. The PMO provides IAC users with a central point of contact for the overall IAC Program. Additionally, the PMO assists IAC users and IACs themselves in collecting, analyzing, and disseminating information. It also supports the Office of the Secretary of Defense (OSD) by providing broad IAC Program oversight, identifying and resolving policy issues, and developing mechanisms and programs to bring IAC products and services to DoD components. The IAC PMO provides contract management and specific administrative guidance for 13 IACs whose basic operations are funded by the DTIC and/or other sponsoring agencies.

The IAC PMO is the focal point for organizations requiring IAC services, contractors operating the respective IACs, and technical monitors overseeing projects and deliverables. It monitors the IACs' operations to ensure that their activities conform to the purposes and objectives of the DoD IAC Program in general, and it provides continuous support to DoD and related U.S. Government technical communities.

The IAC PMO serves as an integral part of IAC activities by:

- Managing IAC Contracts
- Overseeing IAC Operations
- Promoting IAC Products and Services
- Providing Administrative Guidance
- Requesting Procurements
- Reviewing Technical Area Tasks (TATs)

DISA & DTIC

Defense Information Systems Agency
Defense Technical Information Center



DTIC is a major component of the DoD Scientific and Technical Information Program (STIP). To better align DoD organizations to meet the challenges of the 21st century, DTIC was formally transferred from the Office of the Director, Defense Research and Engineering, to the DISA in January 1998. As an element of DISA, DTIC continues to provide access to and facilitate the exchange of scientific and technical information, thereby contributing to the management and conduct of Defense research, development, and acquisition efforts. DTIC's headquarters facility is located at the Headquarters Complex at Fort Belvoir, VA; regional offices are located in Boston, MA; Dayton, OH; Albuquerque, NM; and El Segundo, CA. DTIC's Manpower and Training Research Information System is located in San Diego, CA.

DTIC provides information on planned, ongoing, or completed Defense-related research to U.S. Government agencies and their contractors. DTIC customers include DoD, industry, and academia. It is responsible for the DoD Information Analysis Centers, supporting highly

specialized technical areas. The scope of DTIC's collection includes areas normally associated with Defense research; however, because DoD's interests are widespread, the collection also contains information on biology, chemistry, energy, environmental sciences, oceanography, computer sciences, sociology, logistics, and human factors engineering.

Among DTIC's products and services are graphic user interfaces, CD-ROM search tools, and a variety of current awareness products and on-line services. Early in the emergence of the Internet, DTIC adapted the latest in information processing technology to improve how information holdings are collected, processed, stored, and distributed. Working with customers, DTIC has also created and hosted more than 80 Web sites including several World Wide Web (WWW) sites, including DefenseLINK, the official DoD Home Page, as well as anonymous file transfer protocol (FTP) and gopher sites available to anyone on the public Internet. These Internet services provide a wide array of information, such as DoD press releases, DoD directives and instructions.

DTIC is the repository for all DoD research documents. Holdings include:

- Command Histories
- Conference Proceedings
- DoD Directives & Instructions
- DoD-Sponsored Patents & Patent Applications
- DoD-Sponsored Software, Video, & CD-ROMs
- Foreign Documents & Translations
- Journal Articles
- Management Summaries
- Security Classification Guides
- Studies & Analyses
- Technical Reports

AMPTIAC

AMPTIAC's capabilities cover the full spectrum of materials engineering including:

- Alloys
- Ceramic Composites
- Ceramic Materials
- Chemical/Biological Protection Materials
- Coatings
- Corrosion/Degradation Analyses
- Elastomeric Materials
- Electronic, Optical, Photonic Materials
- Fire Retardant Materials
- Material Applications
- Material Processes
- Material Processing Equipment
- Material Properties
- Measurement & Testing of Materials
- Metal Matrix Composites
- Monolithic Metals
- Organic Matrix Composites
- Organic Structural Materials
- Quality Control

Military, industrial, and aerospace operations continue to push the need for new equipment, components, and systems made of materials that are strong, lightweight, durable, and resistant to high temperatures. These technologies are critical in maintaining the DoD's infrastructure, from military piers and trucks to sophisticated sensors and optical systems, and in reducing defense systems' effect on the environment.

AMPTIAC supports researchers, designers, and decision makers in their efforts to enhance the performance of systems, in any environment, through proper material selection, processing, and use. AMPTIAC consists of five separate material components: ceramic and ceramic matrix composites; organic structural materials and organic matrix composites; monolithic metals, alloys, and metal-matrix composites; electronic, optical, and photonic materials; and environmental protection and special function materials.

AMPTIAC's scope includes those formerly addressed by the following IACs:

- Adhesives & Organic Matrix Materials (PLAS-TEC)
- Ceramics (CIAC)
- High Temperature Materials (HTMIAC)
- Metals (MIAC)
- Metal-Matrix Composites (MMCIAC)

TATs & Products

A Practical Guide to Statistical Analysis of Material Property Data

This report has been specially prepared with the materials professional in mind. It bridges the gap between the science of theoretical statistics and the hands-on world of the practicing technician. The first of its kind, this report presents important statistical analysis methods from the standpoint of material property data, demonstrating the importance and relevance of statistics in the day-to-day activities of materials engineers and designers.

Life Prediction and Performance Assurance of Structural Materials in Corrosive Environments

Life prediction of structural components is vitally important to safe and cost effective operation of any system in which the materials are susceptible to environmental degradation. Performance assurance which is closely related to life prediction, is equally important to ensure that the system will operate as per design for the duration of its life. This report presents a panoramic view of this field by highlighting the variety of current approaches, identifying the limitations, and discussing directions for future efforts.

Corrosion Predictive Modeling for Aging Aircraft—Critical Review & Technology Assessment

Budgetary constraints prevent acquiring new aircraft while encouraging life extension of existing aircraft far beyond the design lives. This critical review and technology assessment highlights the significant and innovative aspects of the U.S. Air Force program to develop a predictive model for corrosion prevention and maintenance in complex structures such as joints. This program is a major step forward in the rather complex task of modeling corrosion and predicting the life of corrodible structures with any engineering relevance. The principles that have been described in this report to generate predictive capability are generic and applicable to a variety of components and structures.

Optical Limiting: An Overview

This report is intended to provide a background adequate for the novice to quickly understand the physical phenomena responsible for optical limiting behavior and the measurements routinely made to characterize the performance of nonlinear materials. In addition, some background is provided on work being pursued to molecularly engineer these materials to enhance their performance and adaptability to real world applications

Group IV Metal Carbides: Processing & Engineering Properties

This document is a critical review and technology assessment (CR/TA) of recent research, development, and evaluation of the Group IV metal carbides, TiC, ZrC, and HfC. It includes a discussion of developments in manufacturing techniques, including self-propagating high temperature synthesis. Presented are engineering properties, including thermophysical properties and oxidation characteristics.

Databook on Mechanical & Thermophysical Properties of Fiber Reinforced Ceramic Matrix Composites

This databook is organized into sections which comprehensively cover the mechanical, thermal, and physical properties of fiber-reinforced ceramic matrix composites. Data and information on ceramic matrices, as well as reinforcing ceramic fibers, are presented in this databook as look-up tables and figures.

Oxidation & Corrosion of Intermetallic Alloys

This report provides researchers and development engineers with essential information on intermetallic alloys for high temperatures. It enables users to make judicious choices for their needs including initial properties but, more importantly, by enabling them to estimate the performance in long-time use at elevated temperatures and under adverse environmental conditions.

For a listing of products, prices, availability, and distribution limitations, contact AMPTIAC and ask for an AMPTIAC Starter Kit or visit our Web site at <http://amptiac.iitri.org>

In the near future, AMPTIAC's URL will change to <http://iac.dtic.mil/amptiac>

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CBIAC

The CBIAC's scope covers all aspects of CW/CBD, including:

- Analysis of Manufacturing Processes for NBC Defense Systems
- Chemical & Physical Properties of Military Significant Compounds
- Chemical Identification
- Combat Effectiveness
- Counter-Proliferation
- Counter-Terrorism
- Decontamination
- Defense Conversion & Dual-Use Technology Transfer
- Demilitarization
- Domestic Preparedness
- Environmental Fate & Effects
- Force Protection
- Individual & Collective Protection
- International Technology, Proliferation, & Arms Control
- Medical Effects & Treatment
- Nuclear, Biological, & Chemical Contamination Survivability (NBCCS)
- Smoke & Obscurants
- Toxic Industrial Chemicals/Materials
- Toxicology
- Treaty Verification & Compliance
- Warning & Identification

The DoD must work continuously to establish adequate defense capabilities for chemical and biological weapons scenarios. These weapons are an invisible enemy on the battlefield, and they call for sophisticated countermeasures, including protection, detection, and decontamination and medical systems. CBIAC was established as the focal point for information related to chemical warfare (CW) and chemical and biological defense (CBD) science and technology.

CBIAC's multi-disciplinary technical staff offers expertise in chemistry, biology, medicine, and engineering. Together, they identify, analyze, and disseminate CW and CBD information in support of current defense research and development efforts. The CBIAC maintains a database containing more than 103,000 document citations, as well as an on-site collection of more than 38,000 books, technical reports, videotapes, and magnetic diskettes from domestic and foreign sources

For analytical efforts beyond the basic CBIAC products and services, Technical Area Tasks (TAT) provide valuable research and development (R&D) support to the CW/CBD scientific community. TATs generate new knowledge and expand access to the CBIAC information base, provide a means to develop specialized information collections, improve the capabilities of U.S. military forces, and assist the acquisition community in using CW/CBD information.

TATs & Products Chemical & Biological Archival Information Management System (CBAIMS)

This DoD sponsored program will establish the first virtual repository of chemical/biological defense information. Collections spread throughout the country are often poorly documented and not readily accessible. We are carefully analyzing and cataloging collections, and are making them available to the CBD community. CBAIMS will have long lasting, positive effects on delivery of mission critical information and will provide one-stop access for CBD information for the first time.

Wide Area Decontamination: CB Decontamination Technologies, Equipment & Projects

This report provides a worldwide Chemical and Biological Wide Area Decontamination market survey and an assessment of existing decontamination equipment and technologies. The assessment includes the possible benefits of combining equipment and technologies identified to create hardware solutions for immediate implementation.

Tactical NBC Information Tool

This CD-ROM provides a complete set of NBC planning tools for tactical headquarters. Topics include agents, staff responsibility, assessment tool, defense units, equipment, operations orders, threat, and Army Universal Task List (AUTL). This tool simplifies

NBC defense planning and training. Included are tools and manuals on NBC decontamination, protection, contamination avoidance, behavior of agents, and medical management of NBC casualties.

Technical Approach Options for Indoor Air Modeling

This publication assesses 23 mathematical models describing airflow, heat distribution, and contaminant transport within buildings. Each model employed one of four approaches: well-mixed volume, computational fluid dynamics, plume dispersion, or empirical. Four models recommended for further examination were U.S. Environmental Protection Agency's (EPA) RISK model, Battelle Memorial Institute's Emissions Transport Model, Gradient Corporation's Plume Dispersion Model, and the Subway Environmental Simulation developed by Parsons Brinkerhoff for the Department of Transportation (DOT). Descriptions and validation studies for these models are presented.

Commander in Chief (CINC) NBC Information Tool

This CD-ROM provides NBC planning tools for high-level headquarters. Topics include agent characteristics, staff responsibility, assessment tool, defense units, equipment, Operational Plan (OPLAN), threat, and Universal Joint Task List (UJTL). This tool simplifies headquarters NBC defense planning.

Disaster Preparedness Operation Specialist (DPO) Computer Aided Instruction

This two CD-ROM set provides a multimedia supplement to the U.S. Navy's DPO Specialist course. Topics include computer indicators, CBR protective equipment, self and buddy aid, chemical detection, and chemical decontamination. The presentations contain text, graphics, and video clips supporting each topic.

Assessment of Chemical Detection Equipment for Hazardous Material (HAZMAT) Responders

This publication provides an assessment of detection equipment for HAZMAT responders in a terrorist incident involving chemical warfare agents. A representative locale was selected, and the incident response system analyzed. Commercial and military chemical warfare agent detection equipment is identified and analyzed. This analysis yielded recommendations for detection equipment for emergency responders.

