

DISASTER AT 5:04

A STUDY OF HAM OPERATOR RESPONSE
TO THE OCTOBER 17, 1989 LOMA PRIETA EARTHQUAKE

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PREFACE

I think it important to begin, rather than end, this report with a note of thanks to the Santa Cruz Amateur Radio Club (SCCARC) and the Amateur Radio Emergency Service (ARES) communities, as well as a short discussion about my own experience with this study. In the aftermath of disaster, people usually have a strong desire to talk about their experiences with family, friends, neighbors and co-workers. In contrast, there is often a strong reluctance -- based on a variety of factors -- to talk about their experiences with "outsiders" who have come to conduct studies concerning human responses to disaster. In my role as investigator for this study on how ham operators responded to the October 17th Loma Prieta earthquake, I have felt most fortunate. The majority of ham radio operators I contacted graciously welcomed me into their homes, travelled to meet me in my home, or agreed to lengthy taped telephone interviews to discuss their earthquake experiences. Over hot coffee, cold drinks -- sometimes even lunch -- I was invited to hear personal accounts that made me laugh, cry, and wonder at the strength of the human spirit in the face of adversity.

Insights for this report were contributed by ham operators in a variety of ways. During interviews, most hams took me on short tours of their homes,

pointing out quake damage that, even months later, remained unrepaired. Many showed me the places where they had been standing, sometimes falling, when the shaking began. Often spouses and children introduced themselves to me during these interviews, adding their own thoughts and experiences to the on-going discussion and sometimes providing fascinating contradictory accounts of how the interviewee had responded to the quake. I was frequently invited to view operators' "shacks", and on several occasions, operators gave me valuable radio demonstrations so that I could better appreciate things like "DX". "CW", "rag-chewing" and the "Monday night net." Notably, some ham operators contacted me once or twice after the interview, whether to add an additional insight, send an informational article, or even to leave a collection of poetry (a discovered mutual interest) on my doorstep. This type of cooperation and generosity was most appreciated and greatly contributed to my research experience.

Curiously, the question I was asked most often was not "what was your quake experience?", but rather "are you a ham?" This was often followed by "you should get your ticket!" I felt a certain amount of both pride and amusement that, towards the end of the study, several interviewees assumed I was a ham operator because I seemed to "know the language." I think back to the first ARES

meeting I attended in November of 1989, listening to terms like "traffic", "BJ repeater", "net control", "two-meter" and "simplex" and recall my nervous sense that I had ventured on to foreign soil. My one and only attempt to "speak the lingo" in the beginning failed miserably: I asked one ham what his "handle" was and quickly received a lecture on the distinction between ham operators and CB'ers that I won't soon forget. Since the world of ham radio was completely new to me, learning about that world became a simultaneous and necessary task in my efforts to learn how and why the ham radio community responded to the quake as they did.

Finally, I think it is critical to acknowledge the complexity of my role as investigator to this particular study. From the outset, I was told that an "objective, outside investigator" was needed in an attempt to ascertain how ham operators responded to the quake. I found the underlying assumptions behind this designation problematic, for while I was indeed an "outsider" to the ham radio community, I was most definitely an "insider" to the event itself. A California native who grew up in a home sitting directly on the San Andreas fault, I had experienced mild quakes throughout my life and had developed a casual, almost glib attitude toward living in "earthquake country." As was stated by so many interviewees with similar past quake experiences, the October 17th quake

"changed all that." Between 5:04 and 5:12 that day, I had been struck on the head, knocked twice off my feet, watched everything in my home come crashing off the walls, and experienced 5 quakes and aftershocks of 7.1, 4.1, 5.8, 4.3, and 4.5 magnitudes, respectively.¹ Uncharacteristic of the way I assumed I responded to emergencies (i.e., act now, panic later), I found myself curled up in a ball in front of my home, weeping, fearful, and mistrusting the ground beneath my feet.

As many interviewees noted about their own experiences, the quake did not end for me on October 17th. Exactly one week after the quake, I attended a graduate seminar where we discussed the events of the past week. After a long, emotional discussion, we decided to move on to course work. No sooner had the topic been changed when a strong aftershock sent the professor and ten students diving under the table. Three of our ten Tuesday night classes that quarter were to be interrupted or cancelled by quakes. During the early stages of the study I watched with so many other sad, angry and stunned local citizens as the wrecking ball completed the devastation the earthquake caused to our downtown

1. According to a UCSC Earth Science Board seismic recording bulletin, as of 11/2/89 (16 days since the major quake) there had been 57 aftershocks over 4.0, 538 shocks over 2.5, and in excess of 8000 recorded aftershocks in all.

community. I wondered at my strong sense of loss over "mere buildings." For weeks I was effectively separated from my housemate who opted to live "over the hill" due to the road closures which caused nightmarish commuting conditions. Over the next few months, I, too, experienced hundreds of the thousands of aftershocks that rippled through the area. Yet having come through the quake with life, limb, family and home intact, I felt guilt over my mounting anger and depression at the quake that "wouldn't seem to go away." When the opportunity to work on this project presented itself a month after the quake, I felt eager for the chance to think and act on the earthquake in a positive, constructive manner. This research experience has been very positive for the most part, though it has also been a difficult road to travel at times. Reliving the quake experience through the collection, transcription, and analysis of these accounts has kept the quake experience in the forefront of my thoughts for a full seven months.

I offer my own personal account in order to make clear the obvious: this study was not "objective" in any sense of the word. That I came to this project considering myself both a survivor and victim of the Loma Prieta quake has had definite implications for the course this study ultimately took. Setting aside all debates regarding whether there is such a thing as "objectivity" in any

science or discipline, I can only try to balance my own subjective takes on this study by recognizing them and hopefully making them clear to all readers. While the questions I posed, my subsequent responses to the answers I received, and my analysis of the final transcripts are all unavoidably shaped by my "insider" experiences of the quake, I do not feel this lessens the relevance of the end product. Indeed, it was often the most conversational interviews I had with ham operators -- some which turned into spirited debates -- that yielded the richest data regarding individual responses to disaster, fear, role conflict, responsibility and the nature of volunteerism.

As I submit this report to your radio community nearly seven months after the October 17th quake -- yet just weeks after the "swarm of six-month-anniversary-aftershocks" -- I feel a sense of optimism about our collective futures in "earthquake country." While "the big one" is an inevitable reality for which we may never be able to fully prepare, the October 17th quake provided us with several important lessons towards this end. First, it shook many of us out of our sense of complacency about earthquakes. Second, it provided first-hand experience with which to gauge how well we have prepared and what we have left to do. Finally, it showed us that in spite of the best advanced planning, responses to disaster are ultimately human responses, varied and difficult to

anticipate. It is my hope that this report will provide some insights in this last regard, and that the "telling of the tales" will inform future emergency planning efforts.

Diana Dull
May 5, 1990

You know, for years you go on and you don't have any quakes.
You sit there and say "yeah, I live in earthquake country, but it
doesn't mean anything to me." And now we've had one and now
it means something to me.

-- SCCARC member
January, 1990

INTRODUCTION

Early in the course of conducting this research, I interviewed a ham radio operator who said he "really didn't see the point" behind a study of this nature. Smiling politely at me, he asked rhetorically, "really, what more do you expect to find other than that we're all individuals with individual responses to disaster?" In one sense, I think this person's position reflects a very important truth. We are individuals who come to emergencies and disasters in our lives with personal histories and individual makeups that unarguably influence how we will react in highly stressful situations like an earthquake. But this focus on the individual response ignores the patterns of response found so repeatedly in studies of community disaster. In this study as well as others, disaster victims' accounts evidence marked commonalities regarding perceptions of -- and behavioral and emotional responses towards -- the disaster itself. Thus, while there is individual variation in disaster response, broad typologies of response can, nonetheless, be identified.

In this study, the response typology of interest was "volunteerism." What factors determine who will volunteer their services in times of disaster? I have heard many informal hypotheses from ham operators in conjunction with this study of responses to the Loma Prieta quake. Some speculated that

non-volunteers must have had a greater share of property damage or family conflict which kept them from offering their services. Others suggested that perhaps those radio operators who didn't volunteer their services felt "more fear" in the face of this disaster than those who did. A few thought there might be a specific personality-type that would volunteer in an emergency. Each of these hypotheses seemed plausible in their own right as I began this study; as such, I used them as a framework for the questions I posed to each respondent. As noted below, the presentation of findings reflects the exploration of these themes.

Section I, Disaster at 5:04, illustrates the extreme variation reported by respondents in both physical experiences of the quake as well as damage to personal property. Section II, Aftershocked, examines both the immediate and on-going emotional toll the quake and its aftershocks had on respondents and their families as they attempted to restore order to their lives. Section III, Structuring Chaos, focuses on respondents' accounts of how and why they structured their activities in the post-impact period as they did. Here I pay special attention to the rationales behind decision-making and priority-setting. Section IV, Hobby vs. Duty explores the differential attitudes respondents reported feeling towards both the role of ham radio in their lives and the

nature of volunteerism. I conclude with a specific assessment of the key factors which appear to have influenced ham radio volunteerism during this event; additionally, I offer a broader discussion of these findings as they relate to prior sociological disaster studies, offering some personal recommendations for future emergency planning efforts.

METHODS

I had one meeting with Wayne Thalls and Leon Fletcher in late November where we discussed the goals for the proposed study and strategies for how I would collect data for analysis. I also attended one post-quake ARES meeting in November and one SCCARC meeting in December where I was introduced to attending members and allowed to explain my presence in these proceedings. For the readers' understanding, I will briefly discuss the methodology employed for this project.

Sampling

Wayne Thalls provided me with several rosters which I used to establish contacts with interviewees: the November ARES roster (later the updated January roster), the current SCCARC roster and a post-quake "honor roll" which guided me somewhat in balancing my sample between those who did and did not

volunteer their radio services. Several discrepancies were found on the quake honor roll list; a few interviewees who I thought had not "worked the quake" reported that they had, while others on the list reported that they had not worked at all. Given the stressful events occurring when this list was compiled, errors of this nature were to be expected.

