which information is passed to and from reach-back support elements. During OEF it was noted that supply/maintenance elements experienced untimely status updates on requirements passed to CONUS support elements. Discussions with cognizant personnel disclosed two contributing factors.

One was the number of data transfer nodes that were encountered when passing data to reach back support elements. Delays of up to seven days were common in getting status updates on requisitions submitted. This was primarily due to the number of material management and stockage point entities within the supply chain (i.e. Deployed Support Unit, SASSY Management Unit, Defense Logistics Agency, etc.). As each element within the chain receives requirements, they are screened against on hand stocks and, if not available, passed on to the next stockage point or material manager. This is accomplished electronically in most cases; however, elements process the requirements on regularly scheduled cycles, which may add time delays as material requisitions pass through the system.

Another contributing factor was limited access to the SIPRNET by rear support elements. Routine transmission of supply/maintenance data was usually very good until Ops Condition 2/Information Security condition "Bravo" was implemented. These conditions were implemented in order to ensure security of information being transmitted. Once implemented, transmission of data was accomplished by SIPRNET vice NIPRNET. Personnel reported that reach back elements would have to routinely go to higher headquarters to access and download data because of the limited access to the SIPRNET. As a result, substantial delays in transmission of vital supply status and maintenance management data were experienced.

COMMUNICATIONS

There were consistent reports on the lack of sufficient mobile satellite communications capabilities within the MAGTFs and TF-58. Current systems require stopping movement and setting up equipment, whereas the required operational capability is an omni-directional antenna capable of communications while on the move. Given the extended battlespace and the remote location of the AO, long range communications for both voice and data transmissions were considered essential to operate effectively in a joint or combined environment. Adequate tactical long-range communications were not available to effectively control or support the LOC interdiction operations.

While the JTF Enabler communications package was considered adequate for design requirements, shortfalls exist below the MAGTF HQ that are not filled by this capability. Those shortfalls include, but are not limited to, long-range communications. Additionally, access to satellite communications channels was restricted, with TF-58 not assigned SATCOM channels though they requested them from both CFMCC and CFLCC.

AIR-GROUND INTEGRATION

As the Joint proponent for Close Air Support (CAS) doctrine, the Marine Corps is considered the duty expert on the conduct of CAS. However, during operations in support of OEF, AV-8Bs were not capable of using the Joint Direct Attack Munitions (JDAM), ordnance that allowed engagement of pinpointed targets by aircraft at high altitude without laser designation. Precision weapons comprised more than three fourths of the total number of weapons dropped by Marine Corps aircraft.

In addition to the fact that the percentage of precision ordnance was very high, a unique situation presented itself with respect to the use of precision weapons in a CAS role. When an aircraft was at an altitude where the TACP could not visually clear it, procedures were needed to adjust the brief between ground controllers and aircraft to ensure the safety of the Marines on the ground. Until recently, precision weapons have been commonly used by the Air Force for Deep Air Support (DAS). Joint aviation employment has evolved to the point where the time has come to address weapon systems and procedures that are neither DAS nor CAS, but are essential for mission accomplishment.

In addition to the weapons and procedures, another area of concern is the equipment used by the Tactical Air Control Parties (TACPs) for designating targets for precision-guided munitions. The Modular Universal Lasing Equipment (MULE) has been in service for nearly 15 years. Systems have been fielded, with technological advances that are lighter, more reliable, and have greater capabilities.

The logistics requirements of a joint and multinational enabling force are not fully reflected in how we train, organize and equip our forward deployed MAGTFs. When deployed, a MEU(SOC) has 15 days of supply (DOS) for self-sustainment, but does not deploy prepared to support additional forces. During shore operations at both Kandahar and Camp Rhino, MSSGs were tasked with supporting a myriad of coalition forces (Australian, Norwegian, British, Jordanian), as well as sister services (USAF, USA, USN), and the media. Although follow-on sustainment was later provided, MSSGs were still burdened with significant support responsibilities to additional forces, which rapidly depleted available LFORM stocks.

