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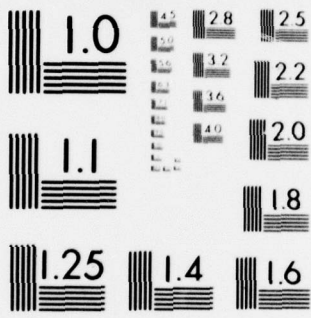
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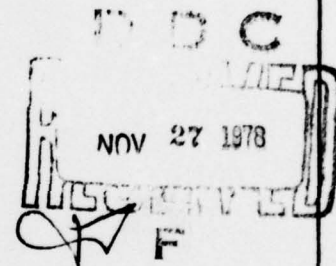
ANNUAL REPORT
TACTICAL WEAPON GUIDANCE & CONTROL
INFORMATION AND ANALYSIS CENTER

Report Number GACIAC-AR-78-01

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Contract DSA 900-77-C-3840
U.S. Army Missile R&D Command
Huntsville, Alabama 35809

September, 1978



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19 REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER	
GACIAC-AR 78-01		9	
4. TITLE (and Subtitle)		5. TYPE OF REPORT & PERIOD COVERED	
Annual Report Tactical Weapon Guidance & Control Information and Analysis Center		Annual Report 1 July 1977 - 30 June 1978	
7. AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(s)	
Charles W. Smoots		15 DSA 900-77-C-3840	
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
IIT Research Institute 10 West 35th Street Chicago, Illinois 60616			
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE	
HQ. Defense Logistics Agency Cameron Station Alexandria, Virginia 22314		11 September 1978	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		13. NUMBER OF PAGES	
U.S. Army Missile R&D Command Huntsville, Alabama 35809		22 12/27p	
		15. SECURITY CLASS. (of this report)	
		Unclassified	
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report)			
Approved for public release; distribution unlimited			
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)			
18. SUPPLEMENTARY NOTES			
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)			
Technical Information Center DoD Information Analysis Center (IAC) Guidance and Control Joint Service Guidance & Control Committee (JSGCC)		Data Base Information Retrieval	
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)			
This report summarizes the activities of the Tactical Weapon Guidance and Control Information and Analysis Center (GACIAC) during its first year of operation covering the period 1 July 1977 to 30 June 1978. The background and organization of the Center is reviewed and major activities consisting of internal operations, support services, and products and services are outlined. A contract status report covering the first year is contained in the report and future plans for the continuing development of the center are presented.			

FOREWORD

This report was prepared by the Tactical Weapon Guidance and Control Information and Analysis Center (GACIAC) which is operated by IIT Research Institute (IITRI), 10 West 35th Street, Chicago, Illinois, 60616, under Contract DSA 900-77-C-3840. This program is administered under the direction of the Defense Logistics Agency, Cameron Station, Alexandria, Virginia, through the Defense Electronics Supply Center, Dayton, Ohio, with technical direction by the U.S. Army Missile Research and Development Command, Huntsville, Alabama, Mr. William H. Leonard, contracting Officer's Technical Representative.

The GACIAC and IITRI Management express their appreciation to the many sponsor representatives whose advice, guidance and support have made this first year of GACIAC development successful. Significant contributions to the program have been made by the following people:

Mr. Joseph Blue, DLA
Mr. William H. Leonard, MIRADCOM
Ms. Francis Burke, DESC
Dr. Robert J. Heaston, HQDA

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ANNUAL REPORT

TACTICAL WEAPONS GUIDANCE AND CONTROL INFORMATION AND ANALYSIS CENTER

1. INTRODUCTION

This is the first annual report on the newly established Tactical Weapons Guidance and Control Information and Analysis Center (GACIAC), sponsored by the U.S. Army Missile R&D Command and the newest member of the family of DoD Information Analysis Centers (IAC'S) administered by the Defense Logistics Agency. This report provides an overview of the scope and purpose of GACIAC, a summary of the activities and costs related to its development and implementation during the period 1 July 1977 through 30 June 1978, and presents plans for its continued operation and growth as it matures into a fully operational IAC serving both the governmental and industrial sectors of the guidance and control community.

GACIAC is operated by IIT Research Institute under Contract DSA 900-77-C-3840, which extends through June 1979, with an option for an additional one year period.

2. PURPOSE AND SCOPE OF GACIAC

GACIAC has two primary purposes. The first is to fulfill the functions of a technical Information Analysis Center (IAC). An IAC is a government administered, contractor operated center that provides scientific and technical information and support services to both government and industry in a vital technical area. There are nineteen such IAC's, including GACIAC.

GACIAC's mission is to assist the tactical weapon guidance and control technical community, both government and industry, by encouraging and facilitating the exchange and dissemination of technical data and information to effect coordination of research, exploratory development and advanced technology demonstrations.

The second of GACIAC's two purposes is to provide technical and administrative support to the Joint Services Guidance and Control Committee (JSGCC). The JSGCC is a DoD Committee that was chartered by the Assistant Secretaries of the Services in November 1976 to review and effect coordination of all DoD technology program in the area of guidance and control of tactical weapons and to promote the exchange of technical information in this vital area among the Military Services and Defense Agencies and, where necessary and justifiable, other departments and agencies of the U.S. Government. The JSGCC is composed of a regular membership of six Executive Committee members from the Army, Navy and Air Force, and participating members from the Marine Corps, Office of the Under Secretary for Defense, Research and Engineering (OUSDRE), Defense Advanced Research Projects Agency (DARPA), Defense Mapping Agency (DMA),

Defense Nuclear Agency (DNA), Defense Logistics Agency (DLA), Army Missile R&D Command (MIRADCOM) and the Joint Technical Coordinating Group/Munitions Development (JTTCG/MD).

GACIAC's fields of interest are in the technology of tactical weapon guidance and control and related analysis, hardware, subsystems and systems. The tactical weapons included under the program are: missiles, rockets, bombs, submunitions, projectiles and munition dispersing cannisters. Nuclear weapons are not included in GACIAC's fields of interest, unless a given weapon is specifically defined as being for tactical purposes.

