SAR Bird

National Search & Rescue School

That Others May Live

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Inside This Month's SAR Bird

This month's featured article

Stand-up Paddleboards – The latest search object selection: There's a saying on the Outer Banks that the Stand-up Paddleboard (SUP) is the new Kayak…

Position format variations and SAROPS : During the initial stage of a SAR incident, the Command Center watch will receive position information from various sources and formats…

Resource of the Month

Hyperbaric Chambers

Who's Who in SAR?

Mr. John 'Jack' Frost – SAROPS Program Manager, CG-SAR

Command Center of the Month

Coast Guard District Seven Command Center

Coast Guard Heroes

William Charles Hart, …affected a rescue by jumping overboard at great personal risk, as the two vessels were not more than 8 feet apart in the raging seas…

Monthly SAR Case Statistics

SAR statistics throughout the Coast Guard.

Nautical Trivia

Deck prism: Inserted into the deck of a ship to provide light below decks.

This Month in Maritime Disaster History

SS EASTLAND On July 24, 1915, the ship rolled over while tied to a dock in the Chicago River. A total of 844 passengers and crew were killed in what was the largest loss of life from a single shipwreck on the Great Lakes.

Influential Maritime Figures

Rudolf Christian Karl Diesel, famous for the invention of the diesel engine.

Second, it is strongly recommended that you consider a PIW with and/or without a PFD as additional search objects within the simulation. As stated above, it's easy - and common for a SUP to get away from its master, and when that happens, you're looking for a PIW. Additionally, if the leash is in effect, then the SUP operator may be laying prone, hanging onto the side, crouched on top or some combination thereof.

Another uncertainty is the fact that it's impossible to know if the subject still has their paddle. Many end up getting lost and the operator is trying to make way to shore. And as hard as it is to fathom, many paddles don't even float! A capable paddler will lie prone on the board and paddle surf board style when in extremis.

Test SUP with dummy subject adrift

Again, these possibilities should be investigated and considered when framing out the simulation scenarios. Don't just throw down that narrow LKP out of reflex! There are times when an Area or Voyage scenario is a better fit.
As with the crafting of many search plans, there are both knowns and unknowns, and it's ***your job*** to manage and model them within SAROPS.

If an empty SUP is discovered/reported and you're able to associate it with a distress time (or at least a reverse drift stop-time – e.g. sunrise when SUPs normally launch), then it should be considered for a reverse drift simulation to help determine where the person may have initially become separated.

Submitted by Mr. Robert Netsch (C3CEN Project Manager and System Engineer) Edited by Chris White (National SAR School)

Position Format Variations and SAROPS

Available position formats and determining what that format is expressing…

How would you interpret the following positions?

58.47N 156.58W
38.15N 073.27W
45.16N 132.65W

During the initial stage of a SAR incident, the Command Center watch will receive position information from various sources and formats. Some may be passed via voice communications, or electronic such as Inmarsat C or SARSAT to name a couple. While these formats appear similar, they are actually very different. Command Center watchstanders must analyze and confirm the position information by recognizing the position format.

```
-------------- Distress Alert Received ----
Mobile Terminal No   : 436902496
To CES               : 202
Position             : 57.45'N 168.35'W
Position updated     : 22:53 UTC
Nature of distress   : Unspecified
Course               : 260        Speed : 8
Activation           : Distress Alert
Position activated   : Yes
Course/Speed updated : Yes
-------------------------------------------------
```

Inmarsat C Distress Alert Format

Examples of multiple formats may also come from GMDSS Inmarsat C communications. Inmarsat C Distress Alert, Distress Alert Information Sheets and SSAS (Ship Security Alert System) are all examples of Inmarsat C generated distress or alert messages received by the Coast Guard. Each of these messages provides position information in slightly different formats from each other – even though they are all displayed in **degrees** and **minutes**.

The International Maritime Organization (IMO) requires Inmarsat C Distress messaging to use Degrees and Minutes. However, there is no

guidance on what separators are acceptable between the figures.