ADVOCATE SPECIFIC ISSUES

The following section presents a wave-top sampling of the issues that are the primary responsibility of a single Advocate, even though some areas may have implications for other Advocates. These issues were collected by research cells on the SCAR Team who looked into each of the Advocate areas. The descriptions are very brief and the listings are not comprehensive. The appendices contain a more complete list of the current major topics in each Advocate area. Many of these issues are important but not fully developed, so they require additional quantitative and qualitative assessment before definitive inferences can be made about them.

During May and June 2002, the EFCAT will schedule meetings with Advocates to provide detailed briefings on the issues identified during OEF, and to turn over the information processed so far, leaving the decision on what (if anything) to do about the issue up to the Advocates. The EFCAT will make the data collected to date on these issues available to the Advocates' designated representatives, and will support the evaluation of these issues with further data collection and assessment as remaining personnel, resources, and time permit. The number in parentheses after the word "ISSUES" represents the number of different issues collected by the respective SCAR Advocate team.

COMMAND ELEMENT ISSUES (43 TOTAL)

In difficult terrain such as was encountered during OEF, USMC commanders require accurate knowledge of friendly forces' locations. A Blue Force tracking system could provide adequate visibility to maneuver elements to allow better situational awareness for Marine commanders. Mechanized/motorized forces were operating at extended ranges, as much as 50 - 90 nm from FOB Rhino. External support with respect to battlefield visibility was provided by P-3 AIP, UAVs, and AC-130s, however, to pass the information via SATCOM, the operators had to stop to set up.

INTELLIGENCE ISSUES (82 TOTAL)

In certain areas, Marines were utilizing various maps that were produced using four different datums. The conversion of the different datums is both time-consuming and prone to error. An error in converting datums could result in an air strike or artillery mission being off target, and risk fratricide. .

Much of the imagery requested by the MEU during the OEF consisted of low-level imagery of airfields, LZs, and objective areas in potential high threat situations. The Predator UAV system was specifically designed for this type of operation. While Predators were present in theater, their physical distance and placement outside of the USMC chain of command reduced the ability to use them in a rapid, on-demand fashion.

COMBAT SERVICE SUPPORT ELEMENT ISSUES (57 TOTAL)

There appears to be a lack of experience with inter-theater distribution services. Because of a lack of understanding and experience of joint logistics systems, shortcuts and workarounds were developed ad hoc, resulting in loss of in transit visibility (ITV) and slower movements with increased requirements on intratheater lift. Employment of JOPES in support of sustainment and maintenance activities was less than optimal.

Storage, transportation and use of host nation fuel (JP4, diesel) caused ground equipment failures. JP 4 is for emergency use only. Prolonged use results in permanent damage. Supply systems and equipment need to address storage and transportation of bulk liquids, including fuel, to using units.

AVIATION COMBAT ELEMENT ISSUES (80 TOTAL)

Aviation operations from a FOB are replete with challenges that require

establishing procedures and infrastructure to ensure the safety of both air and ground crews. Although the aircrews had experience and training, included desert operations, some of the more important skills are perishable and their training did not replicate the dust and all of the associated difficulties experienced in Afghanistan. Not all aircrew had the same level of exposure to operations in this type environment, and they were required to conduct all operations during the hours of darkness. This put some aircrews in potentially dangerous situations.

MEU(SOC)s deploy without a robust, service-specific airspace command and control package. They are normally reliant on the US Navy for this capability, with the associated limitations this brings for controlling operations in the extended littorals, especially with restricted terrain. These limitations became particularly problematic when Marines executed operations as far as 400 nautical miles inland as was the case in OEF.

GROUND COMBAT ELEMENT ISSUES (52 TOTAL)

Lift was at a premium for getting the artillery equipment and the prime movers ashore. Other assets had higher priority. The ability to conduct suppression missions against enemy forces was limited to 60mm and 81mm Mortars, whose range and lethality are limited. Commanders stated that they had a requirement for a more mobile indirect fire system that could provide heavy close-in fire support.

THE WAY AHEAD

The transformation of our military services is already underway. But unlike those who may study the last war and aim merely to fix what was broken in anticipation of a similar future war, the Marine Corps is focused on finding clues to how best prepare for fundamentally different emerging future conflicts. As our nation's premier Expeditionary Force in Readiness, the Corps must develop and maintain flexible and robust warfighting capabilities to meet the challenges of the unknown conflicts of the tomorrow. This will require vision, innovation, adaptability, and determination both individually as Marines and as an institution.

