

NATIONAL SEARCH & RESCUE MANUAL

February 2023 Edition



Australian Government
Australian Maritime Safety Authority



Published by the Australian Maritime Safety Authority (AMSA) on behalf of the Australian National Search and Rescue Council

Written and amended by Senior Sergeant Jim Whitehead, Queensland Police Service.

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National Search and Rescue Council

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Foreword

Search and Rescue (SAR) is the search for and provision of lifesaving assistance to people in distress and imminent danger of loss of life. Australian SAR arrangements are intended to complement other emergency services (police, fire, ambulance) in circumstances where those services are unable to operate effectively. Such circumstances could include, for example, remote area operations, rescues at sea, and the need for specialist SAR facilities not normally available to emergency services.

Depending upon the extent and complexity of the incident and on the available staff and facilities, SAR may take many forms in response to a distress situation. Unless the action is indivisible from that of safeguarding life, a SAR operation does not, however, include salvage or the saving of property.

The Australian search and rescue region covers the Australian continent and large areas of the Indian, Pacific and Southern Oceans as well the Australian Antarctic territories. This is an area of about 52.8 million square kilometres, or about one tenth of the earth's surface. Dedicated SAR assets are limited in Australia and other government, private and commercial assets may be diverted from their primary function by charter, arrangement and request.

In practice, many SAR operations are conducted jointly by Commonwealth and State / Territory authorities. It is, therefore, essential that the available resources and operational techniques are standardised and coordinated across the Australian region.

All SAR authorities in Australia: Australian Maritime Safety Authority, Australian Defence Force and State, Territory and Federal Police must be able to act cooperatively.

In 2017, the Commonwealth, State and Territory Ministers responsible for search and rescue response in Australia updated the Intergovernmental Agreement (IGA) on National Search and Rescue Response Arrangements. The IGA (Appendix A of this Manual) confirmed the National Search and Rescue Council's role as the national coordinating body for search and rescue procedures with a function, among others, of sponsoring this National Search and Rescue Manual.

Documenting standardised techniques and procedures, the National Search and Rescue manual enables SAR authorities to cooperate and coordinate to best effect. By establishing and standardising procedures, the manual seeks to promote effective saving of lives.

Mark Morrow

Chairman

National Search Rescue Council

Australian Maritime Safety Authority

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Introduction

This National Search and Rescue Manual is the result of the recent merger of the aviation, maritime and land search and rescue (SAR) manuals and is the standard reference document for use by all Australian SAR authorities. It is promulgated by the National SAR Council operating under direction from relevant Commonwealth, State and Territory Ministers. The Manual promulgates SAR coordination procedures for SAR operations conducted within Australia and the Australian SAR Region (SRR).

The manual is consistent with the relevant International Conventions to which Australia is a party and is supplemented by various legal, informative and instructional documents used within, and between, organisations concerned with search and rescue. It has been developed with due regard to the International Aviation and Maritime Search and Rescue Manual (IAMSAR).

The National SAR Manual meets the requirements of international conventions for an Australian Search and Rescue Plan, and includes material covering:

- a) Abbreviations, terminology and definitions relevant to SAR practitioners
- b) The elements and functions of the Australian SAR system
- c) Details of communications, assets and procedures for coordination
- d) SAR planning and techniques including worksheets

The National Search and Rescue Manual acts as a set of procedures and guidelines in providing a search and rescue response within Australia. It is understood that the knowledge and experience of officers can extend beyond what is covered within this manual and therefore initiative should be used accordingly in search and rescue operations. It is however, necessary to follow the guidelines outlined within this manual as closely related to the circumstances presented and keep all relevant parties well informed throughout the process. Officers should be prepared to justify their actions if necessary. When developing Standard Operating Procedures (SOP) at the organisational level, care should be taken to ensure that procedures are written consistent with the National SAR Manual. Should an SOP be identified that may be of benefit to the wider SAR community, it is recommended that the issue be raised with the National SAR Council so that inclusion of the procedure into the National SAR Manual can be considered.

This manual is under continual review and will be updated as necessary. The National SAR Manual is promulgated online for the use of all search and rescue practitioners. The Internet version is the controlled document and is the latest version of this manual. The online version should always be referred to as it contains the most up to date information.

