

THE ROLES OF GENERAL AVIATION AIRPORTS IN DISASTER RESPONSE

James Fielding Smith
American Public University System
385 Sam Reed Rd NW
Floyd, VA 24091
540-239-1206
Fax 540-763-3268
jfsmith@swva.net

Abstract

Overnight, any of the over 19,000 general aviation (GA) airports in the U.S. could become a crucial asset in disaster response. Of particular interest is the disaster preparedness of approximately 3,500 publicly owned, public use GA airports. In order to develop a comprehensive understanding of current readiness, a random sample of this type of GA airports was surveyed and results were compared with data from 20 selected GA airports, examining historical use in disaster responses, special capabilities, airport wishes for expanded involvement, and roles in local, state, and national disaster preparedness plans and drills. Seven state plans for coordinating aviation assets during disasters were also analyzed. In general, GA airports have been involved in disaster responses representing the unique types of incidents threatening their regions. Most GA airports are willing to serve in disaster responses, and intend to expand their involvement, seeing greater preparedness as a business opportunity, a community obligation, and/or a means to maintain more control over their fates when involved in disaster response. However, while most are involved in local planning, relatively few GA airports have actually participated in state or federal disaster planning, and very few have been involved in federal disaster drills. Indeed, far more GA airports are actively involved in state aviation planning than in state disaster planning. Florida and Washington State have comprehensive state disaster aviation plans; Louisiana and Arkansas are finishing comprehensive plans; Texas has a comprehensive plan that does not include airports; and Alabama and California are in the early stages of developing plans. GA airports' interest and participation in disaster response varies widely from region to region due to such diverse factors such as history, location, politics, perceived threat, and airport business models.

INTRODUCTION

Airports fall into two categories: certificated airports (the fewer than 600 commercial and military airports), and general aviation (GA) airports. There are more than 19,700 GA airports in the U.S. This includes public and private airports: airports with all sorts of runways, from 12,000-foot concrete runways at former Strategic Air Command bases to 2,500-foot grass strips, and airports with all sorts of purposes, including heliports serving hospitals, law enforcement, and broadcasting stations. Of the total airports, approximately 3,500 are part of the National Plan for Integrated Airport Systems (NPIAS) (1). This study describes the historical use of general aviation (GA) airports in disaster responses, current practices, and potential enhanced operations for future disasters and catastrophes.

Definitions

The Federal Aviation Administration (FAA) classifies airports in a number of ways (2). The most basic split is certificated versus non-certificated. Certificated means that an airport is certified by the FAA as meeting the standards for commercial or military aviation under Part 139 (3). Within the certificated airport category is class IV, or limited 139 certification. Class IV airports typically have only charter passenger operations, if any passenger operations at all, but they may have very extensive aviation usage by heavy aircraft. All the rest of the airports--the non-certificated category--belong to general aviation. This study primarily examines activity at GA airports but includes several Class IV airports that function similarly to GA airports in disaster response.

Scope of general aviation and GA airports

General aviation encompasses most of aviation: business aviation, industrial development, recreational flying, support for offshore oil and gas installations, tourism, agricultural services such as crop dusting, firefighting, animal control, hydrographic surveying, geophysical surveying, traffic reporting, search and rescue, police work, and medical transport, among many others. GA uses airports throughout the country, and there is hardly a citizen who is not within 50 miles of a GA airport if privately owned, private use airports are considered along with public use ones.

Related Research

Since 2007, American Public University System has funded a series of research projects into the relationships between airports and their community emergency response partners (4), airport disaster preparedness in a community context(5), and regional cooperation among airports during disasters including airport disaster operations groups such as SEADOG and WESTDOG (6). This study is the fourth installment in this series.

METHODOLOGY

Research Questions

1. What roles have GA airports played historically in disaster response?
2. What capabilities do GA airports have to support response in disasters?
3. What goals and intentions do GA airports have regarding involvement in disaster response?
4. What level of awareness exists regarding GA airports' capabilities at local, state, and national levels?
5. How involved are GA airports in disaster planning and drills?

Data Collection

A random survey of 500 U.S. GA airports

Examination of the list of all U.S. airports (7) quickly led to the elimination of heliports, gliderports, seaplane bases, and balloon bases. Further examination led to the conclusion that private use airports would be too difficult and too expensive to contact within the parameters of project funding. By elimination, approximately 3,500 publicly owned public use airports remained. Random numbers were used to identify 500 airports to receive surveys via email. This presented a major problem: none of the government or commercial databases include email addresses for GA airport managers or fixed base operators (FBOs). Email addresses were eventually obtained for 31 states (shown in gray in Figure 1) containing 331 of the 500 airports, and the survey was distributed. The university's Institutional Review

Board approved the survey form, and the Transportation Security Administration (TSA) found that the survey contained no sensitive security information.