State-of-the-Art Report on the Australia Group Chemicals

This publication provides a quick reference to information on the 54 chemicals listed by the Australia Group. This report provides chemical name, formula, structure, synonyms, trade names, Chemical Abstract Service number, CWC schedule number, civilian uses, and the chemical warfare agents associated with the chemical.

For a listing of products, prices, availability, and distribution limitations, contact CBIAC or visit our Web site at <http://www.cbiac.apgea.army.mil/>

In the near future, CBIAC's URL will change to <http://iac.dtic.mil/cbiac>

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The scope of CPIA's operations includes all science and technology information associated with hardware systems, components, and technologies for missile, space, and gun propulsion.

- Airbreathing Systems
- Electrical Systems
- Health Management, Monitoring, & Control
- Hybrid Systems
- Insensitive Munitions
- Lifecycle Costs
- Liquid Engine Systems
- Manufacturing, Fabrication, Processing, & Characterization
- Nondestructive Evaluation
- Nuclear Systems
- Occupational & Explosive Hazards
- Propulsion Components
- Reliability
- Safety
- Service Life
- Solid Propellant Systems
- Test Procedures

Chemical propulsion contributes greatly to our understanding of the Universe, our quality of life, and our national security. Rockets have propelled man to the moon and back; launched interplanetary probes to the Sun, Mars, Venus, Saturn, and Jupiter; and placed the Hubble Telescope in space to study the origins of our universe. Some satellites, placed in orbit by the largest launch vehicles in the free world, provide reconnaissance and intelligence information vital to our national security. Our missiles have defeated foreign aggressors and continue to safeguard the United States.

CPIA's mission is to serve as the U.S. national clearinghouse for worldwide information, data, and analysis on chemical, electrical, and nuclear propulsion for missile, space, and gun propulsion systems. CPIA provides technical and administrative support to the Joint Army-Navy-NASA-Air Force (JANNAF) Interagency Propulsion Committee and its nine subcommittees.

CPIA offers a wide variety of information products and services including comprehensive, searchable CD-ROM databases of technical papers; technology assessments; propulsion manuals; propulsion computer codes; meeting coordination and proceedings; and responses to user technical and bibliographic inquiries.

TATs & Products

DoD Explosives Safety Standards for Energetic Liquids

CPIA located, identified, reviewed and summarized energetic liquids accidents data and safety guidelines (commercial industry, other government, and international) and prepared proposed changes for the DoD 6055.9-STD, Chapter 9, Paragraph F "Liquid Propellants," which is promulgated by the DDESB.

Department of Defense Explosives Safety Board (DDESB) Database

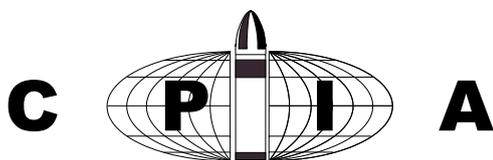
CPIA developed a CD-ROM product containing 26,000 pages of searchable text and images, and a home page database with more than 1,700 searchable bibliographic and abstract citations of papers from the technical seminars of the DDESB from 1952 to the present.

Literature Review and Assessment of High Explosives Technologies for the 120 mm Composition B Replacement Program

This task involved a focused technology review and assessment of the maturity, advantages and disadvantages of applicable explosives technologies and recommendations on promising alternatives for Army mortar programs.

Characterization & Component Identification of Selected Ammunition Items

CPIA is compiling research information and data to provide accurate



Chemical Propulsion Information Agency

and complete chemical characterization data for selected military munitions and components. This information is being entered into a relational database to be made available to other agencies and activities through the Munition Items Disposition Action System (MIDAS) program of the Defense Ammunition Center.

Propulsion Information Retrieval System (PIRS)

This CPIA developed CD-ROM is a combined database and search and retrieval system consisting of approximately 70,000 document citations covering 40 years (1960–2000) that relate to missile, space, and gun propulsion research and technology.

CPIA Propulsion Manuals

Technical information summaries are provided for solid and liquid rocket motors, propellants and static test facilities; solid propellant ingredients, and air-breathing propulsion. These manuals are continually updated to provide the most comprehensive technical reference information available.

The CPIA Technology Reviews & Briefings

These provide state-of-the-art summaries and objective assessments of emerging technology trends and developments. CPTR 99–69, Burning Rates of Standard Solid Propellants for Gun Applications identifies currently available gun propellant burning rates and examines the functional dependencies in these burning rate data.

CPTR 97–65, Electric Thruster systems, presents the operating principles and current areas of development and application of specific electric thruster systems. CPTR 97–66, Expandable Launch Vehicle (ELV) Propulsion Systems, is an overview of international ELV propulsion technology and the growing international satellite launch service market. CPTR 98–68, Reusable Launch Vehicle (RLV) Propulsion Systems, is a similar overview of Russian and U.S. developments and plans for RLVs.

JANNAF Propulsion Meetings

These CD-ROM disks contain over 7,900 pages of text from 87 volumes of meeting proceedings from 1972 through 1999 covering all aspects of missile, space and gun propulsion research and technology.

Standard Propulsion Computer Codes

CPIA maintains and distributes several government-sponsored standard propulsion computer codes for delivered performance prediction; grain regression prediction; internal motor flowfields characterization; exhaust plume characterization and spectral signatures.

CPIA Bulletin

This free bulletin is the newsletter of the propulsion industry with a bi-monthly distribution of about 5,000.

For a listing of products, prices, availability, and distribution limitations, contact CPIA or visit our Web site at

<http://www.jhu.edu/~cpia>

In the near future, CPIA's URL will change to
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DACS

DACS performs short and long-term services for military and commercial customers in the following areas:

- Acquisition Support
- Artificial Neural Networks
- Business Process Reengineering
- Conference/Workshop Support
- Cost & Reliability Modeling
- COTS Tools & Environments
- Data Analysis & Modeling
- High Performance/Parallel Computing
- Information Technology Planning & Implementation
- Internet & Intranet Development
- Lifecycle Management
- Measurement/Metrics
- Network Integrity Solutions
- Process & Product Model Studies
- Requirements Engineering
- Signal/Waveform/Image Processing
- Software Quality Improvement
- Software Reliability
- Software Reuse & Reengineering
- Software Test Automation/Testing
- Technology Transition
- Web Site Development

Staying abreast of new information technologies and software tools, and maintaining some degree of software standardization is an important but difficult process in today's ever-changing world of computer technology. DACS serves as an authoritative source for state-of-the-art software information and provides technical support to the software community, including software technology users, researchers, program and acquisition managers, and software developers in defense, industry, and academia.

The DACS has been designated the DoD Software Web Site and the DoD Software Information Clearinghouse by the DoD Software Management Review Council. By contacting the DACS Clearinghouse, users can locate commercial off-the-shelf (COTS) software and reusable software to meet their functional needs; identify best practices, policy, or standards; identify other DoD users/organizations addressing similar issues; locate the latest open source information on topics of interest; and get software project management advice (size and cost estimation, measurement, project planning, risk management, etc.).

By visiting the DACS Web site, users can access the latest software technology information; locate DoD software standards; find a schedule of upcoming conferences and workshops; locate extensive measurement information and databases; find links

to other DoD software entities and resources; obtain free copies of DACS technical reports and newsletters; gain access to the DACS searchable bibliographic/abstract information database of more than 200,000 documents; and locate extensive Web resources on selected DACS topic areas.

TATs & Products

Air Force Software Technology for Adaptable Reliable Systems (STARS) Demonstration Project

In support of this project, DACS is using clean room software engineering to develop the user interface for the Automated Tracking and Monitoring System for the Systems Center at Cheyenne Mountain.

Wafer Scale Signal Processor (WSSP)

The DACS is the primary systems software developer for the AFRL's Wafer Scale Signal Processor, a high performance, low power usage high performance computer. The DACS has developed the operating system, C compiler, Assembler, and Simulators for this processor. The DACS is also leading the software development effort for the application of the WSSP for BMDO's Discriminating

Interceptor Technology Program Hammer Award

The results of a DACS TAT, "Science and Technology Corporate Information Management (CIM) Support," won the prestigious Hammer Award. The TAT streamlined the preparation and production of the



annual “DoD In-House Research, Development, Test, and Evaluation (RDT&E) Activities Report.”

COTS Database

This database contains extensive information about software engineering and software technology tools. Users can receive information about software development tools as well as other Information Technology Tools as well as new product announcements.

DACS Bibliographic Database

This database (also searchable on DACS Web site) provides abstracts on more than 300,000 articles in the software technology field.

Software Life-cycle

Empirical/Experience Database

This database contains software life-cycle data relevant to software reliability, software errors, faults and failures, software cost and productivity, and post-deployment support collected on numerous software development efforts.

Training Courses

Current DACS courses include Software Measurement, Systems Engineering, and Electronic Publishing on the Web. These courses are taught by recognized experts in these fields such as Dr. Victor Basili, Mr. John Marciniak, and Mr. Thomas McGibbon.

Free Quarterly Newsletter

The DACS publishes *Software Tech News*, a free quarterly newsletter that provides information on current activities and focuses on the DoD’s major initiatives in software technology.

Object-Oriented Middleware

This study provides an overview of current object-oriented middleware technologies; provides guidance on their maturity; outlines development issues; and describes the benefits associated with using this type of technology.

A State-of-the-Art Report: Software Design Methods

This report provides a useful snapshot of software design technology that can be used as a tutorial, a starting point for detailed research, or a guide for those who will be developing software in the future.

A State-of-the-Art Report: A Business Case for Software Process Improvement

This report discusses and models the economic benefits to software development organizations in performing software process improvement.

For extensive information about DACS products and services, as well as more information about the DACS, contact a DACS representative or visit our Web site.

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HSIAC

HSIAC's scope includes, but is not limited to, the following areas:

- Human Factors Engineering
- Health Hazards
- Safety Factors
- Personnel Survivability Factors
- Manpower, Personnel, & Training
- Medical Factors
- Automation & Human-Machine Integration
- Display & Control Design
- Environmental Issues
- Equipment & Vehicle Design
- Human Characteristics
- Human-Computer Interfaces
- Information Presentation & Communication
- Methods for Research, Testing, & Evaluation
- Performance-Related Factors
- System Perspectives
- Work Design & Organization
- Workstation & Facility Design

HSIAC deals with the human component of a system using a total system approach. DoD policy stresses the importance of optimizing total system performance and minimizing the life-cycle cost of ownership through a total system approach to acquisition management. The total system includes not just the prime mission equipment, but also the people who operate, maintain, and support the system; the training and training devices; and the operational and support infrastructure.

Researchers, designers, and engineers must accommodate a number of difficult physical and mechanical variables when they design and produce equipment. They also must account for the capabilities and limitations of the human beings who will manufacture, operate, and maintain that equipment.

TATs & Products

The Human Systems IAC's area of expertise is human factors and ergonomics, an integrative discipline devoted to understanding and quantifying human interaction with equipment and systems. It encompasses a broad scope of issues important to the design of safe, effective, user-friendly, and maintenance-friendly systems. Services often take the form of technical area tasks (TATs), a few of which are described below. Also described below are a few of our products, including state-of-the-art reports and data files.

Controller-Pilot Data Link Communication (CPDLC)

The current Federal Aviation Administration (FAA) voice-traffic communication system is deficient in many ways. For example, messages are frequently misinterpreted, and the capacity-limited system can cause extensive delays. The FAA requested information for use in developing cockpit data-link studies, and for use in updating FAA Advisory Circulars related to flight-deck systems. The Human Systems IAC provided human factors support of large-scale distributed simulations of data link communication systems. Other Human Systems IAC studies have examined flight deck interface options, investigated training/procedures issues, and assessed crew resource management.



Human Systems Information Analysis Center (formerly CSERIAC)

Software Usability Test & Evaluation

The Performance Results Evaluation & Management Information System (PREMIS) is the software program used by DTIC to implement and track contract actions. The Human Systems IAC employed a top-level design approach to evaluate the PREMIS operator interface with respect to human factors principles and make recommendations that would improve the operability, effectiveness, and user acceptance of PREMIS.

