During the Land Power in the Pacific Symposium May 25, 2016, one of the topics highlighted the importance of the Army’s ability to successfully project combat power over water from shore to aid in the anti-access/area-denial (A2/AD) conflict. The commander of U.S. Pacific Command Adm. Harry Harris, said “I believe that the Army should look at ways to use the Paladin and HIMARS systems to keep at risk the enemy’s Navy … we should be able to deny the enemy the sea – from land.”

Soldiers in 25th Division Artillery, 25th Infantry Division sought to capitalize on Harris’ suggestion during Operation Lightning Forge 17.01 (OLF17) by successfully simulating a shore strike on a sea-based target. This simulation had three main outputs. First, it provided validation of existing systems required for accurate land-to-sea cross domain Fires; second, it verified DIVARTY’s ability to competently control land-to-sea Fires as an operational headquarters element using the joint dynamic targeting steps; and third, it showed that employment of these Fires requires a clearly delineated approving process/authority. These outputs furthered the understanding of how land-to-sea Fires can exploit small windows of opportunity in increasingly contested domains.

“...and the rest of the joint force - together with their sensors and their fires as domains converge in the battlespace. By taking advantage of these technological advances we can help overcome the operational challenges we face in our resource constrained environment.”

—Adm. Harry Harris, Jr. Commander, U.S. Pacific Command

Infantrymen with B Company, 1st Battalion, 21st Infantry, 2nd Brigade Combat Team, 25th Infantry Division, prepare to return fire on roleplaying enemies during training exercise Lightning Forge. (Sgt. Ian Ives/2nd BCT PAO)

Cross domain Fires executed in Lightning Forge 2017

By Capt. Joseph Schmid

During the Land Power in the Pacific Symposium May 25, 2016, one of the topics highlighted the importance of the Army’s ability to successfully project combat power over water from shore to aid in the anti-access/area-denial (A2/AD) conflict. The commander of U.S. Pacific Command Adm. Harry Harris, said “I believe that the Army should look at ways to use the Paladin and HIMARS systems to keep at risk the enemy’s Navy … we should be able to deny the enemy the sea – from land.”

Soldiers in 25th Division Artillery, 25th Infantry Division sought to capitalize on Harris’ suggestion during Operation Lightning Forge 17.01 (OLF17) by successfully simulating a shore strike on a sea-based target. This simulation had three main outputs. First, it provided validation of existing systems required for accurate land-to-sea cross domain Fires; second, it verified DIVARTY’s ability to competently control land-to-sea Fires as an operational headquarters element using the joint dynamic targeting steps; and third, it showed that employment of these Fires requires a clearly delineated approving process/authority. These outputs furthered the understanding of how land-to-sea Fires can exploit small windows of opportunity in increasingly contested domains.

We must bring the Army – and the rest of the joint force - together with their sensors and their fires as domains converge in the battlespace. By taking advantage of these technological advances we can help overcome the operational challenges we face in our resource constrained environment.”

—Adm. Harry Harris, Jr. Commander, U.S. Pacific Command

Infantrymen with B Company, 1st Battalion, 21st Infantry, 2nd Brigade Combat Team, 25th Infantry Division, prepare to return fire on roleplaying enemies during training exercise Lightning Forge. (Sgt. Ian Ives/2nd BCT PAO)

“...and the rest of the joint force - together with their sensors and their fires as domains converge in the battlespace. By taking advantage of these technological advances we can help overcome the operational challenges we face in our resource constrained environment.”

—Adm. Harry Harris, Jr. Commander, U.S. Pacific Command

Infantrymen with B Company, 1st Battalion, 21st Infantry, 2nd Brigade Combat Team, 25th Infantry Division, prepare to return fire on roleplaying enemies during training exercise Lightning Forge. (Sgt. Ian Ives/2nd BCT PAO)
OLF17 is 25th ID’s home station training exercise geared toward unit readiness for an impending combat training center rotation. The entire division performed either a supporting or direct role in the execution of the nine-day exercise. Three units, to include 2nd Brigade Combat Team, 25th ID, 25th Sustainment Brigade and 25th DIVARTY, had a decisive role in the initial entry operation. These three units were placed under a joint command who sought to restore the sovereignty of a simulated nation (termed the Ari Republic) who had recently been invaded by a hybrid threat. The threat contained regular units from Rogue Poema Armed Forces, radical insurgent groups of the Islamic Liberation Front, and gang-related elements loyal to a narcotics network known as the Black Wolves (BW).