At our early meeting it was agreed that I would complete 40 interviews in a three to four-month period. The system I used to select interviewees was left to my discretion, though I was asked to speak to radio operators representing three groups: ARES members, SCCARC members, and outside ham operators who had travelled to our community to help with relief efforts. My original intention was to try and arrange interviews with a non-systematic sample of 15 ARES members, 20 SCCARC members and 5 outside ham operators. Non-response rates altered the final counts, resulting in greater numbers of ARES members interviewed (see Table 1).

In all, 88 radio operators were called, resulting in 50, rather than 40, final interviews. Because I consider it relevant to document refusals to participate in a study of this nature, I include these figures in Table 2. "Passive refusals" here refer to people who did not respond to two messages left on answering machines. "Actual refusals" refer to those operators I spoke

with on the phone who declined to participate. (It should be noted that 3 of the six "actual refusals" nonetheless spoke with me briefly on the phone and provided me with some information concerning their experience.)

"Unsuccessful contacts" refer to those operators who I never reached after five separate attempts (and who had no answering machine on which to leave messages).

Table 1. Percentage of operators who participated in quake study, by radio affiliation

ARES & SCCARC member	52%	n=26*
SCCARC member	38%	n=19
Outside ham operator	<u>10%</u> 100%	<u>n= 5**</u> (n=50)

* This represented 68% of the January ARES roster

** 4 of these 5 were also members of out-of-county ARES organizations

Table 2. Results of 88 quake study contact attempts

Actual interviews	57%	n=50
Unsuccessful contacts	22%	n=20
Passive refusals	14%	n=12
Actual refusals	<u>7%</u> 100%	<u>n= 6</u> (n=88)

While it might be expected that there would be a positive correlation between those who declined to participate in the study and those who chose not to volunteer their radio services to quake relief efforts, this was not found to be the case. Half of the "actual refusals" were from ARES members who were reported to have worked considerable radio hours on quake relief efforts; conversely, more than a few people who had not worked the quake consented to interviews.

Finally, it may be of interest to note that five interviewees quit ARES after the quake; of these, four had volunteered some form of radio service to quake-relief efforts. Six interviewees had been SCCARC members only prior to the quake and subsequently joined ARES; only one of these had not contributed radio services to quake-relief efforts.

Interviewing Procedure

All operators were initially contacted by phone and offered a brief explanation of the study's aims. If the operator consented to an interview, I asked if I could arrange to meet them at their homes (or place of employment) at a mutually convenient time. Twenty-seven operators agreed to in-person taped interviews; the remaining twenty-three agreed to taped telephone interviews. Interviews ranged from 30 minutes to two hours; all interviews

were taped and transcribed for purposes of analysis.

A Note on Confidentiality

In a project of this nature -- i.e., where respondents are part of a pre-existing network and connected by both group affiliation and varying degrees of friendship ties -- it is difficult to effectively guarantee respondents' confidentiality. Stated simply, people can often recognize themselves and others in reports, in spite of omitted names. The context and content of several statements used in this report will, at times, unavoidably point to the identity of the speaker and/or the person to whom the speaker is referring. There were instances during my research where people asked me to turn the tape recorder off so that they could freely criticize people and/or procedures "off the record". Others spoke directly on tape but expressed a desire for certain remarks to be "left unsaid." In the other extreme, a few respondents spoke with frustration about various people and/or procedures and encouraged me to both use these statements and identify them as speakers. While all requests for confidentiality have been honored, I have used my discretion in reporting particular criticisms that I was encouraged to quote. I have omitted remarks that struck me as malicious or unconstructive criticisms rooted chiefly in apparent personality conflicts. However, I have included a

included a few constructive critiques which implicitly identify particular persons where I saw them reflecting at least a small group consensus.

DISASTER AT 5:04: The Physical Effects of the Quake on Self and Home

For days, weeks, even months after the October 17th Loma Prieta quake, one of the most frequently asked questions throughout Northern California was "where were you when it hit?" Even as I asked respondents five months later to tell me their "5:04 stories", details were recalled quickly and vividly. Given that this 7.1 magnitude quake was the worst quake to hit Northern California since 1906, the large majority of reports stressing the severity of the quake were not surprising. What was surprising was the smaller, but notable, number of respondents who vastly underestimated the magnitude of the quake. In this study three factors were identified as apparently lessening one's physical experience of the quake:

1. experiencing the quake while travelling in an automobile
2. experiencing the quake outdoors
3. experiencing the quake in buildings/dwellings situated in areas with underlying bedrock or firmer soils

Ten percent (n=5) of the respondents were travelling in their autos at the time

of the quake. Only one of these claimed it was immediately obvious what was happening. As the other accounts indicated, the jostling of automobiles was quickly misinterpreted:

I was in Scotts Valley on 17 headed for home. The truck drove funny for awhile and I ignored it. I saw the dust rising in Scotts Valley and I said "Jesus, they blew something up here again." In the last several weeks they had several major hydrogen leak problems there. So I was thinking in terms of that. As I got closer to Pasatiempo Drive, I saw rocks in the road and was beginning to put two and two together.

A second recalled:

I was on Highway 1 right underneath the Soquel overpass. And I just thought it was wind because I was in my wife's bug. I saw these things shaking and I thought "God, it's windy!" Because my car was still shaking, but it felt like my wheels were falling off. So I stuck my hand out the window to see if it was wind! And it wasn't wind. It hit me that it was an earthquake.

A third auto traveller's slow recognition of what was happening came not just from what he felt, but what he saw:

I got into my car and went down to the bridge to make a U-turn. And my first reaction when it hit was that I thought the guy behind me rear-ended me. And then a second thought was "OK, if it didn't hit anything, than we're having an earthquake." Because of the motion and rumbling. When you're in a car, it's like the feeling of a flat tire, only worse. And the bridge is doing this kind of wave motion, and instead of seeing a car to my right, I see, as if I was banking a turn, the water. I saw

bricks go in the air and white dust coming towards me. And then all black smoke. It really dawned on me at that point that "wow, this was the big one! We got nuked!"

While those respondents who experienced the quake outside (10%, n=5) did not have this same trouble recognizing the quake for what it was, their accounts still differ in subtle but marked ways from those who experienced the quake indoors. For instance, three of the five noted that they had never experienced a quake outside before, and thus, did not have the same comparative referent that those experiencing the quake indoors reported. Additionally, four of the five found the outside experience less frightening -- and in two cases, even interesting -- to experience:

We were down by the football field. There was this noise and then the ground started shaking. I thought it was a train, but then it started shaking harder and I fell down. I was on this little mound that was moving back and forth a lot. We didn't really think it was that bad; I mean, I'd never been outside before for an earthquake and I just thought, you know, maybe that's what it was always like.

You could actually see the cars dancing in the parking lot. It was a unique experience. I'd never been outside for one before. There's a different perspective being outside, watching things around you, then being inside. It's much less frightening.

I was outside and loved it. It was so fascinating... The feeling outside is a whole bunch different than being in a house. It's

not quite as jarring. It's just real strange and it makes you dizzy. So this one, I loved it. I thought it was great!

Perhaps the most critical reason for differences in physical experiences of the quake can be attributed, quite logically, to the differential soil types people found themselves on when the quake hit. Some people reported having prior knowledge of the relation between quakes and the soil types their homes were built on; others appeared to have made this important connection after the fact. As the May 3, 1990 Santa Cruz Sentinel article "Living on the Fault: Soil Dictates Damage in Next Big Quake" explains, there are definite high risk sites throughout Santa Cruz County vis a vis faults and soil conditions. Bonny Doon, Davenport, Mission Hill, the coastal beachlands and the west and eastside (of Santa Cruz city) are all described in this article as "good, as long as you're not on a steep slope". Areas such as downtown Santa Cruz, Capitola Village, Neary Lagoon/Harbor district, Aptos beach flats, Pajaro, Scotts Valley, the Soquel Hills and steep lots in the Santa Cruz Mountains were all identified as "problem areas" due to the "loose sand, clay and mud in these areas which acts like Jello in a strong quake." My interviews vividly illustrate the range of physical experiences that result from this patchwork of soil types that underlie Santa Cruz County. Additionally, they point to the need for all emergency planning

agencies to remember that in earthquakes, our county's structures and populace will not be uniformly affected. As the Loma Prieta quake showed, there was no one simple response to the question "how badly was Santa Cruz hit?" Some accounts which illustrate these differences follow; the first few accounts are from ham operators who live in the relatively stable westside of Santa Cruz near the University:

Oddly enough, all my bookcases stayed in place. None of the books fell out. I didn't lose a dish. None of the cabinet doors opened. I lost a mirror over the fireplace.

When the quake hit, I stood in my door, and when it was over, I picked up my tube that fell off the bookcase and that took care of the damage around my house. Nothing in our neighborhood at all, no cracks, no nothing. Down below the hill, you know, they lost chimneys and stuff. But up on top of the hill, nobody had any problem. See, we're on bedrock.

My wife sat here and she watched a couple of little vases walk themselves to the edge and stop. We since learned that this area is on rock, and I would have thought that rock would have been bad, that it would amplify the punch. If I was going to elect something, I'd say give me some nice soft mud that would cushion the shock. But as you know, that was....I'm surprised that we didn't all know that.

These reports stood in stark contrast to people experiencing the quake in the various "loose sand, clay and mud" areas referenced above:

The house just rocked all over the place. We lost a chimney, lots of my wife's good china -- we're down to half of that. Lost

lots of good glass crystal out of the cupboards. Glass all over everything. The hell of it was that we have our own domestic water system here, two old tanks that we use and now a third bigger one and we have a huge 8,000 gallon tank. The pipes sheared off all three tanks, so we lost all of our water. It was a rough 24 hours.