Technical areas specifically defined as GACIAC interests are the following:

- Theoretical performance computations
- System and subsystem simulation
- Instrument and seeker development and test
- Inertial component and system developments
- Control actuators and power sources
- Aerodynamic and reaction jet control devices
- Development of computational techniques and hardware
- Special design test equipment and techniques
- Component design criteria
- Analytical test techniques
- Manufacturing process development
- Operational service ability
- Environmental protection
- Material areas

Within the technical scope defined above, the functions performed by GACIAC are as follows:

1. To develop a data base in the stated fields of interest using the Defense Documentation Center's (DDC) computer via a classified terminal at GACIAC;
2. To collect, review, index and store documents in the fields of interest;
3. To analyze, appraise and summarize information and data on selected subjects;
4. To conduct special studies or reviews on subjects within or related to the fields of interest;
5. To disseminate information to the guidance and control community and GACIAC users through periodic bulletins, bibliographies, state-of-the-art summaries, handbooks, special reports, and responses to technical inquiries; and
6. To provide technical and administrative support to the JSGCC.

3. FIRST YEAR OF GACIAC DEVELOPMENT

3.1 Background

Department of Defense Instruction Number 5154.26, dated March 19, 1976, established the charter and approved the creation of the Tactical Weapon Guidance and Control Information and Analysis Center (GACIAC). On June 14, 1976, the Defense Supply Agency (now Defense Logistics Agency) assumed responsibility for establishment and administrative management of GACIAC. The U.S. Army Missile R&D Command was assigned as the technical monitor. IIT Research Institute (IITRI) was the successful bidder and initiated the contract to operate GACIAC on July 1, 1977.

3.2 Organization and Staff

The GACIAC organization is outlined by the chart in Figure 1 which illustrates the various functions currently being performed by the staff. This chart is self-explanatory and needs no further discussion. GACIAC is operated as a center within the IITRI organization, which provides the professional resources upon which the Center draws to provide a full IAC capability. GACIAC's position in the overall IITRI structure is shown by Figure 2, along with a number of the scientific disciplines which make up the full IAC capability necessary for successful operation. In order to provide the technical expertise required to support the broad areas of interest covered by GACIAC, the full IITRI staff is available for consulting or participation in special studies, as required. Such interdisciplinary programs are quite common because of IITRI's organization, which encourages this type of work.

GACIAC has a core staff responsible for the day to day operation of the Center. Mr. H. A. Lauffenburger, Manager of Data Analysis Centers, is responsible for the administrative policies and budgetary controls. Mr. C. W. Smoots, GACIAC Program Manager, is responsible for the overall operation of the Center and interface with the JSGCC. He also handles technical inquiries and requests for information. Mr. L. D. Paarmann has been in charge of document selection and validation, indexing, and word list and thesaurus preparation, however, this responsibility is being turned over to Mr. A. W. Schlueter. Ms. P. A. Llewellyn is responsible for the information system operations and liaison with the Defense Documentation Center Computer Support Services. Ms. C. A. Damberger, Editor, will oversee the various publications, bulletins and brochures generated by GACIAC. Others assigned to the program include J. A. Tekiela, indexing; V. Valaitis, on-line terminal operations and librarian; K. Muenzer, secretary and library support. Various other professional staff members have