Site visits and interviews or email interviews with a selected sample of 20 airports.

Some of these airports self-selected in response to publicity for this study from the National Air Transport Association (NATA) and by *Airport Business* magazine's blog (8). Other airports were carried over from prior studies or recruited by the author because of the airports' historical involvement in disaster response. The purpose of this second sample was to allow probing of the results from the random survey through in-depth discussions with airport managers. Table 1 shows the airports in the selected sample. The same survey form was used as the script for interviews.

Table 1. Locations of selected airports in study

Palo Alto (CA)	Reid-Hillview (CA)	Van Nuys (CA)	Lakeland Linder (FL)
Chennault International (LA)	Esler (LA)	False River (LA)	Hammond Northshore (LA)
<i>Houma-Terrebonne (LA)</i>	<i>New Orleans Lakefront (LA)</i>	Southland Field (LA)	<i>Cecil County (MD)</i>
<i>Montgomery County Airpark (MD)</i>	Sedalia Memorial (MO)	<i>Morristown Municipal (NJ)</i>	<i>Cotulla-LaSalle County (TX)</i>
<i>Dry Creek (TX)</i>	<i>Sulphur Springs (TX)</i>	<i>New River Valley Airport (VA)</i>	<i>Virginia Tech/Montgomery Executive (VA)</i>
<i>(Site visits in bold italics)</i>			

Analysis of seven state disaster aviation plans or planning efforts

The states were selected on the basis of the author's prior studies of part 139 and in consultation with aviation disaster operational planners and state aviation directors. The states included are Alabama, Arkansas, California, Florida, Louisiana, Texas, and Washington. Other states may very well have plans at similar stages of development; if so, their plans are not widely known outside their boundaries, and no indication of any plans showed up in survey results from GA airports in other states.

RESULTS

Results from GA Airports

Of the 331 publicly owned public use airports sent the survey in March and April 2010, 32 airports (9.7 percent) returned completed survey forms (Figure 1). They came from 19 states in all regions of the country except Alaska, Guam, Hawaii, and Puerto Rico. The results of the main survey questions appear in Figures 3 through 6. Figure 6 summarizes the airport managers' opinion of which types of disaster their airports are well-suited for in supporting response. The responses tend to be very conservative and based primarily on the most basic characteristics of their airports (runway length, maximum weight limit, fuel, open space, hangar space, tie-down space, and hours of operations). In the free-form comment box, nearly all the more ambitious responders listed specialized assets such as FAA towers and Customs and Border Patrol offices as supporting a wider array of disaster types. In other words, airports with special regular activities requiring special capabilities may be better prepared to respond to a wider array of disasters.

Several serious issues with the random sample results preclude quantitative analysis and some aspects of generalizability. The lack of email addresses for sample airports in 19 states, Guam, and Puerto Rico de-

randomized the sample (Figure 1). Although a typical random survey response rate is only one to three percent, a much higher rate than ten percent was expected for this study. Several factors may have increased the non-response rate:

1. Very small airports have no professional aviation staff.
2. Many airports have no prior involvement with disaster response.
3. Airports are subject to “survey fatigue.” At least three major official (ACRP, FAA, and TSA) surveys preceded this study. (9-11)
4. No official agency such as the FAA, TSA, Airport Cooperative Research Program (ACRP), or state aviation offices endorsed the survey.
5. No organization endorsed the survey.
6. Many airport managers are not familiar with the author's prior work
7. Airport personnel have sensitive security information (SSI) concerns despite TSA clearance.

Bias may have been introduced by the number of state-owned and operated airports, some of which responded (WA, NH) and some of which did not (AK, HI). Washington State had eight airports in the random sample, but the only returned surveys came from four state airports.

All four random sample GA airports belonging to large airport systems that participated in the author's previous commercial airport studies responded. Federally owned and operated GA airports responses were split: one NASA airport responded, but none of the large number of BLM and USFS airports in western states responded.