Flight Simulator Training Capability Evaluation

The C130 Weapon System Trainer is a state-of-the-art, motion-based flight simulator used to support the training of night-vision goggle (NVG) operations as well as to properly train crewmembers to operate the C130 aircraft in an integrated systems environment. The U.S. Air Force needed to determine the training capabilities of the NVG and out-the-window visual display prior to simulator certification. The Human Systems IAC developed and administered a crewmember survey designed to provide quantitative and subjective feedback on the training effectiveness of the system.

Behind Human Error: Cognitive Systems, Computer, & Hindsight

This report discusses the larger systems that practitioners operate and shows how factors such as organizational processes and technology design affect cognition and behavior. Examples from various domains are

used to illustrate deficiencies in computerized devices that lead to breakdowns in interactions. The report explains how these deficiencies can exist without giving rise to accidents and discusses the role of outcome knowledge in the attribution of error.

Improving Function Allocation for Integrated System Design

This report explains the procedures and tools used for delegating tasks between humans and machines. It reviews the increasing complexity of this process due to technological changes and reviews how function allocation techniques have changed as systems and theories have progressed. The authors provide engineers and designers with the tools they need, the rationale behind the task, methods for evaluating decisions, and examples of applying the techniques.

Anthropometric Data Files

The anthropometric data files offer designers and engineers data useful for resolving human physical accommodation issues during equipment design. The ASCII data files include raw data and variable files that can be imported into any statistical software package for analysis. The file also includes a manual that describes the survey, anthropometric variables, and associated database codes.

For more information, contact a HSIAC representative or visit our Web site at <http://iac.dtic.mil/hsiac>

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IATAC

IATAC provides expertise in the following areas:

- Biometrics
- Certification & Accreditation
- Computer Forensics
- Computer Network Defense
- Data Embedding
- Defense Information Operations
- Firewalls
- Information & Infrastructure Assurance
- Intrusion Detection
- Information Operations (IO)
- IO Wargame/Exercise Development
- Malicious Code Detection
- Operations Security
- Penetration Testing
- Public Key Infrastructure
- Steganography
- Virtual Private Networks
- Vulnerability Assessment

And capabilities:

- Meetings & Conferences
- Policy & Doctrine
- Research & Analysis
- Studies & Reports
- Training & Exercises

In today's globally networked environment, DoD systems are increasingly vulnerable to information warfare (IW) attacks from adversaries with readily available, easy-to-use, low-cost technologies. Compounding the challenge is the exponential growth of information, data, and technology. Securing information systems requires an in-depth understanding of the complexity of networks, the specialized nature of cyber threats, and the full spectrum of emerging technologies available to counter such threats.

The Information Assurance Technology Analysis Center (IATAC) provides DoD information assurance (IA) knowledge to make decisions regarding the defense of networks and information systems.

IATAC provides DoD with emerging scientific and technical information in support of Defensive Information Operations. IATAC's mission is to provide a DoD central point of access for information on information assurance (IA) emerging technologies. These technologies include system vulnerabilities, research and development, models, and analyses to support the effective defense against information warfare attacks. IATAC focuses on all defensive activities related to the protection of information, information-based processes, and information systems.

TATs & Products

IATAC Support for Office of the Secretary of Defense (OSD) Net Assessment (NA)

The Office of the Secretary of Defense (OSD) Net Assessment (NA) has a continuing need for analytical and gaming support focused on the Revolution in Military Affairs (RMA). IATAC is developing a comprehensive understanding of the RMA for the U.S. and foreign military organizations. This understanding includes RMA implications for: strategic doctrine, research and development, equipping the force, force organization structure, strategic and tactical operational concepts, military operations other than war (OOTW), international military negotiations (e.g., disarmament), DoD budget planning, DoD acquisition and policy. IATAC is also incorporating the insights and knowledge gained through the analysis, gaming, and exercises into the DoD budget, acquisition, and policy process, i.e., to institutionalize the results of the analysis, gaming and exercise processes.

Examination of DoD Information Assurance (IA) & Defensive Information Operations (DIO) Organizations

Given the risks and the fact that weakness in any portion of the Defense Information Infrastructure (DII) is a threat to the operational readiness of all Components, the Department is moving aggressively to ensure the continuous availability, integrity, authentication, confidentiality, and non-repudiation of its infor-



Information Assurance Technology Analysis Center

mation and the protection of its information infrastructure. IATAC provides organizational, technical, and program analysis to the ASD(C3I) to support the continuous integration, effective, and efficient operation of all DoD IA and DIO efforts.

Air Force Command & Control: Reliance on the Public Switched Network (PSN)

IW, in the form of computer intrusion and physical attacks, poses a substantial threat to high-priority C2 systems. Their loss or impairment through IW attack would seriously hamper the Air Force's ability to perform vital functions necessary for national security. IATAC's study provided an understanding of the degree to which the Air Force Command and Control Systems rely on the PSN and assisted in establishing a baseline from which requirements for the protection of critical C2 and Information Operation (IO) capabilities can be identified and prioritized.

Information Assurance Support to the Joint Task Force-Computer Network Defense

The newly activated JTF-CND faced the challenge of an immediate operational mission of defending the Defense Information Infrastructure. IATAC has supported the JTF-CND with development of tactics, techniques, and procedures, standing operating procedures, wargaming and exercises, training, conference support, and organizational assessment, among others.

Products

- **IA Tools Database.** Fast access on intrusion detection, and firewalls
- **Subject Matter Experts Database.** Provides point-of-contact information for various technical experts within the IA community
- **Bibliographic Database.** Holds IA policies, directives, reports, and briefings (classified and unclassified)
- **Infrastructure Database.** Identifies DoD infrastructure-related documents
- **IA Newsletter.** Features timely articles from the IA community (published quarterly)
- **IA Digest.** A composite of relevant IA articles... an IA "Early Bird" (published monthly)
- **IA Tools Reports.** Identifies and indexes all tools currently held within the IA Tools Database (e.g., intrusion detection, vulnerability analysis, firewalls)
- **Critical Reviews & Technology Assessments (CR/TA) Reports.**
 - Biometrics: Fingerprint Identification Systems
 - Computer Forensics: Tools & Methodology
 - Defense In Depth
 - IA Metrics
 - Modeling & Simulation Activities in Support of IA
- **State-of-the-Art Reports (SOAR).**
 - Data Embedding for IA
 - Malicious Code Detection
 - Visualization Technologies

For a listing of products, prices, availability, and distribution limitations, contact IATAC or visit our Web site at <http://iac.dtic.mil/iatac>

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IRIA covers the following areas related to infrared and radar technologies, and to the technologies of acoustics and seismics. The list evolves constantly in response to changes in the technologies.

- Arrays
- Backgrounds
- Countermeasures
- Detectors
- Imaging
- Materials
- Modeling
- Multispectral
- Propagation
- Sensor Systems
- Simulation
- Targets
- Techniques

Or specifically

- Integrated Optics
- Laser Systems
- Moving Target Indicator (MTI)
- Over-the-Horizon Radar (OTH)
- Sensor and Data Fusion
- Synthetic Aperture Radar (SAR)
- Other Specialized Technologies

IRIA is an authoritative resource for the collection, analysis, and dissemination of electromagnetic, acoustic, and seismic technology. IRIA provides technical research, bibliographic searches, and other services. Some specific focus areas include passive sensor development and assessment, coherent systems, detectors, properties of materials, target detection and discrimination, and characteristics of radiative environments.

IRIA manages the Military Sensing Symposia (MSS), formerly IRIS, a series of classified meetings focused on military sensors and sensing in the electromagnetic spectrum and other energies of vibration, specifically acoustics and seismics. Currently, 10 classified meetings are held annually on topics related to infrared and electro-optics, radar, acoustics, and seismics; namely, missile defense sensors, environments and algorithms; active systems; passive sensors; countermeasures; sensor and data fusion; materials; detectors; camouflage, concealment and deception; acoustics; and the National MSS Symposium.



TATs & Products

Evaluation of Russian Satellite Imagery for Mission Planning

The Gulf War began a new era of mission planning—an era in which commercial satellite imagery is an integral part of the U.S. Air Force (USAF) mission planning process. Under this TAT, IRIA characterized the imagery and assessed several measures of image acceptability.

Joint Tactical Missile Signature Handbook

The Joint Tactical Missile Signatures (JTAMS) Joint Test Force was formed to rectify the design of many weapons systems that rely on accurate missile signatures. JTAMS produced the Tactical Missile Signature Handbook, which documents measured signatures, along with test planning and execution procedures, test requirements, and instrument issues. IRIA assisted in the final development and publication of the handbook, and will maintain and update the publication to ensure its currency well into the future.

Shipboard Infrared Search & Track Sensors (IRST)

Cruise missiles and other airborne threats make close-to-shore operations one of the U.S. Navy's most challenging missions. Improvements in performance make infrared systems possible candidates for detecting and tracking these threats. However, a number of serious obstacles must be overcome before IRSTs

can be used in this role. IRIA is actively investigating atmospheric propagation effects on sensor performance and is researching the utility of advanced discrimination techniques such as the use of polarization and multispectral sensing.

The Infrared Handbook

This handbook was prepared as a replacement for the *Handbook of Military Infrared Technology*. It serves the infrared community as a ready reference for data, techniques, and equations. The handbook is still extensively used by the infrared community and as a classroom textbook at several universities.

The Infrared & Electro-Optical Systems Handbook

This handbook is an eight-volume set of comprehensive and authoritative works by recognized experts in the field of infrared and electro-optical sensor and data processing systems. It provides a full treatment of terminology, definitions, fundamental physical concepts, equations, graphic and tabular data, and hardware and software descriptions that enable the user to understand, analyze, design, and evaluate existing and new systems.

Military Utility of Multispectral & Hyperspectral Sensors State-of-the-Art Report

This report covers current research and development, including the phenomenology of spectral properties, multispectral and hyperspectral sen-

sors, modeling and simulation, and spectral discrimination algorithms. Other current state-of-the-art reports are available on infrared search and track sensors, and infrared signature simulation of military targets.

Statistics of Various Terrain & Water (Ice) Backgrounds from Selected U.S. Locations on CD-ROM

This CD is a source of imagery and statistical data on various types of backgrounds. It was assembled from several Veridian ERIM International tasks for collecting infrared imagery in various spectral bands and analyzing their statistical features.

Joint Tactical Missile Signature Handbook & CD-ROM

This CD or handbook provides the DoD Tactical Missile Signatures (TMS) Measurement Standard as well as guidance for planning, executing, and reporting of tests that produce missile signatures. It explains the TMS Measurement Standard, which identifies the data elements needed to produce high-quality signatures. This handbook also presents the mission of the Advanced Missile Signature Center TMS Data Library, and describes the resources it provides for the TMS community.

For a listing of products, prices, availability, and distribution limitations, contact IRIA or visit our Web site at <http://csdnta.irim-int.com/iria/iriaweb.nsf/>

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Security support for the IRIA Center is provided by Night Vision and Electronic Sensors Directorate at Ft Belvoir, VA.

MSIAC

Co-sponsored by the Defense Modeling and Simulation Office and DTIC

MSIAC provides support in the following areas:

- Communication Requirements Definition & Service Allocation
- Dedicated Support Tasks
- High Level Architecture Compliance Testing
- M&S Conference Support
- M&S Education & Training
- M&S Employment Assistance
- M&S Resource Repository Technologies
- M&S Scientific & Technical Analysis
- Operational Support Services
- Simulation Impact Assessments
- Software & Documentation Distribution
- Verification, Validation, & Accreditation Technical Assistance

The United States continues to need ready, highly trained, well-equipped military forces to meet the security challenges of the future. The DoD has determined that the use of modeling and simulation (M&S) will make a fundamental and widespread contribution to the economical and efficient development and employment of those military forces. To meet the goals of M&S, DoD directed the establishment of the MSIAC as the single integrated support activity dedicated to providing expert scientific, technical, and operational support information to M&S developers and users. The MSIAC brings M&S technology to the warfighter and weapon system developer by harnessing information technology for operational requirements.

MSIAC maintains a subject matter expert database of thousands of individuals from both the government and commercial sector who are the acknowledged world-class experts in M&S. Through its Internet and SIPRNET Web sites, MSIAC provides the M&S community with an on-line, interactive calendar, and a series of Special Interest Areas where individuals can discover information and exchange ideas on several of the most topical M&S subjects. Beyond these free services, MSIAC provides ready access to TAT services and products covering the full range of M&S technical and operational requirements.

