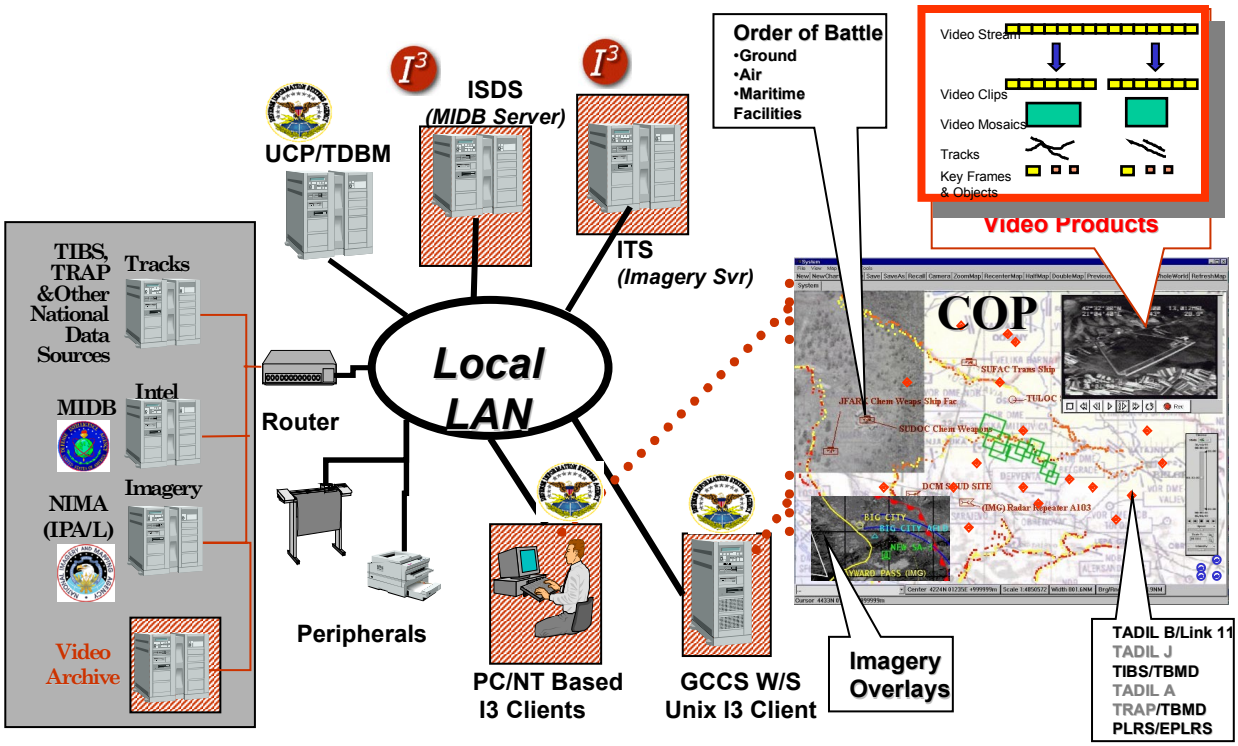
Intelligence Support to Command and Control:
The Integration of Imagery and Intelligence within GCCS



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1. Introduction.

In the last few years there has been a rapidly evolving architecture, driven by warfighter requirements, which is forcing the merger of traditional intelligence production procedures with the operational warfighter Command and Control (C2) mission. This paper will discuss the requirements driving this merger of intelligence and C2, the concepts and processes used, and describe the software being fielded by DISA and other agencies which makes Intelligence support for C2 possible.

Command and Control (C2) is defined as the capability to move military forces on the globe at anytime and to provide those forces with the information and direction needed to complete their mission. DISA builds, fields and maintains the C2 system used by operational warfighters at various echelons of command from the national level command authorities down to the Joint Task Force (JTF) level. This system is the Global Command and Control System (GCCS).

In order to perform effective C2, the warfighter must be able to monitor, review and revise the strategic movement of forces, to develop target lists, to analyze enemy capabilities, enemy vulnerabilities, and enemy intent. As part of the execution phase of any operation, C2 involves maintaining and monitoring enemy order of battle as the operation unfolds and accessing bomb damage during and after engagement.

One of the most important tools in C2, and a central capability of the GCCS system, is the ability to display all relevant information correlated into a single picture of the battlefield. Joint Vision 2010 (JV2010) identifies this capability as BattleSpace Visualization. Within GCCS, BattleSpace Visualization is embodied within the Common Operational Picture (COP).

In the first versions of GCCS to be fielded, the COP (see Figure 1) consisted of information required for C2 situational awareness. This included Near Real Time (NRT) information from friendly forces as well as contact reports

on enemy forces collected through various methods and distributed by systems such as Tactical Receiving and Planning (TRAP), Tactical Data Dissemination System (TDDS), Tactical Air Defense Integrated Link (TADIL), Theater Ballistic Missile Defense (TBMD) and Position Reporting and Location System (PLRS).