Suggestions and questions regarding this Manual should be forwarded to:

The Secretariat of the National SAR Council

Australian Maritime Safety Authority
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Canberra ACT 2601

Defence Letter of Promulgation

UNCLASSIFIED



CHIEF OF JOINT OPERATIONS

Headquarters Joint Operations Command

AM3290753

Mr Toby Stone

Chairman, National Search and Rescue Council
Australian Maritime Safety Authority

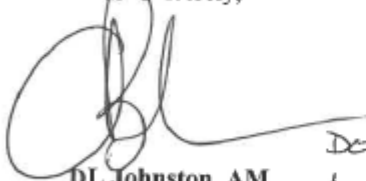
Dear Mr Stone,

ADF ENDORSEMENT OF THE NATIONAL SEARCH AND RESCUE MANUAL

The Australian Defence Force (ADF) has a long and proud history of conducting Search and Rescue (SAR) operations in support of the civil community. Through our long-running involvement with the National SAR Council, we are fortunate to have developed highly effective relationships with both the Australian Maritime Safety Authority, and the State and Territory police forces. As a previous Commander of [then] Border Protection Command, I have witnessed first-hand the expertise and dedication of Australian SAR professionals under the most challenging circumstances.

The SAR mission is one of utmost importance to the Soldiers, Sailors and Airmen of the ADF. As their Operational Commander I remain committed to the provision of military support if and when it is required. I commend you on the continued success of the National SAR Council and on the proficient realisation of the National SAR Plan. Further, I recognise the high quality of the National SAR (NATSAR) Manual and the important role it plays in coordinating inter-departmental operations. The NATSAR Manual is an authoritative instruction on SAR best practice, and as such I have directed that it be accepted by the ADF as the standard procedural guide for the conduct of ADF SAR operations.

Yours sincerely,


DL Johnston, AM
Vice Admiral, RAN
Chief of Joint Operations

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AC

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21 December 2017

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Acronyms and Abbreviations

Acronym/ Abbreviation	Meaning
A	Area or search area
ACMA	Australian Communications and Media Authority
ACFT	Aircraft
AFTN	Aeronautical fixed telecommunications network
ADF	Australian Defence Force
ADFLO	Australian Defence Force Liaison Officer
AGL	Above Ground Level
AIP	Aeronautical Information Publication
ALRS	Admiralty List of Radio Signals
AIS	Automatic Identification System
AIS-SART	AIS Search and Rescue Transmitter
AM	Amplitude modulation
AMVER	Automated Mutual-assistance Vessel Rescue
AMSA	Australian Maritime Safety Authority
AMSL	Above Mean Sea Level
A/SMC	Assistant Search and Rescue Mission Coordinator
ASH	Actual Search Hours
ASRK	Air Sea Rescue Kit (RAAF)
ATA	Actual time of arrival
ATC	Air Traffic Control
ATD	actual time of departure
ATS	Air Traffic Services
ATSB	Australian Transport Safety Bureau
AUMCC	Australian Mission Control Centre
AULUTE	Australian Local User Terminal East
C	Coverage Factor
CAO	Civil Aviation Order
CAR	Civil Aviation Regulations
CASR	Civil Aviation Safety Regulations
C/C	Cabin cruiser
CES	Coast Earth Station (Inmarsat) see also LES
CRS	Coast radio station
CSP	Commence Search Point
CSS	Coordinator surface search (maritime)
CTAF	Common Traffic Advisory Frequency

Acronym/ Abbreviation	Meaning
D	Datum
D	Diameter
DACC	Defence Aid to the Civil Community
De	Total drift error
DCJOPS	Deputy Chief Joint Operations
DCS	Defence Communications Station
DF	Direction finding
DR	Dead-reckoning
DGPS	Differential GPS
DSC	Digital selective calling
dwt	Dead weight tonnes
E	East longitude
E	Total probable error of position
EGC	Enhanced Group Call
ELR	Extra-long range aircraft
ELT	Emergency locator transmitter
EMA	Emergency Management Australia
EO/IR	Electro-Optic/Infrared
EPIRB	Emergency position indicating radio beacon
ERSA	En Route Supplement Australia
ETA	Estimated time of arrival
ETD	Estimate time of departure
FCP	Forward Command Post
FFB	Forward Field Base
F/V	Fishing vessel
Fig	Figure
FIR	Flight information region
FLIR	Forward looking infrared
FM	Frequency modulation
FSH	Field Search Headquarters
Ff	Fatigue Factor
Fs	Safety Factor
Ft	Feet
Fw	Weather Factor
GHz	Gigahertz
GMDSS	Global Maritime Distress and Safety System

