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OCEANS 17 Tabletop Exercise

Findings and Recommendations

In December 2017, the RAND Corporation conducted a tabletop exercise (TTX) with 50 subject-matter experts (SMEs) from U.S. Africa Command (USAFRICOM), U.S. Central Command (USCENTCOM), U.S. European Command (USEUCOM), U.S. Special Operations Command (USSOCOM), and other select U.S. Department of Defense (DoD) entities on air operations across the boundaries between geographic combatant commands.¹ The exercise objective was to develop innovative approaches to maximize operational effectiveness when using limited numbers of personnel recovery (PR); close air support (CAS); and airborne intelligence, surveillance, and reconnaissance (ISR) assets against transregional adversaries across theater boundaries. This report describes the TTX’s design, key insights from analysis of the discussion, and recommendations.

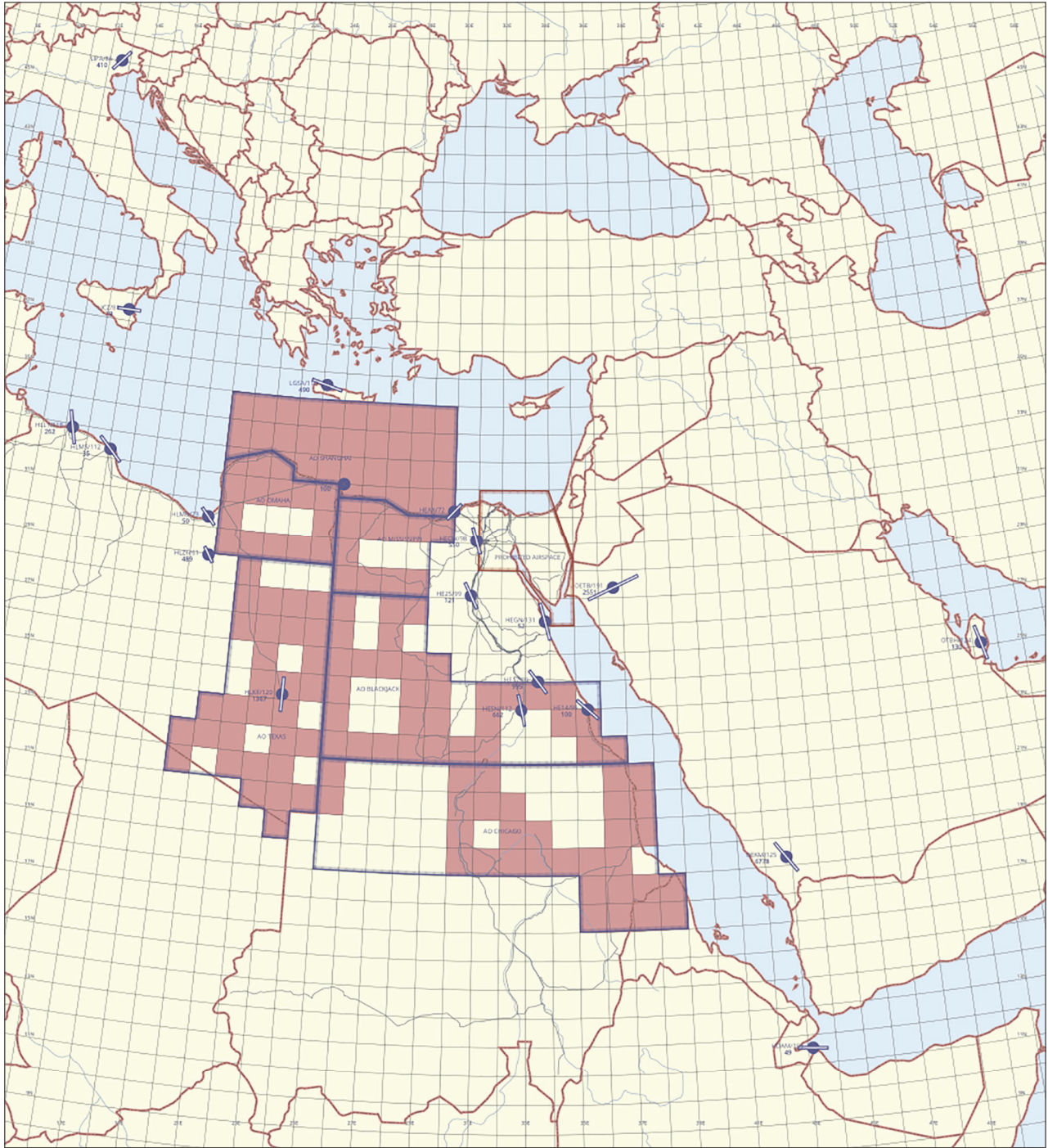
The Exercise

OCEANS 17 was a new-format TTX designed by RAND that combined elements of an air planning exercise, a command and control (C2) wargame, and an innovation workshop. It provided a “sandbox” in which planner-level SMEs with current operational and regional expertise could collaborate to develop potential solutions, debate their relative merits, and assess them against randomized operational events.

