

The Dough Dimension

Taking things for granted

by GySgt Jeremy Kofsky

“It had all started so wonderfully,” SSgt Dough thought to himself. How did it come to this? The burning wreckage of the Navy/Marine Corps Task Force sent to secure Kuoni Bay lit up the night’s sky as SSgt Dough began taking accountability of the Marines in his life raft. “It was like they came out of nowhere and knew everything about us. We could not communicate, fire back, or defend ourselves from their missiles. How did it all go so wrong?”

A few days prior, Task Force Adams sailed from its launching points in the western United States and made its way to marshalling areas to move to retake Kuoni Bay. The reasons for the conflict were vague to SSgt Dough, something about shipping rights and some politicians breaking promises in negotiations. SSgt Dough did not really know, but he did know he had a job to do and that was to ensure Capt Rubaeus had a perfect space operations appendix to the operations order in his role as an operations specialist in the Task Force’s G3. This was on top of helping other officers format their own appendixes to the operations order as this was SSgt Dough’s strong suit.

SSgt Dough spent countless hours making sure all the fonts and formatting was correct to meet Capt Rubaeus’ high standards. The actual content of the order was typical boilerplate stuff about coordinating with Air Force and Navy space commands for precision, navigation, and timing and clearing channels for SATCOM transmissions. “Not that it really matters, we always have GPS and SATCOM anyway,” Dough muttered to himself as he looked up on NIPR (non-secure Internet Protocol router)—the Space Command he would “coordinate” with for space matters.

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As the Task Force continued to sail, strange events started to occur. First, there was an accident in space. A satellite had gone off course and started a chain event of other collisions. Capt Rubaeus said something about a Kessler Effect or some other thing. There was scuttlebutt about an explosion on the initial satellite. Others said there was an object seen closing in on the initial satellite. All SSgt Dough knew was that he could not talk to his girlfriend or look up his position on Google. Capt Rubaeus stated this was because the chain effect of the satellites colliding

with each other had rendered most of the GPS and communication satellites effectively inoperable.

As the Task Force steamed closer to Kuoni Bay, almost all SATCOM, even when dedicated and undamaged communications satellites were in coverage range, became effectively nonexistent. “They can’t be jamming us,” Capt Rubaeus said, “We are too far out from them.” Nonetheless the Task Force was effectively deaf and dumb while moving into Kuoni Bay. “Doesn’t matter,” SSgt Dough thought, “The Task Force has been trained to operate in adverse con-



The launch of missiles was greeted with cheers. (Photo by PO3 Brandon Cyr.)

ditions and the Old Man knows what he is doing.” What SSgt Dough did not know was how bad things were about to get.

With the combined effects of a lack of satellite communications and an effective orbit of satellites, the Task Force was unable to see the enemy’s preparations for the incoming amphibious assault. Their vaunted “carrier coffins,” as the Marines took to calling the enemy’s long-range missiles, were able to move into launch positions without detection. This, in concert with an ineffective screener force of escort ships, allowed for the enemy to launch salvos of missiles at the incoming Task Force well outside of the range of the Task Force’s aircraft. The initial tally of losses included one supply ship and the Task Force’s main carrier, including her complement of aircraft. The loss would have been greater, but the Task Force commander wisely disbursed his units with the plan being that they would come to together right before the amphibious landing.

Once the Task Force’s ships were in approximate range (it was hard to tell as the ships’ navigators were reduced to using nautical charts and mathematical computations based on direction and noted speed of the ships), they attempted to launch their missiles in hopes of preventing another salvo of missiles from hitting the Task Force. The launch of the missiles was greeted by whoops and cheers from the Marines and sailors on the amphibious ships. Most had cameras to document the firings for social media consumption later, once they could get onto the ships WiFi that was nonexistent since the events earlier in the week caused issues with SATCOM, which is what the ship used to broadcast outgoing signals.