Acronym/ Abbreviation	Meaning
GNSS	Global Navigation Satellite System
GPS	Global positioning system
GS	Ground speed
gt	Gross tonnes
h	Hours
HDG	Heading
HPA	Hectopascals
HEL-H	Heavy helicopter
HEL-L	Light helicopter
HEL-M	Medium helicopter
HF	High frequency
HQAC	Headquarters Air Command (Air Force)
HQJOC	Headquarters Joint Operations Command
I/B	Inboard motor
ICAO	International Civil Aviation Organization
IERCC	International Emergency Response Coordination Centre
IFER	In Flight Emergency Response
IFR	Instrument Flight Rules
IGA	The Inter-Governmental Agreement (IGA) on National Search and Rescue Response Arrangements
IMO	International Maritime Organization
IR	Infrared
Inmarsat Ltd	International Maritime Satellite Organisation – formally the international Maritime Satellite Organisation
INS	Inertial Navigation System
INTERCO	International Code of SIGNALS
IPP	Initial Planning Point
JCC	Joint Control Centre (ADF)
JRCC	Joint (aeronautical and maritime) Rescue Coordination Centre
JOSS	Joint Operations Support Staff
KHz	Kilohertz
Km	Kilometre (1000 metres)
Kph	Kilometres per hour
kt	knot (nautical mile per hour)
L or l	Length
LCRS	Limited Coast Radio Station
LED	Light Emitting Diode

Acronym/ Abbreviation	Meaning
LES	Land Earth Station (Inmarsat) synonymous with CES
LHQ	Land Headquarters (Army)
LKP	Last Known Position
LPB	Lost Person Behaviour
LRG	Long range
LO	Liaison officer
LUT	Local user terminal
LW	Leeway
m	Metres
M	Degrees magnetic
MAREC	Maritime SAR recognition code
MASTREP	Modernised Australian Ship Tracking and Reporting System
MAYDAY	When repeated three times, this forms the distress call. Any subsequent messages including self-identification, position, nature of distress and other useful information, forms the <i>distress message</i> .
MAX	Maximum
MBC	Maritime Border Command
MBZ	Mandatory Broadcast Zone
MCC	Mission Control Centre
MCS	Maritime Communications Station
MEDEVAC	Medical evacuation
MF	Medium frequency
MIN	Minimum
MHQ	Maritime Headquarters (Navy)
MHz	Mega Hertz
MMSI	Maritime mobile service identity
MPD	Miles per day
MP	Missing Person
MPP	Most probable position
MRG	Medium range
MSC	Marine supply container (RAAF)
MSI	Maritime safety information
MSLD	Maritime Survivor Locating Devices
MSLS	Maritime Survivor Locating Systems
M/V	Motor Vessel
MTS	Mean track spacing (sector search)
n	Number of required track spacings

Acronym/ Abbreviation	Meaning
N	North Latitude
N	Number of searchers
NAVAREA X	Navigational warning area X(ten)
NAVTEX	Is not provided in Australia
NBDP	Narrow-Band Direct Printing
NM	Nautical mile
NOTAM	Notice to airmen
NOK	Next of Kin
NVD	Night Vision Devices
NVG	Night Vision Goggles
NVIS	Night Vision Imaging System
O/B	Outboard motor
OSC	On-scene coordinator
P	Pacing (Land Search speed)
PAW	Police Air Wing
P/C	Pleasure craft
PIW	Person in water
PLB	Personal locator beacon
PLS	Position Last Seen
POA	Probability of Area
POB	Persons on board
POD	Probability of detection
POM	Period of Mobility
PPE	Personal Protective Equipment
PR	Public relations
R	Radius
RAAF	Royal Australian Air Force
RADAR	Radio detection and ranging
RAN	Royal Australian Navy
RA-Aus	Recreational Aviation Australia
RB	Rescue boat
RC	River current
RCC	Rescue Coordination Centre (Local)
RFDS	Royal Flying Doctor Service
ROW	Rest of the World
RPAS	Remotely Piloted Aerial Systems (also known as drones, UAVs)