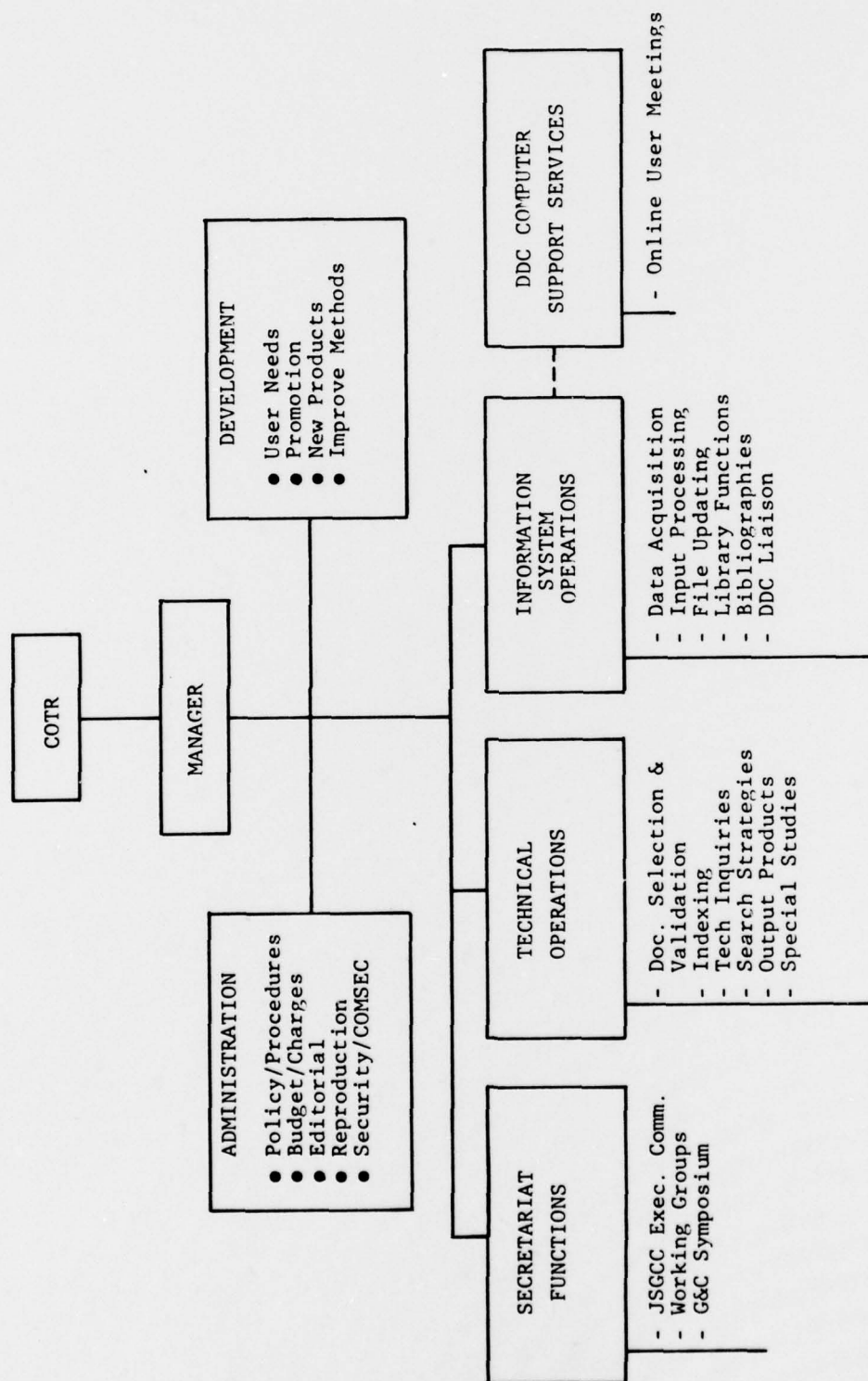


FIG. 1 GACIAC ORGANIZATION

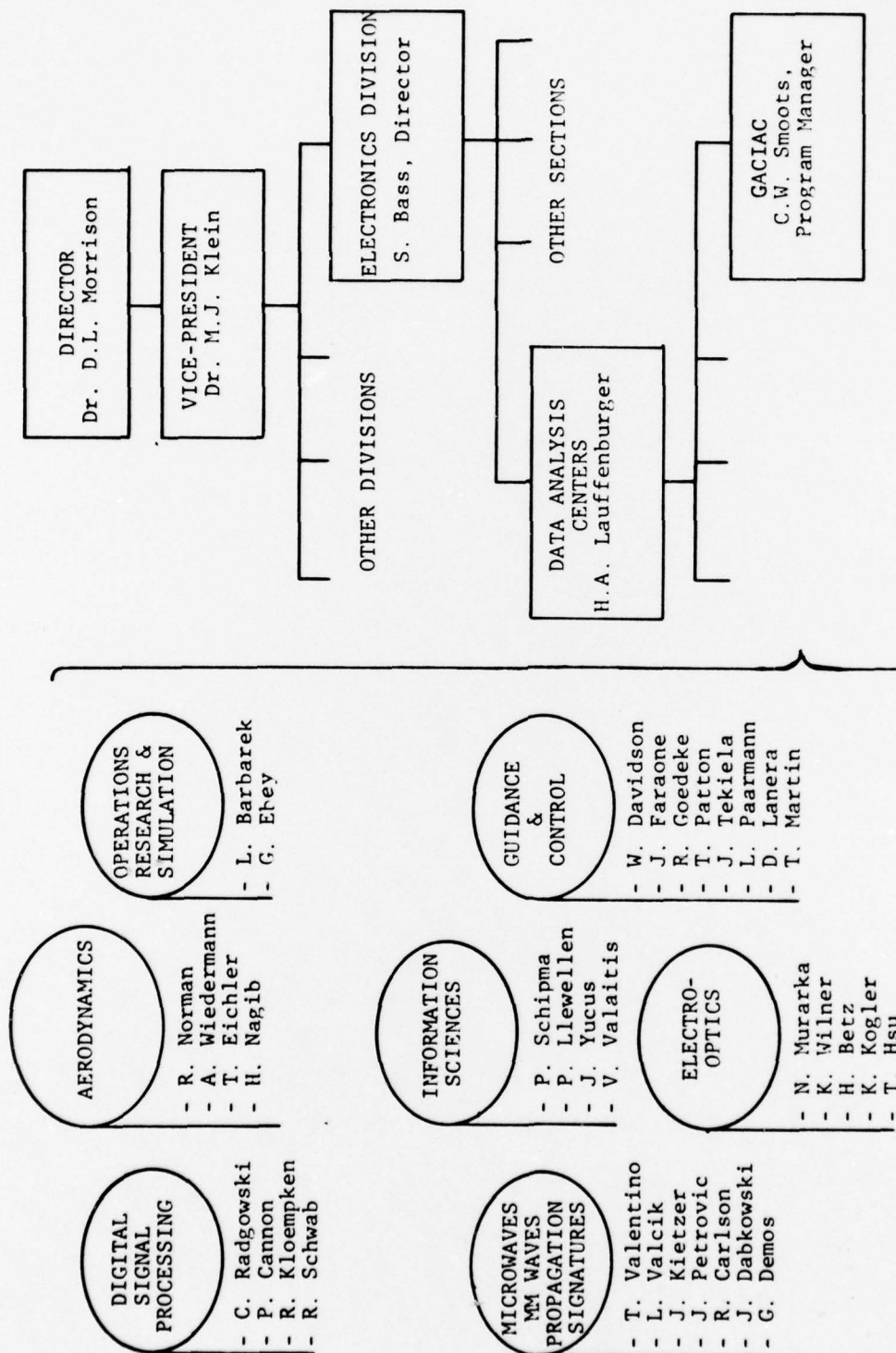


FIG. 2 FULL IAC CAPABILITY

contributed to the program during the first year to assist in the JSGCC secretariat function, in on-line terminal operations, in setting up internal computer and library files, in indexing documents, in conducting special tasks and in preparing the Guidance Law Handbook for Proportional Navigation.

3.3 Activities

This discussion of GACIAC activities covers internal operations of the Center, support and services provided by the Center, and products produced by the Center.

3.3.1 Internal Operations

The first year has been one of continuous development of the GACIAC facility and operation. Key staff members have been assigned to the program, operational plans generated, and the physical facility established. Staffing has been discussed in the previous section.