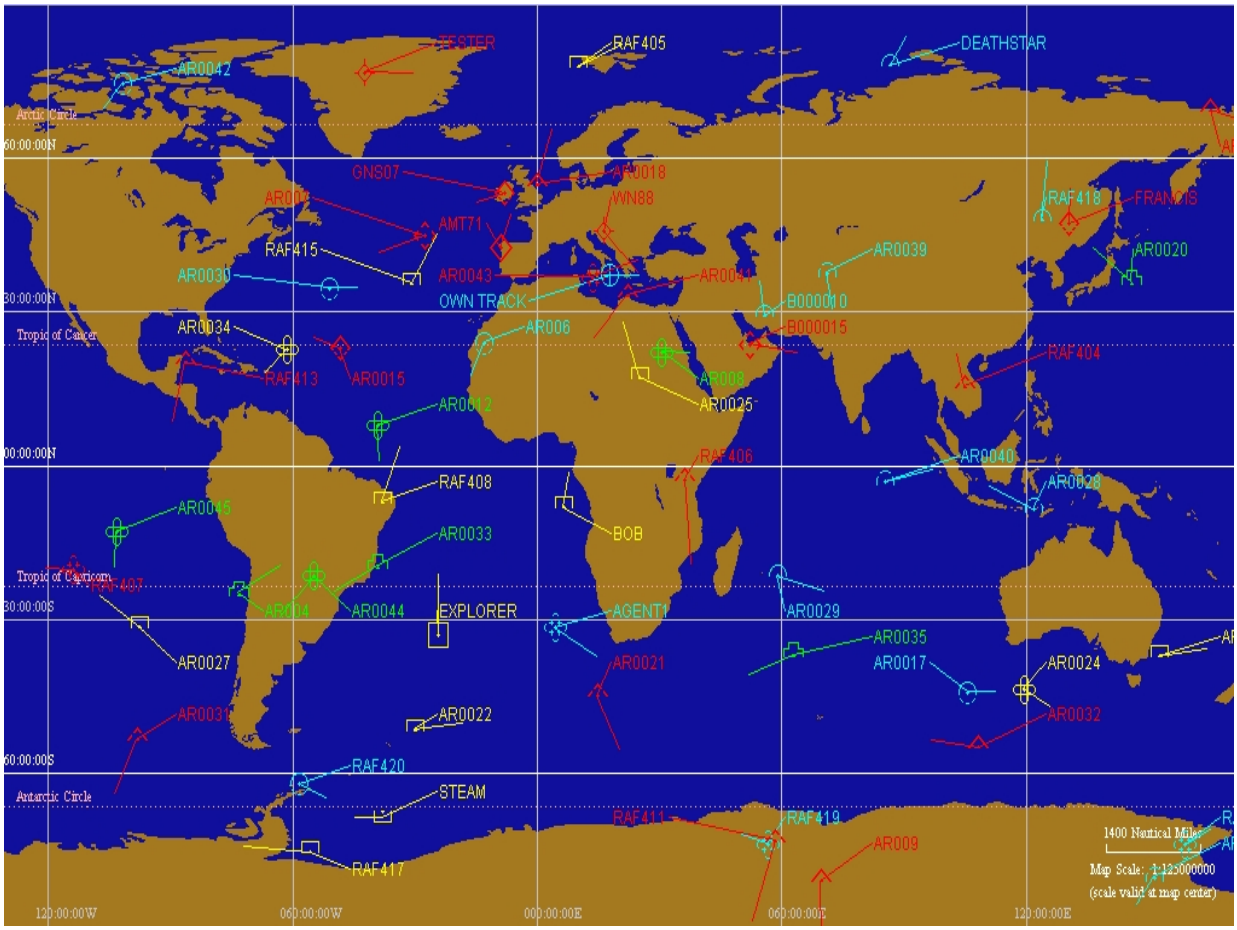

FIGURE 1 –Traditional COP Display

As the COP became widely accepted across all echelons of command, it became clear that it was a tool that could be used for more than just the Situational Awareness mission of C2, and could grow into a battlefield management tool. The COP became recognized as a vital tool to support the C2 commander's operational planning and execution mission. However, in order to effectively execute these missions, the C2 commander required access to timely, relevant intelligence information to augment the existing situational awareness data portrayed by the COP.

In 1995, the Joint Staff validated the requirement for inserting intelligence data, to include imagery, into GCCS and tasked DISA with developing the capability to integrate this intelligence data into GCCS. From this initial requirement statement, this concept of intelligence support for C2 has grown into a focussed effort, guided by the Joint Staff Intelligence Functional Working Group (IFWG). The IFWG has begun to define a National level intelligence Concept of Operations (CONOPS) for GCCS. Two of the primary objectives of this CONOPS is to provide intelligence information via GCCS and to blend intelligence information into mission planning and execution processes in order to characterize current and future states of the natural environment of the battlespace and its influence upon friendly and enemy capabilities.

DISA began the process of inserting intelligence into the GCCS system by initiating a project called MIG (Modernized Intelligence Database (MIDB) and Image Product Archives (IPA)) for GCCS. MIG allowed imagery and intelligence products residing in the National Imagery and Mapping Agency (NIMA) IPA and in the Defense Intelligence Agency's (DIA) MIDB data warehouses to be accessed by GCCS users and merged into the COP. MIG built on the existing tools within the Navy's Joint Maritime Information System. The MIG applications were demonstrated in Joint Warrior Interoperability Demonstration (JWID) 1996 and received the JWID Golden Nugget award. The ability to bring intelligence into the hands of the C2 community became very quickly accepted as an important new operational warfighter tool and helped to push forward the concept of how intelligence could directly support the operational mission. Figure 2 illustrates the data flow and processes which the MIG effort put in place within GCCS.

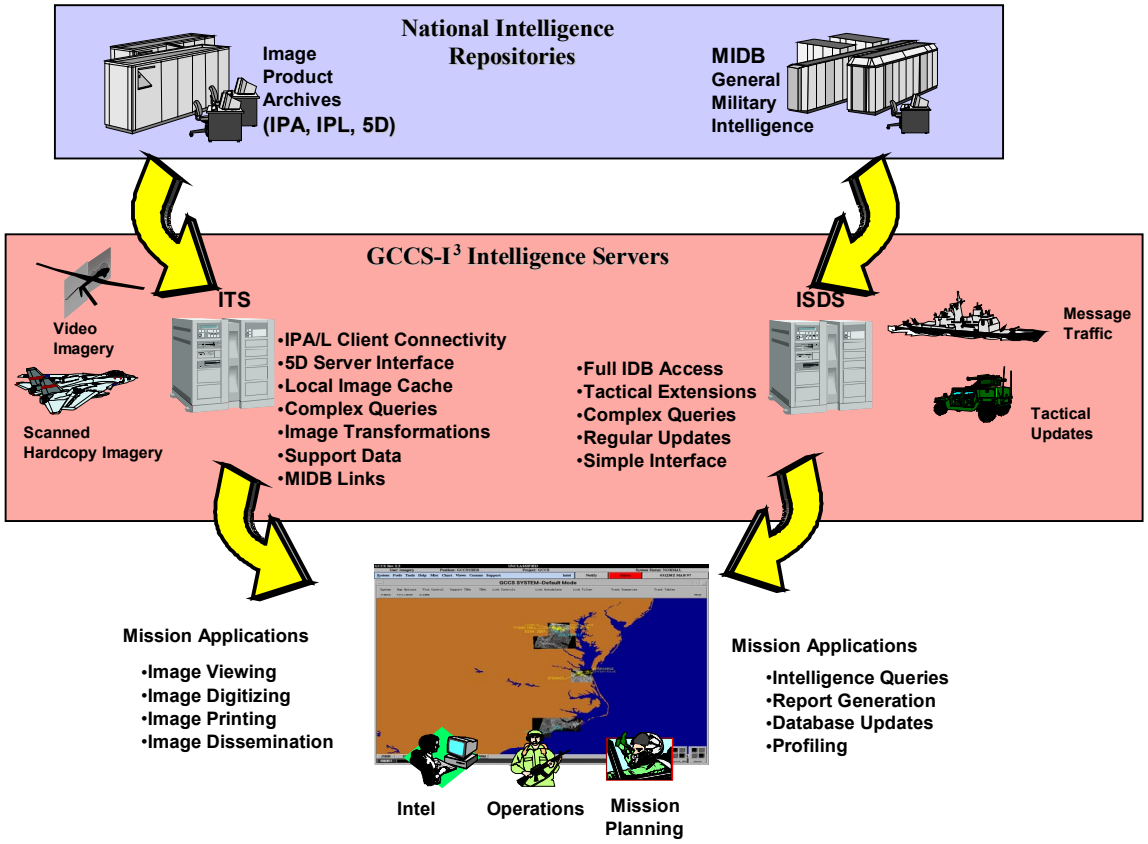

FIGURE 2 – Providing Intelligence to GCCS

Today, the set of tools prototyped under the MIG project have been named GCCS-I3 (Integrated Imagery and Intelligence). An Executive Agency and Joint Program Office has been established to build, maintain and field these tools for use within DISA's C2 system, GCCS, as well as in the Joint Service C2 systems. Additionally, the need for timely intelligence in support of C2 has been recognized by intelligence production agencies such as DIA and NIMA. Recently both organizations have started initiatives to provide direct support to the GCCS-I3 tools by producing and distributing intelligence in a form that is directly accessible by the C2 operators using GCCS-I3.