Acronym/ Abbreviation	Meaning
RV	Rescue Vessel
S	Track spacing
S	South latitude
SART	Search and Rescue Radar Transponder. Also known as 'Survival Craft Radar Transponder' or 'Radar Transponder'
SF	Signal Fade
SH	Signal Heard
S/V	Sailing vessel
SafetyNET	Communications service provided via Inmarsat-C for promulgation of maritime safety information, including shore-to-shop relays of distress alerts and communications for search and rescue coordination
SAR	Search and rescue
SAREX	Search and Rescue Exercise
SART	Search and Rescue Radar Transponder. Also known as a survival craft radar transponder or radar transponder
SC	Sea current
SDB	SAR Datum Buoys
SECURITE	The safety signal 'SECURITE' indicates that the station is about to transmit a message concerning the safety of navigation or providing an important meteorological warning. The safety message is preceded by the word 'SECURITE' spoken three times.
SEND	Satellite Emergency Notification Device
SES	State Emergency Service
SH	Search Headquarters
SITREP	Situation report
SLDMB	Self-Locating Datum Marker Buoy
SMC	Search and rescue mission coordinator
SOLAS	International Convention for the Safety of Life at Sea
SOPs	Standard Operating Procedures
SOS	Internationally recognized signal of distress, made by any method of signalling
SP	Splash point
SPOC	Search and rescue point of contact
SRA	Search and Rescue Asset (Aircraft, vessel, search team)
SRG	Short range
SRR	Search and rescue region
SRS	Single raft system
STOL	Short Takeoff and Landing
SURPIC	Surface picture

Acronym/ Abbreviation	Meaning
T	Time
T	Degrees True
T	Search time available
TAS	True air speed
TC	Tidal current
TCA	Time of closest approach
TELEX	Teletype
TFFS	Time Frame for Survival
TL	Team Leader
TWC	Total water current
u	Wind speed
UHF	Ultra-high frequency
ULR	Ultra-long range
USAR	Urban Search and Rescue (Collapsed Buildings)
UTC	Coordinated universal time
v	Speed of search object
V	SAR unit ground speed or aircraft true air speed
V	Velocity
Ve	Vegetation Correction Factor
VFR	Visual flight rules
VHF	Very high frequency
VLR	Very long range
VMC	Visual meteorological conditions
VMS	Vessel Monitoring System
VTS	Vessel Tracking System
w	Width
W	Corrected Sweep Width
W	West longitude
W/C	Wind current
W/V	Wind velocity
Wu	Uncorrected sweep width
Wx	Weather Factor
X	Search target position error
Y	Search unit position error

Glossary

Term	Definition
Aircraft Coordinator (ACO)	A person who coordinates the involvement of multiple aircraft in SAR operations.
Aeronautical drift (Da)	Drift caused by bailout trajectory or aircraft gliding distance.
Aeronautical position	Initial position of a distressed aircraft at the time of re-entry, engine failure, aircrew ejection or bailout.
Aircraft glide	Maximum ground distance an aircraft could cover during descent.
Alert Phase	A situation wherein apprehension exists as to the safety of an aircraft or marine vessel, and of the persons on board.
Alerting Post	Any facility intended to serve as an intermediary between a person reporting an emergency and a rescue coordination centre or rescue sub-centre.
ARGOS	A satellite-based location and data collection system.
Awareness Range	Distance at which a search scanner can first detect something different from its surroundings but not yet recognise it.
Awareness Stage	A period during which the SAR system becomes aware of an actual or potential incident.
Captain	Master of a ship or pilot-in-command of an aircraft, commanding officer of a warship or an operator of any other vessel.
Checksum Digit	A digit that is appended to a numeric data element and used to verify its accuracy. Checksum digits are computed by adding the digits of the data element.
Coast Earth Station (CES)	Maritime name for an Inmarsat shore-based station linking ship earth stations with terrestrial communications networks.
Conclusion Stage	A period during a SAR incident when SAR facilities return to their regular location and prepare for another mission.
Coordination	The bringing together of organisations and elements to ensure effective search and rescue response. One SAR authority must always have overall coordination responsibility and other organisations are to cooperate with this agency to produce the best response possible within available resources.
Coordinated Search Pattern	Multi-unit pattern using vessel(s) and aircraft.
Coordinated Universal Time (UTC)	International term for time at the prime meridian.
COSPAS-SARSAT System	An international satellite system designed to provide distress alert and location data from 406MHz distress beacon signals.
Course	The intended horizontal direction of travel of a craft.
Coverage Factor (C)	For parallel sweep searches, Coverage Factor (C) is computed as the ratio of sweep width (W) to track spacing (S). $C = W/S$.
Craft	Any air or sea-surface vehicle, or submersible of any kind or size.
Datum	A geographic point, line, or area used as a reference in search planning.
Datum Area	Area where it is estimated that the search object is most likely to be located.
Datum Line	A line, such as the distressed target's intended track line or a line of bearing, which defines the centre of the area where it is estimated that the search object is most likely to be located.