While the launch of missiles was greeted with great fanfare, if the Marines knew what awaited them in the near future, they would have treated the event as what it was: a harbinger of doom to come. What most of the Marines did not know was that because of the ship’s fire control officers lacked a way to properly calibrate where they were and, by extension, how far and what exact direction the suspected missile sites were located, most of the

missiles failed to hit their intended targets. Unbeknownst to the Marines, the launch of the missiles had automatically alerted the enemy’s ballistic missile radars, which were able to triangulate and determine the launch points of the remnants of Task Force Adams. The second and third salvos of missiles from the enemy tested the resolve and mettle of the Sailors and Marines assigned to their ships’ various damage control teams.

Countless acts of heroism followed throughout the night to save both life and ship, but eventually almost every ship had to sound the dreaded command of “Abandon Ship!” The Marines uniformly carried their wounded into their assigned life rafts and slid them into the murky and endless ocean. The only illumination was the fires from ships not brought down below the water, and the only sound was silence as the once proud Task Force lay in tatters—awaiting an uncertain future as the morning came. SSgt Dough could make out the enemy’s flags on their coastal patrol boats cresting the horizon. “It had all started so wonderfully,” SSgt Dough kept mumbling to himself as the ships got closer and closer.

SSgt Dough woke up from his nightmare in a cold sweat. The rocking of the ship was normally very sleep inducing, but this time it worked as a tremor inside SSgt Dough. Collecting his thoughts SSgt Dough thought about what had just happened. He quickly gained his bearings and realized he was not in an enemy prisoner of war camp but rather on the amphibious Task Force’s command ship. He also realized the nightmare he had envisioned had not occurred, but if he did not hurry, it might. SSgt Dough was thankful to have an opportunity to fix the issues of his nightmare. He was also ecstatic he had a Marine Corps space support team (MCSST) he was the chief of to hopefully prevent the impending crisis from occurring.

SSgt Dough got dressed and proceeded to Capt Rabaeus’s wardroom. “Sir, we need to talk,” SSgt Dough said in a torrent of words. The exact words crashed into each other like the waves against the ship, but the meaning was clear, “Sir, we need to start working

the space plan.” The previous night the satellites in low earth orbit had started colliding into each other. Neither SSgt Dough nor Capt Rabaeus knew what caused the initial incident, but it was pretty obvious some sort of anti-satellite weapon had been used, either via explosives detonating inside the satellite, a missile shot up at the satellite, or a navigational correction directing the satellite to crash into another satellite. Regardless of the cause, the end result had been the same. The Task Force has lost its satellite communications and GPS tracking ability. “Sir, I think we need to get Sgts Gold and White up and have them start working with their contacts to figure out what to recommend to the Task Force commander.”

“Sounds good,” replied Capt Rabaeus, “but we might as well also wake up Sgt Jones and Cpl Smith as they will probably have a part to play in this before it is over.” After approximately ten minutes, the rest of the MCSST had assembled. Sgt Gold was the team’s fires specialist, trained as a joint tactical air coordinator and the use of precision fires. Sgt White served as the team’s SATCOM specialist and would be critical in the days to come. Sgt Jones was the team’s geospatial/imagery intelligence specialist. Finally, Cpl Smith was the team’s intelligence specialist and was responsible for fusing all the disparate intelligence feeding into the team. He would be a critical component to help solve the issues arising from the low earth orbit satellite destruction, if only Sgt White could figure a solution to the communications issues.

“Sir, I think we have a possible workaround,” Sgt White chimed in, interrupting SSgt Dough’s thoughts, “In the near term, we can use high frequency radios to communicate. They lack some of the capabilities of the SATCOM we are used to but can still get the job done. Additionally, if we absolutely need to communicate stateside, we still have some communications birds up there, we just have to be able to track them.” “I think I can help with that,” Cpl Smith piped up, “We can use satellite tracking software to determine what communications satellites are above us and if they are operable. It will be spotty but can

possibly aid in getting us back to our higher space coordination agencies to get a better solution.”