The Joint Staff IFWG vision for intelligence functions within GCCS, as stated below, is becoming a reality due to GCCS-I3.

> GCCS will be a key component of the commander's intelligence fusion architecture. GCCS will provide intelligence tailored to user needs. It will integrate intelligence from key Service intelligence

and C4I systems (such as All-Source Analysis System (ASAS), Joint Maritime Command Information System (JMCIS), Theater Battle Management Core System (TBMCS), Intelligence Analysis System (IAS), SOCRATES and Joint Deployable Intelligence Support System (JDISS)), as well as theater and national sources. GCCS will provide tools that JTF and below intelligence analysts can use to rapidly assess, correlate and deconflict ambiguous information.

2. How GCCS-I3 Provides Intelligence Support to C2

As an outgrowth of the MIG/GCCS-I3 evolution, the community has recognized a new paradigm for delivery of intelligence within the operational planning and execution environment. Intelligence support for C2 within GCCS is provided today using the GCCS-I3 tool set and an evolving CONOPS that enables the national intelligence production agencies such as DIA and NIMA to provide intelligence products that directly feed GCCS-I3.

GCCS-I3 is a tightly integrated set of 44 intelligence applications and tools intended to provide *integrated* intelligence support to the ***GCCS*** COP. The GCCS-I3 applications build the *intelligence portion of the COP* by integrating imagery with intelligence reference data (MIDB, Characteristics and Performance (C&P)) and with the tactical track picture. GCCS-I3 provides C2 users the capability to receive, process, display and maintain current *geolocational info on threat and neutral land, sea, and air forces* integrated with intelligence, imagery, and environmental data in multi-media formats.

GCCS-I3 adds two data servers to the GCCS system in order to manage the access of and interaction with intelligence data. General Military Intelligence (GMI) data, such as that which resides in DIAs MIDB, is managed within the GCCS-I3 ISDS. The ISDS houses a local copy of the MIDB as well as managing other intelligence related databases such as a C&P database. Imagery and Imagery Products within GCCS-I3 are managed by the Imagery Transformation Services (ITS) server. The ITS provides GCCS users a centralized, managed reachback capability for accessing imagery from the large Imagery servers such as 5D and IPA/IPL, as well as tools to maintain a local cache of imagery and imagery products. Figure 3 illustrates the data flow and interaction among these components.

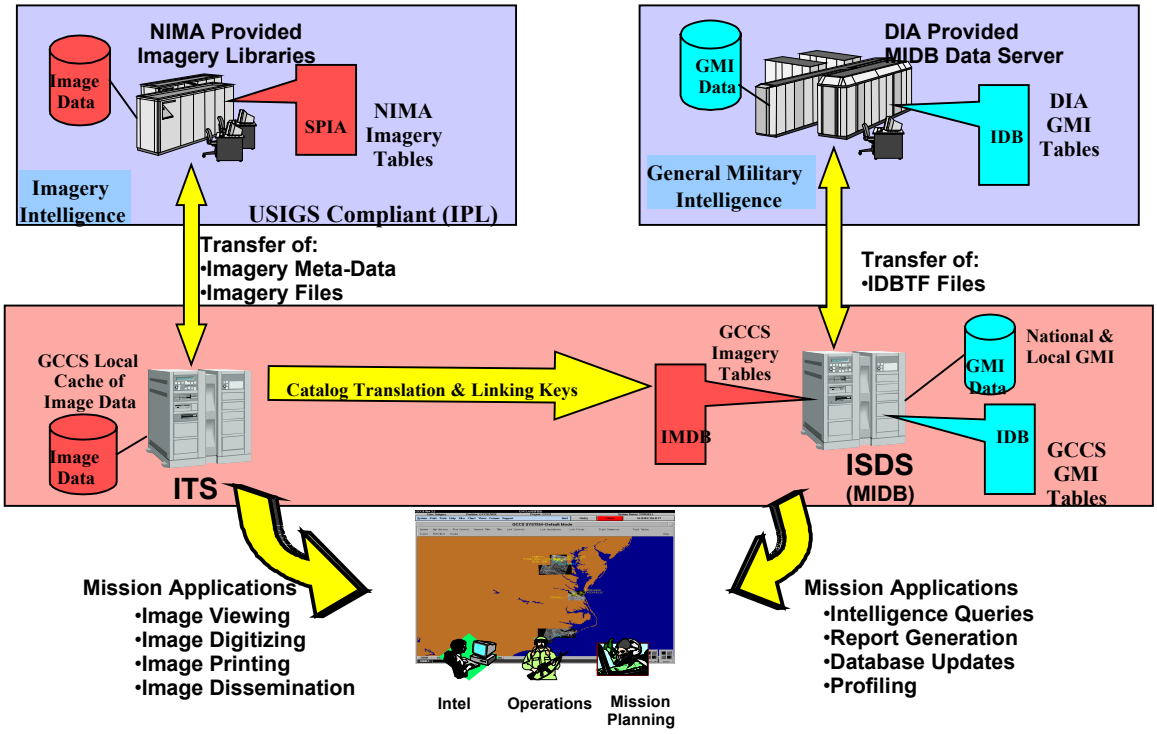

FIGURE 3-Typical Flow of Imagery and Intelligence in GCCS-I3

In order to make the Imagery and Intelligence data useful within the context of the C2 environment, a third factor is needed. This is the integration, not only across intelligence products (i.e. imagery integrated with intelligence reports) but the integration of intelligence with the rest of the C2 data and processes. Enabling the warfighter to perform timely and effective C2 requires a tight integration of intelligence information into the COP, thus enhancing the BattleSpace Visualization. In a practical sense, what this integration means is that the relevant imagery and intelligence needs to be accessible by the user with one or two mouse clicks from within the COP display. The GCCS-I3 tools, by using the Defense Information Infrastructure Common Operating Environment (DII COE) and Shared Data Environment (SHADE) standards, provide this level of data integration and management. Figure 4 shows how this tight integration of intelligence helps to support many of the missions of the C2 operational commander.

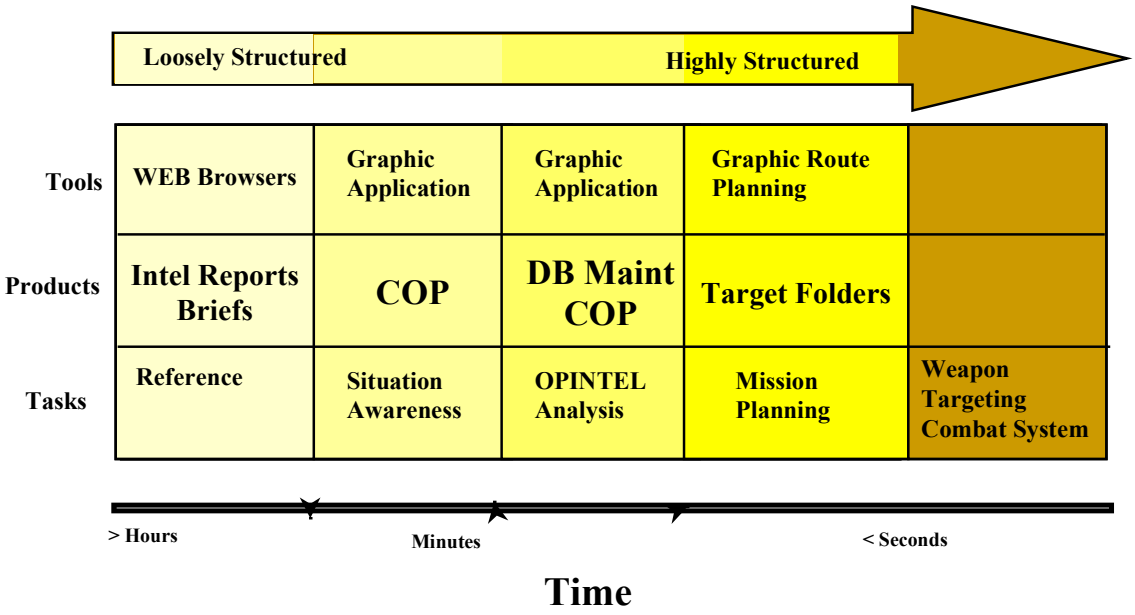

FIGURE 4-Spectrum of Data Requirements:
The Importance of Structured Intel Databases