Figure 1. General locations of respondents from random sample

Selected Airports

Data from the 20 airports in the selected sample (Table 1) offer fascinating insights into the airports' historical involvements, special capabilities, and desires for future involvement (Figures 3 through 5). Face-to-face interviews and facility tours at ten of the airports yielded even stronger insights. In addition, the author participated in a workshop entitled *Disaster Preparedness: Maintaining your Airport Operations*, sponsored by the Louisiana Department of Transportation and Development, Aviation Division. Forty-seven people attended representing 21 airports, which allowed broad discussion of the

issues pertinent to this study including questions regarding the involvement of GA airports in airport disaster operations groups such as SEADOG. (6)

Many interesting and unexpected historical uses emerged during visits with the 10 GA airports:

- Cecil County Airport (58M), Elkton, MD, is a privately owned, public use airport that has been used for search and rescue, Civil Air Patrol, Capital Area continuity of government (COG), and medical evacuations.
- Cotulla-LaSalle County Airport (COT), Cotulla, Texas has been actively involved in supporting fire suppression during two major wildfires, supplying fuel and apron space to several state and federal agencies, and providing space for temporarily based aircraft. COT also served as a base for aircraft dropping rabies vaccine-loaded dog biscuits to immunize coyotes spreading rabies northwards; this is an unexpected pandemic response use of an airport. In addition, COT has recently hosted Predator drones in support of the Customs and Border Protection.
- Dry Creek Airport (Ts07), Cypress, TX is a privately owned, private use airport where a 3500-foot grass runway is surrounded by the owners' homes and hangars. During the response to Hurricane Ike, Dry Creek volunteered to host relocated police and air rescue helicopters from the Houston area.
- Houma-Terrebonne Airport (HUM), Houma, LA. has over 110,000 flight operations and 250,000 enplanements per year as one of the two main airports supporting helicopters serving offshore oil and gas operations, even though it is a general aviation airport without a 139 certification. Historical disaster response activities involved hurricanes, floods, and search and rescue. During the May 6 visit, HUM was intensively involved in response to the BP oil spill. HUM's management feels a strong obligation to "give back to the parish." Their main self-imposed limitation is that disaster operations must not interfere with contractually obligated normal operations.
- Montgomery County Airpark (GAI), Gaithersburg, MD, plays a role in evacuating essential federal personnel for continuity of government (COG) and hosts Civil Air Patrol and USCG Auxiliary units. Several airports in the study support Civil Air Patrol units, which means that during a regional disaster they will support damage assessment and airborne communications missions.
- Morristown Municipal Airport (MMU), Morristown, NJ, is the most active business aviation airport visited. While it has not participated in disaster response, it has large capabilities in traditional aviation areas. It supports large special events such as political conventions and the United Nations opening session, illustrating that special events are good training for disaster response roles.
- New Orleans Lakefront Airport (NEW) played a major role in the immediate evacuation of citizens after Hurricane Katrina in 2005. NEW is an airhead in Louisiana's Medical Institution Evacuation Plan (MIEP). The NEW manager believes SEADOG could send short-term help to GA airports struggling to regain operational status after a disaster to better enable effective response and recovery.
- New River Valley Airport (PSK), Dublin, VA, exists primarily to import vehicle parts for a large truck factory and has on-site Customs and Border Patrol. These assets make PSK well-suited for heavy logistics support in a regional disaster. Like all 20 of the airports in the selected sample, PSK holds at least one open house/workshop for local firemen to familiarize them with the main aircraft types using the airport.
- Sulfur Springs Airport (SLR), Sulphur Springs, TX, serves as the main disaster-related base for the Civil Air Patrol's regional command, control, and communications and damage assessment missions. SLR could support other types of disaster response but gives priority to Civil Air Patrol operations.
- Virginia Tech/Montgomery Executive Airport (BCB), Blacksburg, VA, served as the command-and-control center for 400 state and federal law enforcement personnel for six weeks following

the April 16, 2008, shootings at Virginia Tech. Two Emergency Operations Centers were established, one in the terminal's conference room and one in a hangar.

Houma could be viewed as a "large industrial GA airport." It is one of three in Louisiana; the other two, which have limited 139 certificates, are Chennault International (CWF) and Acadiana Regional (New Iberia) Airport (ACA). Because of their regular business activities, these airports have exceptional capabilities to support disaster responses. Lakeland Linder (LAL), Homestead (X51), Kendall Tamiami (TMB), Van Nuys (VNY), New River Valley (PSK), Charles B. Wheeler Downtown (MKC), and many other GA and limited 139 airports also fit this profile.

Some GA airports are taking local initiatives with airport emergency plans (AEPs), which are not required for GA airports, or with disaster operations standard operations procedures (SOP) manuals. For example, Chennault International has an extensive AEP that could be adapted to almost any GA airport, not just large industrial GA airports. (12) Santa Clara County's Reid Hillview Airport has an Emergency Airlift Volunteers Operations Manual that was born of lessons learned from that airport's heavy involvement in the response to the Loma Prieta Earthquake in 1989. (13)

Comparative Results

Figures 2 through 4 compare the results from selected airports to those from random sample airports. The selected airports had much higher participation in all types of disasters (Figure 2), which is reasonable since they were selected for having interesting histories. What is more interesting is the relatively high percentage of involvement reported in the random sample. This suggests that a random sample airport with a recent historical involvement or an achievement to tout was more likely to respond to the survey than airports with less involvement.