For Inmarsat C based messages the separator of choice is a **dot (.)**, not a dash (-) or space. Whereas the **colon (:)** is used in the SSAS format.

Inmarsat C formats illustrated:

- Inmarsat C Distress Alert:
  DD.MM'N/S **DDD.MM'**W/E
- Inmarsat C Distress Information Sheet:
  DD.MM N/S **DDD.MM** W/E
- SSAS Alert:
  DD:MM.mm N/S **DDD:MM.mm** W/E

```
INMARSAT

OCEAN REGION:

POR

ALERT MODE: DISTRESS

POSITION: 50.00N 163.44W

INMARSAT NUMBER:
```

Inmarsat C Distress Information Sheet Format

SAROPS/ArcMap Position Input Requirements

During the review of a recent Coast Guard response to a major marine incident, a significant discrepancy in how position information is processed was identified.

```
--- SSAS ALERT MESSAGE ---
Vessel Name: VESSEL NAME
MMSI:        368123456
IMN:         4123456
LAT:          10:15.22N
LON:         125:12.44E
Time:        05/10/2017 01:45:14(UTC)
COURSE:      325 deg
SPEED:        15 kt
Time:        05/10/2017 11:15:57(UTC)
```

SSAS Alert Message Format

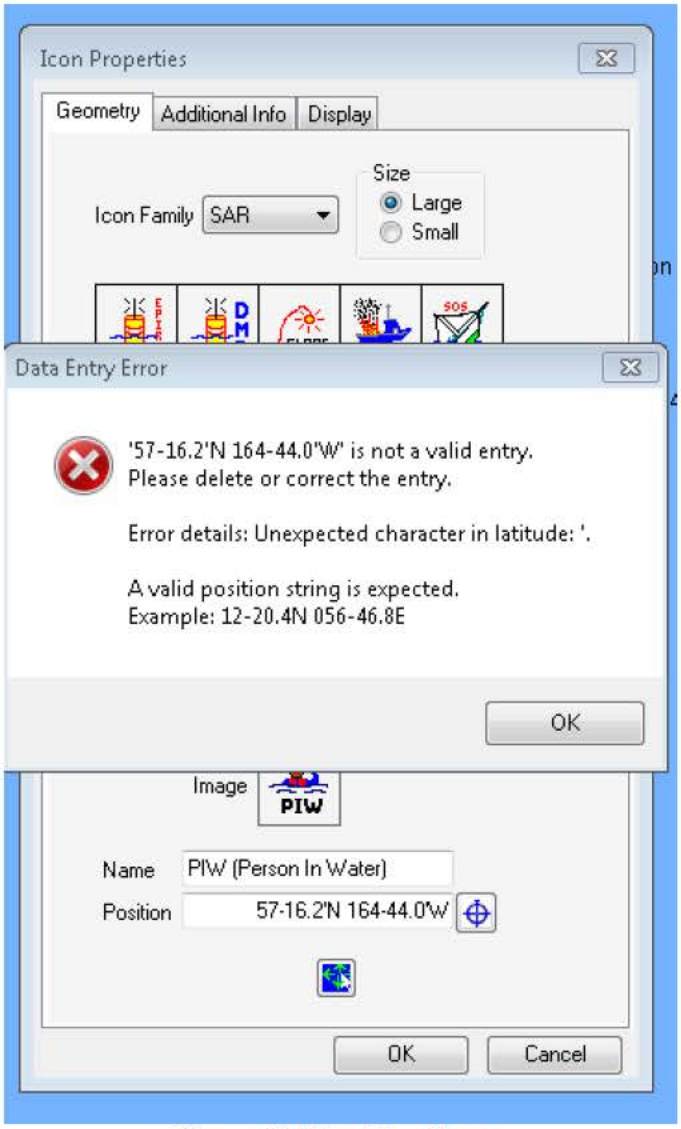
It was found that a discrepancy in the Last Known Position (LKP) occurred during the initial stage of the case when an OU copied the position information provided to the SAROPS plot.