Initially, there was considerable discussion and planning among the staff regarding the development and operational procedures of GACIAC. Contacts were initially made by telephone and later by visits to a number of established DoD IAC'S to determine operating policies and practices regarding document sources, user services, pricing and marketing strategies and internal functions. This was very helpful and informative in becoming acquainted with these various aspects of IAC operations and provided ideas and procedures which have been adapted by GACIAC.

Various forms and procedures have been developed for internal operations in ordering and processing documents, responding to inquiries, requesting direct document distribution, developing a mailing list, generating a list of contractors, report numbering, generating a list of index terms, cost accounting and reporting. Some files have been set up on a computer to expedite such operation. A GACIAC logo was designed and will be employed on all publications to establish the GACIAC identity and achieve recognition within the user community. A number of letterheads were designed for both GACIAC and JSGCC using a font derived from the GACIAC logo. A selection was made and stationery has been printed and is in use. A report cover was also designed for use with GACIAC reports.

One of the most difficult problems to come to grips with was that of defining the exact scope of the guidance and control area over which GACIAC should be

cognizant. It has been concluded that such a definition depends upon the user communities' needs and interests and cannot be made independently by GACIAC itself. Until this user community is identified and established, engineering judgment is being employed in selecting documents and suggesting technology assessments and state-of-the-art reviews as a means of developing the Center. The broad scope has been defined and outlined in the previous section. This covers a great many areas and provides considerable flexibility to the program, which is valuable in permitting adjustment to respond to current and future interests of the technical community. Although the prime interest is in the technology base, some effort will be devoted to the collection of data and documents on operational systems, since it is believed that such information is of interest.

Office space for GACIAC was identified based upon the need for secure areas to house a classified terminal and document library. This space was remodeled to accommodate this need and alarms and locks were installed to meet the security requirements. Furniture, files, telephones, and supplementary office equipment were installed for the Center's operation, and additional needs are filled as they arise.

Indexing of documents was started based upon the development of a hierarchical word list. This proved to be a very slow and cumbersome procedure and has been replaced by controlled free indexing with parallel development of a structured word list. Control is exercised by attempting to employ index terms already in the list and in this way minimize its growth. However, new terms are added when necessary, especially when documents dealing with new areas are reviewed. This procedure has proven to be faster and more efficient than the original and will be continued. Periodic cleanup of the word list will be made on a regular basis as part of the control.

Figure 3 provides an activity schedule for various internal operations. Each of these will be discussed to provide a review of the Center's development.

Steering Committee Meetings: Staff members first met the administrative and technical monitors and presented plans for GACIAC development on July 22, 1977, at the Defense Logistics Agency, Cameron Station. A

GACIAC ACTIVITY SCHEDULE

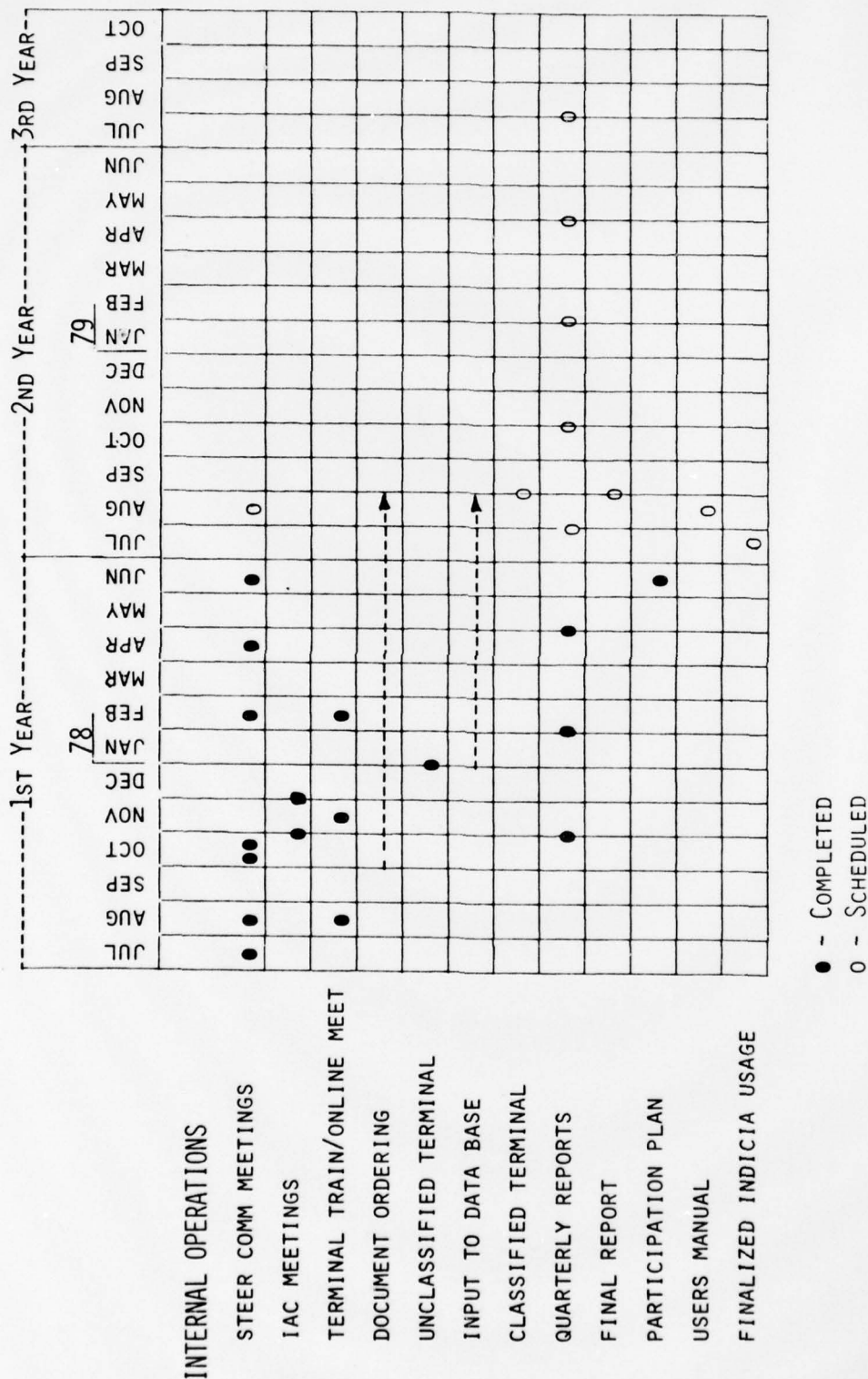


FIG. 3 ACTIVITY SCHEDULE - INTERNAL OPERATIONS

meeting was also held with DDC personnel regarding plans for terminal installation and on-line user courses. Frequent meetings have been held thereafter to discuss various aspects of the program and to exchange information. In some cases these meetings are held in conjunction with other project activities in order to maximize the cost effectiveness of travel.