Everything was on the floor, all the pictures were down. The stereo was over, these doors flew off and were laying on the floor. All the dishes, all the food in the fridge, everything was on the floor; I had a pile about this deep of just garbage. The thing that shocked me most was that I have an outboard Honda motor that weighs 85 lbs. It had been in the closet in the corner; it was now in the middle of the room next to my desk. I walked in here and went "oh God." I just couldn't believe that it would throw it that far! It was hard for me to conceive.

It was really violent. There was a twisting or circular motion and a vertical motion. And there were at least three sharp jolts. This lamp here was thrown about 20 feet. Everything upstairs was in the middle of the room. There was glass everywhere. I remember all the car alarms going off and there were explosions everywhere and the power flickering and then going off. It was so violent that everything was blurry.

I asked her "what condition are we in?" And she said "it's a mess, I think we've lost everything." I remember that everything, everything that was in any closet or on any shelf was on the floor. Glass everywhere. We had three broken picture windows. Couches, tables, everything had fallen. The only way we could clean up the kitchen was with a shovel. The china cabinet went over on the table and broke every piece of crystal in the cabinet and messed up the table too. A lot of broken tiles on the counter top. My wife had a lot of filled Jim Beam decanters that broke across the dining room floor, which I now have to replace from all that booze soaked into the plywood. We'll have to probably replace one-third of all the wallboard in the house, or use several gallons of spackle to cover it up!

It's funny....well, it's not really funny. But I still remember looking into each one of the rooms and just thinking to myself "it's all gone!"

Assessing Damage at Home

I found it critical that in response to the question "what was your first impression of your house?", many people responded "it was trashed." This repeated comment stood out in my mind as I conducted the study because it was the same remark I made about my own home in the first few hours of the quake. When one finds their home and belongings in the condition that these last few respondents reported, this description seems apt. And yet all who made this initial statement reported that they later realized the damage to their property was chiefly cosmetic. The initial shock and dismay at their upturned homes gave way to comments like "we actually came through fairly well."

This shift in perception seemed to occur in three stages. First, when people initially saw the destruction in their homes, their only comparative referent was to their own homes prior to the quake; in this sense, their homes were decidedly "trashed." Second, the cleaning and restoring of homes to their pre-quake state took varied amounts of time and effort (in my own home, it took three people three hours each to put the house back in relative order). It was often only after this task was accomplished that people realized their

homes, for the most part, looked relatively normal (though those with fallen chimneys seemed to have a stronger sense of their property being damaged). Third, and perhaps most important, people quickly learned of the extreme destruction in various areas: the destroyed downtown mall, the collapsed structures in San Francisco and Oakland, and the countless numbers of homeless in Watsonville. News of others who had died or lost their homes became the new comparative referent, leading most to conclude -- usually within the first few days -- that their house had been "trashed" cosmetically, but not structurally. They were, as so many concluded, "very lucky."

To summarize, respondents' accounts reflect that there was, indeed, a wide variation in physical experiences of the quake. While all most certainly felt the quake, a range of experiences and perceptions were recounted, from those who sensed it was "just another quake", to those who felt this was "the big one" and wondered aloud if "the world was coming to an end." Property damage reported in this study ranged from non-existent to \$8,000-\$9,000 (and notably, the person reporting the highest damage amount in this study felt he was lucky as he "still had a home and a family.") To return, then, to the first of several hypotheses listed in this paper's introduction, were those who experienced the quake more violently -- both in terms of the physical

experience and property damage -- less likely to volunteer their radio services to quake relief efforts? Based on my sample of 50, the answer is no. The radio volunteer group consisted of people whose physical experiences ran the gamut from mild experiences/no property damage to dramatic experiences and/or considerable property damage. The non-volunteer group interviewed also evidenced this range of experiences; however, only two people reported that they did not volunteer because of damage to property. If the physical experience and physical effects of the quake on personal property did not dictate who did or didn't volunteer radio services, than what of the emotional experience of the quake? The next section explores the potential hypothesis that personal and/or family fear may have discouraged people from volunteering radio services.

AFTERSHOCKED: THE EMOTIONAL EXPERIENCE OF THE QUAKE

Disasters are routinely discussed, documented and studied in terms of their visible, measurable and quantifiable effects. While news coverage of an event like Hurricane Hugo or the Loma Prieta earthquake offer us both visual images of the disasters as well as human interest stories of victims' experiences, the disaster is ultimately characterized by the statistics it has

produced: death tolls, injury counts, estimates of property damage, numbers of homeless and event magnitudes (e.g., m.p.h. winds, number and severity of aftershocks, etc.). These statistics are unarguably important in characterizing the physical results of a disaster. But what of the accompanying emotional responses people have to "living these statistics?" Here descriptions of a disaster's effects become murky as emotional response to disaster is not easily measured or defined.

I found myself most compelled by the emotional response component of this study. As a sociologist, my task was not to offer psychological assessments of people's emotional responses to the quake, but rather, to analyze the themes which emerged in people's assessments of their emotional responses. I observed that most respondents in this study experienced at least some difficulty in describing their emotional responses to this disaster. It was also at this part of the interview proceedings that I most often heard spouses contradicting interviewees' descriptions of their own behavior, usually with remarks like "he may say he wasn't afraid (or "stressed", "anxious", etc.) but he was! He didn't even realize it!" Thus, while people had a relatively simple time recalling and describing to me what they did during the quake, they had a harder time describing how they felt as they proceeded. Those who

attested to personal fear towards the quake were most willing to talk at length about their experiences in terms of emotional response. Others were considerably more hesitant in this regard. I would argue that this hesitancy is, in itself, a finding. Additionally, an unwillingness to discuss one's own emotional responses may correspond to an unwillingness to understand or accept the emotional responses of others.

Frustration and Fear

All respondents were asked to describe their emotional responses to both the quake and the on-going aftershocks. As well, they were asked to describe the emotional responses of both their spouses and their families, if applicable. Once again, accounts reflected a wide range of experiences, with frustration and fear topping the list of emotions cited. While nearly 100% of the respondents attested to clear feelings of frustration over the aftershocks and post-quake life disruptions, the discussions of fear were decidedly more ambiguous. Additionally, only half of the respondents reported some sense of fear during the actual quake; an even smaller minority reported fear over aftershocks. Below I highlight some of the key findings regarding emotional responses in this study and offer illustrative accounts of each:

1) *Approximately 25% of those respondents describing wives' responses to the quake reported that their wives were experiencing "fear" or "hysteria". Notably, several of these accounts showed that wives had experienced the quake in places which contributed to their greater fear. Another 25% described their spouses as "stronger" or "braver" than the respondent; the remaining majority described their wives as "mildly shaken" or non-plussed by the quake.*

My wife was very psyched out for about two days. In fact, after working the first day until about 2:00 in the morning, I got home and for the next two days, she wouldn't let me out of her sight. She was a real clinging vine and the shakes were happening all the time. She was freaked out. In fact, after the second day, I gave her a valium.

My wife definitely had a lot of trouble with the quake, as did a lot of people. She's over it now and feeling a lot better, but I have to remember the difference in cases. I was outdoors in the sunlight and she's down in a basement (of a medical center). She felt personally responsible for all of these people. She explained to me that she felt instantly like a machine, that this is how you take charge of a situation and she was not going to allow any emotional responses to get in the way of her responsibility. She said "I was thinking more crystal clear than ever before. I was the last one out of the Department." The breakdown, when you lose it all and wonder what really happened, it all happened later for her. I don't feel fearful from the earth, like in comparison to my wife. We talked about this; she was actually frightened that the earth had done something very frightening to her. I don't feel that a natural phenomenon is going to kill me. But my wife, she feared for her life.

She's been through lots of danger; she was a prisoner of war for 3-1/2 years, so she gets, you know, just like anybody, scared at

the time, but it didn't seem there was much trauma in the after affects. I think she was pretty cool, cooler than the rest of us.

All I can remember is that she...she not only rose to the occasion, but she did it superbly, had courage that I'm not sure I could have mustered walking in that house and seeing all that glass. She didn't come back to Co. Comm. and complain about the house, she just said "there's glass all over the place." And my wife just took care of it all. Not only that, but she came down here and worked every day.

2. Several of those who described having an unqualified fear response claimed they did not believe those who said they felt no fear.

I have all the normal fears. Dark makes me afraid, fear of heights. But you learn to live with, deal with and conquer fears. It'll probably be awhile before people will be willing to admit they were scared spitless, you know?

It scared the shit out of me. I think anybody who says there is no fear is, I think, in self-denial. I really do. I have personal opinions about some of the people in the club...I don't think they're over this. I've been through a couple of debriefings on the quake. And I think that some of the people in ARES that haven't been through that process need to go through that process. I think there was a lot of fear out there.

3. Many claimed their fear manifested itself in other ways or was felt at a later time, in delayed response.

I think the thing that surprised me was my own personal reaction to it. I didn't expect it to have the level of impact on me that it did. It was very traumatic and affected me in some funny ways. Seeing the house for the first time was scary...

spooky. The other thing that happened to me that I guess happens to people is that you revert to some of your childhood fears, and one of them was that I was afraid of the dark. I was scared to death! And I was that way for two or three weeks.

I was feeling a little nervous with the aftershocks, and apprehensive about being in an enclosed place. I still have a little problem with that even now. I was recently in a garage with only a 6'9" height clearance and I found myself bending down a lot, feeling very uncomfortable being in this structure with all the high beams and cement. So that bothered me.

Every time I hear a truck go by or any loud noise, I jump. And loud noises never used to bother me. That sound...I just hear it. Everytime I think I'm going to hear it..I just...I don't know. I just, uh, I don't panic, but I can feel the adrenalin coming back again. You could hear the aftershocks coming, that still sticks in my head. I dream about it all the time. As a matter of fact, I had a dream last night that the Hayward fault went; I woke up in a cold sweat.

I felt nothing for about a week; that was very disturbing to me. Then it came out in sort of strange ways; I remember returning to my dark house at one point and having this episode of panic. Also, at work, I'm often on a ladder some 20-30 feet off the ground and it doesn't usually strike any terror into my heart, but this time it did. Obviously I was experiencing that fear in ways that my mind would allow me to experience it. I think maybe two weeks later there was a point that I did experience some fear in the midst of an aftershock. And that was actually sort of a wonderful moment because I realized at that point that things had come back to some sort of equilibrium. I would much rather experience my fear as I go along, thank you.