EXAMPLE of the Position Error Created in SAROPS
By entering the position 37.40N 122.50W converts position to 37-24N 122-30W creating a 22NM discrepancy in the position

The GMDSS position provided to the OU originated from the Inmarsat C Distress Information Sheet email. This email formatted the position as **DD.MM** (N/S) **DDD.MM** (W/E). The OU inputted the position into SAROPS exactly as presented on the Information Sheet. SAROPS calculated the position as **DD.dd**N **DDD.dd**W and then plotted the position as **DD-MM.mm**N **DDD-MM.mm**W. This resulted in an error of a 21NM difference from the actual Inmarsat C position.

SAROPS can convert and plot different formats including; **DD.DD, DD-MM-SS** to **DD-MM.mm** and **DD:MM.mm**. Unfortunately, currently SAROPS/ArcMap cannot convert or display positions such as **DD.MM'** or other formats that include the symbols for degrees (°), minutes (') and seconds (").

An error message (shown below) appears on the SAROPS screen stating that there are too many characters. The SAROPS operator must then remove the symbols before entering the position into SAROPS.

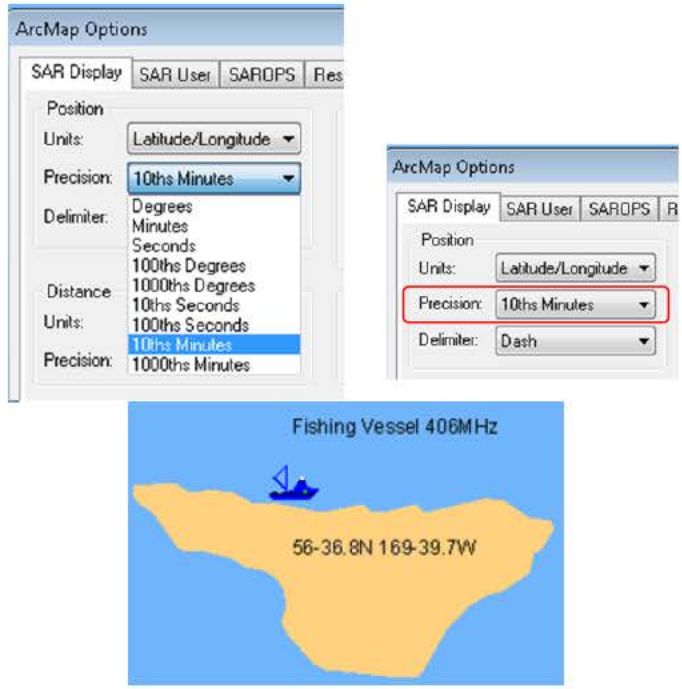


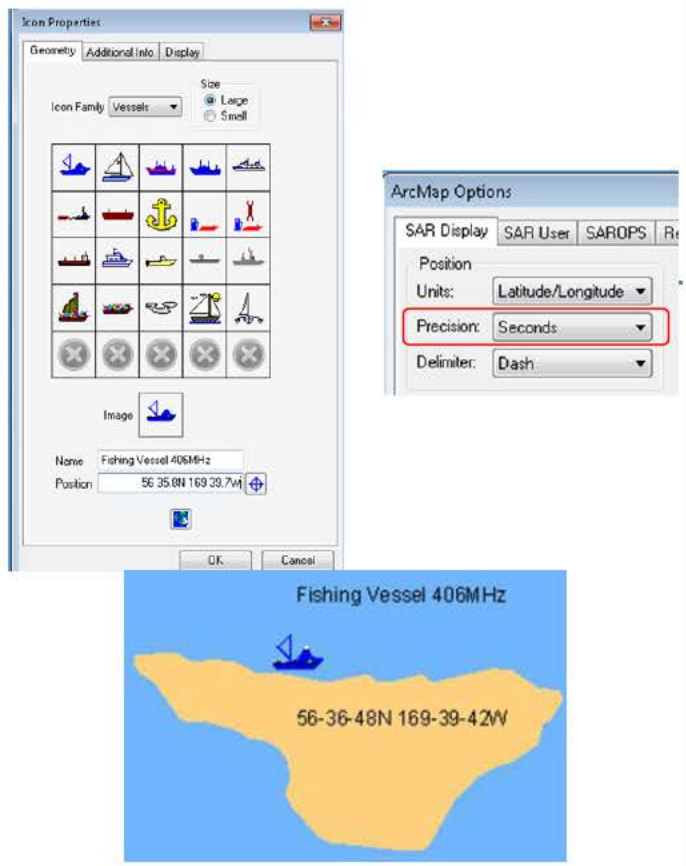
Non-valid Position Entry

What formats can SAROPS display?

SAROPS is capable of displaying position information on the ArcMap viewer in a number of formats including **DD-MM-SS.ss** and **DD-MM.mm** with the option of using no separator, dash (-), space or colon (:).

To change the display options for ArcMap, go to the Customize option and select **ArcMap Options**. Then select the desired format.
Be aware that this does not change the input requirements and doesn't change the fact that SAROPS recognizes **57.45N 168.38W** as degrees and decimal degrees, and not as degrees and minutes.





ArcMap Customized Position Display

Responsibility of the Command Center Watch and SAR Mission Coordinator

SAR Watchstanders must always be mindful of the position information they are receiving. It is the responsibility of the entire watch team to examine

the position information provided, validate and if necessary, clear up discrepancies between multiple position reports to determine the correct LKP.

SAR Watchstanders must also ensure that when the position is entered into SAROPS, MISLE or passed to an SRU, it is correct and accurate.

References

Position formatting for Inmarsat C messages can be found in the IMO International SafetyNET Manual Circ.1364 24 May 2010. Additionally, the U.S. Catastrophic SAR Addendum to the National SAR Supplement explains the officially recognized by the United States for geo-referencing and the formatting of latitude and longitude.