The exercise scenario posited the emergence and growth of a potent nonstate adversary network in eastern Libya and western Egypt, where the boundaries of USAFRICOM, USCENTCOM, and USEUCOM converge (Figure 1).² For exercise purposes, the participants were formed into operational planning groups (OPGs) by mission area (PR, CAS, and ISR) and directed to develop initial steady-state concepts of operation and employment, asset beddown, and command arrangements to support putative national-level policy deliberations for a campaign against this new adversary network.

The participant OPGs were provided preliminary policy guidance, including commander’s intent, assets and bases available, and initial outputs from parallel planning efforts hypothetically underway. This guidance and the intelligence picture were adapted over time to create an increasingly complex problem for participants. Participants’ concepts were then “stress tested” by

FIGURE 1
Scenario Area



NOTE: Adversary territory indicated in red.

randomized operational events generated by the TTX white cell, such as an isolated person, troops in contact, or high-value targets appearing individually or concurrently at multiple locations across the area of operations.

Insights About the Nature of the Problem

Theater Boundaries Create Operational Frictions

Participant deliberations demonstrated that the primary operational effect of theater boundaries is the creation of “boundary friction.” This is a form of Clausewitzian friction that diminishes the efficiency of Blue operations. For any given number of air assets, operational effectiveness will tend to be lower when operating near or across theater boundaries.³ The presence of boundary friction was evident across TTX mission areas and phases.

The operational effects of friction are, however, notoriously difficult to measure with analytical rigor.⁴ Boundary friction is no exception, but some aspects can be parameterized to provide an approximate indicator of the potential scale of operational impact. In the extreme case, where theater boundaries are completely impermeable (i.e., cross-boundary air operations are impossible), Blue air assets are unable to support joint operations in areas otherwise within their technical capabilities. The result is likely to be a decrease in coverage and effectiveness. ISR operations in OCEANS 17 provide a useful example. A post-TTX analysis of aggregate potential time on station indicated that airborne ISR operations would be approximately 25 percent less effective with impermeable theater boundaries compared with fully permeable theater boundaries. This is readily visible in Figure 2.⁵

TTX participants developed approaches and techniques to allow air assets to be shared across boundaries. However, while these techniques often improved operational effectiveness during the TTX, participants emphasized that they would require significant additional command and staff energy to plan and execute. This too is a type of friction,

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occurring at a different location and level in the chain of command.

Boundary Frictions Vary Across Mission Areas

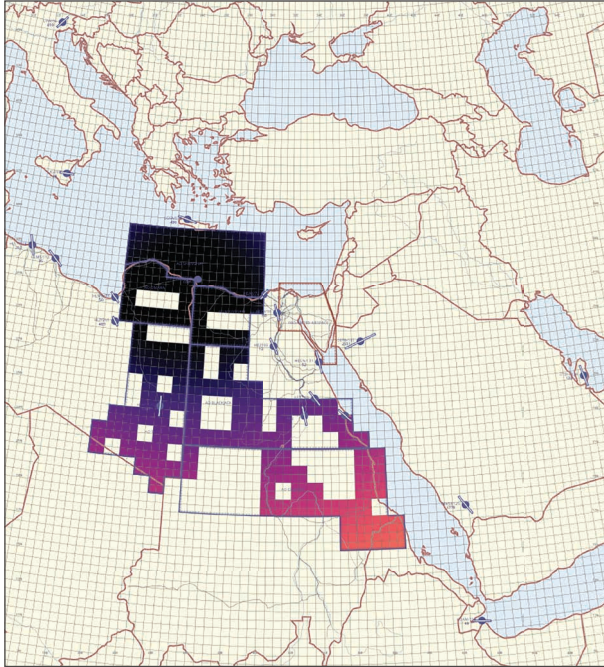
Participant deliberations highlighted the variability of boundary frictions. Each mission area in the exercise (PR, CAS, and ISR) involved air assets with distinctive range, speed, and flexibility. Different