Term	Definition
Datum Point	A point, such as a reported or estimated position, at the centre of the area where it is estimated that the search object is most likely to be located.
Dead Reckoning (DR)	Determination of position of a target by adding to the last fix the target's course and speed for a given time.
Digital Selective Calling (DSC)	A technique using digital codes which enables a radio station to establish contact with, and transfer information to, another station or group of stations.
Direction of Current	Direction toward which a current is flowing. Also called set.
Direction of Waves, Well or Seas	Direction from which the waves, swells, or seas are moving.
Direction of Wind	Direction from which the wind is blowing.
Distress Phase	A situation wherein there is reasonable certainty that a vessel/aircraft, or person, is threatened by grave and imminent danger and requires immediate assistance.
Ditching	The forced landing of an aircraft on water.
Drift	The movement of a search object caused by environmental forces.
Drift Error (De)	See Total drift error.
Emergency Phase	Emergency phases are based on the level of concern for the safety of persons or target that may be in danger. The three levels of emergency are classified as Uncertainty, Alert, and Distress.
Electro-Optic/Infrared (EO/IR)	Electronic imaging systems which include both visible and infrared sensors that can be used day and night and in low light conditions with the ability to view objects at long distance.
Enhanced Group Call (EGC) System	The international broadcast of coordinated Maritime Safety Information and Search and Rescue related information, to a defined geographical area using a recognized mobile satellite service.
False Alarm	Distress alert initiated for other than an appropriate test, by communications equipment intended for alerting, when no distress situation actually exists.
False Alert	Distress alert received from any source, including communications equipment intended for alerting, when no distress situation actually exists, and a notification of distress should not have resulted.
Fetch	The distance over which the wind blows in a constant direction, without obstruction.
Field Search Coordinator	Term for SMC who coordinates land searches only.
Field Search Headquarters	Land equivalent of a RCC
First RCC	RCC affiliated with the shore station that first acknowledges a distress alert, and which will accept responsibility for all subsequent SAR coordination unless and until coordination is transferred to another RCC.
Fix	A geographical position determined by visual reference to the surface, referencing to one or more radio navigation aids, celestial plotting, or other navigation device.
Forward Looking Infrared (FLIR)	An imaging system, mounted on board surface vessels or aircraft, designed to detect thermal energy (heat) emitted by targets and convert it into a visual display.
General Communications	Operational and public correspondence traffic other than distress, urgency and safety messages, transmitted or received by radio.

Term	Definition
Global Maritime Distress and Safety System (GMDSS)	A global communications service based upon automated systems, both satellite-based and terrestrial, to provide distress alerting and promulgation of maritime safety information for mariners.
Global Navigation Satellite System (GNSS)	Worldwide position and time determination system that includes one or more satellite constellations and receivers.
Great Circle Route	The shortest course between two points on the surface of a sphere. It lies in a plane that intersects the sphere's centre.
Ground Speed (GS)	The speed an aircraft is making relative to the earth's surface.
Heading	The horizontal direction in degrees magnetic in which a target is pointed.
Hypothermia	Abnormal lowering of internal body temperature (heat loss) from exposure to cold air, wind or water.
Indicated Air Speed (IAS)	The aircraft speed shown on the air speed indicator gauge. IAS corrected for instrument error and atmospheric density equals true air speed.
Initial Position Error (X)	The estimated probable error of the initially reported position of a SAR incident.
Inmarsat Ltd	Formally the International Maritime Satellite Organisation
International Iridium SafetyCast Service	The coordinated broadcast and automatic reception of Maritime Safety Information and Search and Rescue related information via the Enhanced Group Call system, using the English language.
International Maritime Satellite Organisation (Inmarsat)	A system of geostationary satellites for worldwide mobile communications services, and which support the Global Maritime Distress and Safety System and other emergency communications systems.
Instrument Flight Rules (IFR)	Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.
Instrument Meteorological Conditions (IMC)	Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling less than the minima specified for visual meteorological conditions.
Joint Rescue Coordination Centre (JRCC)	A rescue coordination centre responsible for both aeronautical and maritime search and rescue incidents.
Knot (kt)	A unit of speed equal to one nautical mile per hour.
Last Known Position (LKP)	The Last Known Position is a term used in search planning to indicate the last known location of the person, marine craft or aircraft the target of a search and /or rescue mission. It is also known by its acronym LKP. The LKP may be a boat ramp where a small craft was launched, a reporting point or navigation aid where an aircraft last reported its position or the location where it can be confirmed a person was last sighted e.g., at the start of a walking track. The Last Known Position differs from the other term used in marine search planning of Splash Point or SP.
Leeway (LW)	The movement of a search object through water caused by winds blowing against exposed surfaces.
Land Earth Station (LES)	Land Earth Station (Inmarsat) – synonymous with CES
Local User Terminal (LUT)	An earth receiving station that receives beacon signals relayed by COSPAS-SARSAT satellites, processes them to determine the location of the beacons, and forwards the signals.
Maritime Safety Information (MSI)	Navigational and meteorological warnings, meteorological forecasts and other urgent safety-related messages broadcast to ships.