“Sounds good team,” Capt Rabaeus stated, “Sgt Jones, help Sgt White with the communications piece since you are used to handling high frequency communications. Also, work with Cpl Smith to start mapping out communications windows based on available satellites and their crossover times. SSgt Dough, keep me informed. I am going to brief the colonel on the issue and solutions we are working on.”

With the communications issue abetted for the time being, the Task Force continued its journey toward Kuoni Bay. This was aided by the use of the ships’ constantly using nautical charts and speed/time and direction calculations to determine approximate locations while waiting for undamaged GPS satellites to “ping off” to confirm or correct the ships to an exact location. This seemed to alleviate most mission critical issues with the ship even if SSgt Dough and the rest of the ship couldn’t talk via social media or email with their families. Bandwidth was minimal and allotted to the most important coordination data necessary. The Task Force staff would spend the periods between satellite overflight creating reports that were bundled and shot out in the small windows of available coverage.

However, the communications and precision, navigation, and timing (PNT), derived from the use of GPS satellites, issues would worsen as the ships got closer to Kuoni Bay. “They can’t be jamming us,” Capt Rabaeus said, “We are too far out from them.” Hearing this brought on the dread SSgt Dough had in his nightmare a few nights prior, “I agree sir, I want to talk with Sgt White, but this might be scintillation in the atmosphere.” The captain responded “Dough, are you making up words again?” “No sir, I think we might be in a pocket of atmospheric interference that is obscuring all the signals between us and our remaining satellites.”

“I would have to have Cpl White confirm that with the latest space weather analysis the Air Force Weather Agency sent us in the last data dump, but it is the only thing that makes sense given

the issues we are currently having and the latest intelligence we have on the enemies’ jamming capabilities.” “Sounds good,” Capt Rabaeus said, “Good idea to have that as one of our high priorities for helping to execute the commander’s intent of ensuring minimal collateral damage through precision fires and a solid operational picture.” “Thank you, Sir, and good job of getting our priorities on his desk,” replied SSgt Dough.

SSgt Dough listened to Cpl White confirm his suspicions in the weather report. While listening, SSgt Dough was thankful he had been awake during the space weather part of the Space 200 Course to be a MCSST chief. SSgt Dough realized he needed to have Capt Rabaeus coordinate with the MAW to come up with a solution. Thankfully, new equipment and techniques/tactics had been developed in the event a unit was operating in a communications’ denied environment.

“This stuff was made to operate in Syria, and that electro-jamming nightmare, but the theory of use should still work,” SSgt Dough told Capt Rabaeus, “It shouldn’t matter if our communications and signals are being degraded by the enemy or by weather, we can still use UAVs as relay pickets to send communications and navigation aids back to us.” “But don’t they need the same coordinates they are searching for and also how will they communicate

if we can’t use SATCOM?” Capt Rabaeus asked. “Sir, we can use mapping software in conjunction with physical tools such as windspeed monitors and electro-compasses to get exact bearing and distance to known points. This in conjunction with the known point data provided by Sgt Jones to corroborate the suspected locations to maintain effective location data for our GPS enabled systems.” “Additionally,” SSgt Dough continued, “we will either have the UAVs download their data through a local UAV cloud system or we can direct line of sight them and push data that way.” “Sounds solid in theory, let me brief up the operations officer and see what he thinks about this before we brief the Wing,” Capt Rabaeus answered, leaving SSgt Dough to work on the technical aspects of coordination in case the commander made a favorable decision.

A few hours later, as the Task Force steamed closer and closer to Kouni Bay, Sgt Gold interrupted SSgt Dough as he was writing the space annex to the operations order the Task Force commander would use to implement Capt Rabaeus’ plan of UAV data aggregation. “SSgt, I think we may have another problem shortly,” Sgt Gold stated. “What now?” replied SSgt Dough, his voice tinged with a lack of sleep and exasperation. This was becoming an all too common issue for the Task Force at this point,



UAVs would be able to download their data through a local UAV cloud. (Photo by Sgt Paul Robbins.)