Data about willingness to be involved in disaster response (Figure 3) reveal a similar pattern. GA airports in general seem to be willing to be serve in disaster response. Interviewees from selected airports all reported that this readiness comes from close ties to their community. Selected airports are more willing to participate and less likely to select the vague response "it depends" than the random sample airports. When asked whether the airport is actively seeking a role (usually a money-making enterprise role) in disaster response, 80 percent of selected airports replied "yes" compared to only 35 percent of the random sample airports.

Interestingly, current preparedness activities are roughly the same in both sample groups (Figure 4). These include participation in local disaster planning and drills, state plans and drills, federal plans and drills, and state aviation planning. Local activities garner the most intense involvement. The selected sample interviews conveyed that the airport managers believed their local communities are very aware of their capabilities as well as their historical and potential roles in response to disasters.

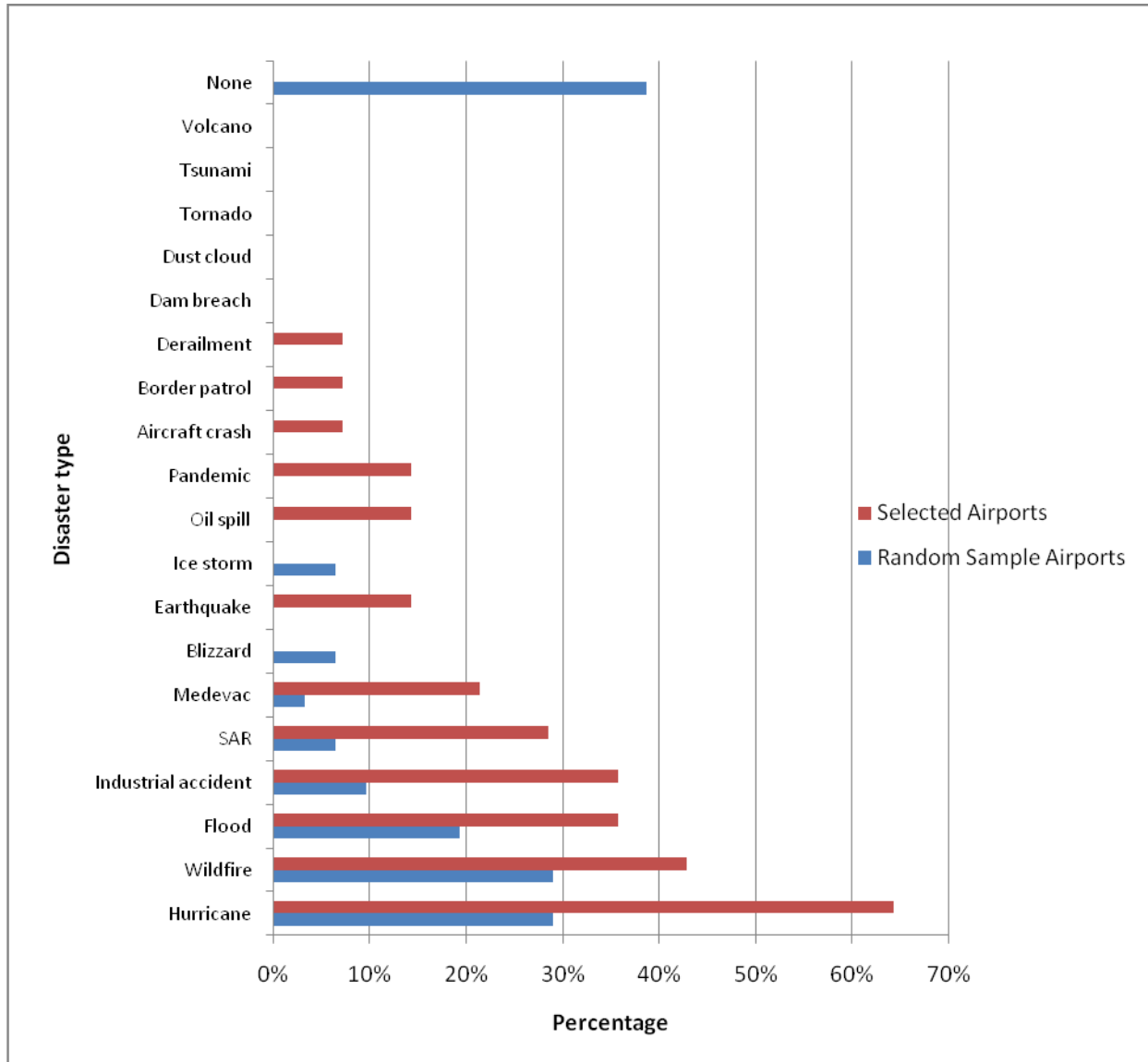


Figure 3. Historical involvement of GA airports

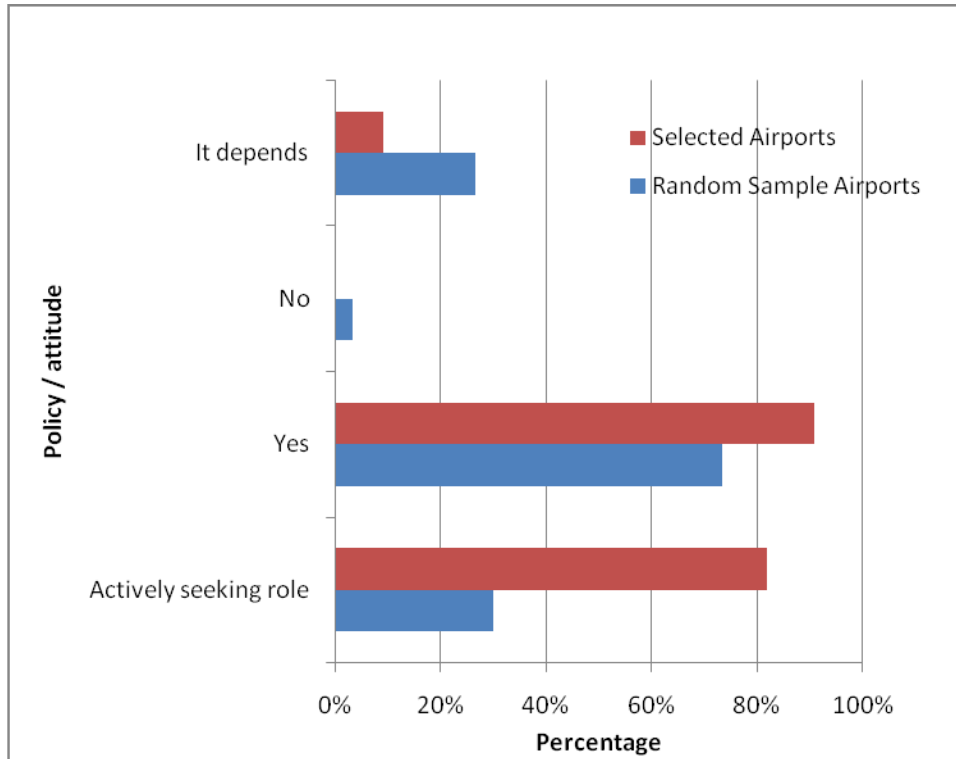