Abbreviations

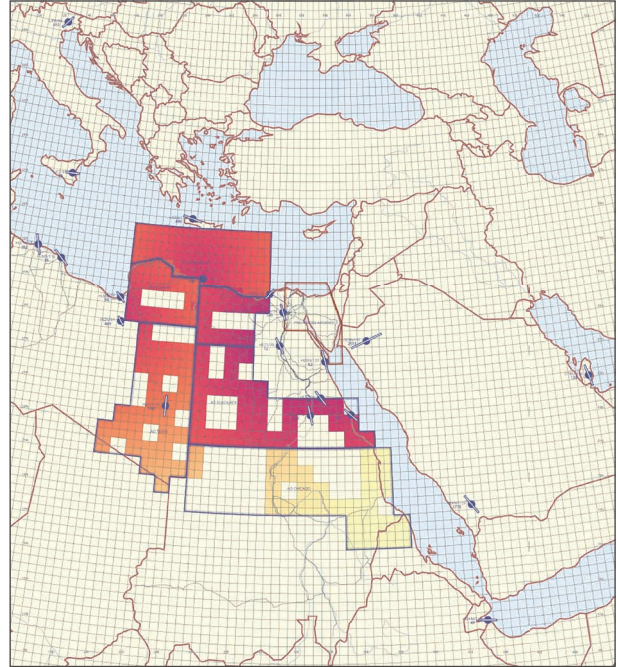
C2	command and control
CAS	close air support
DoD	U.S. Department of Defense
EXORD	execute order
ISR	intelligence, surveillance, and reconnaissance
JCS	Joint Chiefs of Staff
OPG	operational planning group
PR	personnel recovery
SME	subject-matter expert
TTX	tabletop exercise
USAFRICOM	U.S. Africa Command
USCENTCOM	U.S. Central Command
USEUCOM	U.S. European Command
USSOCOM	U.S. Special Operations Command

FIGURE 2
ISR Time on Station over Enemy Terrain

Permeable boundaries



Impermeable boundaries



mission areas also tended to generate key challenges at different stages of the planning process and at different levels of command. The salience of boundary frictions therefore differs across mission areas. For example, traditional PR events are infrequent—but very high-priority—occurrences. Due to the extraordinarily compressed timelines, scarce air assets, and extreme time and distance challenges, the selection of basing locations during deliberate PR planning is a particular locus of friction. Airborne ISR, on the other hand, is in perpetual execution, features large numbers of potential collection objectives that defy simple prioritization, and involves long-range air assets that are comparatively insensitive to aeronautical geography. This creates pressure to manage shifting priorities immediately before and during missions, meaning that boundary frictions are most salient during execution. Because CAS involves both routine coverage and in extremis response with

comparatively fast assets, operational frictions arise both during deliberate planning and during execution as emerging requirements demand dynamic retasking.

Boundary Frictions Are a Global Challenge

The eastern Mediterranean, where conflicts regularly cross national borders, serves as an exemplar of the potential for transregional challenges to arise. However, this study identified multiple regions—including the north Pacific and Atlantic, the Babel-Mandeb (Horn of Africa and Arabian Peninsula), China’s “String of Pearls” across the Indian Ocean, and Central Asia—where cross-boundary conflicts could occur. Thus, operations in other regions may benefit from the types of innovative approaches identified in the TTX.

Insights About the Mitigation Approaches

Opportunity for Innovation in Developing Execute Orders

Participant deliberations highlighted the potential value of modifying DoD's approach to execute orders (EXORDs). In the TTX, participants developed EXORDs with language fencing specific assets for sharing; codifying cross-boundary plans (e.g., priority lines of effort, weight of effort); specifying cross-boundary collaboration mechanisms (e.g., multitheater targeting boards) and sharing techniques (e.g., time-based, area-based); and stipulating collaboration procedures to be implemented by commands subject to the order.

Employing EXORDs to mitigate boundary frictions would represent a major departure from current practice. At present, EXORDs may provide authority to share assets, but they typically do not describe priorities, mechanisms, and procedures for planning. They are issued infrequently, rarely modified, and typically drafted by (and directed to) a single combatant command. Using them to mitigate boundary frictions would require DoD to issue and update them more frequently, apply them to multiple combatant commands, and structure them as a vehicle for specifying how cross-boundary collaboration will occur. They might also need to be supported and supplemented by sharing and integration language in DoD deployment orders, the Global Force Management Implementation Guidance, and the Global Force Management Allocation Plan.

Opportunity for Air Command and Control Innovation

Participant deliberations identified opportunities for improving cross-boundary C2 in the air domain. Discussion focused on requirements to improve connectivity among key air C2 nodes, including theater air operations centers, combatant command joint operations centers, and joint special operations air components. Additional connectivity would be needed to support collaborative cross-boundary deliberate planning and tactical execution in many dimensions, including the technical (digital common

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operating picture), the human (liaisons and coordinating elements), the organizational (cross-boundary working groups and boards), and the procedural (common air tasking orders and special instructions) dimensions. In addition to this operational-level innovation, participants indicated that tactical-level integration would be required, perhaps by dedicating an airborne or terrestrial C2 node, such as a direct air support center or combat reporting center, to the cross-boundary operational area. This tactical-level node would implement higher-level guidance during execution of air operations in the boundary area. Together, these innovations would significantly expand air C2 connectivity across combatant commands.