Information Analysis Center (IAC) Meetings: Visits to a number of operational IAC's including TEPIAC, MCIC and IRIA, were made on November 1-3, 1977, to discuss procedures and observe their operation. An IAC managers meeting was attended at DLA on November 30-December 1, 1977.

Terminal Training and On-Line Users Meetings: GACIAC staff members attended DoD on-line users meeting on August 23-25, 1977, and on February 15-19, 1978. Two people attended DDC courses on terminal operation in November 1977 to become familiar with the equipment and procedures.

Document Ordering: An approved DD Form 1450 was received in October 1977, authorizing GACIAC to obtain free DDC services. Document ordering was initiated at this time based upon the review of Technical Abstract Bulletins (TAB) and subject bibliographies requested early in the program. Initially all orders requested hard copy, however, after visiting other IAC's and discussing the storage problem, the decision was made to switch to microfiche. A brief survey of microfiche readers and printers was made to select the best buy and a request has been placed to obtain this equipment.

Unclassified Terminal: An unclassified computer terminal tied in with DDC was installed in the GACIAC facility at the end of December, 1977. This consisted of a Uniscope 100, Tape Cassette, and COP Printer. On-line operations with DDC was established at the beginning of 1978. Initially some problems were experienced with the printer, however, in time, these were corrected by UNIVAC and the system has been in continuous operation.

Input to Data Base: GACIAC started inputting bibliographic data to the data base when the terminal became operational and will continue this process throughout the program. In addition, the data base established by the Terminal Homing Data Bank (THDB), located at MIRADCOM, was transferred to DDC and reformatted by them for use by GACIAC. This base consists of approximately 23,000 entries with emphasis on target signature data. A visit was made to the THDB to discuss

the indexing procedures and philosophy used in generating this data base, and personnel from THDB visited GACIAC for additional discussions. GACIAC data entries follow the format specified by DDC and are of an unclassified nature.

Classified Terminal: Arrangements have been made to upgrade the GACIAC terminal to permit the retrieval of classified data. Special clearances for operating personnel have been obtained, briefings received, facility inspections made and approvals given. This upgrading is expected to be completed early in the next period.

Quarterly Reports: Quarterly reports outlining the programs activities, progress, and costs have been prepared and submitted as required by contract.

Final Report: This annual report is to be considered a final report which covers the first year of progress on the program.

Participation Plan: A plan describing the services and products of GACIAC as well as the charges to be made for these services and products was prepared in June 1978. This has been approved and will form the basis for industry participation as GACIAC users. Because of the classified nature of much of the material, a subscription plan consisting of various levels of services and products has been selected as the best means for controlling the information disseminated, while offering the user any amount of service/product desired.

Users' Manual: A users' manual has been drafted which explains the GACIAC mission, fields of interest and functions, and discusses the various products and services available to the user community. Services are offered to organizations registered with DDC and points of contact are given. This manual will be finalized, printed, and distributed early next period.

Indicia Usage: According to contract, GACIAC is entitled to use the government indicia for mailing project material. This has required considerable discussion with personnel at DCASMA and DLA via telephone calls and visits, and a letter officially authorizing such use is anticipated in the very near future.

3.3.2 Support Services

One of the purposes of GACIAC is to support the Joint Services Guidance and Control Committee (JSGCC) by providing technical and administrative assistance

GACIAC ACTIVITY SCHEDULE

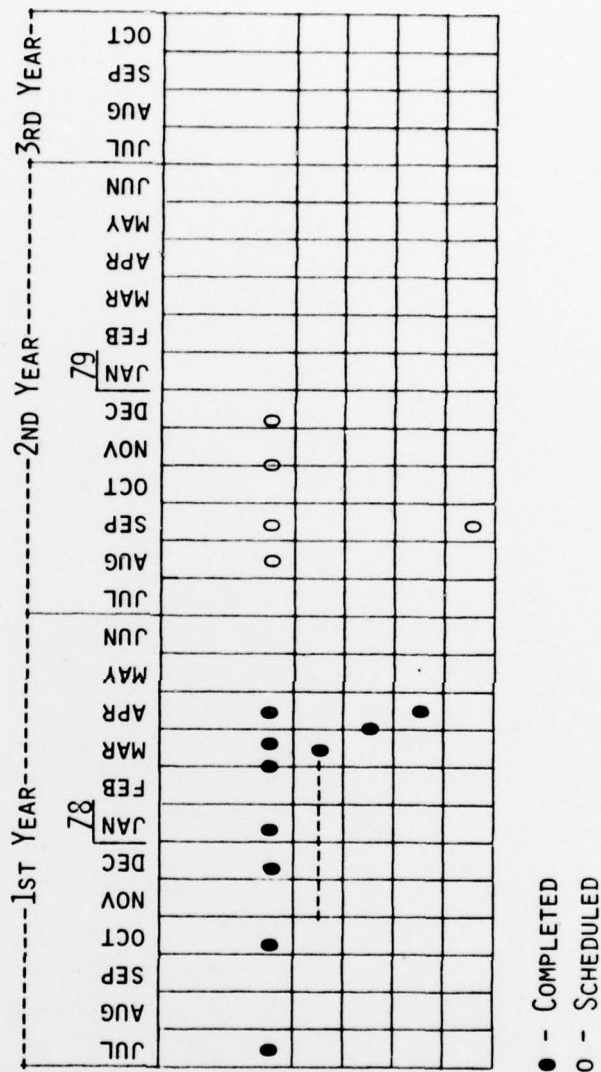


FIG. 4 ACTIVITY SCHEDULE - SUPPORT SERVICES

and acting as secretariat to the committee and its working groups. Acting in this role, staff members have arranged and attended a number of Executive Committee meetings and briefings, taken and prepared minutes and distributed them after review and approval by the Chairman.