2.1 GCCS-I3 Intelligence Shared Data Server (ISDS)

The ISDS in GCCS-I3 is a SHADE compliant Relational Database Management System (RDBMS) which hosts MIDB and other related intelligence databases. The ISDS can be accessed using GCCS-I3 intelligence applications. Typical GCCS-I3 sites are set up with a baseload of the National MIDB from DIA or their servicing CINC. Today, DIA or the servicing CINC maintains the current version of the national database. The intelligence production is performed directly on the agency's MIDB server, typically at the Secret Compartmented Information (SCI) security level. Once the new intelligence data is validated, the supporting intelligence production center for that site (DIA or the servicing CINC) will package the updates into a bulk update package called an Intelligence Database Transaction Format (IDBTF) file. These files are periodically posted to web servers and the GCCS-I3 ISDS can download these files and update the local copy of MIDB. This update cycle allows GCCS-I3 sites to have a database that is current within hours to days of the National view.

In addition to the National intelligence view, the ISDS allows the GCCS site to maintain their own local records to augment the national intelligence data. This local view is very valuable to the C2 commanders. The local view

typically includes tactical data collected by the command and sub-ordinate components. This information can be more timely than the national information and may provide more specific detail than the national overview can provide. The ability to interact with the local view while also having the validated national view available makes it possible for a site to manage the local situation and still be able to interact with higher levels of command that may not have the local data.

This process of locally maintaining an MIDB as well as tactical updates to the MIDB is not new. Most C2 and related systems, including mission-planning systems, have done this for years. The problem in the past has been that at a single site there typically were several copies of an Intelligence Database, usually an MIDB variant, each maintained independently and updated on different cycles. This created a big system administration and database maintenance burden for the site as well as leading to less accurate information for the decision-makers. Because of the unsynchronized update cycles for the MIDB, many times there would be conflicting information across the multiple databases. One of the biggest successes of the GCCS-I3 approach has been the consolidation of these multiple MIDB servers into a single SHADE compliant MIDB. With the implementation of GCCS-I3 at the C2 sites, commands have agreed to eliminate the other MIDB servers in the various systems and to have these systems and applications all use the single copy of MIDB maintained in ISDS. This greatly reduces the system administration and database administration demands on a site and improves data accuracy since all the various systems are getting their intelligence from the same server. This success has been enabled by the SHADE standards pioneered by DISA. See Volume 1, Issue 2, of the DISA Knowledge Net for more details on SHADE.

In addition to standardized MIDB and access methods, GCCS-I3 provides tools for the operator to view, edit and use the GMI data as well as to merge the GMI data with the COP. The key application for merging the GMI intelligence data with the COP is VADIR (Visual Access and Display of Intelligence Reports). VADIR provides the ability to use the COP geospatial display to drive an MIDB query and to graphically display the MIDB intelligence data on the COP. (See figure 5)

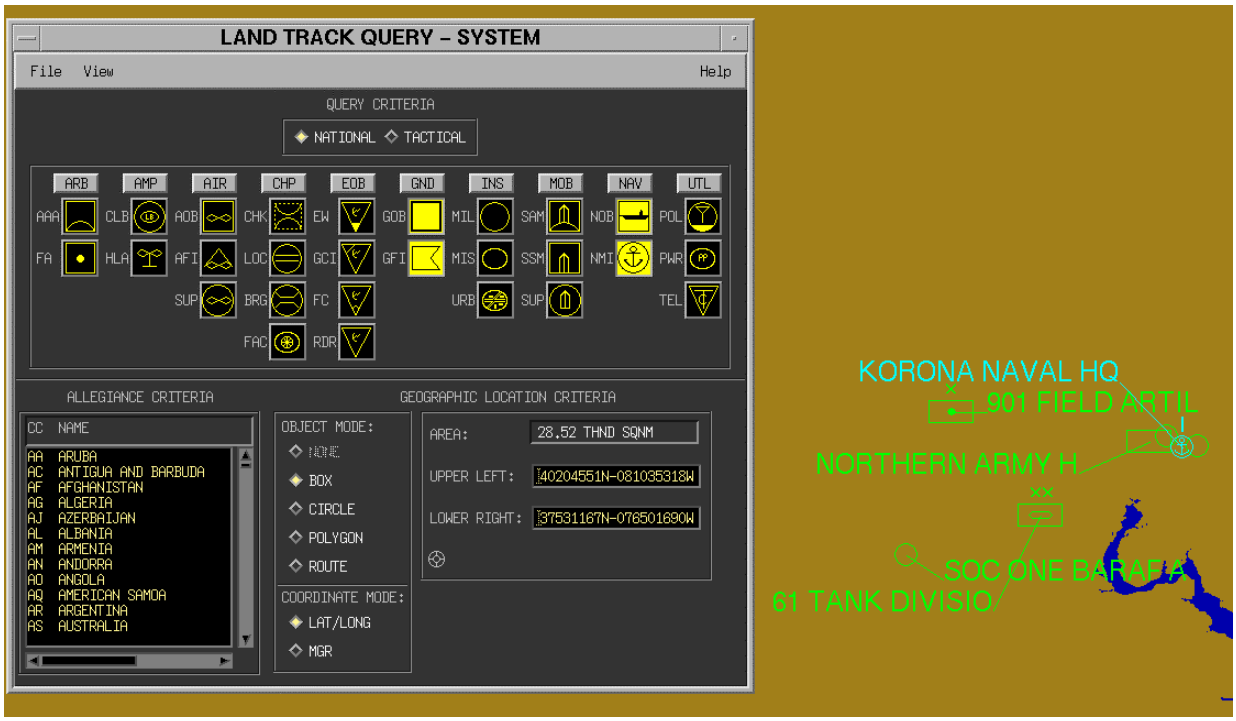

FIGURE 5-VADIR: Graphical Query and Display of MIDB

By displaying MIDB information such as the enemy Order Of Battle (OOB) in the COP, the C2 user can visualize the intelligence on enemy forces within the context of the near real time Battlefield situation.

The displayed symbols generated by VADIR are active links (see Figure 6) that provide the user point and click access to the underlying intelligence reports. The data available with a few mouse clicks includes not only the national intelligence reports but also all the tactical data maintained within the local view tables of the command's the ISDS.