TATs & Products

Operational Support Services

Tasks required in this area provide “matchmaker” services between the user and the organization with the appropriate assets and include immediate taskings from operational forces to rapidly identify and assemble M&S support. The activity of identifying viable options for simulation support to acquisition Program Management Offices, Research and Development activities, and Test and Evaluation organizations, is also included.

M&S Scientific & Technical Analysis

One of the most important aspects of the MSIAC is the capability to conduct scientific and technical analysis functions tailored to support the M&S community. These functions include the ability to access, acquire, collect, analyze, synthesize, generate and report regarding Scientific Technical Operational Support Information (STOSI) in all areas of M&S.

Assistance in Employing M&S

Tasks supported in this area may include assisting M&S users with employment of M&S resources. Due to the cross-cutting and fluid nature of DoD M&S requirements, the ability to tap into a pool of resources to support critical M&S activities is viewed as essential. These activities may include assistance to CINCs and other M&S users in the design and employment of M&S-related exercises, events, studies and analysis, the assessment of the value and results of these activities



Modeling & Simulation Information Analysis Center

and “on-staff” subject matter experts to support specific activities.

M&S Conference Support

Tasks required in this area may include providing for the conduct, demonstration, technical coordination and sponsorship of M&S related workshops and conferences throughout the U.S. and internationally in order to both collect, disseminate, and foster an understanding of M&S information.

Verification, Validation, & Accreditation (VV&A) Technical Assistance

Tasks required in this area may include activities relating to the conduct of technical support to developers and accreditation authorities. A typical task may involve providing technical assistance to the M&S community in developing recommended practices for the conduct of VV&A.

Simulation Impact Assessments

Tasks required in this area may include efforts relating to quantifying the impact of simulations. Specific areas of research include defining the methods of effectiveness (MOE) for determining the impact of simulations on the training, analysis and acquisition processes.

Modeling & Simulation Staff Officers Course (MSSOC)

The five-day MSSOC targets newly assigned military, government civilian, DoD contractor, and allied staff officers with little or no modeling and

simulation experience. It also provides a broad familiarization with M&S policies, organizations, programs, activities, issues, and key players.

Executive Level Orientation (ELO)

The ELO is designed to provide the senior DoD executive with a broad overview of current DoD M&S policies, organizations, and issues.

M&S Orientation (MSO)

MSO, presented on a narrated CD-ROM, provides information similar to that in the ELO, but oriented toward a general audience.

Program Management M&S Workshop

This workshop assists the Program Manager and his/her staff in planning for the use of M&S throughout the acquisition lifecycle. It provides M&S information, tools the PM staff can use, and sources of M&S information. A needs analysis of the target audience, conducted in the summer of 1998 with a wide variety of acquisition programs, forms the basis for the workshop content.

MS 101

MS 101 is a half-day tutorial designed to be delivered to large audiences, ideally at conferences, seminars, and symposia. It presents basic DoD M&S information for newcomers to modeling and simulation.

For a listing of products, prices, availability, and distribution limitations, contact the MSIAC Web site at <http://www.msiac.dmsi.mil/>

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MTIAC

MTIAC's scope of responsibility includes:

- Above the Shop Floor Systems
- Agile Manufacturing
- Artificial Intelligence
- Benchmarking
- Best Commercial Practices
- Computer Aided Manufacturing
- Computer Aided Design
- Computer Integrated Manufacturing
- Concurrent Engineering
- Factory Automation
- Integrated Product & Process Development
- Machine Tools
- Manufacturing Economics & Finance
- Pollution Mitigation
- Production Methods
- Production Processes
- Productivity
- Robotics
- Simulation
- Tooling

Manufacturing technology is the foundation of the production capabilities of the U.S. industrial base. The U.S. industrial base supports both civilian and defense needs, and MTIAC assists all components of this manufacturing community. Manufacturing technology is a broad discipline that includes all aspects of the manufacturing cycle, from design through production and to include post-production support. The MTIAC staff engineers and information professionals have the knowledge and experience to support the varied requirements of all components of the industrial base.

MTIAC fulfills its mission to operate as a full-service IAC through a combination of engineering expertise and technology transfer capability. MTIAC draws directly on the technical resources of the IIT Research Institute, and numerous affiliated organizations to offer broad-based technical support to MTIAC users. MTIAC has more than 10 years of experience in all aspects of technology transfer. This experience is in traditional areas of information dissemination—inquiry response, technical reports, and newsletters as well as more innovative approaches—Internet, predictive modeling, and customer-tailored programs. MTIAC also provides program technical support, organization of technical symposia, and industrial base surveys.

TATs & Products

Current Awareness Reports

MTIAC creates profiles and selects databases for weekly, semi-weekly, or monthly reports on new products and industry news. Using information sources from the federal government, MTIAC-created alert services have also covered regulation, legislation, procurement, and contract awards for selected products and services. Customers can have electronic delivery of current information on such topics as electronic commerce security measures, the use of body scanning in the apparel industry, and machine tool procurements.

North American Microwave Power Tube Industry

In support of the DoD ManTech Subpanel on Electronics Processing and Fabrication, MTIAC reviewed and assessed the domestic microwave power tube industry, with emphasis on the implementation of flexible manufacturing or other advanced manufacturing techniques. The DoD's objective is to ensure an affordable, reliable, and responsive supply of new and replacement tubes for military systems for the next 20 years. MTIAC covered the technical aspects of the industry including materials, processes, and modernization efforts with a focus on the manufacturing philosophy.

Soldier Support

To maintain surge capability in the U.S. apparel industry and the U.S. food production industry, the Defense Logistics Agency has established the Apparel Research Network (ARN) and the Combat Rations Network (CORANET), which are innovative programs in academic and industrial apparel and ration research. Each network aims to improve the cost, quality, and delivery time of such items as military uniforms and meals ready to eat (MRE). MTIAC plans and manages regular workshops, assists in technical planning, publishes technical proceedings, oversees communication via E-mail, and maintains Web sites for these programs.

Laser Material Database for Cutting/Welding

This database features machining data for cutting a variety of materials using NdYAG and CO₂ lasers. The data elements include various material thickness, cutting speed, the amount of power used, the focus spot diameter of the laser beam, the assist gas pressure utilized, focal length distance, and the material processing data reference source.

This database also includes a predictive model for use when actual data are not available. The database is available in both DOS and Windows format.

State-of-the-Art in Rapid Prototyping

This report provides an overview of four rapid prototyping technologies that use laser radiation to fabricate metal parts. These are selective laser sintering, an electro-optical system for rapid prototyping of injection molding tooling, directed light fabrication, and powder cladding. Also included is a listing of leading vendors and researchers in this field.

Directory of Manufacturing Research Centers

This directory includes descriptions of more than 200 U.S. Centers engaged in manufacturing related research. Each of these centers not only performs research, but also is available in some capacity to the overall manufacturing community. The directory includes, for each center, the location, mission, key personnel, sponsorship, and technical scope.

DoD Manufacturing Technology Archives

MTIAC has acquired and archived a wide range of DoD Manufacturing Technology (ManTech) publications. These include meeting and conference proceedings from the tri-services, ManTech Project Books, Committee and Subcommittee reports, technical reports, newsletters, informational brochures, and other miscellaneous publications.

For a listing of products, prices, availability, and distribution limitations, contact MTIAC or visit our Web site at <http://mtiac.iitri.org>

In the near future, MTIAC's URL will change to <http://iac.dtic.mil/mtiac>

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NTIAC's capabilities cover the full spectrum of Nondestructive Evaluation (NDE) including the following applications:

- Aging Systems
- Condition Based Maintenance
- Corrosion Detection
- Equipment Readiness
- Fatigue Assessment
- Flaw Sizing/Metals, Ceramics, Composites
- Life Assessment/Prediction
- Manufacturing Quality Improvement
- On-board Health Monitoring
- On-line Sensors for Process Control
- Product & Process Design
- Residual Stress

And the following technologies:

- Acoustic Emission
- Eddy Currents
- Electromagnetic/Microwave
- Infrared/Thermal
- Magnetic Particle
- Optical/Holography
- Penetrants
- Probability of Detection (POD)
- Radiography
- Ultrasonics

NTIAC provides technical expertise, authoritative analysis, engineering services, and laboratory support in responding to DoD, other Government agency, and industry requests and needs in areas related to Nondestructive Evaluation (NDE). Present day advanced technology requires materials, components, and structures of unprecedented efficiency, operating nearly at their ultimate capability; at the same time, approaches are being sought to cut costs by extending the life of many aging structures and operating systems. As a result, there are increasing requirements for capabilities to test, inspect, and evaluate nondestructively to ensure quality, reliability and safety.

NTIAC specializes in all aspects of nondestructive evaluation, inspection, and testing in the broadest possible sense. NTIAC applies NDE technology to meet DoD, other government agency, and industry needs: in designing new advanced materials and processes, for on-line process control during the manufacture of advanced materials and systems, for in-service inspection to increase life expectancy, and to provide a basis for condition based maintenance decisions.

TATs & Products

Nondestructive Inspection of Submarine Towed Arrays

The Navy uses towed arrays as critical elements in data gathering for submarine combat systems. NTIAC is evaluating NDE approaches to inspect towed array components which are candidates for potential failure during deployment or service at sea. NDE methods developed by NTIAC for towed array components will prevent catastrophic failure, assure reliable service of these components, and provide for more quantitative retirement decisions leading to saving the Navy money.

Nondestructive Detection of Corrosion on Shipboard Piping

NTIAC provided an advanced technology demonstration of ultra-sonic guided wave inspection technology on insulated piping aboard the USS Stump. This technology will be used by the Navy to determine the integrity of bleed air piping systems by detecting defects such as pitting and generalized wall thinning. Information obtained as a result of NTIAC's efforts will be used by the Navy to direct monitoring of piping systems during sea operations thereby helping to ensure fleet readiness.

Tactical Data for Special Operation Forces

Because requisite logistic support may not always be available for strategic or special reconnaissance in theatre, Special Operations Forces and



Nondestructive Testing Information Analysis Center

Light Infantry need methods to gather and analyze information in adverse environments. NTIAC determined which aspects of special reconnaissance missions and tactical situations lent themselves to NDE information collection and analysis techniques and identified a variety of NDE methodologies that could aid in gathering information for mission requirements.

NDE of Aging Systems

Under Air Force sponsorship, NTIAC has collected, organized and assessed research and engineering information on NDE of aging aerospace systems. Specific areas reviewed include detection of hidden corrosion and cracks in aircraft, and applications of digital radiography to aerospace systems. NTIAC identified overlapping areas of work as well as technology gaps where additional effort is needed. The information provided by NTIAC will help the Air Force develop plans to increase service life of aircraft and to reduce maintenance costs of aging aircraft through applying cost saving condition based maintenance.

Nondestructive Inspection of High Pressure Gas Cylinders

The U.S. Department of Transportation, Research and Special Programs Administration, has the responsibility of assuring the safe operation of high pressure gas cylinders during transportation. Under DOT sponsorship, NTIAC is evaluating NDE data from aluminum high

pressure gas cylinders for the detection of sustained load cracking (SLC). This cracking, which occurs in the neck and shoulder region of the cylinders often results in leaks and occasionally a rupture.

Nondestructive Evaluation (NDE) Capabilities Data Book

This Data Book consolidates and organizes available reference data for demonstrated NDE performance capabilities into a single source. The Data Book contains over 400 Probability of Detection (POD) curves dealing with a large variety of nondestructive evaluation applications, such as cracks in compressor disk bolt holes and cracks in aircraft aluminum lap splice joints. The Data Book is an excellent source of information for selecting options for use of NDE to assure fracture critical structural integrity design requirements and in life cycle maintenance operations.