Figure 4 contains a schedule showing the activity in supporting this committee. The table below gives the date and place of each of the meetings and notes on briefings or reviews held in conjunction with the Executive Committee meeting. In general, the Committee has met at laboratories involved in the technology of guidance and control of tactical weapons and has been briefed on the current programs being conducted by them. This has provided the Committee members with a fairly broad overview of the activities in their area of interest.

JSGCC MEETINGS

<u>Date</u>	<u>Place</u>	<u>Notes</u>
7/22/77	DLA, Cameron Station, VA	Briefings by GACIAC & TGSM Working Group
10/4-5/77	IITRI, Chicago, IL	Briefing by IITRI
12/1-2/77	NSWC, White Oak, MD APL, Silver Spring, MD	Briefing by NSWC Briefing by APL & CPIA
1/12-13/78	DARCOM, Alexandria, VA	
3/1/78	Pentagon, Wash. DC	
3/14-15/78	ARRADCOM, Dover, NJ	Briefing by ARRADCOM
4/18-20/78	Eglin AFB, FL	Air Target Engagement Missile Technology Review

As a special task, GACIAC was requested to review program elements concerned with guidance and control of tactical weapons and prepare an overview of the Research Development, Test and Evaluation (RDT&E) portion of the DoD budget devoted to this area. Through scanning budget reports and contract with the technical monitor and cognizant Committee members, each program element and associated tasks of interest were defined and budgetary information obtained. The report was completed and distributed in March 1978.

Editorial support was provided for the Air Target Engagement Missile Technology Review jointly sponsored by the JTCG-MD/WP-2 and JSGCC. Mailing lists were also obtained by GACIAC for use in announcing this review.

GACIAC provided support to the Terminally Guided Sub-Munitions (TGSM) Working Group by attending a meeting on April 5-7, 1978, and providing assistance in preparing a report based upon the discussions held.

Currently GACIAC is looking into the technology areas where additional working groups may be of value in assisting the JSGCC achieve its objective. Recommendations are to be made at a future meeting planned for September, 1978.

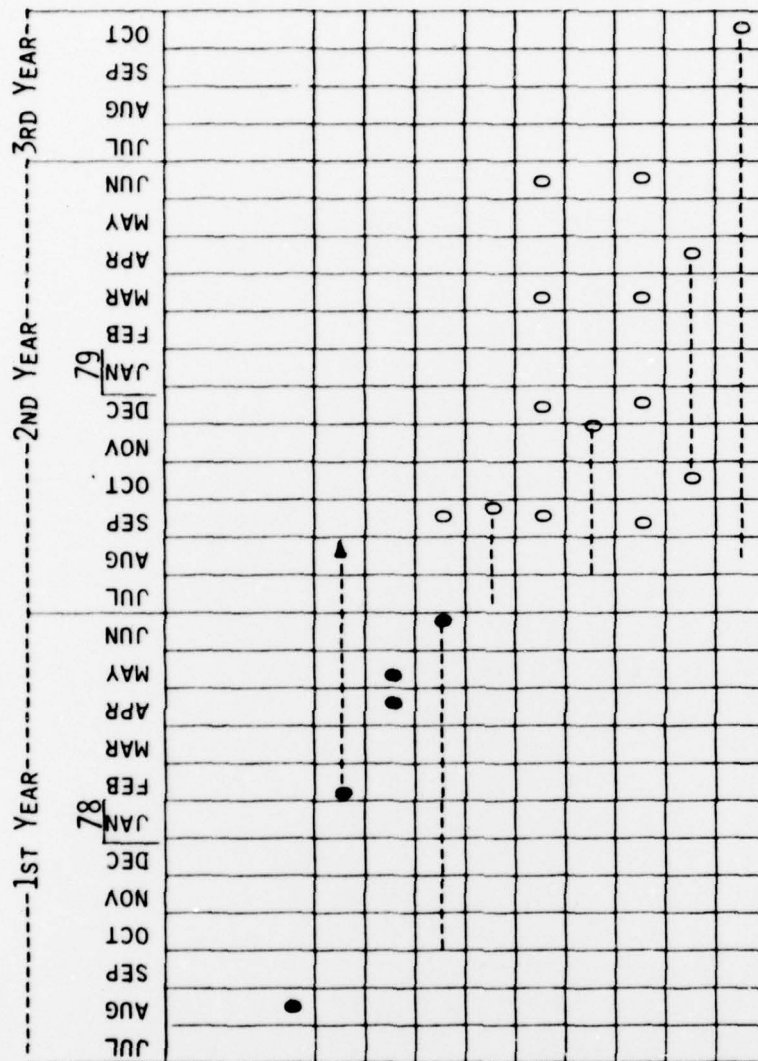
3.3.3 Products and Services

Although the major efforts on the program during the initial development period were directed toward planning and organizing work, arranging the facility, becoming familiar with the terminal and data base, and providing support activities, a number of products and services have been planned and have been or are nearing completion. Figure 5 is a schedule showing these activities.

News Articles: Early in the program two versions of a news article announcing the formation of GACIAC were prepared and approved for distribution. These were sent to professional societies and trade magazine publishers for publication in their journals. As a result of this publicity, a number of telephone calls and letters of inquiry were received requesting additional information. A response was made to each of these inquiries. This formed the basis for developing a GACIAC mailing list.