The EFCAT has identified over 300 issues to date and continues to uncover new lessons learned. The issues are being archived in a manner that will allow for identification, tracking, and easy retrieval by the Advocates. This is a work in progress, with further analysis, data gathering, verification, and synthesis ongoing. Ultimately, the EFCAT will provide the leaders of our Corps with a web-based dynamic tool to search for, identify, and understand the lessons of this war, in order to best prepare us for the next.

APPENDIX 1, COMMAND ELEMENT ISSUES (43 TOTAL)

The current tactical/deployable GBS suite is too large and is not expeditionary in nature

WSC-6, 2 Channel and Tactical Switch System (TSS) should be incorporated into MEU (SOC) training.

Plain Old Telephone System (POTS) lines and the STU-IIIs on those circuits were unreliable and had difficulty establishing a secure connection.

There was a shortage of power ancillary devices to support the communications requirements.

STU-IIIs age, unreliability, and tendency to fail in a tactical environment

Marine Communications Officer on the NAVCENT/FIFTH FLEET staff would have been very helpful.

The use of chat on the SIPRNET is both beneficial and a burden to an operational staff.

Inadequate allocation of 25KHz non-DAMA UHF TACSAT channels.

24 hour operations in a harsh environment increases battery usage.

Non-standard SOPs at the Standard Tactical Entry Point (STEP) resulted in delays in establishing communications.

SHF/GMF bandwidth planned for and allocated iso TF-58 was inadequate.

JTF Enabler packages are not standard from MEU to MEU.

JTF Enabler is not very sustainable when deployed for long periods of time.

More reliable and portable secure voice/data equipment is required.

Deployed Marine forces need a reliable and accurate blue force tracking capability.

Use of computer graphics in support of command and control during tactical operations is not feasible for deployed Marine Forces with limited SIPRNET bandwidth.

Non-resident C&S College course was useful in preparing officers for joint staff assignments in the AOR.

Liaison officers up and down the chain of command were very critical to mission success.

NMCB SEABEES were integral to the success of TF-58 combat operations.

Interoperability training conducted between the Marine Corps and SOF forces should be increased.

There is no standard T/E for MEU Combat Camera sections

Combat Camera billets on the MEU Table of Organization (T/O) do not support mission requirements

Combat Camera capabilities are restricted by the lack of logistical support

The Combat Camera mission is misunderstood and doctrinal publication, FMFM 3-8, does not accurately represent USMC Combat Camera assets or capabilities.

The Combat Camera capabilities are restricted because there is no formal Combat Camera course in the USMC.

The capabilities of Combat Camera are degraded by the lack of organizational hierarchy and inconsistent placement of MEU Combat Camera assets during each deployment

Combat Camera end products are often overlooked due to poor imagery management

Marine Corps Combat Camera assets are widely misunderstood

Lack of a credible Marine Corps Reserve Combat Camera capability to mobilize in time of war.

USMC Public Affairs Communications Assets

Inadequate Level of INMARSAT Funding

Experience Level of MEU Public Affairs Officer

Public Affairs Inter-service Augmentation

Doctrine on the Planning for and Daily Execution of Mid-term EPW/Detention Facilities Operations Needs to be Updated.

Military Police Support to the MEU

MEU Lacks USMC Military Working Dog Support

Fly Away Kit for EPW/Detainee Operations

Non-lethal Weapons Capabilities Sets and Training

EOD Robotics Needs

NCIS Support to Deployed Operational Units

Chaplain assignments across the MEUs

Chaplain assignments to the MEUs

Training requirements for chaplains

Detainee research conducted by intelligence analysts

Assignment of CIHO or TFCICA

Detention facilities afloat

Joint interrogations between USMC and NCIS

Report dissemination

APPENDIX 2, INTELLIGENCE ISSUES (82 TOTAL)