In order to defeat the hybrid threat, four key tasks were developed. Soldiers in 25th ID first sought to assist the Government of the Ari Republic (GoAR) in restoring the sovereignty of their borders. Second, they promoted the GoAR’s legitimacy by working with their government, police and military. Third, they needed to isolate criminal networks from their sources of support and the Ari population. And finally, they sought to ensure the GoAR police, military and other necessary agencies had both the capabilities and capacity needed to maintain civil security and deter external future threats.

Soldiers in 25th DIVARTY fulfilled the third key task while simultaneously using the joint dynamic targeting steps (find, fix, track, target, engage and assess) to facilitate rapid land-to-sea cross domain Fires. They used an MQ-1C Grey Eagle unmanned aerial system to find a notional ship belonging to the BW off the coast of Ari. The Grey Eagle streamed a live feed of the BW ship directly into the DIVARTY command post S2 cell. The feed allowed the S2 section to initially find, fix, track and eventually generate an initial targeting grid for the BW ship. The 25th DIVARTY Air Defense Airspace Management/Brigade Aviation Element (ADAM/BAE) co-located with the S2 section, received the BW targeting grid and verified its authenticity with a notion...
al collection platform using a network known as LINK-16. LINK-16 is a tactical voice and data exchange network commonly used for transmitting targeting data in between individual military services, NATO forces and U.S. allies. The DIVARTY ADAM/BAE accessed this multi-service communication network via its organic Air Defense System Integration platform. Critical to this specific scenario, LINK-16 provided the ability for the 25th DIVARTY command post (CP) to view most U.S. naval ship positions, while simultaneously commu-
nicating the Soldiers’ intention to target a maritime threat. In essence, LINK-16 grants cross domain synergy as a secondary check on the initial targeting data provided to the S2 by the Grey Eagle.

After the targeting data was verified by the ADAM/BAE, it was announced in the tactical operations center as a fire mission. The fire control element generated fire commands with the Advanced Field Artillery Tactical Data System and successfully engaged the maritime target with a simulated MGM-140 Army Tactical Missile System (ATACMS) fired from a simulated M142 High Mobility Artillery Rocket System (HIMARS).

OLF17 serves as an example to the joint community that weapon systems and communication networks required for land-to-sea cross domain Fires already exist. New modes of thought are effectively employing old tools in innovative ways. Think of the possibilities of replacing the Grey Eagle UAS with an Air Force RC-153 Rivet Joint or a Navy EA-18 Prowler, all of which have sophisticated electronic intelligence sensors geared toward real-time, on-scene collection analysis and dissemination capabilities. While conducting strike coordination and reconnaissance missions, these air platforms would provide valuable maritime awareness to a DIVARTY CP. The CP can then tap into that wealth of maritime data these platforms provide via LINK-16 to decisively project combat power in the form of...
land-to-sea cross domain Fires. Leveraging its beyond-line-of-sight network, known as the Joint Range Extension Application Protocol (JREAP), a DIVARTY CP can solve the range communication problem which will undoubtedly be associated with a Navy or Air Force long ranging aircraft. A LINK-16 message would be transmitted over JREAP allowing communication between the sensor and CP. If land-to-sea cross domain Fires were incorporated into the A2/AD fight, PACOM field artillery assets would be achieving Harris’ end state of denying the enemy the sea from land.

However, the regional capability cross domain Fires can potentially provide a joint community embroiled in an A2/AD fight, must be clarified. This notion has largely been answered by Maj. David Henderson in his monograph, “Land Based Anti-Ship Missiles: A Complementary Capability for Maintaining Access in an Anti-Access/Area-Denial Environment.”

His monograph highlights the advantages of developing and then building upon a land based anti-ship missile presence to deter possible naval adversaries from attempting offensive maneuvers in domestic and international waters.

When an aggressive near-peer threat believes it no longer can operate in certain regions without unwanted consequenc- es, it is effectively deterred. The concept of deployable coastal field artillery provides new capabilities even as it draws on an old theory of coastal defense. For example, current potential coastal field artillery batteries will not resemble the gargantuan concrete fortifications reminiscent of the World War II generation. Instead, highly mobile systems such as the HIMARS platform will apply timely Fires to small windows of opportunity as it defends its coastline. When U.S. policy dictates that an area no longer requires an integrated coastal defense, the Army simply transports its HIMARS systems to an area that does. This scalability allows the Army to appropriately allocate coastal defense systems to the most current perceived threat. With these capabilities in mind one can perceive the deterrence value land-to-sea cross domain Fires brings to regions such as the South China Sea.
Now to solve two intertwined complex problems. How does an Army-marked target in the maritime domain get routed to the appropriate clearance authority? And who is approved to actually clear land-to-sea cross domain Fires?