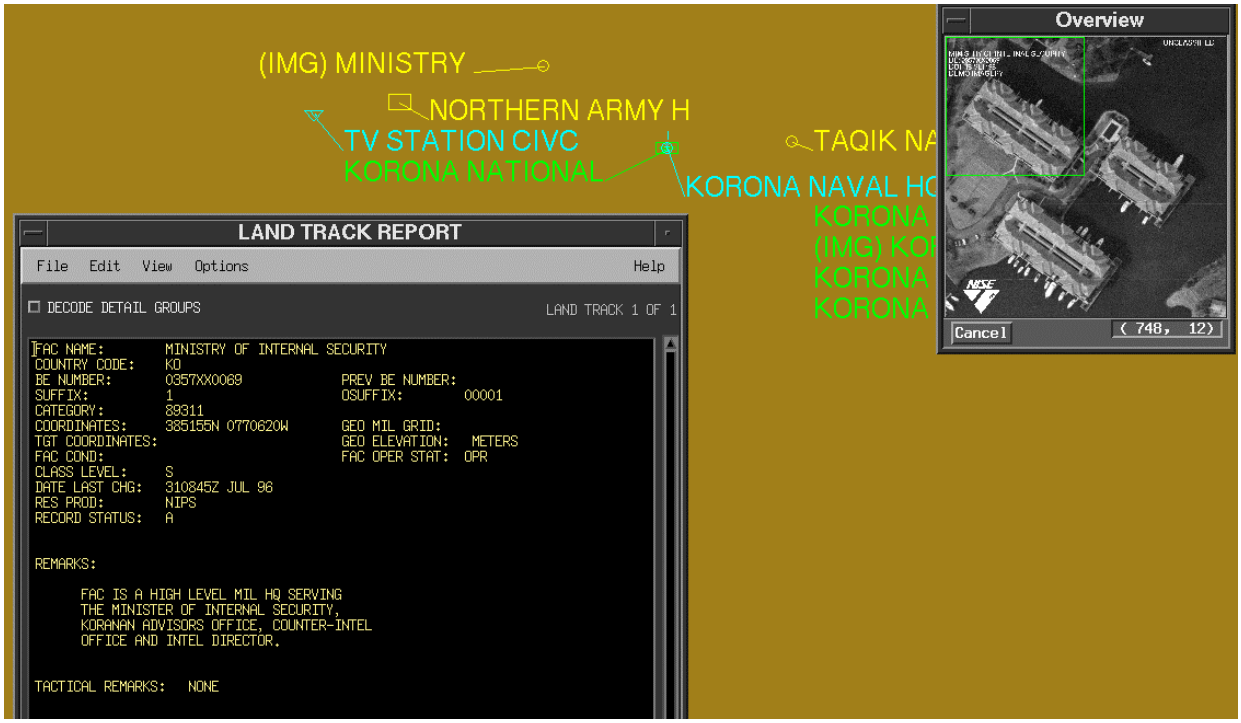

FIGURE 6–VADIR Drill Down to Intelligence Reports and Related Data from the COP

2.2 GCCS-I3 ITS support for Imagery:

The Imagery Transformation Services (ITS) server is a software application that provides imagery access and brokering services as well as local imagery management and transformation services for the GCCS-I3 imagery applications.

Imagery, unlike the textual database records housed within MIDB, consists of huge (Mega-Bytes to Giga-Bytes) data files. It is generally not efficient or practical to duplicate the storage of relevant imagery at each GCCS site. The ITS server is designed to provide a site with tools to manage the trade off between local storage of imagery and remote access to existing large imagery warehouses like 5D and IPL.

Just as DIA provides and maintains the large data warehouse for GMI data, NIMA provides the software and systems for warehousing of imagery and imagery products. National agencies and CINC level commands like the Joint

Intelligence Centers (JIC) and Joint Analysis Centers (JACs) populate these large imagery warehouses with analyzed imagery and imagery products. The ITS software within GCCS-I3 gives the C2 user the ability to browse and query the holdings of these imagery warehouses and to access products in a format useable for their mission.

The ITS brokering services enable GCCS sites to build a local Meta-Catalog for imagery. This Meta-Catalog provides an index into the imagery holdings of not only the local ITS server, but the holdings of all the remote imagery servers, such as 5D, IPL, and other ITS servers. Each site can customize the Meta-Catalog so that it only maintains information from remote servers that have data relative to a site's specific mission area. This Meta-Catalog is stored as a database within the ISDS shared server. This is another example of the resource savings enabled by the SHADE standards.

The Meta-Catalog serves several important functions within the GCCS-I3 architecture and is a very powerful tool for the C2 user. First of all, the Meta-Catalog provides a central index that allows the client applications and users of GCCS-I3 to find available imagery. The Meta-Catalog becomes a "one-stop Shopping" service for the GCCS imagery users. Without the Meta-Catalog, users would be required to query each remote imagery server individually, collect all the results and manually sort through the results to find the imagery they need.

Besides just providing a list of available images, the Meta-Catalog also includes important imagery meta-data (data about the imagery data).

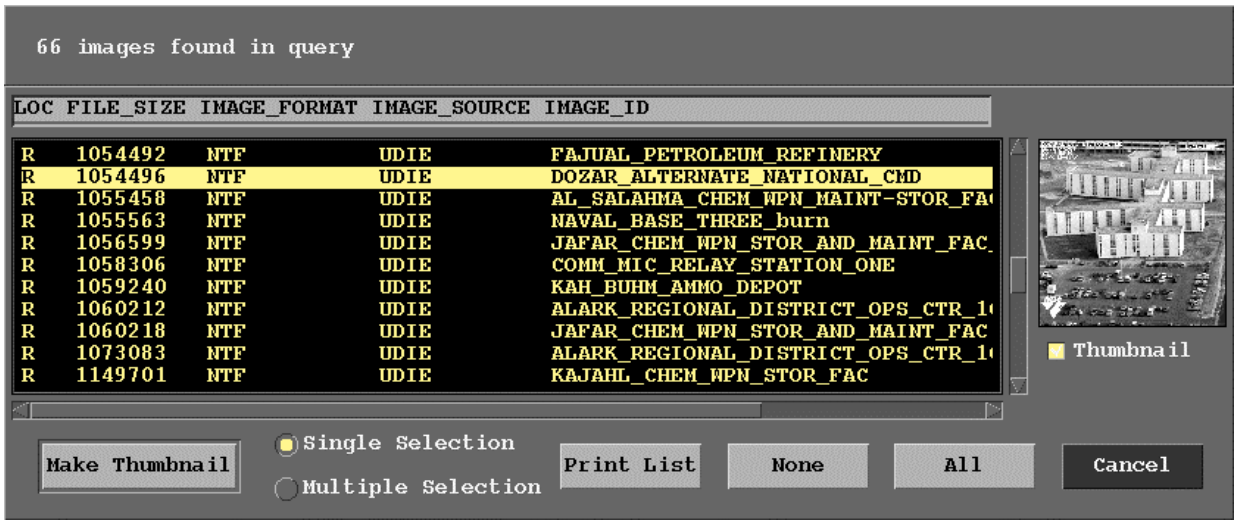

FIGURE 7-ITS Catalog List: Imagery Meta-data and Thumbnail Display

This imagery meta-data includes things such as Target Id (BE#), imagery file size, imagery collection time, geographic area covered by the image and a thumbnail image, which is a low-resolution overview of the image itself. Figure 7 shows the results of an imagery query and displays some of these meta-data elements. This image meta-data is used within GCCS-I3 for a number of purposes. The meta-data is sufficient for users to perform local queries and sort through the long list of available imagery to find the select few that meet their needs. The thumbnail in the meta-data allows a user to preview an image before reaching back to a server to retrieve it.