4. Many of those who stated they felt no fear attributed this response to either prior emergency and/or military experience or prior experience with natural disasters.

Uh, nah, I wasn't rattled. I was in Viet Nam for a year and you get shot at every day there. It was more like artillery. You'd feel the rumble and if it didn't hit you, you'd say "that wasn't bad." I'm a sailor, and when you're at sea, you've got waves hitting you all the time. And we were always running into typhoons at sea. So it's always the elements, you against them. But no, it was a little irritating after the first month though. Like a sailor at sea saying "damn, I wish the wind would stop blowing", but no apprehensions. In the military, you're trained to kick into that mode.

We've had enough of this crap go on so that people don't get...I think the types that are used to dealing with it...my God, we've had two floods, we've had a forest fire, and then this thing. I mean, sooner or later, you just do it! You don't even get to the point where you get excited.

(I've experienced) 17 combat landings, three abandoned ships, four hurricane typhoons, and I was always impressed in the Navy when they had an emergency, they just went so horribly all out. And all that kind of thrill. I don't feel any...I feel the charge of "hey, we can do something, let's go." Doesn't bother me a bit.

5. A small but notable minority described the quake experience as enjoyable on some level.

It didn't really bother me one way or the other. My objectivity and my curiosity take precedence. I don't know, I'm having too much fun. Like one guy's call was ILD, "I love a disaster."

It's a feeling of "hey, this is strange." And, uh, thrilling, unusual.

The aftershocks to me were not a frightening incident as much as a little bit of a thrill.

6. *Several felt it was pointless to feel fear over situations out of their control. "Control" was seen as in the hands of God, fate and/or Mother nature.*

I dealt with it through prayer. There's nothing else you can do. I mean, the way I am, if the lord is going to take my life, he is going to take my life. And I'm not going to have anything to say about it.

This one was scary, lasting as long as it did. You get nervous if they last very long. But our family are Christians and we put our faith in the lord and we figure he'll take care of us and if we go to meet him, that's fine, and if we stay here, that's fine too.

It really puts you right up against the raw focus of survival as an animal. And the fragility of life and the degree to which all of us....the only reason we didn't happen to be snuffed out was just because we didn't happen to be snuffed out! I learned appreciation. I mean, "look thy last on all things lovely every hour".

Only one person in my sample of 50 admitted to masking feelings of fear for the sake of others; it is my personal judgment that his experience may have been more typical in actuality than was reported:

My wife was really scared. And I kept...I was scared, but I kept it all in. I wanted to show her that everything was OK, and other people as well. I didn't want them to think "well, if he's freaking out..." because I'm usually a pretty strong person in situations like that. But after awhile, it really wore on me.

Coping with Humor

One testament to the strength of the human spirit is found in their efforts to keep smiling in the face of adversity. In this study, humor was found to be a successful strategy many relied on to keep their wits about them as the aftershocks continued to rattle badly shaken lives. Additionally, time and distance from the event may have contributed to people's willingness to tell me their quake stories with a sense of good humor. Perhaps my favorite story was told to me by an ARES member who went on damage assessment drives in the Santa Cruz hills with a Red Cross unit. While surveying the mountain areas, he and the Red Cross volunteers were also distributing bottled water. These bottles had been shipped by a brewing company and bore the company beer logo. As this respondent tells the story:

There was one old fella sitting in one of these places in the driveway as we arrived. He said "when I saw that Red Cross flag flying and all those cases of beer arriving, I thought I'd died and gone to heaven!" He was actually quite irritated to find out it was just water!

Many humorous accounts pepper the interviews: the respondent who joked after describing \$3,000 worth of breakables in a pile on his floor that "it was

OK; we had too much stuff in our house anyway"; the respondent who claimed the quake was "cheaper than a ride at the Boardwalk"; another who had been sick in bed with pneumonia as the quake struck and told the story of being "the quake's first stalker"; and a ham operator/firefighter who, after describing the frustration of watching three houses burning because roads were now impassable, facetiously responded "Tch! It's only a house burning!"

While these are one-of-a-kind stories, there was one repeated common reference to the use of humor as a coping strategy, and this came in the form of making a game out of the unnerving aftershocks. Respondent after respondent noted that the aftershocks were taking their toll: they were unsettling, robbing them of sleep, and hitting with an almost unbearable frequency. Perhaps to make the situation more bearable, many respondents began to play the game of "name that magnitude":

It was like a parlor game..."oh, that's a 3.0!" You got the idea that you could sort of predict...

The whole community would joke about it and say "oh yeah, it was only a '4', who cares?" Or "don't talk to me unless it was a '5' or greater!" That kind of a thing. Everybody got to be a little bit relaxed about it, and that was OK.

I got angry at moments, like "doggone it, this silly thing is happening again." But right after that anger came a sort of

humor, like that's silly to even complain about that. Then they became interesting again, like how soon could you hear them before they start. I turned on my engineering, analytical sort of thing. The fun that I have being an engineer. And let that be what drove my emotions.

Thus, respondents were doing their best to literally roll with the punches, mostly because there was no choice in the matter unless people opted to leave town (several, in fact, reported doing so for short periods of time.) The sheer duration and quantity of aftershocks may have made many of us tougher and more practiced at quakes than we even realized. As this last story suggests, some people had not given themselves credit for what they were going through until they were visited by outsiders who provided them with a comparative frame of reference:

There's a funny story. We have a geological meter in our station and this was put in four or five days after the quake. And the geologic people came to check it and they said it was too sensitive because there were 1,700 aftershocks on it; they accused us of hitting it, but we hadn't. But the girl said "well, let's desensitize it" and so they started to so that it wouldn't pick up so much movement. And the next thing you know, a 3.5 aftershock hits. And to see these people that are trained to study earthquakes go into shock and not know what to do, it was fascinating. We sat in the doorway and they were just kind of frozen; we said "Come on, over here." They came and stood in the doorway and the aftershock went by, and my captain and I looked at each other and said "Ah, well, 2.8? 3.2?" And they're going "it had to be a 4 or a 5!" and we're going "nah." The look in her eyes will stick with me for a long time.

In sum, just as there was a wide variation in reported physical experiences of the quake, so, too, did people report a wide range of emotional responses, from strong fear to "detached" fascination. Similarly, spouses' responses were reported to have run the range from "calm" and "brave" to "hysterical." Everyone, however, agreed that the duration of the event -- mostly in terms of aftershocks, but also in terms of related quake disruptions to life routines -- was stressful and exhausting.

With these findings in mind, I now turn to the second potential hypothesis of this study: was there a pattern found between particular emotional responses and willingness to volunteer radio services? Before I actually had conducted any interviews for this study, I felt there was a certain logic to the notion that those most frightened by the experience (and note that both "most" and "frightened" are relative terms) would be least willing to volunteer their radio services. I realize in retrospect that this assumption of mine was stemming from my own experience of the quake; I had been extremely frightened and upset when the quake struck and found myself unwilling to do much of anything for the first few days. In the very early stages of this study, I felt I was hearing accounts that bore out this relation between fear and volunteerism. However, by the time all fifty interviews had been conducted, I

no longer saw any clear one-to-one correlation between emotional response and willingness to volunteer. Among those who volunteered were people who claimed to feel everything from "no fear whatsoever" all the way to "extreme fear and anxiety." The identical statement can be made for those who didn't volunteer. The only possible correlation I noted between personal emotional response and willingness to volunteer dealt with those who worked at County Communications and/or net control. The majority of those who had worked in this locale did not describe their response to the quake as fearful; however, two people in this group did explain that they had put their fear and/or anxiousness concerning their families and/or homes "on hold" during the early stages of disaster. While there also appears to be a notable representation of ex-military and/or emergency background respondents in the volunteer group which lends weight to the hypothesis that there might be a "volunteer type", there were sizable enough numbers of ex-military and/or emergency background respondents in the non-volunteer group to make this a rather problematic assumption.

If neither extent of property damage, severity of the physical experience, or degree of emotional stress proved to be good indicators of respondents' willingness to volunteer radio services, one might ask "what's left?" Are there

no commonalities amongst those who ultimately gave of their time? As I will attempt to illustrate in the next section, the answer to this question appears to lie in the interstices of people's attitudes towards the nature of volunteerism, the role of ham radio in their lives, and their rationales in establishing personal priorities in an emergency.

STRUCTURING CHAOS: THE SETTING OF PRIORITIES AFTER THE QUAKE

Webster's Dictionary defines fear as "anxiety or fright caused by real or possible danger"; it defines panic as "a sudden *unreasoning* fear, often spreading quickly." As I thought about the distinction between these two terms vis a vis the ham operator accounts of the quake, I realized that while I had heard about actions and choices guided by fears of "real or possible danger", I had not heard of actions or choices stemming from panic, or "unreasoning fear." Many respondents commented on their surprise at the lack of panic they witnessed during this event. An overwhelming majority of respondents commended other hams, their neighbors, their co-workers, their family and/or themselves for taking action in the first few hours after the quake that was logical, sensible and purposeful.

As I reviewed the transcripts of these interviews, I highlighted and recorded the first three to five actions undertaken by respondents after the initial quake. I also reviewed the reasons respondents gave for choosing to do the things they did. As I compiled these lists, I found myself concurring with the overall assessment that people had not acted out of panic. Rather, most all had immediately acted in purposeful ways. Every respondent described a "mental checklist" process whereby they considered both what their priorities were and whether they thought those priorities were achievable.

Each of these themes found in the accounts -- lack of panic, the need to structure the situation through quick, purposeful action, and consideration of priorities -- corroborate existing findings on victim response in the disaster literature. Additionally, two other themes -- disaster victims' need to seek information and their tendency toward engaging in helping behaviors -- also clearly emerged in these accounts and illustrate existing disaster literature findings.