No Easy Solution—Boundary Frictions Can Be Shifted, but Not Eliminated

TTX deliberations highlighted a variety of approaches to mitigating the effects of boundary frictions. Participants advocated establishing a

sub-unified command or cross-theater joint task force, which would maintain unity of command by shifting boundary frictions geographically.⁶ Innovative EXORD language and C2 mechanisms can shift boundary frictions upward in the chain of command and move them forward in time into deliberate planning. All of these approaches potentially could contribute to lifting the burden of boundary frictions from the operator's shoulders, but none of them actually eliminates boundary frictions. We conclude that there are no solutions to boundary friction, only approaches that reallocate it organizationally and temporally.

Recommendations

OCEANS 17 significantly advanced DoD understanding of the challenges of cross-boundary air operations. After analyzing the results of the TTX, our team has five overarching recommendations:

1. **Joint Force Sufficiency Assessment working group.** The Joint Chiefs of Staff (JCS) J8 should establish a working group associated with the Fiscal Year 2018 Joint Force Sufficiency Assessment to examine opportunities for EXORD and deployment order language on sharing authorities, mechanisms, procedures, and priorities. In particular, the working group should explore whether and under what conditions it may be possible to satisfy requests for forces from adjacent combatant commands by providing forces on a shared basis.
2. **Global Force Management Implementation Guidance adaptation.** USAFRICOM, USCENTCOM, USEUCOM, and the JCS should support the adoption of guidance enabling universal sharing (with combatant commander and service concurrence) to enable ad hoc sharing solutions to be worked out between staffs. The Global Force Management Implementation Guidance and Global Force Management Allocation Business Rules may be useful vehicles for such guidance.
3. **EXORD innovation.** The JCS should initiate a policy and legal review of options for innovative EXORD language authorizing and specifying sharing authorities, mechanisms, procedures, and priorities at the individual-operation level with combatant command input.
4. **Additional TTXs.** The combatant commands and the JCS should conduct additional TTXs to further experiment with approaches to mitigating cross-boundary frictions, focusing on additional mission sets (e.g., maritime, ground), additional mission types (e.g., deterrence, conventional, gray zone), other regions where boundaries converge (e.g., the North Pacific, the Bab el-Mandeb, the North Atlantic, the Arctic), and the implications of involvement by interagency and international partners. The next logical TTX might be a conventional gray-zone scenario involving intervention by a strategic competitor in Libya, Egypt, and the eastern Mediterranean.
5. **Cross-boundary JCS exercise.** USAFRICOM should request that the JCS establish or adapt an existing JCS exercise series to focus on cross-boundary operations in the eastern Mediterranean and further develop the approaches and mechanisms explored in OCEANS 17.

Notes

¹The title of the event was “Operations at the CENTCOM, EU-COM, and AFRICOM Nexus 2017 (OCEANS 17).” The TTX was sponsored and funded by the DoD Wargame Initiative Fund and USAFRICOM. It was conducted at RAND’s Washington office on December 5–7, 2017.

²The theater boundary traces Egypt’s southern and western border. Egypt is in the USCENTCOM area of responsibility. Libya and Sudan are in the USAFRICOM area of responsibility. The Mediterranean Sea is in the USEUCOM area of responsibility.

³Carl von Clausewitz, *On War*, trans. M. Howard and P. Paret, Princeton, N.J.: Princeton University Press, 1984, Book 1, Chapter 7.

⁴Barry D. Watts, *Clausewitzian Friction and Future War*, Washington, D.C.: National Defense University, McNair Paper 52, 1996.

⁵Results are illustrative. Detailed analysis of effectiveness was beyond the scope of the TTX. The team employed an adapted analytical approach described in Christopher A. Mouton and Adam R. Grissom, *Preparing for “Post-ISIL” Access Challenges: Robust Basing to Support Operations Against Nonstate Adversaries*, Santa Monica, Calif.: RAND Corporation, RR-2493-OSD, forthcoming.

⁶Because the creation of a sub-unified command or enduring cross-boundary joint task force would likely require presidential and congressional authorization, the TTX focused on alternative approaches. We also observe that in the eastern Mediterranean, theater boundaries would need to be moved a great distance to completely obviate cross-boundary air operations.



About This Report

In December 2017, the RAND Corporation conducted a tabletop exercise, OCEANS 17, with 50 subject-matter experts from U.S. Africa Command, U.S. Central Command, U.S. European Command, U.S. Special Operations Command, and other select Department of Defense entities on air operations across the boundaries between geographic combatant commands. The objective of the exercise was to develop innovative approaches to maximize operational effectiveness when using limited numbers of personnel recovery; close air support; and airborne intelligence, surveillance, and reconnaissance assets against transregional adversaries across theater boundaries. This report describes the tabletop exercise design, key insights from analysis of the discussion, and recommendations.

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