Inquiries: The first request for information was received in February, 1978, regarding research on dual mode seekers and active missile guidance systems. A search was made and a bibliography prepared and mailed. Six inquiries have been received resulting in the preparation and delivery of bibliographies or discussions regarding the topic of interest. These services were provided free of charge in order to exercise the system and gain experience.

GACIAC ACTIVITY SCHEDULE



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FIG. 5 ACTIVITY SCHEDULE - PRODUCTS AND SERVICES

Brochure Distribution: A brochure describing GACIAC and outlining its products and services was prepared and distributed at the Air Target Engagement Missile Technology Review held at Eglin AFB, Florida on April 18-20, 1978, and at the ADPA/AIAA Tactical Missile Conference held at the Naval Amphibious Base, San Diego, California on May 3-5, 1978. Approximately one hundred responses were received requesting that they be added to the GACIAC mailing list for future information. This type of promotion will be continued as staff members visit various organizations or attend conferences in the course of normal program activities.

Guidance Law Handbook: A proposal was prepared and approved early in the program to undertake the preparation of a guidance law handbook. Contacts and visits were made at both industrial organizations and government laboratories to both discuss this task and to obtain references and information. These visits proved to be very valuable in obtaining expert opinions and viewpoints and in helping to define the scope of the handbook. The subject of the handbook was confined to classical proportional navigation and the effort consisted of reviewing books, articles, and reports in this area to extract pertinent information and put it into a consistent format with a common set of symbols. A draft copy of the handbook entitled "Guidance Law Handbook for Classical Proportional Navigation" was delivered for review and approval at the end of June, 1978. The approved version is expected to be available at the end of September, 1978.

SEMI Handbook: A visit was made to U.S.A. MIRADCOM to discuss a special task involving the revision and formatting of a report to produce a Special Electro-Magnetic Interference (SEMI) Handbook for the Army. A proposal has been submitted and verbal approval received to conduct this task which is expected to be completed by the end of September, 1978.

GACIAC Bulletin: As part of the current awareness program, a quarterly newsletter known as the GACIAC Bulletin will be distributed to interested persons. A header has been designed and format of the bulletin established. Material for the first issue has been assembled and is being finalized. A mail back form will be included as a means of expanding the GACIAC mailing list. Mailing lists are being purchased for the first mailing in order to achieve a wide initial distribution. A mailing of approximately 14,000 is anticipated.

Technology Assessment: A proposal has been submitted and verbal approval received to prepare a technology assessment on ring laser gyros. Reports and articles on this topic are being ordered, received, and indexed as part of the normal GACIAC function of building a data base. Once formal approval is received, these reports will be reviewed in more detail and contacts will be made with organizations working in this area to obtain the most recent information available. This will provide the data needed to assess the state of the technology related to the design, construction and performance of these important devices.

Bibliographies: GACIAC is required to publish quarterly bibliographies and indexes of all of its acquisitions. These will be combined into an annual volume. This product will be initiated during the next period, with an annual volume produced covering the calendar year 1978. This schedule has been selected to correspond to that of DDC, where the data is stored and printed.

State-of-the-Art Reviews: Although a number of topics for a state-of-the-art review (SOAR) have been discussed, no decision has been made regarding which to select. It is anticipated that a review of methods for characterizing IR and RF seekers will be the subject of the first review and that this effort will be conducted sometime in the next period.

G&C Symposium: As secretariat to the JSGCC, GACIAC is responsible for providing support in arranging and conducting a symposium should the Committee decide to sponsor such a meeting. This has been discussed, however, no definite plans have been made. Therefore, because of the long lead time required to solicit papers, arrange for facilities, and publicize such an event, it would be scheduled for the fall of 1979.

3.3.4 Contract Status Report

A contract status report is required to provide a statistical summary of the operational activities of GACIAC on a quarterly and cumulative basis. This same form is utilized by all the IAC's, those that have been operational for many years, as well as those that have just been started, such as GACIAC. Therefore, although some of the items do not appear to be applicable to a new IAC, accounting procedures have been set up to provide the information required with the least amount of manipulation as the various products, services, charges and income become an operational reality.

The form is contained in Appendix A and reflects the first year of GACIAC operations. During the coming periods, a more detailed breakdown of products and services will be provided to permit tracking of these individual items.

4. FUTURE PLANNING FOR GACIAC

4.1 Internal Operations

As GACIAC matures, it is anticipated that various procedures that have been initiated will require modification and improvement. These will be made as the staff gains experience in all of the phases of IAC operation.

A number of plans have been made which will be implemented as soon as possible. Better microfiche readers and a reader printer will be obtained to ease the handling and review of documents. Indexing will be expedited through the generation of a thesaurus or structured hierarchical word list. Although some effort has been devoted to the initiation of such an aid, it is felt that this should be completed, and, therefore, will be one of the high priority tasks in the future. This structured list, together with an alphabetized word list, will be entered into an IITRI computer for ease of expansion and updated printout.

Efforts will also be made to obtain documents of interest through direct distribution. This will be based upon contract announcements appearing in the Commerce Business Daily. A computerized listing of contract and organizations working in the area of guidance and control will also be generated during this process.

Upgrading the DDC terminal to handle classified material is imminent. This will permit searches of the DDC classified data base to be made and provide GACIAC with its full operating capability. However, the paper work and extra security regulations that must be adhered to in operating a classified terminal and associated equipment will increase the cost of operations and reduce the efficiency of the staff. The impact is difficult to estimate, but an attempt will be made to monitor the time and effort devoted to this aspect of the operation.

4.2 Secretariat Functions

GACIAC will continue as secretariat to JSGCC and its working groups through technical and administrative support. With plans for increasing the number of working groups, the effort required to provide these support services is expected to increase during the coming year. In addition, it is anticipated that the Committee will request GACIAC to perform

special studies and surveys to provide them with information necessary to accomplish their mission of program coordination and information dissemination. This may be especially applicable in the case of working groups, where specific problems may arise requiring such support activities.