Because these instrumental responses (as opposed to emotional responses) appear to be of key interest to those who suggested this study, I think it important to offer some detailed excerpts from the literature findings regarding post-impact emergency actions. I believe the information below will

help contextualize accounts of ham-operator emergency actions into a necessary larger framework. I found the following findings and excerpts from the text Human System Responses to Disaster: An Inventory of Sociological Findings (Drabek, 1986) to be most relevant:

1. Disaster victims react in an active manner, not passively as implied in the dependency image. Most victims evidence behavioral continuity and remarkable composure. (Quarantelli, 1960b:73)
2. The first point to be made about individual responses is the presence of control and continued rational behavior -- rational here meaning that it is guided by existent roles. I do not want to imply that people remain unfrightened. Fear is present -- more or less, depending on the circumstances. People do realize they are in danger, sometimes in real danger. But to date, the consistent pattern reported by the researchers who have interviewed survivors is that they kept their wits and responded in a reasonable manner. (Drabek, 1986, pg. 134)
3. Probably the most commonly believed myth about disaster response has to do with panic (fear of looting is another commonly believed disaster myth). But victim response rarely involves panic flight behavior. (Quarantelli, 1981b)
4. Victims rarely panic, but what do they do? Based on numerous studies, we know they react. Their actions are guided by choice and efforts to help those around them that may require it. Victims react immediately, attending to their own well being and helping those nearby. (Quarantelli and Dynes, 1972:68)
5. Victims commonly seek information. In part, this probably stems from a desire to know if the danger has passed and an acute need to define the situation. (Drabek, 1986:39).
6. Victims seek to structure the situation and "normalize" it; i.e., integrate the novelty of the disaster into conceptual schemes used in everyday life. They

actively seek role definitions that will enable them to engage in behaviors that they can define as being helpful. (Mileti, Drabek, and Haas, 1975:65)

7. It is now known that within 30 minutes of a major disaster such as an earthquake, up to 75% of the healthy survivors are actually engaged in efficient rescue and helping behaviors. (Lechat: 1974:422)

As these excerpts indicate, the existing literature on disaster paints an overall picture of victim behavior that is: a) rational and controlled; b) guided at times by fear, but usually not by panic; c) instrumental in helping others; d) goal oriented towards normalizing and structuring the disrupted setting.

To this point, one could argue that the homogeneous picture painted by this literature does little to explain differences in helping/volunteer behavior. For instance, how does it account for one ham operator volunteering to work multi-hour shifts during the Loma Prieta quake while another chose not to volunteer ham radio services at all? Further examination of the literature does suggest a few possibilities in this regard:

Not all persons are as quick to help as others, however. Many factors have been found to affect the possibility of an individual's participation in rescue and helping activities. These include: 1) location; 2) knowledge about the welfare of significant others; 3) extent of injury; 4) degree of identification with the community; 5) relevance of training for emergency situations; 6) membership in emergency-oriented organizations. (Wenger, 1972:56).

Those who provide emergency aid are typically individuals whose predisaster role performance includes similar types of helping behaviors. The findings consistently demonstrate continuity in helping roles from ordinary to emergency situations. The more diversified an actor's program or ordinary helping behavior, the more likely is the actor to have performed emergency helping activities of all the types tapped in this study. (Nelson, 1977: 267, 269)

For now, I will save my comments regarding these helping behavior findings and move to a documentation of some of my key findings regarding ham radio actions/behaviors found in this study. I will then return to these theories of helping behavior to see how well they explain data from this study.

First Things First: Find the Radio!

While it would not be surprising to any ham, it was surprising to me not only how consistently respondents reported that they turned to their radios after the major quake, but also how quickly -- usually within one to five minutes. In account after account I heard that after freezing, running to a doorway, or exiting a building, people sought out and tuned into their ham radios. Many reported doing this not merely for their own benefit, but also for the benefit of people in the near vicinity.

Throughout this research I have contemplated both the advantage hams have in this regard as well as the wealth of communication capabilities they

have to offer others, even on an informal level. As the rest of us were slowly thinking to turn on portable radios (if we had them!) and blindly scanning the commercial radio frequencies (if we could find any!) -- only to hear wild speculation -- hams were enjoying the advantage of a large, existing network of people checking in and reporting damage assessments in their respective areas. While no one individual ham understood the enormity of the situation any better than the average citizen, the collective reports which poured in to the quickly established net control effectively began to paint a clearer picture. Issues such as how large an area had been affected by the quake and where the epicenter might potentially be were estimated much more quickly and accurately by ham operators than any other citizen or emergency groups. The quickly formed radio links immediately started meeting peoples' vital needs for information and communication in this disaster. I also heard a sense of relief and comfort in people's accounts in response to checking in to (or monitoring) radio communication; they described appreciating both the information and the familiar voices saying "I'm OK."

When an earthquake happens, within a minute or less, you hear people on the radio, on the repeater announcing their calls. A lot of hams will go into the two-meter radio and gather there. A lot of hams were starting a net or just getting themselves prepared. So you'll hear check-ins, one right after the other.

People would start trading information. "How did you do?" "We're OK over here." Some damage assessments, people would start mentioning what happened in their neighborhood. Then a net starts; someone takes control and all this support starts coming in. All this information comes into this one area.

The amateurs were already on the radios and in communication with each other. Even though I couldn't get in the building, we had radios in the cars. You listen right away, because that way you find out where the epicenter is. From my truck radio, I could talk to people all the way to Sacramento and Fresno. And you can soon isolate ... like we had someone from Petaluma come on and say "was there an earthquake? I felt something." You know, well, he felt something, but not like we did. So it didn't take but just a few minutes to know that the center of the quake was quite close to Watsonville.

While the majority of ARES members I interviewed reported checking into the net and offering damage assessments of their immediate area, many of the club members I spoke with reported immediately turning on the radio to monitor only. Critical to this study, I found several club members reporting that the net sounded immediately controlled and organized, leaving them with the perception that they should stay off of the air and just listen. Many of those hams who did not volunteer radio services commented that the ARES emergency net sounded as if it was running smoothly and unproblematically *the whole time they monitored* -- i.e., for several days. Others took awhile to come to the conclusion that perhaps help was needed after all:

I didn't check in right away. We checked down around the neighborhood and we kind of listened for awhile, because, like I said, the ARES group always comes on...uh, they have some people in there that are very confident people. And when you hear them talk, they come across in a way that makes you feel they are really very well organized and running real well. But in this particular case, you know, everybody in the area was affected by it in one way or another, and so the organization didn't function as well as they expected it to. And I think that became evident to me after listening to them for a little while. And then I checked into the ARES net. Not being an ARES member, I was a little bit reluctant to do that, because I still had that feeling that maybe I was, uh, sticking in where I didn't belong. But that really wasn't the case.

Two other club hams (both recently licensed) who didn't volunteer cited a similar hesitation over what they could do to help and whether they were qualified. Note, too, that the first expresses a theme I actually heard on several occasions -- the notion that calls for help meant calls for help at net control, something that many reported they did not feel comfortable considering. Not unimportantly, both people below report that they now feel prepared to volunteer in the event of the next disaster.

I was thinking "should I really go down and work one of these things? What if we have another one which could happen at any moment? And am I very good at this?" You know, have I done this before and things like that?" I really didn't think it was

going to be appropriate for me to go down there and try and be part of it. I got the assumption that they needed help at, like County Comm. I didn't get the assumption that they were going to be interested in someone who said "I'll be willing to help as long as it is close to my home." I would say I did not have confidence in my skill level at that point. Now if we had another quake or something, I'd feel much better about going off and doing some work. I talked about it with my wife; we've got some things straightened out between us about what to do in the event of another one.

I joined ARES after the quake. At the time, there was nothing I could do. I didn't know they could use my services without a license. I was checking around at the time and I just didn't know. But you can. In an emergency, anyone....that's perfectly legal. But see, at the time I didn't know that. I didn't really know that they could use my help, like down at Red Cross.

On the other end of the continuum of those who opted not to volunteer were club hams who, perhaps ironically, did not choose to listen to ham radio much throughout the event:

Practically nothing happened. Didn't bother me or my wife all that much. I didn't listen to radio too much. I wasn't particularly concerned and didn't want to leave or explore too much.

I didn't get involved in any radio work. We came through in good shape, no damage. I'm not very active with radio. Didn't listen to ham radio during the quake. I listen to the public radio.

In contrast to these two accounts, 96% of hams surveyed reported monitoring the radio during the first 3-5 days after the quake, with 64% of those surveyed contributing some amount of actual volunteer radio service. "Service" in these accounts ranged in both duration and task. For some it meant passing health and welfare traffic from one's home; for others it meant serving one 2-8 hour shift at an assigned locale like a Red Cross shelter; for others it involved multiple shifts at assigned locales and/or Net Control. The factors that dictated the type and amount of volunteer radio service hams donated are complex and I will attempt to describe what I perceive them to be in a moment. But to offer a quick summary of responses given by 36% (n=18) of the sample who opted not to volunteer, the reasons cited were as follows (note: the total adds up to 21 versus 18 because three people listed more than one factor):

1. *needs of family and/or home rated as higher priority (6)*
2. *out-of-town at time of quake (4)*
3. *not active in radio at the current time (3)*
4. *property damage (2)*
5. *sickness (2)*
6. *job conflict (2)*
7. *didn't feel skill level was adequate to volunteer (2)*

I don't believe it is coincidental that the number one reason cited for not volunteering radio services was also the key factor discussed by volunteers as affecting (and often posing conflict for) the extent and type of service they were willing to contribute. Family and home, not surprisingly, figured strongly in every respondent's account. I offer some findings on each below.

There's No Place Like Home

Surprisingly, I could only locate one finding in the disaster literature on the need victims have to account for the status of their home:

Finally, the urge is strong to return home immediately after the emergency. Based on scattered case study observations, it appears that this process *may be as complex* as those depicting departures. (my italics) (Drabek, 1986:156)

Accounts from ham operators support this idea that attitudes towards one's home in a disaster are complex. I was quite fascinated by the very different ways that people described their attitudes towards: a) needing to see their home if they hadn't been in it at the time of the quake; b) needing to stay home after the initial quake; and c) needing to restore their homes to their

pre-quake state before doing other tasks.

