Forecasting and Following Disaster

Underutilized tools for forecasting HA/DR, NEO, and CR missions

by LtCol Ryan Christ

I ndications and warnings of pending major combat operations from near-peer military powers tend to be collected on a regular basis by the intelligence community and the combatant command's Joint Intel Centers (JICs). This gives intelligence analysts a fighting chance to make accurate and well-supported forecasts. However, analysis and information on pending famines, volcanic eruptions, disease outbreaks, cyclones, and collapsing governments in developing countries are typically less pervasive but exist in a variety of disparate locations—if one knows where to look. I had the good fortune of being exposed to a lesser-known set of organizations, websites, and products that focus on these mission sets through fellowships at the Department of State and the United States Agency for International Development's (USAID) Office of U.S Foreign Disaster Assistance (OFDA), along with deployed assignments to both a MEU and Special Purpose MAGTF-Crisis Response Africa. There is a multitude of unclassified websites, resources, and methodologies available to assist intelligence professionals in forecasting and following some of the most likely disasters to which "America's 9-1-1 Force" will be called on to respond, namely humanitarian assistance and disaster response (HA/DR), non-combatant evacuation operations (NEO), and crisis response (CR) missions.

Forecasting the Low End of the Range of Military Operations

Forecasting any type of event within the range of military operations is challenging, especially the further "left of bang" the analyst decides to make a

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Marines conduct radio checks during a humanitarian assistance training exercise at MCAS Iwakuni, Japan. (Photo by Sgt Christian Bestul.)

call; however, like any decision, good predictive assessments are based on the *quantity, quality, and the variety* of one's information. This article provides analysts with unique and varied types of tools for their forecasting toolbox. However, before listing and explaining each resource, it is important to discuss methodology.

The best analogy for forecasting a NEO, CR, or HA/DR crisis is the requirements for a fire or an explosion; each needs both a fuel source and a spark. The larger and more combustible

the fuel, the smaller the spark required to set it off. Alternately, a smaller and less flammable fuel source requires a much bigger flame to get going. The same is true for a crisis; this is why the suicide of a street vendor can ignite the Arab Spring, while it takes a historic magnitude hurricane to only temporarily destabilize one city or region of the United States. When attempting to forecast a government collapse or a HA/DR situation requiring DOD assistance, analysts need to ascertain and collect against the baseline level of fra-

gility and resiliency of the country (the fuel) as well as the size of the pending or recent incident (the spark). Once this information is gathered using resources discussed in this article, the risk, likelihood, and potential outcome can be analyzed and debated using familiar structured analytical techniques.

HA/DR. The USAID OFDA is the lead U.S. Government (USG) agency during a HA/DR operation outside the continental United States. Any MEU or SPMAGTF assigned to work a HA/DR mission will act in a supporting role to OFDA. Although OFDA does not "predict" disasters, many of the information resources and tools they use and teach during their Joint Humanitarian Operations Course can be used to forecast and track HA events.

OFDA divides HA disasters into three types: rapid onset (hurricanes, earthquakes, or volcanoes), slow onset (drought, famine, or infestation), and complex (HA in a conflict zone). Rapid onset natural disasters can be the most challenging of the three to forecast. For disasters of this sort, OFDA ties into several USG subject-matter expert agencies. The easiest thing for Marine analysts to do is to let OFDA and their subject-matter experts do the work and just follow OFDA on Facebook, Twitter, Intelink, or get on their distribution lists (all websites and referenced sources can be found in Table 1). However, this article places some of the tools OFDA uses into the hands of the analyst, who can use the resources to improve capacity pre-event. For example, information on pending or recent volcanic eruptions and earthquakes can often be found through the U.S. Geological Service's (USGS) Volcano Detection Assistance Program (VDAP) or its Prompt Assessment for Global Earthquake Responses (PAGER) systems respectively. PAGER updates include fatality and economic loss estimates in concentric circles around the quake's epicenter and are available within minutes after the quake. Hurricanes are tracked and forecasted by the National Oceanographic Atmospheric Administration (NOAA), while typhoons and cyclones are tracked by the U.S. Navy Joint Typhoon Warning Center (JTWC). True to their