Figure 3. Willingness to participate & role-seeking

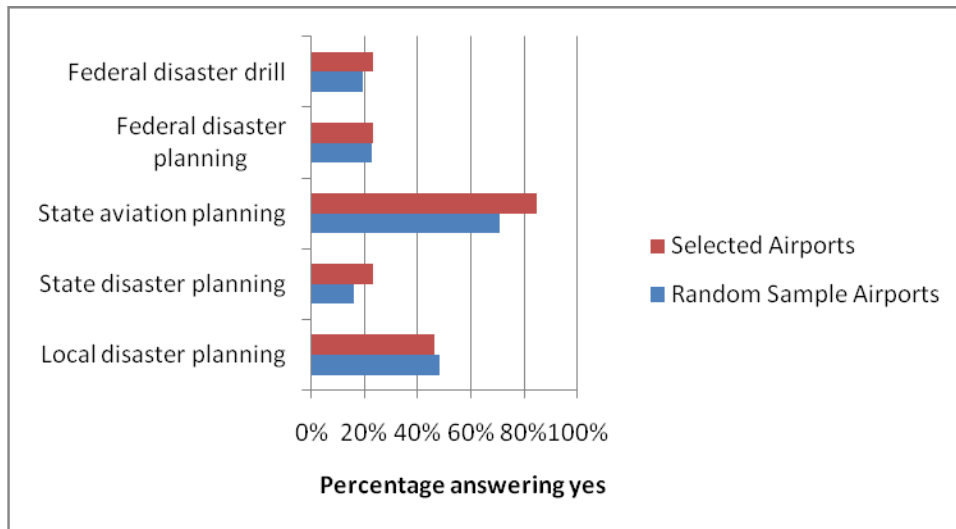
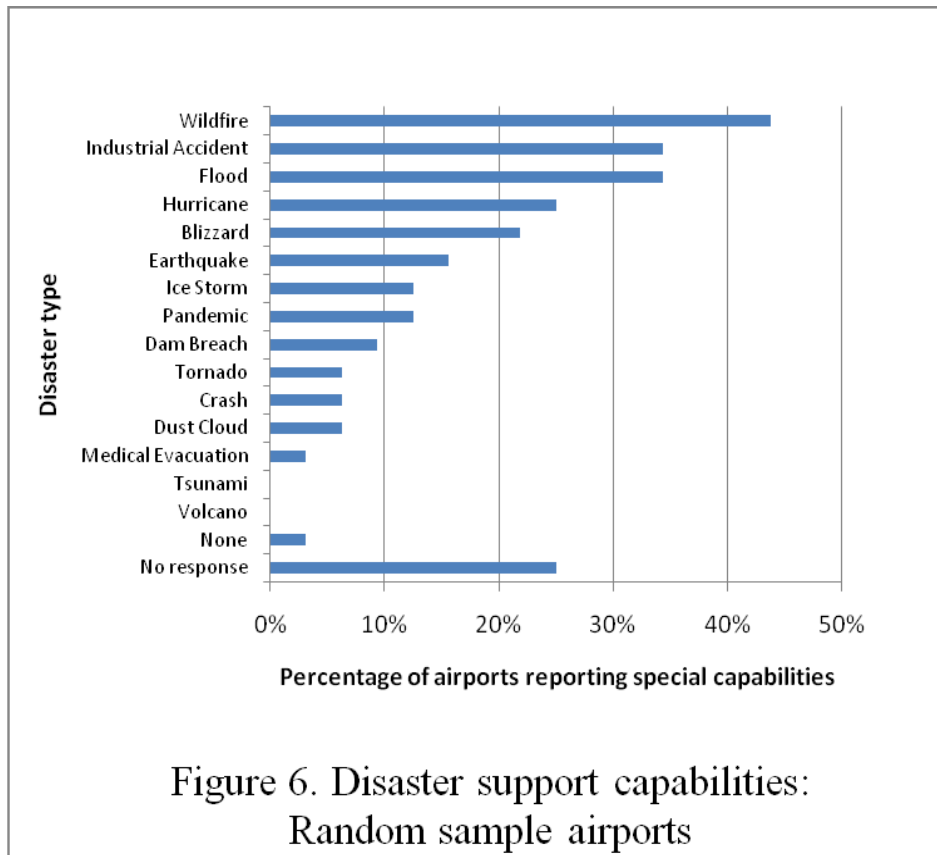


Figure 4. Preparedness activities



Ten in-person visits as well as interviews at the Louisiana workshop explored the issue of GA airport participation in and support from airport disaster operations groups (DOGs) such as SEADOG. A slight majority of interviewees would like to explore participation in both the sending and receiving functions of a DOG. These airport managers, largely from “industrial GA airports,” want to be able to call on skilled airport personnel from other airports to help sustain or restore their airports in a disaster. In contrast, almost the same number of managers would turn to their owners, usually a county, for non-aviation personnel to backfill and free up the professional aviation staff for enhanced aviation duties during disaster response.

State Plans

State plans for the coordination of aviation and disaster operations were reviewed for Arkansas (14-15), California (16-18), Florida (19-20), Louisiana (21), Texas (22), and Washington (23-26). Alabama's state aviation director and a leading airport and pilot advocate discussed their planning effort. Regional planning efforts (17) and an independent private effort (18) were considered in California. The seven states represent different approaches to the issues and are at different stages in the preparedness planning process. Only the Texas, Washington, and Louisiana medical institution evacuation (MIEP) plans have been signed. The Arkansas, Florida, and Louisiana general aviation coordination group plans are drafts, California has several initiatives in the draft stage, and Alabama's effort is just beginning. (As noted earlier, other states may have plans or planning efforts that were not detected in the literature review or survey results.)

The plans split in how they deal with aviation operations as opposed to airports. For example, the intent of the Texas plan is to avoid interference among contemporaneous air operations during a disaster, but the plan does not mention airports at all. On the other hand, the Arkansas, Florida, Louisiana, and Washington plans integrate concepts of operational coordination/non-interference and airport resource

allocation with a strong focus on airport continuity of operations. The Arkansas plan is remarkable in the extent that it identifies primary and secondary airports on a contingency basis; Louisiana's MIEP also establishes a hierarchy and use sequence for airports based on regions and threat axes.