Reporting on detainee status and interrogations
Background information to support interrogations
Dissemination of information from previous interrogations
Restriction to compounds
Use of translators
Integration of HET into raid forces
Integration of other government agencies
Lack of linguists
Integrating RRT with SEALs RHIBs
Conversion of CH-46 & UH-1N into airborne SIGINT platform
COMSEC monitoring
Attaching AR 5000 into ship's HF antenna
SI HF Comms
GSM/INMARSAT collection capability
Need for an additional 2651 assigned to each Radio Bn Detachment
Man-portable, secure voice communications
TCAC
ZIRCON window
Dissemination
Collection
JWICS gateway changes
KL reporting from the OCE
Lack of DF missions prepared for Rad. Bn. Workups
Training environment flaws for crypto linguists
Varying SIGINT training for all collection teams
Computer background for 2651s
ICE DF processor
TPCS
VIAsats
MEWSS
TCAC/SCI laptop
LST-5D issues
Interaction between TOPO dets and NIMA
Field production
Imagery and TOPO assets in high demand
MCIA support
NIMA crisis support to forces ashore
IMINT dissemination
IWS field production
Map datums and NEO planning products
Standardized EAP maps
Image Product Library
JSIPS
PTW
Joint Communicator Architecture
IOS software
Utilization of real-time downlink
P3-AIP in support of ground ops.
P3-AIP TCDL
JIC integration into targeting/ strike process
TACP equipment
Integration of ACE assets into the collection plan
Collection resource effectiveness
Direct UAV support to the MEU
SIPRNET and JWICS e-mail
Precision Targeting Equipment
METOC power requirements
Blue force tracking system
Identification of linguists organic to the ARG
Ground sensors
CSAR E&R planning
Intelligence personnel
Meteorological Support Team
Mass Storage Equipment
JTF enabler
Escape and evade planning packages
Dissemination of salutes and position reports
Submitting collection requirements
DISUMS and INTREPS
Real-time tasting coordination
Supporting agencies to forwardly deployed Marines
NEO planning
Intelligence dissemination in a coalition environment
Reach back
Intelligence flow
OPSEC balancing with interoperability
Need for a threat orientation brief
Extended Boom Fork Lift (EBFL) for MSSG units
Fuel storage capability to adequately supply all in-theater fuel needs
Sapper School for Combat Engineers
In-Transit Visibility (ITV) in the CENTCOM AOR

APPENDIX 3, COMBAT SERVICE SUPPORT ELEMENT ISSUES (57 TOTAL)

Combining 1141electrician and 1142 electrical equipment mech into one MOS

Personnel and Equipment Caps

Deficiencies of TRAM tires within the MSSG

The MEU's forward medical diagnostic capability needs to be enhanced

Medical MOLLE bag and vest discrepancies identified by MEU medical personnel

Incorporation of a MWSS unit in theater to support airfield operations.

Deficiencies in the Environmental Control Unit (ECU) associated with the Shock Trauma Platoon (STP) surgical

Field Hygiene

MSSG Engineer Detachment has an antiquated carpenter's tool kit.

Theater airlift planning

Combat Engineer 1371 shortage in the MSSG

Personnel concealment measures

Deploying MEU(SOC)s are not prepared for supply support to additional forces

System to mark identified minefields

MEU water storage capability

SEE tractor support to the BLT

Insufficient data on commercial shipping labels

Necessity for Water Purification and Electrical Generator

Operation and Maintenance Training

Secondary Repairables

Untimely requisition status updates in ATLASS

Proportional Logistical Buildup

Airlift availability in CENTCOM AOR for theater distribution

Officer required by Marine Explosive Ordnance Disposal (EOD) Section

The value of staging of Class IX supply blocks in support of MEU operations was borne out during Operation Enduring

Fuel availability and field storage issues in the CENTCOM AOR

The MEU lacks an updated Forward Surgical Capability

The MEU lacks capability to support extended range MEDEVAC

Prepositioning supplies in the CENTCOM AOR

Medical and Supply organization short falls

Landing Support Operations

Registering requirements in JOPES for intratheater airlift

Fly Away Kit for EPW/Detainee Operations

Tenuous Logistics Pipeline

Preventive Medicine support to the fighting force at the Forward

Operating Base (FOB)

Single fuel use on battlefield

C-17 employment as a force multiplier

The contents of the Authorized Medical Allowance List (AMAL) distributed for deployed MEU need review.