To recap, this process potentially involves an air-based sensor acquiring a sea-based threat which then provides targeting data over LINK-16 to an Army division artillery command post who would then transmit firing commands via high frequency radio to a land-based-HIMARS unit. Due to its complexity, potential problems exist in maintaining the most current coast/maritime oriented operational picture. On a macro level, if the joint task force commander of a certain theater assumed the sole mantle of clearance authority for cross domain Fires the potential exists for fire missions to stave pipe as they que awaiting his or her approval. On the other hand, from a relatively micro perspective, it would be increasingly difficult for a single brigade combat team who has historically focused on land-based operations to either gain or sustain the complete operational picture required to competently clear land-to-sea cross domain Fires.

Existing joint publication doctrine can help identify structural concepts, current shortfalls and required additions. Joint Publication 3-33 “Joint Task Force Headquarters” offers an excellent starting point, explaining the basic construct of a joint task force (JTF). A JTF headquarters is an attractive command structure due to its ability to provide the forum needed for Navy, Air Force and Army liaison officers to conduct the coordination needed to make cross domain Fires a reality. JP 3-33 states, “The appropriate authority may establish a JTF on a geographic or functional basis or a combination of the two.”

The geographic area pertaining to land-to-sea cross domain Fires is limited to the coastline of an island and just inside the exclusive economic sea zone (200 nm) surrounding that island. The primary function relating to this JTF will be the facilitation of planning for and executing land-to-sea cross domain Fires.

JP 3-33 continues to outline a staff containing the personnel (J1), intelligence (J2), operations (J3), logistics (J4), plans (J5) and communications (J6) sections needed to drive this potential operation. For example the J6 could serve as the main proponent for JREAP/LINK-16 architecture. Or, the J3, among its numerous other duties, could be responsible for maintaining the complete coast/maritime operational picture needed

Cross Domain Fires is the employment of Joint and combined mutually supporting lethal and non-lethal Fires across all domains to achieve effects designed to create multiple dilemmas for the adversary, achieve overmatch, and enable Joint Combined Army Maneuver
—Joint Force Freedom Action

Figure 2. The legal boundaries of the oceans and airspace. (Joint Publication 3-32, Command and Control for Joint Maritime Operations, Aug. 7, 2013)
when clearing these types of Fires.

Is this sprawling organization needed for the one purpose of executing land-to-sea cross domain Fires? Yes, at first it does seem like the perfect forum for bringing different service components together, but does the Army really need to invest exorbitant amounts of time, money and personnel into an entirely new JTF? The answer is once again in JP 3-33.

JP 3-33 introduces the idea of a cell which is “a subordinate organization formed around a specific process, capability or activity within a designated larger organization of a JFC’s HQ.” A cell can be thought of as an augmentation to a certain capability closely linked to the one the cell itself provides. A cell would receive the same operational, logistical, intelligence and communications support from the J-shops amplifying its ability to perform a certain task without having to create an entirely new organization. With this basic JTF structure in mind, Joint Publication 3-60 “Joint Targeting” depicts how current joint, largely air-to-ground operations are conducted.

JP 3-60 states “the joint force commander (JFC) is responsible for conducting all planning, coordinating, and de-conflicting associated with joint targeting.” In order to accomplish this broad task, the JFC will normally create a joint targeting coordination board (JTCB) which supports the JFC in three areas. A JTCB maintains a macro-level view of the operational environment, it creates an operational-level assessment to guide the JFC’s decision making and most importantly, it generates a joint integrated prioritized target list (JIPTL). A JIPTL is the driving product of joint targeting and represents targets based on component and JFC target priorities.

In relation to the JIPTL, JP 3-60 further states “members consider the estimated available air capabilities and their ability to effect the targets on the list.” There is a tendency in the joint world to lean toward the previous generation’s dominant air land battle concept. This tendency manifests itself in joint operational processes wholly concerned with the de-confliction and use of air power to effect targets in the naval and land domains. This mindset was effective during the first Gulf War, but is extremely vul-

---

nerable in today’s cross domain battlefield where the air domain will likely be contested by near-peer threats such as China and Russia. That said, the JTCB is not a conducive body for land-to-sea cross domain Fires.