One of the most powerful functions of the imagery meta-data is for integrating imagery with intelligence information. Imagery meta-data is essential to the efficient use of imagery, especially for some of the time critical missions of C2. Having structured information about the imagery allows RDMS systems to appropriately catalog the images for retrieval and enables automated software processes to be used to integrate imagery with other information within GCCS-I3. For example, software processes are used within GCCS-I3 to automatically associate images with intelligence reports and other intelligence data within the MIDB. Key meta-data fields such as BE#, Country Code, Facility Id and Equipment code are used to create these cross-references in the database. The association of imagery to intelligence provides users with a consolidated view of the available information about a particular area of interest, facility or piece of equipment. For example, while reviewing an intelligence report, a user will be given a complete list of all related imagery by virtue of the cross-references in the database. Similarly, while viewing an image, a user will have a listing of all related intelligence reports for that image. This linking of the imagery and intelligence data is one of the most powerful services provided by GCCS-I3 and the integrated architecture. Figure 7 shows an image together with the displayed intelligence report. This demonstrates how the imagery and intelligence linking function permits a user to view all associated information about an item of interest.

The final use of the Meta-Catalog and associated imagery meta-data is to enable a user to visualize imagery within the context of the COP (See figure8). The meta-data contained in the Meta-Catalog contains sufficient information for the system to plot footprints portraying the ground coverage on the COP for all indexed images. This function works for images held locally, as well as for images that still reside on remote servers. It permits a user to identify which images cover an area of interest, as well as to see gaps within the imagery coverage. This can all be done without physically having a copy of the imagery on the local server.

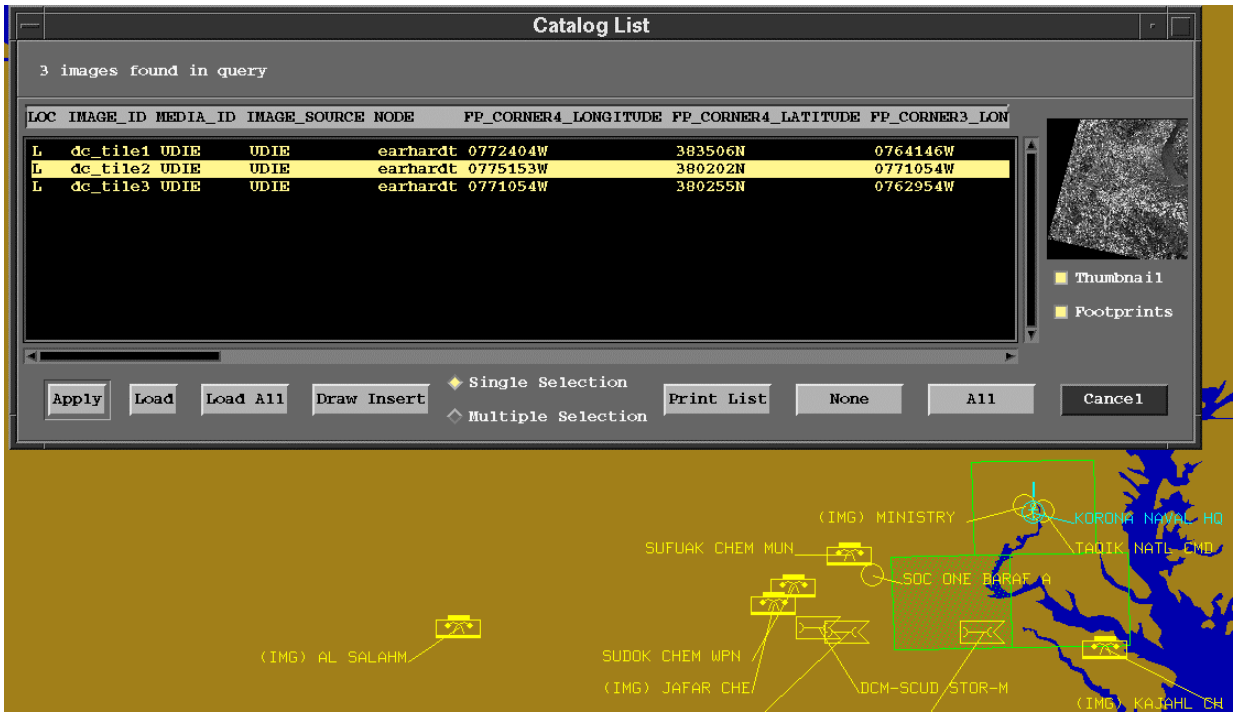

FIGURE 8-Image Manager: Image Footprint Display on the COP

As illustrated by these examples, the ITS Meta-Catalog allows the C2 user to perform a variety of important functions using only the lightweight meta-data and without having to maintain a local copy of the actual image. ITS provides the ability to retrieve the full image from remote servers when needed as well as to maintain a local cache of important imagery including tactically/site collected imagery.

The ability of ITS to support both local and remote storage of imagery provides a great deal of flexibility to system designers as well as for a site when developing their local

CONOPS. The ITS tools permit the trade-off between communications bandwidth and local disk storage to be managed at each site. Sites with co-located imagery warehouses, such as a CINC with its own IPL, or sites with high bandwidth communications, can keep all imagery on the large servers and only use ITS for retrieval when needed. Alternately, sites with limited bandwidth may decide to increase their local storage capacity and maintain more images within the local server. Keeping images on the local server will provide more timely access for users and will conserve bandwidth since images can be pulled once, cached locally, and then accessed from the local server by many users.

In addition to the imagery brokering services, ITS provides many common image manipulation and transformation services to support the C2 user. By centralizing much of the imagery processing and automating many of the common imagery tasks, GCCS-I3 enables the C2 user, unskilled in the area of image analysis, to quickly access imagery for C2 functions. The types of functions managed by ITS include imagery scaling (re-sizing) and rotation, image file format conversion (Translate from NITF to GIF, TIFF to JPEG, etc) and image warping and projection services.