Ground fuel testing equipment within the MSSG

Dust palliative for dirt airfield operations

Motor Transport Maintenance

Batteries

The lightweight metal detector set.

Doctrinal Guidance for Health Service Support of Detainees

Bulk water for airfield operations

The Helicopter Expeditionary Refueling System (HERS) 500 gallon pod

C-17 Support for retrograde operations

JOPES for inter-theater lift.

Naval Mobile Construction Battalion (NMCB) USMC integration

Compatibility of MEU and sister service/SOF equipment

MEU Expeditor

Combining 1161 hygiene equipment operators and 1162 hygiene equipment mech into one MOS

MEU Table of Equipment (T/E) does not fully support sustained land operations

Inadequate fuel refueling and storage capability in the FARP/FOB

Targeting Forward Looking Infra-Red (T-FLIR) pod for F/A-18

Lack of Ground Support Equipment (GSE) gear for number of FOB/FARPs

Expeditionary airfield construction capability of a MEU

Expeditionary Airfield Windsock

Shortfalls in Aviation Fueling Equipment

Adaptability of refueling equipment from different refueling systems used by MEUs

NC-10 power supply for UH-1N and AH-1Ws

APPENDIX 4, AVIATION COMBAT ELEMENT ISSUES (80 TOTAL)

Fuel Transfer Pumps for L-Class Ships

Transportation was inadequate for maintenance personnel to conduct time essential operations

Necessity for Crash Fire and Rescue to support ACE while deployed ashore

Hazardous Flight Environment at FOB Rhino

Requirement of MEU for real-time downlink of available Intelligence Surveillance Reconnaissance assets

The Navy P-3 AIP's ISR Command and Control Support

ACE MEU KC-130 Predeployment Training

MEU/ACE KC-130 Planner

Aircraft Survivability Equipment for the KC-130

Class V (A) Ammunition Load-out

Coordinate datum formats for CAS missions

ARC-210 Radios Shortage for the AV-8B

Forward Basing of AV-8B

Self Laser Designation capability for the AV-8B

Joint Direct Attack Munition (JDAM) and the AV-8B

MOUT Surface Escort Tactics

TSU/FLIR internal, integrated IR pointers for the AH-1W

Contamination of electrical equipment caused by sand and dust in the desert environment

JDAM CAS Utilization

Imbedded satellite communications Capability for the CH-53E

CAS Training for Precision Guided Weapons

CAS Doctrine for Precision Guided Weapons

Blue Force Tracking Identification Friend or Foe (IFF) system

Field boresighting of Tally and BRU racks for the AH-1W

M197 feeder assembly maintenance

Airframes Change 308 for the AH-1W

MLA deficiency for the UH-1N

Long-Range Assault Support Escort Operations

Forward Looking Infrared Balls for the CH-53E

MACG Det SATCOM Training of personnel

Call-sign Standardization/Flexibility

MEU ACE Communications Equipment & Personnel

ATO Cycle and Strip Alerts

Integration into theater airspace and communication structure

Aviation Integration with JSOTF

Imbedded Satellite Communications Capability for the KC-130

Night Vision Devices for KC-130s

HMLA Detachments Ordnance Pack Up

Gyro Stabilized Binoculars for the UH-1N

Aircraft Survivability Equipment for the AH-1W

Aviation Training for Austere Environments

MEU ACE Safety Department Packup

Desert Navigation Techniques

Aviation Quality Map Reproduction Capability on the MEU

PRC 112B radios shortages in theater

Location of the Aviation Support Element for the MEU

Inadequate cold weather flight gear for the desert environment

AH-1s integration with fixed wing CAS, FAC(A), and theater collection assets

Aircraft Survivability Equipment for the CH-53E

8 mm playback machines for UH-1Ns

Aviation Communication Procedures and Training

Specialized Training of ACE Medical Personnel

Aircrew's T/O Weapon for AH-1W Aircrew

Aircrew Survival Vests redesign for SERE

Special Operating Force and ACE training during MEU workups

Foreign Object Debris Damage to Aircraft

PRC-112B Loader durability and functionality

FLIR maintenance support for the UH-1N

Maintenance support for Aircraft Survivability Equipment (ASE)