State-of-the-Art Reports:

- Neutron Radiography
- Heat Damage in Composites
- NDE of Hidden Corrosion
- NDE of Cracks in Aircraft
- NDE of Residual Stress in Metals

Technology Assessments:

- Laser Ultrasonics
- NDE for Process Control of Polymer Matrix Composites
- Micro-ElectroMechanical Systems (MEMS) for NDE of Navy Aircraft
- Magnetic Particle Inspection
- Digital Radiography
- Advanced X-Ray NDE Techniques

For a listing of products, prices, and availability, contact NTIAC or visit our Web site at <http://iac.dtic.mil/ntiac>

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RAC

RAC provides support for military and commercial customers in the following areas:

- Business Process Reengineering
- Component/System Modernization
- Component/System Reliability Assessment & Prediction
- Component Obsolescence
- Electronic Document Productization & Dissemination
- Electrostatic Discharge Susceptibility Analysis
- Environmental Characterization
- Environmental Stress Screening
- Failure Analysis
- Failure Data Collection & Analysis
- Failure Mode, Effects & Criticality Analysis
- Failure Reporting & Corrective Action Implementation
- Fault Tree Analysis
- Life Extension Analysis
- Maintainability Analysis
- Parts Control Programs
- Reliability Centered Maintenance & Predictive Maintenance
- Reliability Modeling & Simulation
- Reliability Program Assessments
- Reliability Test Planning
- R&M Program Planning & Implementation
- Testability Analysis
- Worst Case Circuit Analysis

RAC provides valuable assistance to researchers and engineers in the areas of reliability, maintainability, quality, and supportability (R/M/Q/S). Along with these technical disciplines, RAC has also developed related expertise in areas that these subjects influence such as maintenance planning, lifetime extension assessment, business process reengineering, and component obsolescence. RAC offers the largest reliability and maintainability (R&M) databases that include not only bibliographic references but also quantitative data in the form of failure rates, and failure modes and mechanisms.

The RAC addresses R/M/Q/S issues across all product and system lifecycle phases. Product and system development activities emphasize specifying, designing-in, controlling, and measuring R/M/Q/S. Production related activities focus on ensuring that the designed-in characteristics are not degraded in the production environment. Operation and maintenance activities center on continuing product, process, and system performance while improving the ability to support and maintain equipment throughout the life cycle. Modifications are evaluated and implemented to improve R/M/Q/S characteristics and reduce warranty costs.

TATs & Products

Reliability Engineering Support to AN/ALQ-131 Electronic Countermeasures Program

RAC is identifying failure trends in complex fielded countermeasures systems so chronic costly reliability problems can be solved cost effectively. Design fixes are identified and documentation developed so that problems can be fixed with organic resources.

New Systems Reliability Assessment Methods

RAC has developed new techniques for assessing the reliability of systems and products at various stages of their lifetimes. Traditional reliability prediction approaches have been expanded to take advantage of data as it becomes available from actual manufacture, test, and operational use.

Electronic Reliability Design Handbook (MIL-HDBK-338)

RAC has updated one of the most comprehensive sources of reliability information currently available. The document was expanded to include techniques and approaches developed since its last revision over 10 years ago.

Federal Aviation Administration (FAA) Component Obsolescence Support

The longer electronic hardware remains in operation, the ability to repair it becomes a greater problem, such as the inability to obtain spare parts. RAC is supporting the FAA in automating its planning process for



solving this problem, by helping to identify problem parts so that cost-effective decisions can be made regarding parts substitutions and/or lifetime buys.

Life Extension Assessment of Sensor Fused Weapon

RAC has combined efforts with the Advanced Materials and Processes Technology IAC (AMPTI-AC), to investigate the feasibility of extending the storage/operating life of a critical Air Force system. Major activities include the examination of life limiting failure mechanisms and the development of accelerated testing plans to demonstrate reliability in abbreviated time frames. Shelf life will be extended to 20 years and modifications to the system are being proposed to meet the requirement.

Reliability Toolkit: Commercial Practices Edition

This toolkit assists commercial and military to develop, manufacture, and sustain reliable products in today's competitive world. The Reliability Toolkit addresses the use of best commercial practices and how to comply with the Perry memorandum.

Non-Electronic Parts Reliability Data

This document provides failure rates for a wide variety of component types, including mechanical, electromechanical, and discrete electronic parts and assemblies. The document presents summary-level failure rates for numerous detailed

part categories by environment and quality level. It contains 1,000 pages of data on more than 25,000 parts and is the single most comprehensive resource on the subject.

Blueprints for Product Reliability

This six part series of documents provides insight into, and guidance in applying sound reliability practices. The approaches described are based on best commercial practices and the most effective practices of the now rescinded military documents in reliability. The Blueprints describe the merits of the practices under varying application scenarios.

PRISM

This software tool predicts system reliability that is based on the failure data in its extensive databases. PRISM incorporates newly RAC developed failure models ("RAC RATES") and the New System Reliability Assessment Technique into one tool designed for both operating and dormant situations. Now that DoD no longer maintains MIL HDBK 217, PRISM will likely become the most accepted reliability prediction methodology used in military and commercial applications.

Training Courses

RAC presents training in virtually every aspect of reliability in open registration settings, in customer tailored versions at their facilities and in distance learning formats.

For a listing of products, prices, availability, and distribution limitations, contact RAC or visit our Web site at <http://rac.iitri.org/>

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SURVIAC

SURVIAC's scope of responsibility includes:

- Attrition
- Ballistic Damage
- Ballistic Effects
- Battle Damage
- Battle Damage Repair
- Conventional Weapons
- Countermeasures
- Counter-Countermeasures
- Directed Energy Weapons
- High-Power Microwaves
- Hit Avoidance
- Hypervelocity Kill Mechanism
- Lethality
- Live Fire Test
- Probability of Kill
- Radar Signature
- Survivability Methodology
- Survivability Modeling
- Susceptibility
- Susceptibility Reduction
- Vulnerability Reduction
- Weapons Effectiveness

The United States is in an era of cutbacks in defense spending that are reducing the size of our active armed forces and restricting quantities of new systems purchased. Our combat forces will have to do more with what they have, and it will be increasingly important to build survivable systems that can return from battle to fight again and again. As a result, survivability is prominently recognized as an effective force multiplier. Operation Desert Storm demonstrated the importance of weapons system survivability and weapons effectiveness. Decisions affecting billions of dollars of equipment, the lives of combat crew members, and our national security depend on the availability of credible and responsive information on survivability and lethality.

The SURVIAC scope is the vital technology area of non-nuclear survivability and lethality of aeronautical and surface systems, equipment, and components. Data holdings for systems include physical and functional characteristics, design, performance and operational information, acoustics, infrared, optical, electro-optical and radar signature, combat damage and repair, and system, subsystem, and component probability of kill given a hit (Pk/h) functions.

SURVIAC provides lessons learned from prior combat incidents, integrates test results, and provides proven analytical methodologies, design guidance, and problem-solving

expertise. SURVIAC also provides comprehensive survivability and lethality modeling services including model distribution, expert support, training, and updates.

TATs & Products Ullage Model

Current methodologies to predict the likelihood of the effect of fuel-air vapor ullage explosion often are inconsistent, unreliable, unable to provide the detailed assessment of the effects of fuel/air vapor explosions, and incapable of evaluating the effectiveness of ullage protection techniques. SURVIAC developed an analytical fuel/air vapor ullage explosion computer model. In addition, SURVIAC identified suitable analytical methodologies and data, and documented the associated model and databases.

Fluid-Backed Plates

One of the configurations often encountered during aircraft vulnerability analysis is that of a plate backed by fluid such as fuel or hydraulic fluid. To compute both shielding and vulnerability of components behind the fluid, it is necessary to be able to estimate various projectile configurations. SURVIAC collected and analyzed data that involves threat penetration into fluid-backed plates.

Advanced Assault Amphibious Vehicle

Next-generation assault vehicles are in need of armor designs that are highly critical to the success of the

system. The need to keep weight low yet provide ballistic protection presents a unique challenge. SURVIAC fully evaluated the ballistic performance characteristics of the vehicle's armor, as well as the overall vulnerability of the vehicle.

Aircraft Fuel System Fire & Explosion Suppression Design Guide

This practical, up-to-date reference condenses all identified documented vulnerability reduction technology pertinent to the design of modern aircraft fuel systems. The three-volume design guide identifies more than 1,500 relevant reference documents, which are listed in a bibliography in the appendix.

Compendium of References for Non- Nuclear Aircraft Survivability

This compendium is a resource for aerospace and defense organizations, designers, analysts, and test personnel. It allows the user to quickly locate the most pertinent design, analysis, and test information for a particular system or subsystem. The compendium scope includes non-nuclear survivability, excluding directed energy weapons.

Joint Live Fire/Live Fire Test Program Catalogue

Available in hard copy and electronic media, the catalogue provides information on the Joint Live Fire/Live Fire Test program, including completed, on-going, and future tests. The database includes 47 descriptor

fields describing each test program identified. The data element fields include general test information, test documentation, target and threat information, and test results.

A Summary of Aerospace Vehicle Computerized Geometric Descriptions for Vulnerability Analyses

This May 92 report is a catalogue which contains a summary of target geometries of domestic aircraft, missiles, helicopters, satellites, target drones, and components, as well as foreign aircraft and helicopters, missiles, and target drones. These target geometries were developed in MAGIC, SHOTGEN, FASTGEN3, GIFT, or SCAN formats.

Critical Review & Technology Assessment (CR/TA) for Soldier Survivability (SSv)

This report presents a top-level summary of the background and establishment of Soldier Survivability (SSv) as the 7th Domain of the U.S. Army's MANPRINT (Manpower and Personnel Integration) program as well as the implementation of the SSv into the DoD acquisition process.

BLUEMAX IV

This tool allows the user to construct detailed flight paths for fixed-wing aircraft for input into models such as RADGUNS and ESAMS. Bluemax IV can be used as a stand-alone tool for determining aircraft performance characteristics.

This is just a sample of the products and services available from SURVIAC. For more information, please contact SURVIAC or browse our Web site at <http://iac.dtic.mil/surviac>

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WSTIAC

WSTIAC provides support in the following technical areas:

- Command & Control Systems
- Conventional Weapons
- Delivery Systems (aircraft, ships, guns, missiles, rockets, etc)
- Directed Energy Weapons
- Intelligence Gathering Systems
- Logistics
- Mines/Countermines
- Munitions/Ordnance
- Satellites
- Special Operation Forces
- Test & Evaluation
- Training
- Undersea Systems

The complexity of modern weapon systems is such that no one component or technology can be addressed in isolation. To assist DoD in overcoming this complexity, the Weapon Systems Technology IAC (WSTIAC) was established on September 29, 1999. WSTIAC is a single-point-of-contact for all information related to conventional and directed energy weapons, their development, production, fielding, and maintenance. Additionally, WSTIAC provides this function for the delivery systems, command and control, and all related enabling technologies and systems, such as the Global Positioning System (GPS), intelligence, targeting, etc. WSTIAC has absorbed the Guidance and Control IAC (GACIAC) and the special operations, test and evaluation, and tactical technology portions of the recently discontinued Defense Modeling Simulation & Tactical Technology IAC (DMSTTIAC) as well as technology areas not previously covered within the IAC program.

WSTIAC provides the DoD and user communities with timely and authoritative information relative to key R&D concepts, results, and trends; applications and processes; and assessment of international R&D technology. WSTIAC monitors and extracts related information, including but not limited to, the science, technology, and acquisition of conventional and directed energy weapon systems technology and related guid-

ance, intelligence gathering systems, training, analyses, databases, model repositories, laboratory studies, testing, hardware, components, systems, and subsystems. The systems and subsystems include, but are not limited to, aircraft, ships, satellites, guns, ordnance, missiles, rockets, bombs, submunitions, projectiles, mines/countermines, munitions-dispersing canisters, lasers and high power microwaves, intelligence gathering systems, guidance and control, command guidance communications links and undersea weapons.

Technical areas of interest include military systems and supporting equipment; instrument and seeker development and test; manufacturing process development; system and subsystem simulation; computational techniques and hardware development; control actuators and power sources; sensors for gathering and updating information; aerodynamic and reaction jet control devices; inertial components and system developments (GPS); guidance aided fuzing; energy management for navigation law profiles; special test equipment and techniques; theoretical performance computations; analytical test techniques; component design criteria; operational serviceability; maintenance and logistics equipment; training systems, and specialized RDT&E systems; models, simulations, and basic science and technology activities; environmental protection; and materials areas specifically related to



Weapon Systems Technology Information Analysis Center

conventional and directed energy weapon systems technology.