It should be stressed that, in this sample, nearly half of all respondents had been home when the quake struck (44% inside the home, 4% outside). The fact that the majority of respondents are retired would account for this high at-home rate; however, the unusual fact that World Series coverage began at 5:00 that afternoon resulted in an additional number of working people being home early that day. Thus, 48% of respondents already knew how their homes had fared during the quake. For most of those who had experienced the quake in other locales, the desire to know the status of their home was fairly strong. The need was especially urgent for those who assumed their spouses were at home at the time of the quake, but this finding obviously points to the priority of verifying the well-being of the spouse and is not easily separated from ideas about the home. Overall, attitudes towards homes varied a great deal. In one of the most unusual accounts in my estimation, a ham who had been home when the quake struck still didn't learn of its interior condition until the next day:

As soon as it started shaking I got the kids outside of the house. I didn't even look at the house, what shape it was in. I just turned the gas and power off. And went on to a neighbor and shut his gas and power off cause he doesn't know how. And my wife had gone to the store and she came back home and told me that there were two houses, just down the road from our

place, that had collapsed. So I jumped in my truck. I checked in with Rich at County Comm. and told him what shape the area was down there. He asked me if I would go to (names the location). So I didn't know what had happened to our house until the next day. After I got the kids outside, I didn't care what was going on in the inside.

Another ham discovered that his attitudes regarding his home and possessions changed after the quake:

I didn't care about the house. I didn't care about it at all. Infact, when we went back, I looked at it all, the glass and the kitchen cupboards emptied out and the television had fallen, but no. I didn't care. And that's wierd, because I'm, in a way, a possession person. I like my little gadgets and toys. But after that experience, it didn't matter to me. As long as those other three people were fine, I was fine. I think I went home from here about 2:30 in the morning and my wife and I walked in the house. The gas was off and all that, and we just looked around and said "oh, the hell with it." Infact, our house stayed the way it was for about four days. The goo and mollasses was still on the floor hardening and everything else.

Several who immediately volunteered their radio services also expressed this "it'll keep till later" attitude towards their dishevelled homes. In reality, however, most of these same people had wives who accomplished most of the cleaning and restoration of the home themselves, or with the help of neighbors and/or other family members. Thus, several reported that the house was well on its way back to relatively normal order by the time they had returned.

One respondent who volunteered his services in the first half hour noted that he had strong fears about the status of his house:

I don't have a fear of getting hurt in a quake. I have more fear of loss of my property, assets that I've worked all my life for. I was afraid to go home because I didn't think our house was there. I didn't make it back till about 3:30 the next morning...she had to face cleaning up the house with our daughter.

Others who opted to volunteer later in the proceedings (or not at all) expressed very different attitudes about the need to restore the homefront:

I checked in in about half a minute. I was quite impressed that Hank was already on the air. So I said "look, I've got some devastation around here I'm going to have to check out around here first, but as soon as I'm available, I'll give you a call again." Well, it took longer than I expected. First having to fight my way into the garage to check the gas meter and the water heater; that took time, you know, because everything in the garage was on the floor. And then in here in this kitchen, I couldn't just leave it like that for the family, I had to help my daughter and my brother-in-law to clean up some of the mess. I actually reported for service the following day, because once we got cleaned up here, I was exhausted. I could've gone down to County Comm., but I needed sleep, like other people needed sleep. So the next day I called in.

I think during the first 24 hours, if you had sustained damage, a mess to clean or repairs to do like I did, you do that first. You do for your house and family. Then you can step forward and put time in.

But as at least one operator's experience indicated, doing for the house wasn't always accomplished so quickly:

My priority was let's go home and see what is there. I had no idea what the condition of the house was. The more I listened to the radio and the more I heard, the more I got convinced that maybe this house wasn't there either. ...For the first, I guess 2-3 days after we were trying to get things cleaned up and livable again; I didn't even think about radio. That was the furthest thing from my mind. The third or fourth day we finally had the house cleaned up enough where we could get through it without worrying about stepping on broken glass. At that point I remember bringing up the packet station I've got that's portable.

To play devil's advocate with this respondent and with others, I then asked the following: "once you found out your wife was OK and your house, though messy, was still standing, why wouldn't you say 'hey, it'll be here when I get back?'"

This respondent explained:

It ain't going to be there when I get back because I ain't going to leave! I mean when I've got the equivalent of seven years of my life laying in pieces on the floor that I can't walk because I'm afraid it's going to gash my foot or the dog's or my wife's or something like that, or if a good aftershock hits and knocks me to the floor and I'm going to end up getting totally wiped out from the broken glass and stuff in there, then the house is not liveable. It's not safe. And until it is safe, I'm not going anywhere. There is a certain amount of things you can do when

your mind is elsewhere. There are others things you can't. I don't think I'm alone or unique in my belief that you take care of the home front first. And then, if you have time and if you have the desire, you do what you can for others.

Another respondent who opted not to volunteer had checked his house immediately, found it had fared well, but still felt reservations about leaving. Given that he, his home and his family were all basically fine, I find his discussion of why he still felt the need to stay home compelling and critical. While he knew of the prevailing logic regarding aftershocks -- "if the big quake left your house standing, you needn't worry about the aftershocks" -- there was, nonetheless, a nervousness reflected in his (and others') accounts about potential danger for their homes:

I wanted to be around here. I was thinking what if something bad happens? What if there's another quake, just as bad, and the trees are on fire and it's time to get out a shovel and make fire breaks. Things like that. I was trying to not be stressed and trying to relax and get myself recovered so that in the case of another emergency, I would be able to do something. I think that home was something that I had to go home and protect. I knew that I couldn't stop it from falling down, but I didn't want it to get any worse. Another thing is that home is the place where you get information about your life. You get information from friends and from family, so that I had to go to that center so I could find out where my life stood. I had to get information, and I think home and information go together. Information is comforting. Home is comforting.

This account nicely illustrates two findings that I feel are key to this study: first, in spite of "scientific evidence" that the worst part of the quake was now over, some people were still feeling a perceived threat to their homes from either another major quake hitting, or increased damage from the repetition of strong aftershocks. Second, in another variation on the earlier literature finding that people seek information in disasters, this account illustrates that acquiring information of a personal nature was also deemed important and necessary. Specifically, besides learning about the facts and statistics of the quake, some people reported the need to stick to their "home base" in order to collect information about -- and allay the fears of -- neighbors, family and friends.

In a variation on the "home base" idea, I also heard another type of response to the question "why didn't they work if everything was OK?" There were those who found their homes and families intact and who wanted to stay at home precisely because their home was not part of the chaos of the outside world at that moment:

Immediately I turned on the truck radio and I heard some hams operating. I checked in and I think Rich was already on. I saw my neighbor from down the street just arrive home, and he was downtown when the quake hit; he said there were real traffic

problems downtown and he saw a place on Front St. where it had opened up, and so on. And then Rich asks "Can you go down to County Comm?" Well I didn't even ask my wife about it, you know. If I had asked her, she'd have said "no, I want you to stay here", you know, because we were already feeling all those aftershocks. So I said "Rich, I could. I've got my truck." And I didn't tell him at the time, but it was just one of those rare times when both my car and my truck were less than a quarter of a tank of gas. And I knew that I better save that, because who knows what's going to happen. I thought "what if I get stuck down there or if I have to leave my truck some place and walk. I'd be willing to walk, but if I had to leave my truck and it got hauled away..." So I said "Rich, I don't think I'm willing to go down." And I think immediately my stock in ARES is going down! Going down fast! But I stayed in the truck and listened and Wayne was in route down there. He was in blocks of County Comm. and he volunteered. So I figured well, then the pressure is off me. My name might be something awful, but at least someone is going down there. I figured "I really don't want to get into this." And I know if I decide to do it, then I'm not sure my wife would feel secure enough, even though this is a nice quiet neighborhood.

Thus, for those who did not volunteer, who volunteered briefly, or who postponed volunteering, a variety of responses were offered that showed that issues concerning home and family were taking some kind of precedence over ham radio service. This does not, of course, imply that those who immediately volunteered and/or worked multiple shifts were not upset and concerned about the status of their families, spouses or homes. Many who worked noted that

they did so only after verifying the safety of their families and -- for some -- the security of their homes.

Difficult Decisions

If there is any one point I want to make very clear in this report, it is that I believe many people really struggled over what was the right thing to do in this disaster. Volunteering radio services, assisting neighbors, checking on homes, restoring order to homes, verifying the safety of spouses and family and assuring out-of-town relatives and friends could not all possibly be done by any one operator in the first few hours. Difficult decisions had to be made, and at times decisions were restricted or forced on people.

In several cases, choices were constrained by logistical problems like road closures. For some who were temporarily stranded over the hill, the first radio work performed was at job sites. Another commuter offered his radio services for a short time at an ARES station in the South Bay because "traffic was gridlocked anyway." As this respondent described his logic, "you do what you can, where you can". This philosophy most likely accounts for the many respondents who reported their first actions involved helping their neighbors who were often practical strangers. Many reported assisting neighbors with

the turning off of gas pipes and checking on their general well-being before moving on to verify the welfare of family who were out of the immediate area. Similarly, those on the job at the time of the quake reported assisting co-workers first. Nonetheless, most respondents commented on the need to at least verify the status and location of their spouses before taking any other action. Small children and elderly grandparents were the second most frequently cited relatives of concern. I found that respondents consistently reported "having to wait" to ascertain the status of adult children and/or other relatives in the immediate area.