Lack of proper lubrication for UH-1N crew served weapons

Limitations of H-1 auxiliary fuel systems

Linked 20mm Dummy rounds

Technical Support for Avionics and Fire Control "Hard-to-Fix" Problems

Defensive Weapons for the CH-53E

Availability of Evasion Charts for Theater AOR

Dust palliative

Joint Direct Attack Munition (JDAM) Training for Aircrew and Forward Air Controllers (FAC)

Laser Designator

Laser Range Finder

Laser Pointers for the BLT

GCE TACP Equipment Shortfalls

Aircraft Load-Outs for the AH-1W

APPENDIX 5, GROUND COMBAT ELEMENT ISSUES (52 TOTAL)

Modular Lightweight Load Carrying Equipment (MOLLE) Gear Discrepancies

Reducing Supply Requirements Through Re-usable Rifle Cleaning Equipment

GCE TACP Equipment Shortfalls

Lack of MEU(SOC) Ground Fire Support Assets

M49 Observation Telescope Range Limitations

Force Cap Imposed on TF-58 by CENTCOM

Personnel Concealment Measures

Interim Fast Attack Vehicle (IFAV) Tiedowns When Aboard Aircraft

Training Deficiencies for 0351MOS (Javelin Gunner)

Joint Direct Attack Munition (JDAM) Training for Aircrew and Forward Air Controllers (FAC)

Military Motorcycle (MILMO) Mechanical Problems

SEE-Tractor in Defensive Operations

BLT Engineers Attending Sapper School

High Mobility Multi-Wheeled Vehicle Series A2 (HMMWVA2)

Recommended Improvements: Undercarriage Skid Plate

Radio Battery Re-supply Problems for MEU(SOC)

Lack of SMAW HEAA Rounds in CENTCOM Theater

Lighter Global Positioning System Needed for the GCE

Commercially Procured Inter-Squad Radios (ISR) for Field Use

MEU(SOC) Computer Software Issues that Hindered Information Dissemination in the Field

Ruggedized Field Printer for the MEU(SOC)

Ruggedized Field Laptop Computers for the MEU(SOC)

MLE Versus ANGLICO

Better System to Mark Known Minefield Locations

High Mobility Multi-Wheeled Vehicle Series A2 (HMMWVA2)

Recommended Improvements: Additional Radios Needed

Individual Water Purification Device

MEU(SOC) Training Deficiencies

Lack of Small Arms Protective Inserts (SAPI) for the Interceptor Outer Tactical Vest (OTV)

Increased Interoperability Training Between Marine Corps and SOF

Identification of Friendly Forces Vehicles

Laser Pointers for the BLT

Laser Range Finder

Laser Designator

Universal Spotters

Inadequate MEU(SOC) Tactical Air Control Party (TACP)

Communications Equipment

AN-PVS 10 Night Vision Sniper scope lacks range when used in the desert

Software as a Planning Tool for the GCE

AN/PEQ-2 Illuminator Infrared Mounting Problems

Standardize Lat/Long Formats Between Services for CAS Missions

Joint Professional Military Education for Marine Company Grade Officers

Interim Fast Attack Vehicle (IFAV) Training Deficiencies

Interim Fast Attack Vehicle (IFAV) Parts Re-supply Problems

Designated Marksman Rifle (DMR) Ammunition Problems

Universal Machine Gun Vehicle Mount Needed

Interim Fast Attack Vehicle (IFAV) Electronic Test Equipment Training

M4 Carbine Versus the M16A2 Service Rifle

M2 50 Caliber Heavy Machine Gun Upgrade Needed

High Mobility Multi-Wheeled Vehicle Series A2 (HMMWVA2)

Recommended Improvements: Fuel Can Rack

Use of Computer Graphics in Support of Command and Control During Tactical Operations

Review relationship btwn USMC & DINFOS

ISD Process

+T

(1) Training Program Development Proc
ISD
Instructor process (IT20)
Manning

(2) The next step of this process is a meeting to discuss issues

(3) Billet Description