Type of Disaster "Forecasted"	Organization	Website or Resource
Famine Early Warning Food Insecurity	• USAID/OFDA • Food Security Cluster (UN) • Global Nutrition Report	• FEWS.net • fscluster.org • globalnutritionreport.org
Volcanic Activity	• USGS	• VDAP • Usgs.gov
Earthquake Activity	• USGS	• Usgs.gov • earthquate.usgs.gov/earthquakes/pager
Hurricane Activity	• NOAA	• Nhc.noaa.gov
Typhoon Activity	• JTWC	• http://www.usno.navy.mil/JTWC/
Disease Outbreak	• CDC • National Maritime Intelligence Center on Secret Internet Protocal Router Network/Joint Worldwide Intelligence Communications System • AFHSB Distro	• @CDCemergency Cdc.gov/outbreaks • https://redsky.cdc.gov/rs/index.html • dha.ncr.health-surv.list.afhs-ib-alert-response@mail.mil
Humanitarian Response	• UN, NGOs, and greater international HA Community Websites and Twitter handles • HA Logistics Info	• Reliefweb.int • Humanitarianresponse.info/home • Irinnews.org • Trust.org/humanitarian • Interaction.org • acaps.org • http://www.logcluster.org/
USG Humanitarian Response	• USAID/OFDA • OFDA Twitter • OFDA Fact Sheets • DoS Humanitarian Info Unit	• www.ofda.gov • @theOFDA (Twitter) • www.usaid.gov/news-information/-fact-sheets • www.hiu.state.gov
Government Stability/Fragility	• USAID/CMM • Conflict Management and Mitigation • Fund for Peace	• http://fundforpeace.org/fsi/
Refugees and Human Rights	• UNHCR Refugee Operations • Global Shelter Cluster • Human Rights Watch • International Org for Migration	• https://data2.unhcr.org/en/situations • sheltercluster.org • hrw.org • http://www.globaldtm.info/
Violence Activity Metrics	• ACLED	• www.acleddata.com
Foreign Security Updates	• Regional Commercial/USG Partnerships • DoS Travel Warnings	• www.osac.gov • @OSACState • Google "DoS Travel Advisories"
Crisis Mapping Data	• Open Street Map • Crisis Mappers	
Pending Elections/ Gov Instability	• National Democratic Institute	• https://www.ndi.org/elections-calendar

name, there is very little time—even for the experts—to forecast rapid onset disasters.

For slow onset disasters, forecasting is a bit easier. The Center for Disease Control (CDC) tracks international outbreaks of deadly diseases through its outbreaks webpage and its @CDCemergency Twitter handle; additionally, the Armed Forces Health Surveillance Branch (AFHSB) produces a weekly health surveillance update and map that tracks heath events and disease outbreaks per combatant command. The National Center for Medical Intelligence also monitors and assesses global health events and outbreaks that could grow into HA/DR missions. Lastly, US-AID follows pending food insecurity and famine using the Famine Early Warning System, among other websites.

The line between "following" and "forecasting" is blurred when discussing slow onset HA disasters. In these cases, forecasting may simply mean knowing about a situation before those in your command. With this in mind, the resources used to follow HA/DR situations can also be employed to ring the warning bell on slow onset disasters. The organizations listed in Table 1 are typically tracking possible HA/DR situations well before any news report or higher headquarters.

Moving up the kinetic scale, we arrive at complex disasters. This is the dangerous gray area between HA/DR-related information and typical military intelligence, and the number of these HA environments have increased over the last fifteen years. Intelligence professionals must understand that complex environments make non-governmental organizations and HA organizations much more hesitant to share HA information with a military unit out of fear it might appear they are working on behalf of one of the combatants. For intelligence professionals working in these cases, it is best to focus on the enemy and allow the civil affairs personnel to compile HA information (not intelligence) and work with the host nation and OFDA. OFDA likely will provide a Disaster Assistance Response Team with a Civil/Military Affairs Coordinator to all disasters involving the US Military, complex or otherwise.

NEO and CR Operations. Analysts can improve their NEO and embassy response forecasting by studying the sudden or steady downward trends of already unstable nation states (fuel) while also scanning current and future events for possible triggers (sparks). USAID's Conflict Management and Mitigation Office (CMM), the Political Instability Task Force, and Fund for Peace with *Foreign Policy Magazine* all produce annual foreign government fragility and stability products that are surprisingly accurate at highlighting countries susceptible to unscheduled transitions in government or internal conflict. A bit closer to the major combat operations side of the spectrum is the Council on Foreign Relations' annual Preventative Priorities Survey, which compiles foreign policy experts' forecasts for possible conflicts involving U.S. interests in the coming year. Additional resources capable of contributing to a country's baseline stability assessment include the Diplomatic Security Service's High Risk/High Threat Post and Security Environment Threat List annual reports. These products should be used to narrow your focus area, eliminating the need for more detailed examinations of stable or resilient countries.

Accurate forecasting, however, requires that the information be more current than the previously mentioned annual baseline products. Mid-timeframe stability information can be found by a variety of sources. While deployed as the S-2 for SPMAGTF-CR Africa 15.1, Marine Corps Intelligence Activity's (MCIA) Africa analysts created two "six-month stability forecasts" covering the countries in Africa for my team. These reports provided a relative stability score, a trend arrow, comments on each country's stability covering the last six months, and forecasts for stability and potential triggers for the next six. Crisis Watch Group's Crisis Watch website also shows monthly trends in stability and conflict as well as "Outlooks" for the current month. The Overseas Security Advisory Councils are regionally-aligned public or private (diplomatic security/U.S. corporations) organizations created to promote security cooperation and threat information sharing between American private sector interests worldwide and the U.S. Department of State, and they provide a good blend of mid-timeframe and recent information. U.S. businesspersons living, working, and traveling in foreign countries, are a potentially valuable and different source of early warning for changing security situations. Deteriorating human rights situations and their resulting refugee flows are also good early warning indicators of conflict or unstable governments (see Table 1).

