

Giving Verbal Coordinates to SAR Aircraft

When utilizing Aircraft for Search and Rescue missions there are a few things that can be done to avoid confusion in getting the aircraft into the correct area.

1. Giving directions to SAR Aircraft should be done using the format of **degrees and decimal minutes**. Reading of coordinates should be done as in the following example:

N 34°32.48' W 112°27.09'

North three four degrees, three two decimal four eight minutes.

West one one two degrees, two seven decimal **zero*** nine minutes.

*Note: There is no 'oh', only zero in the number system

2. Have the person on the other end repeat the numbers back to you exactly the way you gave it them. This is one set of numbers you don't want to have an error in. Writing down your message before communicating will also help you with a poor connection or low batteries as you'll avoid wasting time trying to remember what else you need to communicate.
3. Finally, to verify that all communications and coordinate systems are correct, give the aircraft the coordinates of the Remote Incident Command Center or other base of operations in the field near the search area and have them over fly it when they enter the area. If all directions given are correct, both parties will see each other. If not, ("I am over the coordinates given, negative contact"), then something was not communicated well and needs to be corrected.

Reference:

From the National Search and Rescue Committee (NSARC), comprised of the federal SAR agencies including AFRCC, Coast Guard, etc., addendum to the National SAR Manual:

- a. Latitude and Longitude should be in one standard format: DD-MM.mmm. If required, use only 3 digits to the right of the decimal; 1 or 2 digits is acceptable.
- b. Do not use leading zeros to the left of the decimal for degrees or minutes that require fewer than the maximum number of possible digits to express their value. The minimum number of digits is always one, even if it is a zero. (Example: Not Recommended: 09-00.300N 004-02.450W; Recommended: 9-0.3N 4-2.45W).
- c. Latitude is always read and written first noting "North" since the U.S. is North of the Equator. Longitude is always read and written last noting "West" since the U.S. is West of the Prime Meridian.
- d. When speaking Latitude and Longitude coordinates for 39° 36.06'N by 76° 51.42'W. Latitude and longitude is stated as: "Three nine degrees, three six decimal zero six minutes North by seven six degrees, five one decimal four two minutes West." The words, "degrees," "minutes," and "decimal" must to be spoken.

From Chairman of the Joint Chiefs of Staff Instruction CJCSI 3900.01C

a. The two coordinate reference systems to be used for reporting and referencing positions (referenced to WGS 84) shall be:

(1) Geographic coordinates using the sexagesimal system, expressed (represented) in degrees, minutes, and decimal minutes (DDMM.mmmm).

(2) The Military Grid Reference System (MGRS). Ground units and ground combat operations shall be serviced with MGRS coordinates. To support homeland security and homeland defense, the federal Geographic Data Committee (FGDC) US National Grid (USNG) standard when referenced to North American Datum 1983 (NAD83) is operationally equivalent to and is an accepted substitute for MGRS coordinates referenced to WGS 84.

The sources for this are on the NSARC website: http://www.uscg.mil/hq/cg5/cg534/nsarc/Georeferencing_info.asp

One can argue, correctly, that NSARC policies and procedures only apply on federal level incidents and that CJCS Instructions don't apply to non-DoD users, so this guidance can be ignored. On the other hand, there is no harm in following this guidance. The problem is that most SAR personnel, in or out of CAP, don't know these exist. And of course, there is a large body of people who don't want to have anything to do with something recommended by the feds.

Keep in mind that SARSAT hits are sent in the format DDD MM.m - minutes to one decimal with no option for any other format. NTAP coordinates, unless converted by AFRCC, are in DDD MM SS.

The confusion over different coordinate systems is an issue. October 2009, the NTSB released its report on the Maryland State Police helicopter crash. Among its findings, was "Maryland State Police troopers and System Communications Center personnel were insufficiently equipped and trained to conduct a search involving global positioning system coordinates, and this hindered their ability to locate the site of the wreckage."