Term	Definition
MAYDAY	The distress signal “MAYDAY” is used to indicate that a target or person is threatened by grave and imminent danger and requires immediate assistance. It has precedence over all other communications. The distress message is preceded by the word MAYDAY spoken three times. The word is pronounced 'Mayday' from the French m'aider (help me). Any subsequent messages including self-identification, position, nature of distress and other useful information, forms the distress message.
MEDEVAC	Evacuation of a person for medical reasons.
Meteorological Visibility	The maximum range at which a large object, such as landmasses or mountains, can be seen. Also referred to as Meteorological Range.
Mission Control Centre (MCC)	Part of the Cospas-Sarsat system that accepts alert messages from the local user terminal(s) and other mission control centres to distribute to the appropriate rescue coordination centres or other search and rescue points of contact.
Narrow-Band Direct Printing (NBDP)	Automated telegraphy, as used by the NAVTEX system and telex-over-radio.
NAVAREA	A geographical sea area established for the purpose of coordinating the broadcast of navigational warnings. The term NAVAREA followed by a roman numeral may be used to identify a particular geographical sea area.
NAVTEX	Telegraphy system for transmission of maritime safety information, navigation and meteorological warnings and urgent information to ships. NAVTEX is not provided in Australia - see SafetyNet .
Night Vision Imaging System	A self-contained binocular night vision enhancement device, usually including goggles, that: <ol style="list-style-type: none"> 1. is helmet mounted or otherwise worn by a person; and 2. can detect and amplify light in both the visual and near infrared bands of the electromagnetic spectrum. <p>NVIS is a term used to incorporate all of the aspects associated with night vision, including Night Vision Devices and Night Vision Goggles.</p>
On-scene	The search area or the actual distress site.
On-scene Coordinator (OSC)	A person designated to coordinate search and rescue operations within a specified area
On-scene Endurance	The amount of time a facility may spend at the scene engaged in search and rescue activities.
Overall Coordination	The responsibility of the SAR authority to prosecute a SAR operation for a given target in accordance with Volume 1, Chapter 1, section 1.2, Appendix B or the SAR authority best placed to coordinate efforts of the response agencies that may become involved in a SAR action.
Overdue	A situation where a target has failed to arrive at its intended destination when expected and remains missing.
PAN-PAN	The international radiotelephony urgency signal. When repeated three times, indicates uncertainty or alert, followed by nature of urgency. The urgency signal “PAN PAN” is used to indicate that the calling station has a very urgent message to transmit covering the safety of a ship, aircraft or person. It has precedence over all other communications, except distress traffic. The urgency message is preceded by the words 'PAN PAN' spoken three times. The words are pronounced 'Pan pan' from the French panne (a breakdown).