The functional areas covered include conventional and directed energy weapon systems technology in the following areas: battle area; threat; countermeasures/counter-countermeasures; guided weapon support systems; guided weapon systems; guided weapon subsystems; guided weapon components; global-theater system interactions; emerging technologies; and guided weapon RDT&E and life cycle support.

TATs & Products

TATs include the following primary areas of interest:

- Analysis of Manufacturing Processes for Conventional & Directed Energy Weapon Systems Developmental Technology Components
- Analytical Test Techniques
- Component Design Criteria
- Conventional & Directed Energy Weapon Systems Technology Components Analysis
- Design & Analysis of Computational Techniques, Databases & Software/Hardware
- Environmental Protection
- Instrument & Seeker Test Support
- Materials Applications Analysis Specifically related to Conventional & Directed Energy Weapons Systems Technology Components
- Military Systems & Supporting Equipment Development Analysis
- Operational Serviceability
- Phenomenology
- Special Test Equipment & Techniques
- Subsystems & Systems Simulation Modeling & Analysis
- Theoretical Performance Computations

Training Courses

WSTIAC develops, maintains and presents training courses on a cost recovery basis in order to transfer technology to the technical community with regard to conventional weapon systems technology. The well known three day Smart Weapons Technology Course previously presented by GACI-AC is continuing under WSTIAC.

Help Desk

WSTIAC offers information assistance to the users through the help desk. This activity supports information inquiries with multiple databases and information repositories as well as subject matter experts.

Technical Publications

WSTIAC keeps the user community abreast of weapon systems technology by publishing technical reports such as State-of-the-Art Reports (SOARs). These technical reports are carefully selected to meet the most pressing needs of the users.

Current Awareness

WSTIAC publishes a quarterly newsletter and maintains a Web site. An electronic copy of the newsletter is available on the WSTIAC Home Page. WSTIAC also conducts conferences, symposia, workshops and other meetings for the purposes of weapon systems technology information collection, analysis, and dissemination. In addition to sponsoring such meetings, WSTIAC is available to assist other organizations.

For a complete product listing, price, availability, and distribution limitations, contact WSTIAC or visit our Web site at <http://iac.dtic.mil/wstiac>

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Military IACS

Military Service-Sponsored Information Analysis Centers

The concept of information analysis centers has gained acceptance and favor over the last 50 years of military service. Several DoD components have established their own information analysis activities, which perform many functions and provide several information products and services that are comparable to those provided by chartered DoD IACs.

The service-sponsored IACs generally respond to user requests through oral and/or written counsel from technical experts on the staff. This may involve limited literature search of pertinent subject matter, referral to subject-matter experts, or special agreement tasks. To offset the costs of collecting, analyzing, and disseminat-

ing information, fees may be charged for IAC products and services. These fees are established according to guidance provided by the DoD. Many IAC services are available at little or no cost. Some abstracts and indexes, current awareness products, and technical inquiry services are free. However, fees will vary with the product or service required, ranging from a few dollars for a bibliography to several hundred dollars for a multi-volume state-of-the-art report.

The following 9 service-sponsored Information Analysis Centers are managed by various DoD agencies. IAC users should contact these organizations directly for additional information on products and services they provide.

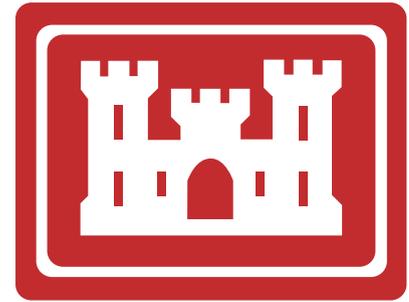
The service IACs were created to fill specific information needs for their affiliated DoD branches. These branches and areas of interest include:

- Airfields, Pavements, & Mobility
- Coastal Engineering Defense
- Cold Regions Science
- Concrete Technology
- Environmental Research
- Hydraulic Engineering
- Nuclear Weapons
- Shock & Vibration
- Soil Mechanics



APMIAC

Airfields, Pavements, and Mobility Information Analysis Center



APMIAC's scope covers all aspects of airfield pavements and mobility technologies, including:

- Airfields
- Asphalt
- Countermobility
- Dust Control
- Expedient Surfacing
- Force Projection
- Geotextiles
- Horizontal Construction
- Mobility
- Nondestructive Testing
- Pavements
- Vehicle Mobility
- Vehicle Simulations
- Vehicle Terrain Interactions

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APMIAC was established within the Geotechnical Laboratory, Engineering Research and Development Center (ERDC) at the Waterways Experiment Station site to provide a focal point for information related to all aspects of airfields, pavements, and vehicle mobility, including analytical modeling, criteria development, laboratory testing, full-scale test tracks, field investigations, modeling and simulations, and operations research.

The center has expertise in the specialized areas of military vehicle performance operating cross-country and on-road, and negotiating dry and wet obstacles in worldwide terrains. It is also a source of expertise on the design, construction, evaluation, maintenance, and rehabilitation of pavements and railroads. This research encompasses engineering disciplines such as engineering mechanics, mathematics and statistics, soil mechanics, soil dynamics, engineering geology, pavement technology, materials properties, and soil structure interactions.

APMIAC has total access to ERDC's information technology, communication, and computer resources, including fiber-optic communications, computer video graphics, automated databases, and optical disk storage and retrieval.

Special Tasks & Products

LEEP

LEEP is an airfield Layered Elastic Evaluation Program that uses data from a nondestructive pavement evaluation device such as a Falling Weight Deflectometer and back-calculates the layer moduli for use in evaluating the capacity and rehabilitation requirements

Airfield Pavement Evaluation

This program was developed in accordance with TM 5-826-2 and TM 5-826-3. It evaluates the structure of the pavement and also determines the Pavement Classification Number (PCN).

DRAIN

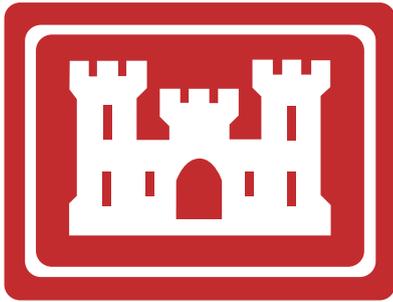
This hypertext-manual aids in designing subsurface drainage systems for pavements.

Document Locator

This database helps locate information for the design and evaluation of roads, airfields, and railroads.

Fact Sheets

This Windows-based program was developed to allow instant access to the "Pavement Materials and Construction Techniques" fact sheets that are compiled by the Airfields and Pavements Division.



CEIAC

Coastal Engineering Defense Information Analysis Center

CEIAC was established within the former Coastal Engineering Research Center (CERC) at the Waterways Experiment Station (WES). It is now part of the U.S. Army Engineer Research and Development Center's Coastal and Hydraulics Laboratory (CHL) and provides a focal point for information related to coastal engineering and science.

CHL is supported by CHL's multi-disciplinary technical staff, which offers expertise in the areas of coastal waves and currents, coastal sedimentary processes, coastal structures, dredging, coastal hazards and risk assessment. The CEIAC staff's expertise helps identify, process, and disseminate coastal engineering information in support of current defense research and development efforts and direct mission support. In addition, CHL maintains an extensive database of wave data, which can be transferred to users via file transfer protocol (FTP).

Products

CERCular

This quarterly newsletter highlights results from ongoing research programs. It emphasizes articles relating to applying research results or technology to specific project needs.

Coastal Engineering Technical Notes (CETN)

This notebook contains more than 160 technical notes on the entire range of coastal engineering and science.

Automated Coastal Engineering System (ACES)

This system of micro-computer programs is used in coastal engineering planning and design.

Coastal Modeling System (CMS)

CMS is a system of computer programs, many of which operate on the Cray Supercomputer, for use in coastal engineering planning and design.

Shore Protection Manual (SPM)

This two-volume manual contains more than 1,200 pages of information for planning and designing coastal projects.

CEIAC serves as an information resource for all aspects of coastal engineering, including:

- Coastal Navigation & Inlets
- Coastal Waves
- Contaminated Material Dredging & Containment
- Forecasting Surf Zone Conditions
- Harbor Waves
- Logistical Capabilities for Sustaining Troops
- Logistics-Over-the-Shore (LOTS)
- Maintaining Operations in Harbors for Military Vessels
- Navigation Structures
- Predicting Operating Climates in the Nearshore & Surf Zones
- Rapidly Implaced Breakwater Systems (RIBS)
- Ship Motion
- Shoreline Erosion Control & Prediction.

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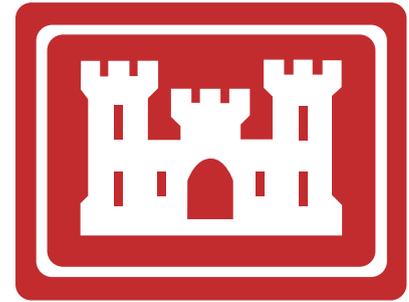
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Stephen E. Wagner Director

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CRSTIAC

Cold Regions Science & Technology
Information Analysis Center



CRSTIAC is the nation's corporate resource for scientific and technical information related to cold environments, including:

- Cold Regions Hydrology
- Climatology
- Frozen Ground
- Ice
- Materials in Cold Temperatures
- Military Operations
- Meteorology
- Mobility
- Navigation
- Pavements
- Permafrost
- Snow
- Winter Construction

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U.S. Army Cold Regions Research
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crstiac.html](http://www.crrel.usace.army.mil/crstiac/crstiac.html)

**Nancy Liston
Director**

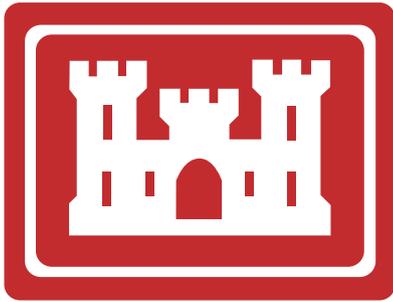
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army.mil](mailto:nliston@crrel.usace.army.mil)

The Cold Regions Research and Engineering Laboratory's (CRREL) product is knowledge of the winter battlefield, the environment, basic physical processes, and engineering technology that works in the cold.

CRSTIAC serves as the nation's corporate repository for data generated within this unique area of science and engineering. Its mission is to gather, process, analyze, and disseminate the most comprehensive collection of cold regions knowledge in the world. CRSTIAC sponsors the Bibliography on

Cold Regions Science & Technology, prepared since 1951, at the Library of Congress, comprising more than 250,000 documents from throughout the world. The Bibliography and the CRREL report, digest, and monograph series complete a library of international cold regions technical literature.

The CRREL research staff and the technical information specialists housed in the CRSTIAC complement each other to form the world's center for cold regions technical information and knowledge.



The CTIAC was established within the Structures Laboratory (SL) of the Waterways Experiment Station (WES). It has gathered, analyzed, evaluated, condensed, and published reports on the state-of-the-art in a number of areas related to concrete technology. The CTIAC draws on the technical expertise of the experienced engineers and scientists on the SL staff, who are experienced in a wide variety of disciplines, including chemistry, physics, civil engineering, materials science and engineering, and structural engineering.

The CTIAC and its staff, draw upon the work of such groups as European Cement Association (CEMBUREAU), Portland Cement Association (PCA), American Concrete Institute (ACI), Transportation Research Board (TRB), American Society for Testing and Materials (ASTM), RILEM, National Institute of Standards and Technology (NIST), International Concrete Repair Institute (ICRI) for information on the latest technologies and materials. The staff maintains membership in those organizations where memberships are available, and participates in developing and reviewing reports on new products and emerging technologies of those organizations.