In spite of the desire to first check on family, this was not always considered a possible or logical choice for some. Two people who worked long hours at net control discussed the chain of events -- and the conflicts felt -- over working these shifts before actually seeing their spouses. A third respondent discussed how he had verified the safety of his wife and children, but made the difficult choice to work even when they wanted him to stay home. I offer some detailed excerpts from all three of these interviews because I believe they reflect the real struggle some felt in trying to decide what to do. The first respondent below had tried to locate his wife before beginning ham radio work, but was unsuccessful:

(knowing your wife was down on the mall, was it your goal to try and go and find her?) I tried. A dual thing to head in that direction in any event because that's where the County Center was, and head down to the mall because there was no other way to find out what was going on. I drove the wrong direction on the mall when I got there. I couldn't find her. They told me she was there and had gotten out moments before. So I ran up on top of the parking garage, and her car was gone. So I assumed she was in it. I was going to head for home because I assumed she was there. And I got out on Highway 1 and, uh, traffic was just sitting there. Nothing was moving, just totally stopped. And of course, there was no way of knowing how long that was going to last. So I made a decision that I might sit there for an hour or two and not get any place. So I tried River Street and got down to the County Center. Once we got on the air and started operating, there really wasn't time for anything else. It was just totally consuming.

(Did you assume your wife was frantic?) Sure. I knew she would be. And I had a pretty good idea she wouldn't know what was going on with anybody else because I knew more about the family than she did about that point.

(Did that make you feel any desperation at all?) Sure. Especially as things began to slow down a little bit. It was almost non-stop though, and there was no way to get out on the phone. Later (another ham) contacted me; he said he had talked to her on the phone.

I was concerned about my wife and my kids, but I was so far away and I realized that there was nothing that I could do. I said to myself in my mind "there's nothing I can do at this time." When I get the opportunity I'll find out about them and take it from there. The other thought as well was that my

brother is down there in the fire department; he'll at least make an effort to get to them.

(did you assume there was nothing you could do because you didn't think you'd be able to travel home?) Yeah, that was really it. The travel time and the bridge; it just sank in that if I tried to drive out there.... At that point in time I made a decision; they have to be OK, they have to take care of themselves, and I put that out of my mind and continued working the radio.

(when you finally left the building at 2:00 a.m., what were you thinking as you drove home? Were you afraid?)

Yeah, I was scared. Truthfully, I was. I didn't know what to expect. I think what I was afraid of was my worst fear -- that my kids or my wife or my parents did die. That crossed my mind, you know. I think what was scary about that was...you know, it's that feeling that something's happened to them. And it's like "am I going to actually find them, or am I going to be told that?" And what if I find nobody there? And that was kind of odd, strange...

(was your wife upset when you got home?) Yeah, she was upset, but she understood. She was really understanding. Surprisingly. My daughter was really, really scared; she just wanted to sit on my lap and just feel safe. I think for little kids....well, it's going to be awhile. They're traumatized.

(Do you think if your parents hadn't been there that you would have felt the need to stay with your wife and kids?)

Tough call. I really don't know what I'd do. I think I would've stayed with her. You know....it's really hard. People say "well, how did you just leave her?" It's hard. You get into emergency mode or whatever and then you think "it's the only way I can kind of justify some of the things I've done." Um...I knew at the

time that my wife was OK and my kids were OK. But I left my wife and kids in the middle of...uh, you know, that was a pretty good quake that we had and things got tossed around a lot. And uh...and I kind of walked out. So there's two sides to it. I knew everything was OK with her and I knew she would be just fine. But on the other hand, I could see how I would feel if I was in her shoes and I was scared to death and somebody said "oh, you'll be just fine, see you later."

As this last respondent noted, there were two sides to his decision that might be characterized as "family duty" versus "civic duty." I believe that in many ways, these two positions represented polar extremes of a continuum of choices for ham operators; in reality, most people fell somewhere in the middle in terms of the choices they ultimately made. Additionally, it should be noted that many felt that the non-radio volunteer work they did -- checking on neighbors, biking through the community to shut off gas pipes, driving supplies to shelters, etc., -- was an equally important form of volunteer quake work that shouldn't be seen as less important than volunteering radio services.

Finally, in these interviews, I noted one last factor which appeared to have considerable weight in determining whether ham operators ultimately offered their services. This factor was their philosophy concerning the role ham radio plays in their lives.

HOBBY VERSUS CIVIC DUTY: THE ROLE OF HAM RADIO IN OPERATORS' LIVES

While this last section is the shortest in my report, it may be, in some ways, the most critical. I have attempted to demonstrate that neither physical or emotional experiences of the quake served as determining factors of whether ham operators volunteered their services. In contrast, I have shown the ways that both the differential perceptions of priorities concerning home and family as well as the differential methods undertaken to structure and restore order were critical in determining when and if hams volunteered. But underlying this last point are the very different attitudes hams reported having about the role of ham radio in their lives and the nature of volunteerism. Here I did see a rather decided split between those who viewed ham as a purely entertaining hobby -- something they do mostly for enjoyment -- and those who considered it a hobby with a "built-in commitment" to civil service and emergency efforts, first and foremost.

In some ways, people on both sides of this fence were quite agitated by the others. I was amused to hear the most "name-calling" arising from questions concerning this issue. In extreme cases, the first group (the pure hobbyists, if I can call them that) would refer to members from the second group as "ambulance chasers", "weekend warriors", "glory grabbers", and

"hot-doggers". More commonly, however, they thought it was admirable that others devote so much time to civic minded work and emergency response, but still qualify their praise by noting that some are "obsessive" or "go-overboard." They also were the ones who most often stressed the fact that ham radio is a volunteer service. People who didn't volunteer hours and were not pleased that this study was taking place were usually quick to remind me that this was a volunteer organization. Thus, there were those who I interviewed who were quite critical of hams who appeared -- to them at least -- to have left their families behind for the sake of "radio-glory":

The way I felt was that some of the amateurs were putting themselves out too much. I know some people that went out when they had their wife and kids at home and they did this other stuff and just left them at home! I don't think that's right. That's my view. There are some guys that think "well, my family is OK, I'm just going to go out and help everybody else." I believe that there's got to be verbal and spiritual support given to people as well as physical. But just to go home and say "oh, they haven't got a broken leg", so go out and help other people. There are a lot of members that do that, but personally, I think that they just worked too long. If I have free time, then I'll put myself out there to do that. But if there is something else that needs my attention, than that's going to come first. I believe that's the way it should be. It's a volunteer service.

There were certain people, and I won't mention any names, who were so far out of line, and so far off-base....if they ever jump

in my face about not volunteering, I would not hesitate to lay them out cold on the floor. Out of line in their attitude, period. There are people who resigned from the club because they were told that whatever efforts they put in weren't good enough... Radio is an amateur hobby. Anyone that takes any hobby too seriously has problems. I never have had a problem keeping my hobbies and my life in perspective and I feel sorry for people that do, because they really do have a problem. One nice thing about hobbies is that the individual who has that hobby gets to dictate what they do with it and what priority they want to give it. It's for fun. When it stops being fun, I'll quit. Anything you give is more than 90% of the people give.

In contrast, those who felt quite strongly that a key component of ham radio was civic responsibility in the event of an emergency had some harsh words for the "hobbyists" in the group. One person, for example, critiqued "rag-chewers" and "rag-chewing" as "one of the more disgusting aspects of this hobby." More typically, however, those in this second group expressed disappointment, frustration and/or surprise that more hams did not consider it a civic responsibility to volunteer during this disaster:

I have a real bitch with local hams; I'm really upset they they didn't volunteer enough. I heard 400 volunteered and out of that, only 50 were from this area. That's fine to take care of things the first few days. Once you found out everything was OK, I mean, the idea of being a ham is to volunteer for things like this and I couldn't understand why there was not a lot of people wanting to volunteer. I thought there was a lot of selfishness.

The thing that disturbed me was, uh, the number of people who did not even call in or didn't do anything. I guess they were just afraid.

I've always felt one of the main reasons why amateur radio licenses are issued is to support a civil defense effort. I really believe that. There's a good group of people in ARES. They're truly putting their licenses to the use it was intended for, in my opinion. I kind of feel like everybody has to do their part.

Still, even the notion of "hobby versus duty" is too simplistic to capture the range of attitudes I heard about this issue as I conducted this study. One might assume that those who worked many hours might feel the greatest resentment towards those who didn't volunteer radio services at all, but even this was not to be the case. I did hear some of those who put in the most hours and/or are in leadership positions sounding quite tolerant of those who chose not to volunteer:

You hear people say "God, I can't believe so-and-so. Man, he didn't even leave his house, he didn't come out, he didn't help us" and they go on and on and on. Well, I can believe it. I mean, this guy is retired, maybe, and he's concerned about his house. I mean God, that's what he worked for all his life. And then you want to pull him away from his wife and away from his house that he's worked for all his life and put him down here for 8 or 10 hours. Well, maybe his stress level, maybe his medical condition can't handle that. But hams do other things. I mean, they do bicycle races and communications and for that, he's

there. But yet you're criticizing him because the chips are down and he doesn't show up. Well hey, you can't criticize a person for that.

As far as I'm concerned, my people, I just can't thank them enough. Way beyond the call of duty, working tremendously long hours. Sure, some people didn't come. That's alright. Hey, this is volunteer. You know, we don't get paid for this stuff. You don't have to risk your life. I don't ask you to do that. I ask you to be a radio communicator and make a commitment that you're going to have to go out sometimes when it is raining; you're going to get wet or cold and you'll have to work fires or something. But if you really don't want to do it, then hey, don't do it! That's OK. Because I understand that this is a volunteer organization. And I have no qualms about it at all.

CONCLUSION

In 1970, a disaster researcher proposed that there are nine features in which disaster agents differ: 1) frequency; 2) predictability; 3) controllability, 4) cause; 5) speed of onset; 6) length of possible forewarning; 7) duration; 8) scope of impact; and 9) destructive potential. (Dynes, 1970a:52-55). When one considers what the citizens of Santa Cruz County endured during the Loma Prieta quake vis a vis these features, a picture of a real test of human strength in the face of adversity emerges. The aftershocks came frequently; we could not predict or control this type of disaster. The cause of the disaster was Mother Nature herself -- not something

we mere mortals quite know how to reckon with. The speed of onset of this disaster was immediate, we had no forewarning. The duration, when one considers the aftershocks, seemed endless. The scope of impact -- as many have commented -- seemed to warrant the label of "lucky, all things considered". And the "destructive potential", as we are all now well aware, was great.