Term	Definition
Personal Locator Beacon (PLB)	Personal radio distress beacon for alerting and transmitting homing signals.
Pilot-in-command	The pilot responsible for the operation and safety of the aircraft during flight time.
Planning Stage	A period during a SAR incident when an effective plan of operations is developed.
Position	A geographical location normally expressed in degrees and minutes of latitude and longitude.
Positioning	Process of determining a position that can serve as a geographical reference for conducting a search.
Possibility Area	(1) The smallest area containing all possible survivor or search object locations. (2) For a scenario, the possibility area is the smallest area containing all possible survivor or search object locations that are consistent with the facts and assumptions used to form the scenario.
Primary Swell	The swell system having the greatest height from trough to crest.
Probability Area	The area in which a missing target and/or survivors are most likely to be found taking into account possible errors in the navigation of the missing target and of the search craft.
Probability of Detection (POD)	The probability of the search object being detected, assuming it was in the areas that were searched. POD is a function of coverage factor, sensor, search conditions and the accuracy with which the search facility navigates its assigned search pattern. Measures sensor effectiveness under the prevailing search conditions.
Recognized Mobile Satellite Service	Any service which operates through a satellite system and is recognised by IMO for use in the GMDSS.
Rescue	An operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety.
Rescue Coordination Centre (RCC)	The centre from which a SAR incident is controlled and coordinated. The Centre is known by various terms such as the Rescue Coordination Centre, Major Incident Room, Operations Room, Base Station or Field Search Headquarters. For the purposes of this manual these centres will be known generically as the Rescue Coordination Centre or RCC.
Rhumb Line	A line of constant bearing that cuts meridians at the same angle. It is a straight line between two points on a Mercator projection chart.
SafetyNET	Communications service provided via Inmarsat-C for promulgation of maritime safety information, including shore-to-ship relays of distress alerts and communications for search and rescue coordination.
SAR Datum Buoy	Droppable floating beacon that is not self-locating requiring the beacon to be relocated by homing the frequency. Once relocated used to determine actual sea current, or to serve as a location reference.
Scenario	A consistent set of known facts and assumptions describing what may have happened to the survivors and/or target.
Sea	Condition of the surface resulting from waves and swells.
Sea Current (SC)	The residual current when currents caused by tides and local winds are subtracted from local current. It is the main, large-scale flow of ocean waters.
Search	An operation, normally coordinated by a rescue coordination centre, using available personnel and facilities to locate persons in distress.

Term	Definition
Search and Rescue Asset (SRA)	An aircraft, vessel or search team with equipment suitable for the expeditious conduct of search and rescue operations.
Search and Rescue Authority	The authority within an Administration with overall responsibility for establishing and providing SAR services and ensuring that planning for those services is properly coordinated. The national SAR authority in Australia is the Australian Maritime Safety Authority with each of the States and Territories Polices services and the Department of Defence being the SAR Authorities within their jurisdictions. In Australia, the SAR Authority takes on the roles of the SAR Coordinator as described in the IAMSAR Manual.
Search Action Plan	Message, normally developed by the SMC, for passing instructions to SAR facilities and agencies participating in a SAR mission.
Search and Rescue Briefing Officer	An officer appointed, usually by the SMC, to brief departing SAR facilities and debrief returning SAR facilities.
Search and Rescue Case	Any potential or actual distress about which a facility opens a documentary file, whether or not SAR resources are dispatched.
Search and Rescue Coordinating Communications	Communications necessary for the coordination of facilities participating in a search and rescue operation.
Search and Rescue Facility	Any mobile resource, including designated search and rescue units, used to conduct search and rescue operations. The terms unit and asset may be interchangeable with facility.
Search and Rescue Incident	Any situation requiring notification and alerting of the SAR system and which may require SAR operations.
Search and Rescue Liaison Officer	An officer assigned to promote coordination during a SAR mission.
Search and Rescue Mission Coordinator (SMC)	The suitably trained or qualified official temporarily assigned to coordinate a response to an actual or apparent distress situation. In Australia, the acronym SARMC is also used in some jurisdictions. Throughout this manual, the terms SMC and SARMC are synonymous. Some jurisdictions also use the term A/SARMC to describe the SMC's assistants.
Search and Rescue Plan	A general term used to describe documents which exist at all levels of the national and international search and rescue structure to describe goals, arrangements, and procedures which support the provision of search and rescue services.
Search and Rescue Point of Contact (SPOC)	Rescue coordination centres and other established and recognised national points of contact that can accept responsibility to receive COSPAS-SARSAT alert data to enable the rescue of persons in distress.
Search and Rescue Region (SRR)	An area of defined dimensions, associated with the national rescue coordination centre (JRCC Australia), within which search and rescue services are provided.
Search and Rescue Service	The performance of distress monitoring, communication, coordination and search and rescue functions, including provision of medical advice, initial medical assistance, or medical evacuation, through the use of public and private resources, including cooperating aircraft, vessels and other craft and installations.
Search and Rescue Stage	Typical steps in the orderly progression of SAR missions. These are normally Awareness, Initial Action, Planning, Operations, and Mission Conclusion.