Delving into JP 3-60, it shows the joint Fires element (JFE) acts as “a staff element that synchronizes and coordinates Fires planning and coordination on behalf of the JFC.”

Historically, this organization does not de-conflict land-based shooters with maritime components. However, it does have vast amounts of experience de-conflicting air and land assets. Along similar lines, the JFE doesn’t track naval dictated fire support coordination measures (FSCMs), but it has extensive experience in “coordinating, disseminating and managing theater FSCMs submitted by [mostly air and land] components.” Since the JFE has been de-conflicting Fires with the air domain, if pointed in the right direction, it can do the same for land-to-sea cross domain Fires.

If a specific cell was created to augment the JFE it could track naval FSCM’s instead of purely air and land. This extension would help the JFE sustain the land/maritime picture so they could competently suggest to a clearing authority an ATACMS flight path that would not hinder coast/maritime forces.

Joint Publication 3-32 “Command and Control for Joint Maritime Operations” offers a succinct glance at naval structure within the JTF. JP 3-32 introduces the concept of a joint force maritime component commander (JFMCC) assigned under a joint force commander whose responsibilities include making “coordination and de-confliction recommendations to the JFC, to include airspace management, land-space management and water-space management.” Since a JFMCC...
SCAR is a mission flown for the purpose of detecting targets and coordinating or performing interdiction or reconnaissance on those targets.
of this process. Even though the CDFC is within the JFE to streamline land-to-sea Fires it still resides in the JTF which ultimately relies on centralization to achieve its goals. The centralization a JTF offers arguably sets conditions for the essential coast/sea common operational picture necessary for land-to-sea cross domain Fires. This is its strength. However, that same centralization predictably produces a slower response time as the firing unit waits to receive clearance from an inherently large bureaucratic process.

During a high intensity conflict (involving one or more large-scale combat operations spanning multiple domains with a near-peer threat), the JTF centralized routing/clearance method should be modified for a more streamlined approach. However, in the competition phase of the conflict continuum, the addition of a CDFC embedded within the JTF will most certainly serve as an initial focal point for a land-to-sea cross domain Fires deterrent capability. While the CDFC operates in the competition phase, its centralization will build a land-to-sea deterrence capability where needed. The ability to simply generate a land-to-sea cross domain fire mission and a demonstration of the proper organizations for clearance is itself a deterrent to near-peer threats. Once the U.S. transitions from the competition phase to a high-intensity conflict, clearance authority should be delegated down to lower levels to allow HIMARS shooters to be more responsive to small windows of opportunity. How far the JTFC delegate’s clearance authority goes will be unique to the amount of risk the JTFC is willing to accept, the level of trust they have in subordinate commanders, the region they operate in and the threat they face.

The Army’s ability to project power across the sea by leveraging land-to-sea missile capability is extremely relevant to the multi-domain battle concept. Twenty-fifth DIVARTY has demonstrated the systems and networks exist to make land-to-sea missile projection a combat multiplier for the current anti-access/area-denial fight by using air-based live feeds to acquire targeting data for a sea-based threat in order to initiate a land-based ATACMS strike. The Army should first consolidate land-to-sea cross domain Fires at the JTF level to build a deterrent capability in the regions that U.S. foreign policy requires. Upon entry into large-scale conflict the JTFC must delegate clearance authority to the lowest level it deems appropriate to exploit small windows of opportunity as quickly as possible. Ultimately, the simulation performed during OLF17 and the offered joint clearance guidance produces a glide path on how the Army can, to use a phrase coined by Adm. Harris, “get back into the coastal defense game.”

Capt. Joseph Schmid is the 25th Division Artillery, 25th Infantry Division, Current Operations officer. He holds a bachelor of arts in English from West Florida University. Schmid attended Field Artillery Basic Officer Leaders Course at Fort Sill, Okla., prior to serving in the 82nd Airborne Division as A Troop, 1st Squadron, 73rd Cavalry Regiment fire support officer and B Battery, 2nd Battalion, 319th Airborne Field Artillery Regiment fire direction officer, platoon leader and executive officer. He attended the Captains Career Course at Fort Sill and is now stationed at Schofield Barracks, Hawaii.