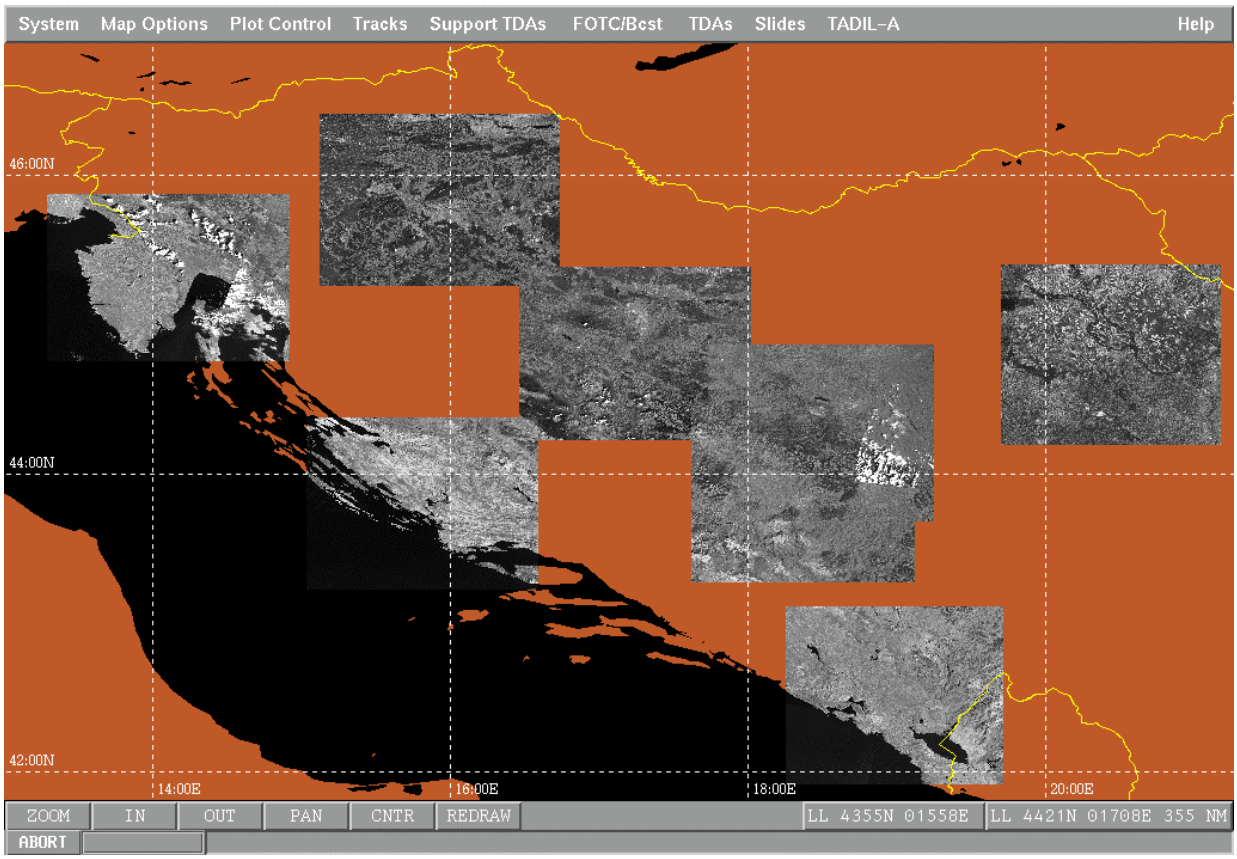

FIGURE 9-Image Manager: Imagery Tiled into the COP

The file format transformation services can simplify simple tasks such as pulling an NITF image into PowerPoint briefings. The Imagery scaling, warping and projection services allow images to be plotted directly within the COP display (See figure 9).

3. Intelligence Agency Systems and Support to C2 and GCCS-I3:

3.1 Defense Intelligence Agency:

One of the key sources of intelligence data used by the C2 community is the General Military Intelligence produced by DIA and housed within their MIDB system. MIDB has become foundation of joint and service intelligence interoperability. Through its incorporation into GCCS-I3, MIDB has become an essential part of the COP and facilitates the blending of intelligence and operations.

The wide acceptance of GCCS-I3 and the embedded MIDB, has led DIA to recognize the need to closely align their intelligence production and distribution process with GCCS-

I3 in order to provide timely intelligence in support of C2. Intelligence production at DIA and at delegated producer sites such as the JICs and JACs, is typically done at the SCI security level. These Department of Defense Intelligence Information Systems (DODIIS) sites use DIA provided MIDB systems to produce the national GMI intelligence picture. The C2 user primarily works on Secret level security systems and requires intelligence data to be accessible at that security level. In order to provide timely intelligence support, DIA understands that the need to efficiently move finished intelligence from the SCI to the Secret level systems is a key to more closely aligning their production systems with GCCS-I3.

In support of the C2 needs, DIA has been working closely with the GCCS-I3 ISDS team. DIA has agreed to establish and maintain a Secret level MIDB system to support GCCS-I3 and to improve their ability to export intelligence from their all-source SCI systems to the Secret level domain. This effort is a big step forward in getting more direct support from the Intelligence producers to the C2 users.

Further improvements to this process are coming as DIA moves to a database replication capability. Database replication permits updates to a master database server to be almost instantly replicated to subordinate database servers. DIA is working closely with the GCCS-I3 team to provide the ability to replicate from DIA MIDB systems directly into GCCS-I3 ISDS servers. This process, when mature, will replace the current IDBTF process. The advantage to the C2 user will be that the update cycle for the GCCS-I3 MIDB would go from the current timeline of hours to days to a an update cycle of minutes to hours. This will make very timely intelligence available at the C2 user desktop.

This evolving process will foster a much closer bond between the Intelligence producers and the C2 users. Over time it is sure to create significant changes in the way intelligence data is processed as well as how the C2 community uses it to do their job.

3.2 National Imagery and Mapping Agency (NIMA):

NIMA develops, fields and maintains the imagery data warehouses and related software in the field today. The Primary systems are 5D and IPA/IPL. These systems provide

commands and agencies with imagery data storage and management tools. As part of the evolving USIGS (United States Imagery & Geospatial Standards) architecture, NIMA will be replacing the currently fielded archives with a series of modernized Imagery Libraries which provide a hierarchical storage capability ranging from the National to the Tactical level. These libraries will scale from the next generation of the IPL up to the National Image Library (NIL). IPL 2.1 is envisioned to be deployed to commands and agencies at the CINC level and below (JTF and below). The Command Image Libraries will be very large image data warehouses deployed at the CINC/JIC level for theater wide support. The National Image Library will be a central repository of imagery at the National Command level and will provide storage for at least 5 years of imagery data.

The GCCS-I3 ITS currently acts as a broker for the C2 users in accessing the currently fielded 5D and IPL systems as described in paragraph 2.2. NIMA has been working closely with the GCCS-I3 imagery development team to ensure that the latest version of IPL, as well as the future NIMA libraries, will maintain the interface to GCCS-I3. NIMA, as an agency, is committed to support for GCCS-I3 and understands that this is the way to provide timely imagery intelligence support to the C2 users. Recently they have established a NIMA/GCCS Integration Board (NGIB). This is s senior level management board within NIMA that helps the agency to focus on GCCS support and provides for visibility of GCCS and GCCS-I3 within the agency.

Another rapidly evolving technology area where NIMA and the GCCS-I3 community have been cooperating is in the Motion Imagery domain. This year NIMA has established a Motion Imagery Program Office. This office is focused on the production, processing and dissemination standards and software for Motion Imagery. Motion Imagery is defined as imagery which has an "in scene" update rate of 1 Hz or greater. The most prevalent example of this type of imagery is video, such as that collected by Unmanned Aerial Vehicles (UAV) systems like the Predator. NIMA's efforts to establish meta-data standards for motion imagery have greatly improved the usability of video within GCCS-I3 and the C2 community.