UAVs would play a critical role in identifying enemy communications and signals and relaying the information to the Task Force. (Photo by LCpl Brian Bolin, Jr.)

but the mission never changed, merely the ways to ensure it was carried out. “I think we may be running into the Bay blind from those new-fangled missiles those guys have. We need to change our radars to detect their ballistic missiles.” “Goldie, they are not going to nuke us, that’s too much of a geo-political risk, stop bothering me with this nonsense.” Dough responded. “SSgt, I know, but their conventional missiles can still go out of the atmosphere and therefore are classified as ballistic missiles.”

“Fine, what do you suggest?” Dough relented. Clearly, his sergeant knew what he was talking about and this would be a welcome distraction from figuring out which appropriate numbering sequence to use when describing the subordinate units’ execution of the relevant tasks in accordance with the appropriate reference. “We need to coordinate with the combatant command” Gold said, “and see if we can have them reallocate their theater-level phased array radars to cover our approach into the bay. They can cover large swaths of known and suspected launch points and alert us and our escorts to incoming fires.” “Roger, sounds good. Let me know what assets we need to alert and where we should re-jigger them toward.” Dough responded, knowing that Gold had a good plan and would execute competently.

“Check rog, I’ll use our planning software to determine levels of coverage and ship vectors to get us good overlays. Give me 30 minutes and I’ll get back

to you with a plan.” As SSgt Dough waited for Sgt Gold to get back with a plan, he started to think about how else the mapping software could be used. “Hey, Smithy!” Dough called for his bespectacled analyst. “We know what satellites of theirs can spy on us right? Is it possible the same tracking software used to find our own satellites can be used to track theirs?” “Yeah, as long as we have updated information about which ones are which.” “Awesome, start a death wheel of when, where, and what type will be flying over our location throughout our future course,” replied SSgt Dough.

“Sir, if we know where their satellites are suspected of crossing over, we can do a host of denial and deception, or just straight up avoid them and ensure our movements are obscured. We can have the ships look like they are steering one heading and as soon as the satellites pass over, move in a completely different direction or we could make the decks look like we are getting ready to launch and see what their responses are to determine indication and warnings of their actual attacks,” SSgt Dough breathlessly explained to Capt Rabaeus. “Once again Dough, you and your theories. This one does make sense, but it requires some higher-level approvals and deconfliction. I will work on that, just make sure all the operations order stuff is ready to go when I get back.”

As the operations order annex was completed and the various parts of the

plan the MCSST had come up with during their trawl to Kouni Bay came into fruition, the scenario started to change. Underneath the veil provide by constantly changing course, the enemy had no idea where the Task Force was or where they would be. They started panicking and sent out aerial reconnaissance aircraft that were followed back to their launch points and a new map of the area of operations started to develop. The panic and following of aircraft, revealing previous unknown locations, caused further mistakes in terms of sporadic launching of missiles, which were quickly detected and defeated because of the use of early launch detection and subsequent mid-course intercept. These actions were quickly countered by the Task Force and the use of a Task Force centric PNT grid enabled accurate fires of the point of origin of the launches. As the Task Force got closer to Kouni Bay, the adversary lost decision making and leverage advantage and stepped down from its earliest edicts that had caused the situation in the first place.

As SSgt Dough reflected on the operations and savored the craft beer the Old Man had allotted the Task Force once hostilities had stood down and the Task Force was steaming back to port, sat down at his desk and started to craft his after-action report. SSgt Dough wrote how the implementation and maintaining of the MCSST needed to be sustained because they helped solve a lot of the Task Force’s issues through use of tracking software throughout the various planning and operational shops of the Task Force as well as in proper utilization of the core jobs and skills of the members of the MCSST. Dough thought improvements needed to be made in the areas of improving technologies to combat loss of PNT and intelligence, surveillance, and reconnaissance; increased levels of autonomy to use theater assets during crisis situations; and a faster process to gain approval for use of those assets. As SSgt Dough put together the point of contact and signature line to his after-action report, he thought to himself, “John, it has all gone so wonderfully.”