Special Tasks & Products

- Concrete Mixture Selection & Characterization, Olmsted Locks & Dam, Ohio River
- Evaluation of Barrier Cable Impact Pad Materials
- Evaluation of Nonlinear Constitutive Properties of Concrete
- Evaluation of Parameters Affecting Thermal Stresses in Mass Concrete
- Red River Waterway Thermal Studies Report 1, Concrete Mixture Selection & Characterization
- Selected Bibliography on Fiber-Reinforced Cement & Concrete
- Six Candidate Shock-Attenuating Material Systems for the Alternate National Military Command Center (ANMCC)

CTIAC's scope covers all aspects of concrete technology, including:

- Analytical Procedures
- Chemical Admixtures
- Chemical Analysis
- Construction Methods
- Deformation
- Degradation
- Evaluation
- Fracture Mechanics
- Maintenance
- Mineral Admixtures
- Nondestructive Testing
- Portland-Cement Grout Mixtures
- Rehabilitation
- Reinforced & Mass Concrete Materials
- Reinforcing Materials
- Repair
- Test Methods

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DTRIAC

Defense Threat Reduction Information Analysis Center (formerly DASIAC)



DTRIAC's scope includes, but is not limited to, the following areas:

- Arms Control Technology
- Cooperative Threat Reduction
- Information Systems
- Education & Training
- Nuclear Weapons Operations
- Weapons Effects Technology

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DTRIAC is the key DoD source of information and analysis on nuclear and conventional weapons-related topics. Sponsored by the Defense Threat Reduction Agency (DTRA), DTRIAC can search, retrieve, and analyze internal and community-wide nuclear/conventional weapons' phenomena, effects, and technology matters, and related nuclear/conventional technology transfer applications.

The IAC's staff maintains liaison with DoD organizations to provide in-facility access and user services, through the Scientific and Technical Information Library System (STILAS). DTRIAC also provides technical consultation and user services for extensive databases such as the Data Archival and Retrieval Enhancement (DARE), Electronics Radiation Response Information Center (ERRIC), and Weapons Effects and Performance Data Archival (WEAPDA).

Special Tasks & Products Project Graybeard

DTRIAC is assisting in documenting aboveground and underground nuclear test data by experts who participated in the tests.

DTRA's Data Archival & Retrieval Enhancement (DARE)

DARE provides remote electronic access to historical nuclear weapon effects information as well as to current DTRA products.

Intrinsic Radiation (INRAD) Archival Program

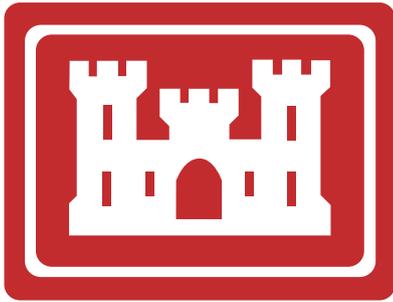
DTRIAC is locating, collecting, and cataloging records relating to maintenance, handling, stowage, transportation, and security operations of nuclear weapons.

Case File Preservation of Nuclear Test Personnel Review (NTPR)

DTRIAC is cataloging thousands of documents and preserving over 100,000 personnel case files relating to the NTPR Program.

Journal of Radiation Effects Research & Engineering

Serves as a long-term research resource documenting evolving radiation effects technology.



EIAC was established more than 20 years ago in the Environmental Laboratory (EL) at the Waterways Experiment Station (WES) to provide a focal point for information related to environmental engineering and science. The EIAC is supported by EL's multi-disciplinary technical staff, which offers expertise in the areas of environmental chemistry, cleanup technology, environmental impact analyses, conservation/natural resources management, environmental restoration, contaminant fate and effects, Geological Information Systems (GIS) applications/spatial modeling, contaminated sediments, nuisance species control, cultural resource remediation technology management, wetland restoration/delineation, dredging activities, site preservation technology, ecosystem processes, water quality modeling, and environmental characterization.

Products

A Guidebook for Application of Hydrogeomorphic Assessments to Riverine Wetlands

This report is the fourth in a series introducing the research findings for establishing a new, more accurate method for delineating wetlands.

Trends & Patterns in Cultural Resource Significance: A Historical Perspective & Annotated Bibliography

The report is part of the Evaluation of Environmental Investments Research Program.

Each year, the EIAC publishes seven information exchange newsletters, technical notes for five notebook series, and a series of technical reports. Other products include computer-based models and CD-ROM-based information.

For additional information on prices, availability, and distribution limitations, contact the EIAC or visit our Web site at <http://www.wes.army.mil/el/>

EIAC's scope includes:

- Analytical Chemistry
- Aquatic Plant
- Cleanup
- Contaminants
- Cultural Resources
- Dredging
- Environmental Impact
- Habitat
- Hazardous Materials
- Installation Restoration
- Natural Resources
- Recreation
- Remote Sensing
- Toxicology
- Unexploded Ordnance
- Water Quality
- Wetlands
- Wildlife Management
- Zebra Mussel

Address:

EIAC
U.S. Army Engineer Research & Development Center, Waterways Experiment Station
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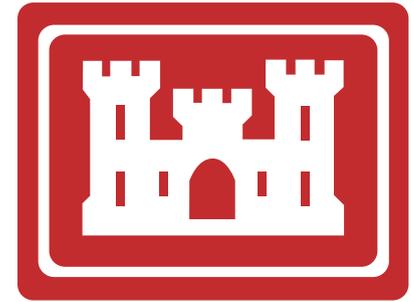
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HEIAC

Hydraulic Engineering Information Analysis Center



HEIAC's scope of responsibility includes:

- Channels
- Conduits
- Dams
- Flood Control & Navigation
- Flow Through Pipes
- Harbor Hydraulics
- Hydraulic Design & Performance
- Locks
- River Hydraulics
- Spillways
- Tidal Hydraulics

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HEIAC was established within the Coastal and Hydraulics Laboratory (CHL) at the U.S. Army Engineer Research & Development Center (ERDC) to provide a focal point for information related to hydraulic engineering and science. The HEIAC is supported by CHL's multi-disciplinary technical staff, which offers expertise in the areas of estuaries, hydraulic structures, open channel flow and sedimentation, dredging research, navigation channel design, operations and management techniques, computer-aided engineering and modeling, hydrology research, hydrology, and hydraulics Geological Information Systems (GIS) database development.

In answering requests, HEIAC has access to the ERDC Research Library. The HEIAC has the added advantage of total access to ERDC's information technology, communication, and computer resources, including fiber-optic communications, computer video graphics, automated databases, and optical disk storage and retrieval. In addition, the ERDC-operated DoD High-Performance Computing Major Shared Resource Center offers cutting-edge capabilities for computational archival storage, scientific visualization, and networking.

Products

Corps of Engineers Technical Engineering Manuals:

- *EM 1110-2-1601 Hydraulic Design of Flood Control Channels*
- *EM 1110-2-1602 Hydraulic Design of Reservoir Outlet Works*
- *EM 1110-2-1603 Hydraulic Design of Spillways*
- *EM 1110-2-1604 Hydraulic Design of Navigation Locks*
- *EM 1110-2-1605 Hydraulic Design of Navigation Dams*
- *EM 1110-2-1606 Hydraulic Design-Surges in Canals*

SAVIAC is the DoD focal point for research and analysis in the field of shock and vibration technology and is managed by the U.S. Army Engineer Research and Development Center. Specific areas covered by SAVIAC include rotating machinery, explosion effects, blast-induced shock, underwater explosion, ground shock, air blast, detonation physics, fragmentation, transportation and vehicular vibration, missile and torpedo flight vibration, biodynamics, earthquake technology, satellite or other space vehicle vibration and dynamics, ship dynamics, and structural dynamics. These technical areas are covered across the spectrum of technical developments, including theoretical analysis, finite element modeling, finite difference modeling, smooth particle hydrodynamic modeling, experimental modal analysis, field environment definition, laboratory test and evaluation procedures, data analysis, and instrumentation.

SAVIAC is also concerned with the economic aspects of the shock and vibration industry, economic considerations with respect to selection of techniques and processes, and industrial trends in applying current safety monitoring and failure prevention of in-service material.

Special Tasks & Products **The Shock & Vibration Symposium**

SAVIAC manages the annual Shock and Vibration Symposium, which is the leading forum for the structural dynamics and vibration community to present and discuss new developments and on-going research.

Current Awareness Newsletter

This newsletter provides the community with monthly up-to-date news, recent articles appearing in major publications, upcoming conferences and courses, and other items of general interest.

Shock & Vibration Journal

In cooperation with SAVIAC, IOS Press publishes the professional journal, *Shock and Vibration*, which contains new technology articles, book reviews, software reviews, and current publication abstracts.

Critical Technologies in Shock & Vibration Journal

This journal presents state-of-the-art research performed by the government and its contractors which is not releasable due to export restrictions.

Conference Proceedings on CD-ROM

SAVIAC publishes the Shock and Vibration Symposium proceedings on CD-ROM, as well as proceedings from other technical conferences. The proceedings are fully searchable by author, title, or full-text keywords, and include graphic images of each paper.

SAVIAC serves as a central information resource for all aspects of shock and vibration, including:

- Computational Structural Dynamics
- Crash Dynamics
- Damage Identification
- Damping
- Dynamic Analysis Methods
- Finite Element Analysis
- Fluid-Structure Interaction
- Impact/Penetration Mechanics
- Instrumentation
- Isolation Systems
- Machinery Vibration
- Material Dynamic Properties
- Scale Modeling
- Shock Characterization
- Shock Hardening
- Simulation Methods
- Test Criteria & Test Tailoring
- Vibration Control

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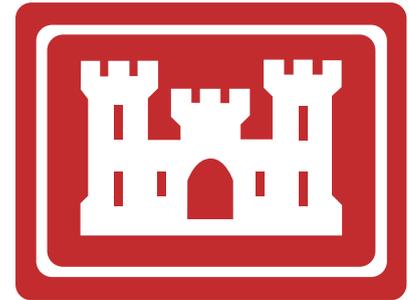
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SMIAC

Soil Mechanics Information Analysis Center



SMIAC's scope of responsibility includes:

- Earthquake Engineering
- Engineering Geology
- Geophysics
- Hydrogeology
- Rock Mechanics
- Seismology
- Soil and Rock Testing
- Soil Mechanics

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William M. Myers Director

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The SMIAC was established within the Geotechnical Laboratory (GL) of the Engineer Research and Development Center (ERDC), Waterways Experiment Station Site to provide a focal point for information related to soil and rock mechanics. The SMIAC is supported by GL's multi-disciplinary technical staff, which offers expertise in the areas of soil mechanics, rock mechanics, engineering geology, seismology, geophysics, hydrogeology, and earthquake engineering. SMIAC maintains a comprehensive in-house library of reports and other materials published by GL over the years.

In answering requests, the SMIAC also has access to the ERDC Research Libraries which contain more than 600,000 items, including books, journals, conference proceedings, technical reports, dissertations, specifications and standards, microfilm, and video and audio tapes. The SMIAC has the added advantage of total access to ERDC's information technology, communication, and computer resources, including fiber-optic communications, computer video graphics, automated databases, and optical disk storage and retrieval. In addition, the ERDC-operated DoD High-Performance Computing Major Shared Resource Center offers cutting-edge capabilities for computational archival storage, scientific visualization, and networking.

Special Tasks & Products Partnering Opportunities

Literature research, information synthesis, publications location, research reviews, and methodology comparisons on topics of mutual interest to GL and other interested parties are available from SMIAC on a cost-reimbursable basis under various forms of technical assistance and cooperative research and development agreements.

Geotechnical Laboratory (GL)

GL is the DoD research leader for Airfields and Pavements and Sustainment Engineering and is currently conducting the only earthquake engineering research program in the country devoted exclusively to dams. Computer modeling efforts in groundwater simulations, soil plowing, rock erosion, seepage analysis, and soil and rock deformation are also underway. Cooperative research and development and other types of partnering agreements between GL and other interested parties are available to perform work of mutual interest.

SMIAC Newsletter

This newsletter, published semiannually, highlights SMIAC activities, research in progress in GL, and recent Technical Reports and other publications of GL researchers.