The state plans also vary in how they deal with GA airports. Texas does not mention them, Washington State deals with them explicitly in their disaster aviation scenarios, and Florida deals with them indirectly by utilizing counties as emergency managers, with counties kept up to date on the GA airports' aviation assets. The Arkansas plan and Louisiana's MIEP deal explicitly with GA airports, assigning them roles and priorities within hierarchical responses. The emergency general plans for Louisiana, California, and Alabama seem likely to deal explicitly with GA airports, as GA airport owners and managers are playing major roles in driving the planning processes. In general, the attention to GA airports depends on whether the state plan focuses on mass evacuation (utilizing commercial airports and some military fields), medical evacuation (utilizing all types of airports), or disasters likely to occur in remote areas, where GA airports are critically important.

Some of the plans, such as those of Arkansas, Louisiana, Texas, and Washington, are organized from the top down, and some are organized from the community up: Florida is extremely decentralized, with the county acting as the basic unit of disaster response, and airports seen as an asset connected to the system through the county during a disaster. This is a result of the post-Andrew reforms instituted by Florida. It is not clear what the eventual shape of the Alabama and California plans will be.

In all seven states, the state emergency management agency, state emergency operations center, and state aviation office have worked together to develop the plans. The Arkansas, Florida, and Washington plans are joint publications of these agencies and/or are jointly authored.

None of the plans seems to have conquered the issue of maintaining current contact information as part of the plan. Indeed, the Florida county-based approach avoids this problem, or at least passes it on to the local level.

CONCLUSIONS

In summation,

1. GA airports are a major resource that are well-recognized locally, but are mostly overlooked on the state and federal level.
2. GA airport disaster support resources operate on many different scales.
3. There is a coordination, cooperation, and communication problem if GA airports are to be used in any sort of coordinated way. The email problem with this study illustrates the problem. Currently, airport-to-airport phone calls are the only established method of communication.
4. Location plays an overwhelming role in determining airport character, likely users and tenants, needs of the region served, and the threat profile.
5. GA airports are willing to contribute to disaster response, primarily through sense of community or of mission.
6. Some GA airports seek disaster-related enterprise opportunities.
7. Airport users drive special capabilities for business that can enhance their disaster role.
8. "Better organized" users such with those involved with fire fighting, forestry agencies, and/or offshore oil and gas, have greater influence
9. Special events offer excellent opportunities to develop facilities, hone skills, and build relationships.
10. Attitude toward participation in DOGs is split: some GA airports want in while others prefer local non-aviation backfill for non-aviation tasks.
11. Existing and draft state plans offer outstanding models, especially those that are flexible and decentralized.
12. There is no coherent national policy regarding the role of GA airports in disaster response.

Conclusions 3 and 4 together create a CAPABILITY PLUS situation. Airports with such tenants or regular users tend to have greater capabilities for disaster support than simply the use of runways, aprons, and fueling facilities. However, every GA airport can support a wide range of disaster response operations.

Lastly, this researcher has previously been too airport-centric and overly critical of operator domination of aviation coordination groups and other disaster aviation plans. Although each situation calls for a unique approach, what is needed is a way to bring all parts of the aviation system to bear most effectively in disaster response while protecting the continuity of operations and continuity of business of all airports including GA airports.

RECOMMENDATIONS

Based on the data and conclusions, the following strategies for improvement are recommended:

1. Apply risk-based and needs-based methods to reconcile the split between aviation operations and airport continuity of operations issues.
2. Continue to foster closer cooperation between state aviation offices and state disaster response or homeland security agencies.
3. Find a reliable, effective way to establish and update contact information in disaster response plans at all levels. One viable method would be to maintain plans as working drafts requiring annual reviews and updates.
4. Develop a simple airport emergency plan (AEP) template for GA airports, which are currently not required by FAA Advisory Circular 150/5200-31C (25).
5. If the FAA reconsiders its airport classification system, find a way to include importance for disaster response. (28-29)
6. Explore the role of pilots and pilots' groups in disaster response.

ACKNOWLEDGMENTS

American Public University System funded this research through a 2010 Faculty Research Grant. Teri Ellingham of Dry Creek generously lent her Cessna 172 for Mike Meadows to fly the author around Texas. State aviation directors in 31 states provided email addresses, and Brad Brandt, Carol Comer, John Eagerton, Seth Edelman, Phil Jones, and Wynn Turney gave invaluable advice. The state aviation and emergency management staff members of Arkansas, California, Florida, Louisiana, and Washington State were exceptionally helpful. Don Griffith of IEM provided insight into the state plans of AR, LA, and TX as well as FEMA's plans.