Near-term metrics of stability provide a good bridge between the fuel and the spark, sometimes acting as both. However, analysts should be careful of "recency bias," not letting a short-term outbreak in violence overly influence a forecast. Junior analysts have a predisposition to believe that short-term instability equates to an impending crisis; longer term analysis products can control for this natural enthusiasm and bias.

The following resources and tactics, techniques, and procedures provide insight into short-term predictors of a government stability crisis. Rates of violence in Africa, the Middle East, and South Asia can be monitored and charted using the unclassified Armed Conflict Location & Event Data (ACLED) Project website. Social media

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and open source intelligence reporting both can be used "left of bang" to assist in gauging and tracking a population's sentiment analysis. The DOS's Travel Advisors are not made lightly and should be monitored for changes, while intelligence Marines can search for embassy Emergency Action Committee meeting cables as one of the best ways to get ahead of the intelligence community's production loop on pending disasters or political crises. With regard to triggers, election periods in unstable countries are typically one of the most frequent sparks of violence. Elections (twelve months prior and one to three months post-election) can spark a powder keg of religious, ethnic, or tribal tensions. While stability and resiliency are not always linked and parallel, many of these same metrics can be used to determine how well a country might be able to deal with a pending HA/DR situation and, therefore, can be helpful in forecasting an OFDA response requiring DOD assistance when a natural disaster is looming.

Following Low-End Operations

As previously stated, one of the best ways to follow on-going humanitarian disasters is by following OFDA through its website and Twitter handle. OFDA also recently established a NIPR Intelink blog site for each combatant command where members of its military liaison team post humanitarian disaster updates. In additional to the Intelink blog, OFDA releases a daily Dashboard, periodic fact sheets, and humanitarian updates on HA/DR situations via email distribution lists. OFDA's annual report provides an overview of the office's humanitarian response and disaster risk reduction operations for a given fiscal year, including response summaries, country profiles, funding data, case reports, and features on various US-AID/OFDA-funded programs. It is an excellent resource for understanding the USG's humanitarian response capacity and operations from a wider lens. All of these products are publicly available on the USAID/OFDA website or through the Marine Fellow at OFDA.

While the USG is a major player in the international humanitarian arena,

the United Nations (UN) and nongovernmental organizations are equally valuable entities to follow during a response. Outside of the USG, *reliefweb.int*—run by the UN Office for the Coordination of Humanitarian Affairs—is considered the premier HA information sharing site. During an active response, field-level information can also be found

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on the UN-run Humanitarianresponse.info/home website. Additionally, irinnews.org, the Reuters' humanitarian news page, and trust.org/humanitarian are also useful news sites to follow and understand humanitarian crises. Lastly, Logistics Cluster is a valuable site for tracking the current HA/DR logistics infrastructure, routes, and partners for a particular response.

A discussion of social media analysis and other publicly available information platforms covering HA/DR and unrest requires a separate article; however, if the electricity and connectivity are unaffected, sentiment analysis and infrastructure updates and images can provide a major source of immediate ground "truth." Geospatial information sites like Crisis Mappers and Open Street Map are always evolving and updating their maps and ground situational awareness with inputs from local contributors, while companies like Hala Systems, GroundTruth Global, Good Judgement, Vertical Knowledge, and others provide commercially available websites, which advertise early warning networks and algorithms or expert crowdsourcing to assist in the forecasting and following of disasters and social unrest.

Finally, the Marine Corps has Fellows or detailees plugged into several key organizations that follow these types of disasters. The Marine Corps has either Commandant of the Marine Corps Fel-

lows or Director of Intelligence fellows/liaisons at OFDA, USAID, US Institute for Peace, or the Department of State Information & Research Bureau. OFDA has Humanitarian Assistance Advisors/Military at every combatant command who are willing to communicate and share HA/DR information with Marines.

Recommendations

The Marine Corps is America's "Force-in-Readiness," and the intelligence sections of multiple MEUs afloat, two SPMAGTFs, and the Marine Corps Embassy Security Group do a fine job updating their respective commanders and Marines on developing HA/DR, NEO, and CR situations; however, there is room for improving, standardizing, and professionalizing the forecasting of these types of missions at the Service level to support these forward deployed Marines.

MCIA and the three MAGTF intelligence centers could establish small early warning analysis centers or cells to track and forecast incidents that are likely to fall below major combat operations. A small restructuring and formalizing of this analysis activity at MCIA or the MAGTF intelligence centers could result in outsized impact and increased proficiency for young analysts rotating into the billet, key elements include: mission statement; objectives; SOP; two to four personnel; interagency point of contact, memorandums of agreement, and info sharing agreements; lessons learned; and specialized training and intelligence community access for its analysts. Its weekly output could be as simple as a "Watch List (Top 10)."

At a minimum, out-going MEU and SPMAGTF S-2s should create and contribute to a Marine Corps Center for Lessons Learned Collection for HA/DR, NEO, and CR type missions, which could eventually lead to a Marine Corps Intelligence Schools analyst primer on these topics.

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