In the face of this most disruptive disaster, the Santa Cruz ARES and SCCARC members did -- in my eyes and the eyes of nearly every respondent I spoke with -- a tremendous, noble and selfless job. I have come to realize that I was not the only one who was ignorant of the role ham operators played during this disaster. I have learned that people are generally ignorant of the vital communications function and heroic community service that ham operators provide in times of disaster. Even the exhaustive review I conducted of the disaster literature shows an alarming ignorance of the role ham operators can play in emergency response. I found but one study conducted in 1974 that dealt with radio technology in emergencies. Notably, the study dealt with Citizens Band radio and made only passing reference to ham radio. (Jefferson and Scanlon, 1974).

I would like to think that the study I have conducted will make a contribution to disaster literature in this direction. More importantly, I hope that the findings and discussion in this report will have shed some light on the issue of how and why ham operators responded to the Loma Prieta quake as they did. It was my final sense that neither physical or emotional experiences of the quake were good indicators of whether operators chose to volunteer their services. Rather, the differential attitudes towards: 1) personal priorities in times of emergency; and 2) the role of ham radio in people's lives appeared to offer some clue as to whether people ultimately chose to volunteer.

I believe the data also bore out the disaster literature theme that people attempt to assume familiar roles and structure their actions in a disaster in an effort to normalize a very abnormal situation. Thus, instead of assuming that local ham operators who are not normally involved in emergency service would change their roles because a disaster has occurred, I believe one should perhaps expect the opposite. In the face of having their worlds turned upside down, people -- ham operators included -- try to "put things back the way they were"; they do this by assuming familiar roles and attempting to get back to their pre-disaster routine as quickly as possible. Thus, if they didn't see themselves as interested in the emergency component of ham radio before the

quake, it is highly doubtful that they will take this interest after the quake.

Many of those club members who came forward during the quake did have emergency and/or military backgrounds and indicated that they felt hams had a civic responsibility to volunteer in emergencies.

Those with emergency orientations -- which could mean a variety of things from ARES membership, particular job training, military backgrounds, or prior ham experience with disasters -- are less likely to view volunteering their services during a disaster as such a radical shift in roles. Thus, it is not surprising to find that the majority of ARES members did volunteer their services during this quake while the majority of local hams did not. I have tried to suggest through these accounts that perhaps this is not a baffling fact at all, but rather, to be expected. It does not mean these same locals who chose not to work when the quake shook the very foundations of their lives would not turn around and help out citizens affected by disaster in another community. I have heard repeated reports that attest to the fact that this does, indeed, occur.

Looking at this issue of volunteerism in a different light, several people who worked long hours in very key positions admitted to me in their interviews that they are actually selective about what they will and will not do in an

emergency. A few noted that they only like to work in certain locales or "at the controls"; one stated they would not work at a Red Cross shelter, another that they would only work local emergencies. Thus, even amongst those who work long, hard hours during an emergency, there are individual attitudes about what one will and will not do. In some senses, this is the same logic that guides those who opt not to volunteer during an emergency.

This study grew out of a certain level of puzzlement over ham radio labor shortages during the Loma Prieta quake. I would suggest that that puzzlement stemmed from a number of preconceived expectations about human response to disaster that proved false. I hope that the combination of having gone through the experience as a community as well as receiving this analysis of ham operator responses to this disaster will better inform future emergency planning efforts. As the disaster researcher I most frequently cited in this report noted, "community disaster planning typically or usually assumes that people should adjust to the planning or the plans; realistic disaster planning requires that plans be adjusted to people." (Quarantelli, 1981, 2-3).

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Loma Prieta Earthquake Emergency Radio Response Study, 1989-90

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Concluding Recommendations

Several categories of actual and potential ham operator volunteer response to disaster were identified in the course of this study. This categorical scheme -- offered below in ascending order from least to most likely to volunteer -- may be of use in future emergency planning efforts in terms of targetting volunteers for recruitment, both before and during disaster events. I believe people in certain of these categories may be "unrecruitable" as volunteers and that recruitment efforts should be concentrated on those in the "mid-range" response area; i.e., those who were identified as conditionally available in the event of an emergency and/or those who may volunteer if offered a clearer understanding of organizational emergency needs and expectations.

Volunteer Categories

- A) Hams with no group affiliation (SCCARC or ARES) and no interest in volunteering
- B) Hams with SCCARC affiliation but no interest in ARES or emergency volunteering when need arises
- C) Hams with no group affiliation (SCCARC or ARES) but could be uninformed about both organizations and/or volunteer need in emergencies
- D) Hams with SCCARC and/or ARES affiliation who will volunteer conditionally in following situations during a disaster:
 - 1) only if need is for an out-of-town emergency assistance
 - 2) only if need is for a local emergency where operator did not directly experience event (i.e., at a distance from site of problem, such as fire in local mountain area, flooding downtown)

E) Hams with SCCARC and/or ARES affiliation who are personally affected by event and will volunteer conditionally if not experiencing significant conflict and/or uncertainty with any of the following:

- home and/or family needs, actual or perceived*
- competing job/schedule needs
- personal health at time of event
- location at time of event
- locale and/or type of radio assistance being requested**
- self-perception of personal skill level in radio**
- self-perception of ARES operation: efficiency, labor needs**

F) Hams with SCCARC and/or ARES affiliation who are personally affected and will volunteer unconditionally, barring any substantial personal and/or family injuries, property loss, etc.

Broad Goals and Recommendations

Goal 1:

Increased education of ham operators as to goals and needs of ARES; specifically, a more systematic information dissemination system regarding range and type of volunteer response needed (both prior to an emergency and during an actual emergency period)

*this condition could possibly be effectively addressed should ARES consider an in-house health and welfare check system (as is currently used by some fire and police departments) where an ARES member(s) is assigned responsibility for checking on family of other ARES workers while the latter continue disaster assistance

**these conditions should be addressable, in part, by the various recommendations listed below

Recommendation:

Creation of literature (either a designed brochure or "fact sheet" type of literature which briefly and clearly outlines the "5 W's" of emergency response for SCCARC (and secondarily, ARES) members: i.e., the "who, what, when, where, why and how's" of volunteer response. Club members should be given this literature at meetings devoted to expanding awareness of ways that club members can contribute to volunteer emergency efforts, even if they don't choose to officially join ARES. While the brochure should speak in general terms about "broad needs", I would suggest an accompanying "job description" type fact sheet which outlines specific types of roles that can be performed, all the way from actual Net Control to doing health and welfare calls from one's home. A list of potential locations, shelter sites, etc. where people may be asked to report should also be distributed (it would be efficacious to create an ample supply of maps with directions to these locations for distribution prior to -- and during -- an emergency.)

Goal 2:

Increased labor power availability. The current size of the ARES core volunteer group will never be enough to meet the needs of a full-scale, long-duration emergency event; shifts of volunteers are needed. That given, how do you want to secure a larger volunteer operator pool? Recruit more to ARES? More to SCCARC? Both?

Recommendations:

In a sense, this recommendation is similar to the recommendation for increased education listed above. However, it goes a step further -- beyond education and information dissemination, this recommendation suggests more active, assertive recruitment measures. Many non-ARES respondents indicated that the "pitches" to join ARES were few, "low-key", and even ambiguous in that some thought ARES was not recruiting at all. Thus, there may be at least a small group of club members who are not volunteering due

to lack of information about emergency radio services/needs. A basic recommendation is to implement a more systematic recruitment plan. Current recruitment efforts could, minimally, be supported by repeated reference to ARES recruitment drives in short-skip and other club literature/newsletters. Both a regular ARES publication circulated to all members of the radio community and a monthly "open" ARES meeting could also bolster recruitment drive efforts. A key goal of any recruitment effort should be to "demystify" the goals and activities of the organization, helping to alter the fairly prevalent opinion that ARES is an elite organization for specially trained volunteers.

Goal 3:

New and existing volunteers should have a clear sense, along with ARES leadership, of the planned structure and logistics of the actual volunteer response (along with clear communication that plans may have to be adapted as various situations demand). ARES leadership should know, in advance of actual disasters, the priority code that all potential volunteers want to be assigned -- this would involve an extension of the existing priority code system: for ARES members to SCCARC members.

Recommendation

I recommend creating a semi-structured, "second-tier" labor pool of SCCARC members. This would consist of volunteers who don't choose to be ARES members, but would be likely to volunteer if they had a more structured understanding of ways they could conceivably contribute to disaster response efforts. At a SCCARC meeting devoted to this issue, a one or two page sheet could be distributed for voluntary completion which would ask people to indicate willingness to work at various tasks and/or at various locales. All potential jobs, sites and locales should be listed, allowing people to definitively state what they will and will not do, and when, where, and under what circumstances they would do it. A "priority code" should be assigned based on their responses, and specific info. on these people kept on file, similar to ARES priority code information.

As a rough example, you might offer a list like that shown below, coupled with a scaled response check system (i.e., rank from 1-5, not very likely to very likely, etc. concerning how willing they would be to fill each position or travel to each locale):

- A) Net control shift, key position
- B) Co Comm., assisting net control key operators
- C) Comm. Hospital
- D) Dominican Hospital
- E) Watsonville Hospital
- F) Red Cross main shelter
- G) Shelters:
(list all known County locales and ask them to rank order)
- H) Shadow, runner, delivery, search and rescue drives (?)
- I) Packet Station monitor, health and welfare traffic team
(at assigned locales; at home only)
- J) Labor Resource Coordinators**
callers
registration/assignment coordinators
general information staff (instruction, maps/directions, etc.)
- K) ARES team Health and Welfare Coordinators**

** These last two are suggested positions which will be discussed at our final meeting.