4. Evolving Enhancements to Intelligence Support for C2:

The future of Intelligence support to C2 will improve as GCCS-I3 is adopted across the C2 and intelligence communities. The migration of more and more of the intelligence systems to using the DII COE standards and the SHADE data standards will be a big enabler in this area as well. One example of this is a DISA SHADE effort called JCC (Joint Common Catalog). This effort was fully described in the Volume 1 issue 2 of the DISA Knowledge Net. As Agencies such as NIMA adopt the JCC structure for indexing their data it will make their intelligence products more visible and easily accessible by the C2 user community.

4.1 Information Dissemination Management

Another evolving technology that DISA is fielding and which will improve Intelligence support to C2 is Information Dissemination Management (IDM). In addition to providing consolidated efficient usage of existing communications resources, IDM will provide powerful information profiling tools. These tools will empower the C2 user to request and have delivered timely intelligence from many sources. The IDM approach promises to provide the right information at the right time and this will be a critical capability as intelligence data becomes more accessible.

4.2 Near Real Time UAV Video

Building on the video meta-data standards created by NIMA, the DISA Center for Advanced Technology (CAT) has developed and fielded a Motion Imagery Archive at the Pentagon Joint Staff Support Center (JSSC). In addition to the Motion Imagery Archive, DISA-CAT developed extension to GCCS-I3 that support the access and display of the motion imagery products. The Motion Imagery Archive is specifically aimed at providing Predator UAV video products directly to GCCS-I3 users. This pilot service will be maintained until the capability can be transitioned into GCCS-I3 baseline software. The enhanced version of GCCS-I3, which includes these video tools, has been approved as a participant in JWID 00. This enhanced version of GCCS-I3 integrates near real time video and video meta-data from the Predator UAV into the COP (see figure 10). This fusion of video with the operational data is possible because of the meta-data associated with the video. This meta-data is based on standards developed by NIMA. NIMA is working closely with DISA to support the JWID 00 demonstration. In the future, NIMA libraries will be able to store and disseminate video,

as well as imagery, and hopefully they will build on the capabilities already developed within GCCS-I3. This joint effort is another example of how NIMA as an intelligence agency can provide support to the C2 mission.

FIGURE 10–Video and Video Meta-data Displayed on the COP

4.3 Tactical and Related Data Services

One of the most promising capabilities being developed for GCCS, which will provide an even tighter coupling between Intelligence and C2, is the Tactical and Related Data Services. The Tactical and Related Data Services will provide the ability to automatically associate intelligence products such as MIDB reports and imagery to with the traditional COP track data.

In the initial implementation, the Tactical and Related Data Services (TRDS) will help to deconflict the COP display. In today's GCCS system it is possible to have two separate symbols displayed which refer to the same entity, one reported by the NRT track system and one reported by the GMI database. With TRDS, these reports will be associated before display and the GCCS COP will have the sophistication needed to only plot one symbol on the display. The references back to all of the databases with related information for each entity will be maintained. This will allow the user the ability to drill down and review all reports about that object, both intelligence and C2 related. Future enhancements to the TRDS capability will allow the intelligence information associated with COP tracks to be disseminated over Wide Area Networks, such as SIPRNET, using the COP distribution and synchronization tools. This will provide any users who display the COP with the ability to drill down and access intelligence data related to COP tracks. This will be possible even for sites that do not have a co-located intelligence database. The TRDS tools will provide visibility and access of intelligence data to an even wider C2 audience.

5. SUMMARY:

The GCCS-I3 tools, which allow the intelligence, support to C2 described in this paper have been fielded at select sites by DISA and fielded more widely in the various services C2 systems.

The US Central Command (CENTCOM) has served as the beta test site for DISA and GCCS-I3 for the past several years. As an operational command using the tools, they have helped develop a Concept of Operations and have put in place an architecture which links Intelligence and C2 operations throughout their command structure. Figure 11 illustrates the architecture CENTCOM is putting in place to use GCCS-I3 as the bridge between Intelligence and C2 operations.

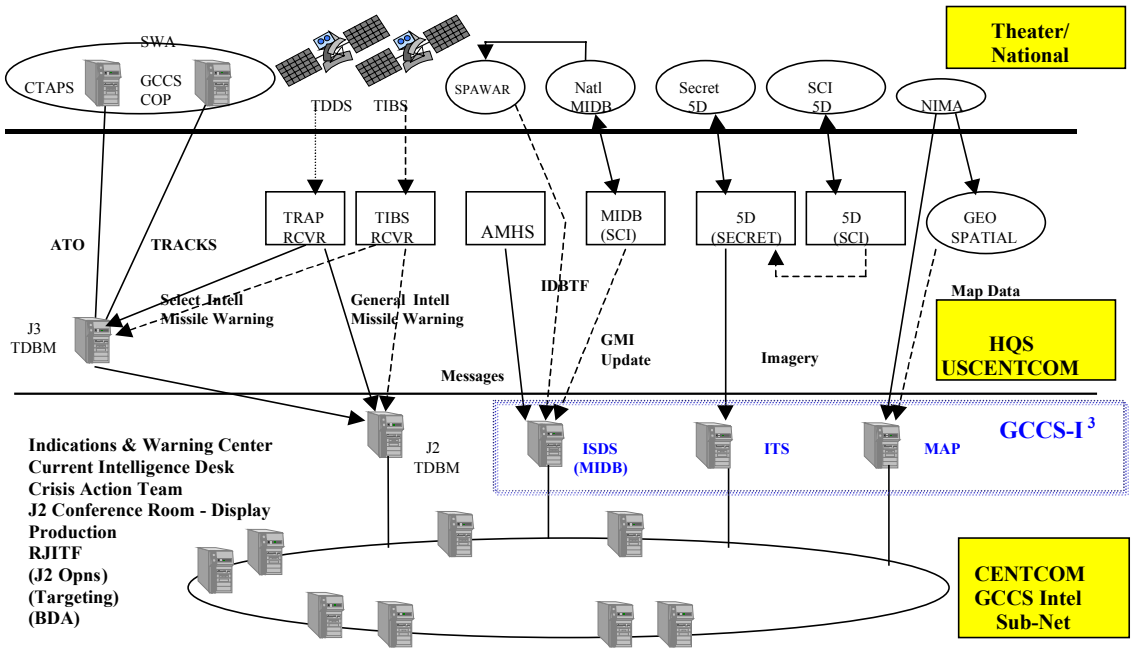

Figure 11 – CENTCOM GCCS-I3 Architecture

In addition to the fielding at CENTCOM, GCCS-I3 is getting wide use across the service C2 systems. The Navy has the GCCS-I3 tools in the field as part of their GCCS-M system on all of the Command and Control ships. The Air Force has fielded GCCS-I3 as part of the TBMCS system at numerous sites with 80 servers and 300 clients currently operational. The Marines Corps has been fielding the GCCS-I3 software with their Intelligence Analysis System (IAS).

DISA is scheduled to begin deployment of GCCS-I3 in June 2000. This fielding schedule will provide the GCCS-I3 applications to all the U&S CINCs as part of the existing GCCS infrastructure. DISA is hopeful that this capability will be operational at all of the major CINC sites by the end of this year.