Term	Definition
Search Area	The area determined by the search planner to be searched. This area may be subdivided into search sub-areas for the purpose of assigning specific responsibilities to the available search facilities.
Search Endurance (T)	The amount of "productive" search time available at the scene also known as Available Search Hours (ASH). This figure is usually taken to be 85% of the on-scene endurance, leaving a 15% allowance for investigating sightings and navigating turns at the ends of search legs.
Search Facility Position Error (Y)	Probable error in a search target's position, based on its navigational capabilities.
Search Object	A ship, aircraft, or other target missing or in distress or survivors or related search objects or evidence for which a search is being conducted.
Search Pattern	A procedure assigned to an SRA for searching a specified area.
Search Radius	The actual search radius used to plan the search and to assign search facilities. It is usually based on adjustments to the optimal search radius that are needed for operational reasons.
Secondary Swells	Swell systems of less height than the primary swell.
SECURITE	The safety signal 'SECURITÉ' indicates that the station is about to transmit a message concerning the safety of navigation or providing an important meteorological warning. The safety message is preceded by the word "SECURITE" spoken three times. The word is pronounced 'See-cure-e-tay' from the French sécurité.
Self-Locating Datum Marker Buoy	A droppable floating beacon that is self-locating. Used to determine actual sea current, sea surface temperature or to serve as a location reference.
SEND	SEND Satellite Emergency Notification Device. Mobile, personal distress alerting device that functions outside the COSPAS-SARSAT System (for example SPOT, Thuraya SatSleeve). SENDs use different satellite communication constellations eg. Iridium, Global star or Thuraya. Distress alert messages are received by the IERCC in Houston and relayed to the RCC as required.
Sensors	Human senses (sight, hearing, touch, etc.), those of specially trained animals (such as dogs), or electronic devices used to detect the object of a search.
Set	Direction towards which a current flows
Situation Report (SITREP)	Reports, from the OSC to the SMC or the SMC to interested agencies, to keep them informed of on-scene conditions and mission progress.
Splash Point	A term used in maritime search planning to indicate a known point of distress. Also referred to by its acronym SP.
SOS	Internationally recognised signal of distress, made by any method of signalling.
Surface Drift	Vector sum of total water current and leeway. Sometimes called Total Drift.
Surface Picture (SURPIC)	A list or graphic display from a ship reporting system of information about vessels in the vicinity of a distress situation that may be called upon to render assistance.
Surface Position	The position of the search object on the earth's surface at the time of initial distress, or its first contact with the earth's surface.
Sweep Width (W)	A measure of the effectiveness with which a particular sensor can detect a particular object under specific environmental conditions.

Term	Definition
Swell	Condition of the surface caused by a distant wind system. The individual swell appears to be regular and smooth with considerable distance between rounded crests.
Swell Direction	The direction from which a swell is moving. The direction toward which a swell is moving is called the down swell direction.
Swell Face	The side of the swell toward the observer. The backside is the side away from the observer. These definitions apply regardless of the direction of swell movement.
Swell Velocity	Velocity with which the swells advance with relation to a fixed reference point, measured in knots.
Time of Closest Approach (TCA)	Time during a satellite pass when the satellite is closest to a signal source.
Total Drift Error (De)	Sum of the individual drift errors from the time of the incident until datum. Used when determining Total Probable Error (E).
Total Probable Error (E)	The estimated error in the datum position. It is the square root of the sum of the squares of the total drift error, initial position error, and search facility position error.
Total Water Current (TWC)	The vector sum of currents affecting search objects.
Track Spacing (S)	The distance between adjacent parallel search tracks.
Triage	The process of sorting survivors according to medical condition and assigning them priorities for emergency care, treatment, and evacuation.
True Air Speed (TAS)	The speed an aircraft is travelling through the air mass. TAS corrected for wind equals ground speed.
Uncertainty Phase	A situation wherein uncertainty exists as to the safety of an aircraft or a marine vessel, and of the persons on board.
Unreported	A situation where a target has failed to report its location or status when expected and remains missing.
Vector	A graphic representation of a physical quantity or measurement, such as wind velocity, having both magnitude and direction.
Visual Flight Rules (VFR)	Rules governing procedures for conducting flight under visual meteorological conditions. In addition, used by pilots and controllers to indicate type of flight plan.
Visual Meteorological Conditions (VMC)	Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima.
Wave (or Chop)	The condition of the surface caused by local wind and characterised by irregularity, short distance between crests, whitecaps, and breaking motion.
Wind-Corrected Heading	The actual heading an aircraft is required to fly to make good an intended course.
Wind Current (WC)	The water current generated by wind acting upon the surface of water over a period of time.

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