REFERENCES

- (1) Federal Aviation Administration. (2009, August 21). National Plan of Integrated Airport Systems (NPIAS). http://www.faa.gov/airports/planning_capacity/npias/
- (2) Federal Aviation Administration. (2009, June 29). Airport Categories. http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/categories/
- (3) Federal Aviation Administration. 2008 CFR Title 14, Part 139--Certification Of Airports.
- (4) Smith, J. F. (2010) "Airport disaster preparedness in a community context." Presentation at Transportation Research Board Annual Conference, January 12, 2010. Available at www.airportstudy2008.
- (5) Smith, J. F. (in press) "Regional cooperation, coordination, and communication among airports during disasters." *Transportation Research Report, Journal of the Transportation Research Board*.
- (6) Smith, J. F., F. McCosby, and S. Wareham. (2010). "Airports helping airports: Disaster operations groups" *Airport Magazine*, 21(7), 30-32.
- (7) Federal Aviation Administration. (2009, June 26). Airport Data & Contact Information. FAA Form 5010, Master Airport Record [searchable electronic database resource]. http://www.faa.gov/airports/airport_safety/airportdata_5010/
- (8) Infanger, J. (2010, January 13). Heightening the Role that GA Airports Play in Disaster Response ... *Airport Business Blogs*. www.airportbusiness.com
- (9) Cleary, E. C., & A. Dickey. (2010). Guidebook for Addressing Wildfowl/Aircraft Hazards at General Aviation Airports. ACRP Report 32. Washington: National Academies Press.
- (10) Federal Aviation Administration. (2010). National Based Aircraft Inventory Program Validation. <http://www.basedaircraft.com/Login.aspx?ReturnUrl=%2fDefault.aspx>
- (11) Transportation Security Administration. (2010). General Aviation Threat and Vulnerability Assessment Survey. <https://survey.tsa.dhs.gov/wsb.dll/11/GeneralAviationAirportVulnerability.htm>

- (12) Chennault International Airport. (2010). Airport Emergency Plan. Lake Charles, LA: Chennault International Airport Authority.
- (13) Santa Clara County Aviation Department. (1996, December 27). Reid Hillview Airport Emergency Airlift Volunteers Operations Manual. Santa Clara, CA: Santa Clara County.
- (14) Robertson, S., & D. Griffith. (2010). Air Evacuation Operations. *Risk, Hazards & Crisis in Public Policy*, 1(2), art. 6. www.psocommons.org/rhcpp
- (15) Arkansas Department of Emergency Management, Arkansas Department of Aeronautics, & Arkansas State Highway and Transportation Department. (2010, January 12). *Arkansas Aviation Operations Plan DRAFT v1.2*. Little Rock, AR: ADEM, ADA & ASHTD.
- (16) Caltrans Division of Research and Innovation. (2009, December 16). Disaster Recovery Plan. Sacramento, CA: Caltrans.
- (17) URS Corp. (n.d.). San Francisco Bay Area Regional Emergency Coordination Plan: Regional Transportation Coordination and Response Plan.
- (18) Price, K. (2010, April 24). [Private citizen's proposal for] FEMA IX REGIONAL VOLUNTEER AIR CORPS (IX ReVAC): Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, & Ventura Counties.
- (19) Federal Emergency Management Agency. (2009, January 31). *Joint Field Office (JFO) Aviation Branch Operations Manual: Interagency Coordination for Federal Aviation Support to Disaster Operations. Coordinated DRAFT version 10.2*. [This draft plan applies specifically to Florida.]
- (20) Florida Division of Emergency Management, Florida State Emergency Response Team. (2009, June 1). 2009 Air Operations Branch Plan. DRAFT. Tallahassee, FL: FDEM.
- (21) Louisiana Department of Health & Hospitals. (2008). Hospital Shelter-in-Place (SIP) and Evacuation Plan. Annex III in Louisiana ESF8 Federal and State Response Plan.
- (22) Texas aviation coordination group plan is not publicly available.
- (23) FEMA. (2009, August 28). State and Local Aviation Planning (SLAP) Guide. DRAFT version 1.4.
- (24) Washington State Department of Transportation Aviation - Emergency Services. (2009, December 10). Air Operations Plan - Howard Hanson Dam, Green River Flooding.
- (25) SARDA County Requirements. (n.d.)
- (26) Washington State Department of Transportation Aviation Division. (2006, April). State and Regional Disaster Airlift (SARDA) Plan Update.
- (27) Federal Aviation Administration. (2009, June 19). Airport Emergency Plans. Advisory Circular 150/5200-31C.
- (28) Infanger, J. (2010, May 26). During an Interview at FAA Offices at 800 Independence Avenue. <http://www.airportbusiness.com/interactive/2010/05/>
- (29) Infanger, J. (2010, June 9). Rethinking GA Airports — Part 2. <http://www.airportbusiness.com/interactive/2010/06/>