History of DoD Information Analysis Centers (IACs)

Current Name	Previous Names/Collections
Advanced Materials and Processes Technology IAC (AMPTIAC)	<ul style="list-style-type: none"> ◆ Metals and Ceramics Information Center ◆ Metals IAC ◆ Ceramics IAC ◆ High Temperature Materials IAC ◆ Metal Matrix Composites ◆ Plastics Technology Evaluation IAC
Chemical Warfare/Chemical Biological Defense IAC (CBIAC)	
Chemical Propulsion IA (CPIA)	
Human Systems IAC (HSIAC)	<ul style="list-style-type: none"> ◆ Crew Systems Ergonomics/Human Systems Technology Analysis Center (CSERIAC)
Data and Analysis Center for Software (DACS)	
Information Assurance Technology Analysis Center (IATAC)	
Infrared information Analysis Center (IRIA)	
Manufacturing Technology IAC (MTIAC)	
Modeling and Simulation IAC (MSIAC)	<ul style="list-style-type: none"> ◆ Defense Modeling & Simulation Tactical Technology
Nondestructive Testing IAC (NTIAC)	
Reliability Analysis Center (RAC)	<ul style="list-style-type: none"> ◆ Supportability Investment Decision Analysis Center
Survivability/Vulnerability IAC (SURVIAC)	
Weapon Systems Technology IAC (WSTIAC)	<ul style="list-style-type: none"> ◆ Guidance and Control IAC ◆ Defense Modeling & Simulation Tactical Technology ◆ Tactical Warfare Simulation & Technology ◆ Tactical Technology Center

History of Military Information Analysis Centers (IACs)

Current Name	Previous Names/Collections
Airfields, Pavements, and Mobility Information Analysis Center (APMIAC)	
The Coastal Engineering Defense Information Analysis Center (CEIAC)	
Cold Regions Science & Technology Information Analysis Center (CRSTIAC)	
Concrete Technology Information Analysis Center (CTIAC)	
Defense Threat Reduction Information Analysis Center (DTRIAC)	<ul style="list-style-type: none"> ◆ DoD Nuclear IAC ◆ Defense Threat Reduction Agency Information Analysis Center (DASIAC)
The Environmental Information Analysis Center (EIAC)	
Hydraulic Engineering Information Analysis Center (HEIAC)	
Soil Mechanics Information Analysis Center (SMIAC)	
Shock and Vibration Information Analysis Center (SAVIAC)	

DoD IAC Support Capabilities for Defense Technology Objectives

Joint Warfighting Science and Technology Plan

	AMPTIAC (pg. 8)	CBIAC (pg. 10)	CPIA (pg. 12)	DACS (pg. 14)	HSIAC (pg. 16)	IATAC (pg. 18)	IRIA (pg. 20)	MSIAC (pg. 22)	MTIAC (pg. 24)	NTIAC (pg. 26)	RAC (pg. 28)	SURVIAC (pg. 30)	WSTIAC (pg. 32)
Chemical & Biological Defense	⊙	⊙	⊙	⊙		⊙	⊙	⊙					
Combat Identification				⊙		⊙					⊙	⊙	
Combat Terrorism	⊙					⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Dominant Maneuver	⊙		⊙					⊙	⊙		⊙	⊙	
Electronic Warfare	⊙		⊙		⊙	⊙		⊙		⊙	⊙	⊙	⊙
Force Projection	⊙		⊙			⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Information Operations			⊙		⊙		⊙	⊙		⊙	⊙	⊙	
Information Superiority	⊙	⊙	⊙		⊙	⊙		⊙	⊙		⊙		
Joint Theater Missile Defense	⊙	⊙	⊙	⊙		⊙			⊙		⊙	⊙	⊙
Joint Readiness & Logistics		⊙						⊙	⊙	⊙	⊙	⊙	⊙
Military Operations in Urban Terrain	⊙		⊙	⊙		⊙	⊙	⊙			⊙	⊙	
Precision Force	⊙	⊙	⊙	⊙		⊙	⊙	⊙	⊙		⊙	⊙	⊙
Protection & Counter Weapons of Mass Destruction	⊙	⊙	⊙		⊙	⊙	⊙	⊙			⊙	⊙	
Protection of Space Assets			⊙	⊙		⊙		⊙	⊙	⊙	⊙	⊙	⊙
Sustainment of Strategic Systems			⊙	⊙				⊙	⊙	⊙	⊙	⊙	

Defense Technology Area Plan

	AMPTIAC (pg. 8)	CBIAC (pg. 10)	CPIA (pg. 12)	DACS (pg. 14)	HSIAC (pg. 16)	IATAC (pg. 18)	IRIA (pg. 20)	MSIAC (pg. 22)	MTIAC (pg. 24)	NTIAC (pg. 26)	RAC (pg. 28)	SURVIAC (pg. 30)	WSTIAC (pg. 32)
Air Platforms	⊙	⊙	⊙	⊙		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Battlefield Environment		⊙		⊙	⊙	⊙	⊙	⊙		⊙	⊙	⊙	⊙
Biomedical	⊙	⊙			⊙							⊙	⊙
Chemical & Biological Defense		⊙		⊙	⊙	⊙	⊙	⊙			⊙		
Ground & Sea Vehicles	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Human Systems		⊙		⊙	⊙			⊙	⊙	⊙		⊙	⊙
Information Systems Technology		⊙		⊙	⊙	⊙		⊙	⊙		⊙	⊙	⊙
Materials/Processes	⊙	⊙	⊙			⊙		⊙	⊙	⊙			
Nuclear technology								⊙				⊙	
Sensors, Electronics & Battlespace Environments	⊙	⊙		⊙		⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Space Platforms	⊙		⊙	⊙	⊙	⊙			⊙	⊙	⊙	⊙	⊙
Weapons	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙

Military IAC Support Capabilities for Defense Technology Objectives

Joint Warfighting Science and Technology Plan

	<i>APMIAC (pg. 36)</i>	<i>CEIAC (pg. 37)</i>	<i>CRSTIAC (pg. 38)</i>	<i>CTIAC (pg. 39)</i>	<i>DTRIAC (pg. 40)</i>	<i>EIAC (pg. 41)</i>	<i>HEIAC (pg. 42)</i>	<i>SAVIAC (pg. 43)</i>	<i>SMIAC (pg. 44)</i>
Chemical & Biological Defense				⊙					
Combat Identification									
Combat Terrorism							⊙		
Dominant Maneuver	⊙							⊙	
Electronic Warfare									
Force Projection	⊙				⊙		⊙	⊙	
Information Operations				⊙	⊙				
Information Superiority	⊙	⊙							
Joint Theater Missile Defense		⊙		⊙					
Joint Readiness & Logistics	⊙	⊙			⊙	⊙			
Military Operations in Urban Terrain		⊙			⊙			⊙	
Precision Force		⊙					⊙	⊙	
Protection & Counter Weapons of Mass Destruction		⊙		⊙		⊙	⊙		
Protection of Space Assets				⊙			⊙		
Sustainment of Strategic Systems	⊙			⊙	⊙				

Defense Technology Area Plan

	<i>APMIAC (pg. 36)</i>	<i>CEIAC (pg. 37)</i>	<i>CRSTIAC (pg. 38)</i>	<i>CTIAC (pg. 39)</i>	<i>DTRIAC (pg. 40)</i>	<i>EIAC (pg. 41)</i>	<i>HEIAC (pg. 42)</i>	<i>SAVIAC (pg. 43)</i>	<i>SMIAC (pg. 44)</i>
Air Platforms							⊙		
Battlefield Environment	⊙	⊙		⊙	⊙			⊙	
Biomedical									
Chemical & Biological Defense				⊙					
Ground & Sea Vehicles		⊙					⊙	⊙	⊙
Human Systems					⊙				
Information Systems Technology			⊙						
Materials/Processes	⊙	⊙			⊙	⊙		⊙	
Nuclear technology				⊙					
Sensors, Electronics & Battlespace Environments	⊙	⊙		⊙	⊙		⊙		
Space Platforms							⊙		
Weapons				⊙			⊙		

Technology Index

Acoustics,	20	Decontamination	
Aerospace Structures,	37	Chemical and Biological Weapons,	10
Component Obsolescence Support,	28	Contaminated Material Dredging and Containment,	38
Corrosion Predictive Modeling,	8	Environmental Cleanup,	42
Crew Systems Ergonomics,	16	Defense Conversion and Dual-Use Technology Transfer,	10
Survivability,	3	Demilitarization,	10
Airfields,	36	Directed Energy Weapons	
Alloys,	8	Survivability,	30
Arms Control,	10, 41	Systems and Support,	32
		Domestic Preparedness,	10
Battle Damage and Repair,	30		
		Earthquake Engineering,	45
Ceramic Composites and Materials,	8	Elastomeric Materials,	8
Chemical and Biological Weapons,	10	Electronic, Optical, Photonic Materials,	8
Protection Materials,	8	Electronic Reliability,	28
Chemical Propulsion. (See Propulsion)		Environmental Information,	42
Climatology,	39	Chemical and Biological Warfare Effects,	10
Coastal Engineering, (See also Hydraulic Engineering)	38	Environmental Characterization,	28
Cold Regions,	39	Ergonomics. (See Human Factors Engineering)	
Command and Control Systems		Explosives Safety,	12
Information Assurance,	18		
Weapon Systems Technology,	32	Failure Analysis,	28
Components		Fatigue Assessment	
Obsolescence,	28	Aerospace Structures,	37
Reliability Assessment and Prediction,	28	Nondestructive Evaluation,	26
Composites		Fire Retardant Materials,	8
Materials,	8	Force Projection,	36
Structures,	37	Fracture Mechanics	
Computers		Aerospace Structures,	37
Computer Aided Design and Manufacturing,	24	Concrete,	40
Computer Forensics,	18		
Human-Computer Interfaces,	16	Hazardous Materials	
Network Defense,	19	Contaminated Material Dredging and Containment,	38
Software,	14	Detection Equipment,	11
Concrete,	40	Environmental Analysis,	42
Construction		Human Factors Engineering,	16
Concrete,	40	Hydraulic Engineering, (See also Coastal Engineering)	43
Winter,	39		
Conventional Weapons		Information Assurance,	18
Survivability,	30	Infrared and Radar,	20
Systems and Support,	32	Nondestructive Evaluation,	26
Corrosion/Degradation		Radar Signature,	30
Aerospace Structures,	37	Infrasound,	20
Concrete,	40	Integrated Optics,	20
Materials,	8	Intelligence Gathering Systems,	32
Nondestructive Evaluation,	26		
Counter-Terrorism,	10		

Laser Systems,	20	Parts Control Programs,	28
Logistics		Pavement,	36
Logistics-Over-the-Shore,	38	Cold Regions,	39
Sustaining Troops,	38	Propulsion,	12
Weapons Systems,	32		
		Radar. (See Infrared and Radar)	
Maintainability Analysis,	28	Reliability Assessment,	28
Manufacturing,	24	Robotics,	24
Materials Engineering,	8		
Cold Temperature Effects,	39	Satellites,	20, 32
Concrete,	40	Seismics	
Infrared and Radar,	20	Infrared and Radar,	20
Laser Material Database,	25	Nondestructive Evaluation,	26
Metal Matrix Composites,	8	Sensors	
Meteorology,	39	Infrared and Radar,	20
Microwaves		Nondestructive Evaluation,	26
High-Power,	30	Shock and Vibration,	44
Microwave Power Tube Industry,	24	Smoke and Obscurants,	10
Missiles		Software,	14
Detecting and Tracking,	20	Soil and Rock Mechanics,	45
Propulsion,	12	Special Operations	
Signatures,	20	Nondestructive Evaluation,	26
Mobility,	36	Systems and Support,	32
Cold Regions,	39	Structural Engineering,	37
Modeling and Simulation,	22	Survivability/Vulnerability,	30
Monolithic Metals,	8	Human Factors Engineering,	16
Moving Target Indicator,	20		
Munitions/Ordnance		Technology Transfer,	10
Propulsion,	12	Threat Reduction,	41
Systems and Support,	32	Toxicology	
		Chemical and Biological Warfare,	10
Navigation		Environmental,	42
Coastal Engineering,	38	Treaty Verification and Compliance,	10
Cold Regions,	39		
Hydraulic Engineering,	43	Undersea Systems,	32
Nondestructive Evaluation,	26		
Airfields, Pavements, and Mobility,	36	Vehicle Mobility,	36
Concrete,	40	Vibration. (See Shock and Vibration)	
Corrosion Detection,	26		
Nuclear Weapons		Weapons Systems,	32
Arms Control Technology,	41	Chemical and Biological,	10
Manufacturing Processes of NBC Defense Systems,	10	Effectiveness,	30
Operations,	41	Propulsion,	12
Propulsion,	12	Survivability,	30
		Web Site Development,	14
Organic Matrix Composites,	8	Wetlands,	42
Organic Structural Materials,	8		



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