Written by Paul Webb (D17 Command Center), Validation by Robert Netsch (C3CEN), Edited by Chris White (Nat'l SAR School)

Resource of the Month

Hyperbaric Chambers

What types of chambers exist for the treatment of divers?

As described by the National Fire Protection Association (NFPA), there are **three primary classifications for chambers: Class A, B and C**.

All chambers must satisfy stringent design and manufacturing criteria established by the American Society of Mechanical Engineers (ASME) Pressure Vessels for Human Occupancy (PVHO) Technical Committee. Accredited health-care facilities provide hyperbaric medical care for clinical conditions that are approved by the Food and Drug Administration (FDA), the Undersea and Hyperbaric Medical Society (UHMS) and the Centers for Medicare and Medicaid Services (CMS).

Class A, or multi-place, chambers come in various sizes, accommodate multiple patients and have attendant staff within the chamber. Multi-place chambers are pressurized with air, and patients are fitted with a clear plastic hood or face mask that delivers oxygen. With proper staff training, multi-place chambers enable the treatment of all approved hyperbaric indications, including DCI.

Class B, or mono-place, chambers are intended for the treatment of one patient at a time. These chambers make up the majority of chambers in the United States. Class B chambers are usually pressurized with 100% oxygen and with properly trained staff can also be used to treat all approved clinical indications, including DCI.

***Mono-place, or class B**, chambers are filled with 100 % oxygen and accommodate a single patient.*

Class C chambers are for animals and are not used to treat people.

Transportable hyperbaric chambers are those that enable movement of a patient between facilities. These may be small Class B or more portable Class A chambers. A well-known manufacturer of these units is **SOS Hyperlite**. These single-person chambers enable emergent treatment and potential transportation of divers, but for practical reasons, they are not ideal for other clinical applications or repeat treatments.

Hyperbaric medicine is a medical treatment in which the ambient pressure is greater than sea level atmospheric pressure is a necessary component. The treatment comprises of **hyperbaric oxygen therapy (HBOT)**, the medical use of oxygen at an ambient pressure higher than atmospheric pressure, and **therapeutic recompression** for decompression illness, intended to reduce the damaging effects of systemic gas bubbles by physically reducing their