4.3 Products and Services

As discussed previously, work is progressing on a number of products and plans are being made to initiate others. Efforts will be made to develop such products and services as rapidly as possible to encourage both government and industrial participation in GACIAC.

The Guidance Law Handbook for Classical Proportional Navigation is expected to be published near the end of September, 1978. If this handbook receives wide acceptance by the G&C community and it is found that there is a demand for this type of material, a supplement has been planned that will extend the discussion to additional cases and treat other examples that are more complex than those in the current volume. The addition of computer programs to handle the cases given in the handbook would permit the user to quickly solve his own problem or vary parameters to arrive at the desired conditions rapidly. This expansion will be dependent upon the user demands.

The technology assessment on ring laser gyros is expected to be completed before the end of 1978. There appears to be considerable interest in this technology and this assessment is expected to be of considerable interest to the G&C community. Recent work has been directed toward the use of fiber optics for such inertial sensors. An attempt will be made to include this technology in the assessment, however, if this is not feasible, it provides a good subject for a companion assessment.

Plans have been made for a technology assessment on guided projectiles, and once this is finalized, this effort will be undertaken. Here again there appears to be considerable interest in this technology among the G&C community, and it represents an area where GACIAC can fulfill its mission of dissemination of technical information.

The first issue of the GACIAC Bulletin will be distributed in September. It contains a mail back form to be used in expanding the GACIAC mailing list. The Bulletin will be issued on a quarterly basis to those expressing an interest in receiving it. Its content and coverage will be expanded as it becomes known in the community and technical material and news items are received from readers.

A state-of-the-art review on characterizing IR/RF seekers was mentioned as the first SOAR to be published. There has also been consideration and discussion of a SOAR on Imaging Seekers. This topic will be pursued as a candidate for the next SOAR to be published.

As mentioned, GACIAC will provide support to the JSGCC in sponsoring a guidance and control symposium if the Committee sees a need for such a meeting. A suggestion has been made to hold workshops on specific topics of interest rather than, or in addition to, a symposium. This topic will be considered in the future and GACIAC will provide the support required to solicit papers/speakers, arrange the meeting, handle correspondence and registration, and publish proceedings.

In addition, GACIAC will continue to respond to inquiries, both technical and bibliographic and promote special studies and tasks related to the areas of interest.

All of these plans require funds to accomplish, and are dependent upon the budget available. Therefore, the promotion and marketing function discussed below is particularly important to insure that they will be fulfilled and GACIAC will accomplish its objective.

4.4 Promotion and Marketing

Increased emphasis will be placed upon promoting and marketing the products and services of GACIAC once the classified terminal is installed and full operational capabilities are achieved. The publication of the GACIAC Bulletin will provide widespread exposure to the guidance and control community and provide a basis for marketing services and products. Expressions of interest in GACIAC made through mail back forms will be followed up by forwarding the participation plan and users guide as a means to encourage participation by both industry and government.

A number of brochures describing GACIAC have already been distributed at conferences. This practice will be continued when GACIAC staff members attend conferences and visit government or industrial organizations. Promotion of this type will also be conducted by IITRI personnel when making visits or contacts at appropriate organizations. Direct contacts with perspective participants will be made where possible and where an interest in special studies or tasks is evidenced.

Further promotion through the use of specialized mailing lists will be a continuing effort. This appears to be the most cost effective method of marketing GACIAC products and services.

The installation of a toll free GACIAC telephone number has been discussed as a means for encouraging inquiries from technical personnel. The economics of this service will be pursued during the following period.

As special studies, technology assessments and state-of-the-art reviews are completed, material will become available for conference papers and journal articles. Their preparation and publication will be encouraged as a means for obtaining visibility and creditability within the technical community.

APPENDIX A

Contract Status Report

INFORMATION ANALYSIS CENTER CONTRACT STATUS REPORT	AREA TITLE	NAME OF INFORMATION ANALYSIS CENTER Guidance & Control Information Analysis Center					QUARTER ENDING		CUMULATIVE THRU	
		OUTPUT UNITS PRODUCED	MANHOURS EXPENDED			TOTAL	COSTS INCURRED		TOTAL	INCOME
			PRO FESSIONAL	NON-PRO FESSIONAL	TOTAL		DIRECT	INDIRECT		
1. ACQUISITION AND INPUT OF SOURCE INFORMATION			2,843	344	3,187	30,776	43,010	73,786		
2. DOCUMENTS ACQUIRED		859								
3. DOCUMENTS REVIEWED		316								
4. DOCUMENTS CATALOGED		601								
5. TECHNICAL INQUIRY RESPONSES PROVIDED		1	1		1	16	23	39	0	0
6. BIBLIOGRAPHIC INQUIRY RESPONSES PROVIDED		5	44	8	52	584	848	1,432	0	0
7. HANDBOOKS/DATA BOOKS COMPLETED			883	63	946	12,387	17,918	30,305	0	0
8. NEW CHARTERS/PAGES COMPLETED		7/160								
9. REVISED CHARTERS/PAGES COMPLETED		0								
10. DATA SETS COMPILED		0								
11. STATE-OF-THE-ART STUDIES COMPLETED		0								
12. CRITICAL REVIEWS AND/OR TECHNOLOGY ASSESSMENTS COMPLETED		1	24	4	28	410	595	1,005	0	0
13. CURRENT AWARENESS AND PROMOTION EFFORTS			210	37	247	2,955	3,464	6,419	0	0
14. NUMBER NEWSLETTERS AND/OR ANNOUNCEMENTS PUBLISHED		1								
15. NUMBER MEETINGS, CONFERENCES ETC SUPPORTED		10								
16. OTHER Tsg Development & JSGCC Support		-	1,390	300	1,690	23,551	33,937	57,488	0	0
17. MANAGEMENT AND SUPPORT			387	60	447	11,643	14,710	26,353		
18. UNASSIGNABLE INDIRECT COSTS										
19. TOTAL			5,782	816	6,598	82,322	114,505	196,827	0	0

Appendix (1)

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