Background Quality Report
Military Search and Rescue Statistics

1. Introduction

Overview

The military Search and Rescue (SAR) service exists primarily to recover aircrew from crashed military aircraft, although a large proportion of its work involves assisting shipping or civilians in distress, both on land and at sea. SAR cover for the United Kingdom and a large area of the surrounding sea is provided 24 hours a day and 365 days a year by the Royal Air Force and Royal Navy.

The military SAR force currently consists of RAF and Royal Navy SAR Sea King helicopters operating from eight locations around the UK and four RAF Mountain Rescue Teams. Fixed wing aircraft are occasionally used to provide assistance during incidents. RAF SAR helicopter units also operate in Cyprus and the Falkland Islands.

The SAR National Statistics are published monthly, quarterly and annually and provide counts of the number of SAR incidents, callouts and persons moved dealt with by the UK Armed Forces. They also include further breakdowns of callouts, including by unit, by assistance type and by type of location. The quarterly and annual reports include maps showing the locations of incidents.

Military SAR statistics have been published since 1992. From April 2013 the Directorate formerly known as DASA (Defence Analytical Services and Advice) split into two one-star analytical business areas within the MOD's Head Office Strategy Directorate - Defence Economics and Defence Statistics. Price Indices branch is now part of the Economic Statistics & Equipment Support (ESES) Division within Defence Economics.

Methodology and Production

Data is received four times a month from the Aeronautical Rescue Co-ordination Centre (ARCC) at Kinloss Barracks. The data comprises two spreadsheets, one containing callout data and the other containing incident data. The data undergoes a thorough validation process, which includes consistency checks for: timings of events, type of assistance provided, number and classification of people rescued and location. Any anomalies, along with suggested edits, are sent back to ARCC Kinloss for clarification. Once the data has been validated it is confirmed on Defence Economics' SAR database. Once the final week's data for a calendar month has been successfully validated, it is compiled to produce that month's report.

Within the report, data are presented according to a number of categorisations, such as unit, callout type and location. These fields are recorded within the data supplied by ARCC Kinloss. The data is extracted from Defence Economics' database and analysed using spreadsheets to determine into which category each callout should fall for each specific table within the report.

After the monthly reports for March, June and September have been produced; the quarterly reports for Q1, Q2 and Q3 respectively are compiled. A Q4 report is not produced. The same data is used as for the monthly reports (although presented in a different format), so no further validation of the data is required. Maps are included in the quarterly reports, which are produced by plotting the recorded latitude and longitude of the incident using Microsoft MapPoint. The latitude and longitude attributed to each callout is also used to present callouts and persons moved by Government Office Region in the annual report.

The annual report is compiled after the December report has been produced. This provides a summary of the SAR activity over the year. As with the quarterly report, no additional validation is required on the data.

Prior to 2012, additional reports were published on a quarterly and annual basis. There were two reports published each quarter (one under a National Statistics designation, and one under an Official Statistics designation) and two reports published annually (one under a National Statistics designation, and one under an Official Statistics designation). A consultation was carried out between 3 November 2011 and 27 January 2012 on plans to combine the existing dual quarterly and annual reports into single publications. Following the close of the consultation, it was decided that a single quarterly report and a single annual report would be published. The new publication contains the same data that was previously spread across two publications. All reports are published under a National Statistics designation.

The published statistics are mainly counts of incidents, callouts and persons for particular categories, such as type of assistance and SAR unit. Definitions and explanations of the terminology used are provided in each report.

The quarterly and annual reports also include data on Coastguard SAR helicopter callouts, which is obtained from the Maritime & Coastguard Agency (MCA). For each sortie carried out by an MCA unit, an email is sent to the MCA administrator. This contains a unique reference number for each callout which increases by 1 for every callout. These are reconciled at the end of the month to give the number of callouts for that month. The data is provided to Defence Economics on a quarterly basis, and included in the SAR reports for the relevant period.

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Defence Economics welcomes feedback on this Background Quality Report and on the SAR statistics.

2. Relevance

Internal Users

The statistical publications have been developed in conjunction with the customers, who pay for their production, and meet their specific requirements to have accurate and timely statistics to inform policy decisions and billing. A customer consultation has been carried out to review the content and structure of the official statistics, to ensure continued relevance going forward during a period of change within MOD and the SAR environment.

The main customers of the SAR publications are the SAR bases, with SAR-HQ at RAF Valley and ARCC Kinloss being the principal customers. Trends across the different SAR bases are examined, and locations where the number of incidents is changing more than expected are examined to inform future plans and resources. The information is also used to determine SAR training policy to ensure pilots are suitably trained to meet any changing requirements.

The reports are also used by the RAF and the Royal Navy to aid with invoicing. Payments are received from the Civil Aviation Authority and the National Health Service for SAR callouts involving Civil Air incidents and Medical Transfers respectively. The numbers of such incidents is established using the reports.

The reports are used within the MOD to assist with press briefings on SAR issues, such as the plans for future SAR coverage or current periods of high activity at specific units.

External Users

The Civil Aviation Authority (CAA) uses Defence Economics' reports to confirm the number of civilian aviation incidents occurring. Reimbursement is made from the Department for Transport to the Ministry of Defence for these incidents, based on the number of flying hours recorded for the callout. Feedback received indicates that the data provided fully meet the users' requirements.

The Royal National Lifeboat Institution (RNLI) maintains a database of all rescue incidents occurring on UK inland waterways. Defence Economics provides data to feed into this database. Whilst the data provided meets the users' needs, it was noted that additional information regarding the cause of the incident would be useful. Data of this type is not available from the administrative data sources, and as such it is not practicable to include in the reports.

A number of charitable organisations (such as mountain rescue organisations, and air ambulance organisations) provide SAR coverage, often working in conjunction with the military units. Users commented in July 2011 that Defence Economics' reports help to place their contribution in the context of a national effort. It was also useful for them to be able to compare their historic trends with those of the military SAR units.

The reports are also used by some contractors who work in conjunction with the UK SAR force, such as engineers maintaining the engines used in the SAR helicopter fleet. Users commented in November 2011 that the reports enable them to assess their performance.

The reports are also used within the Department for Transport by the SAR-H project team. This program was established to identify the best future solution for a single harmonised service to ensure that the UK will have a first class SAR helicopter to save lives well into the future. Defence Economics' reports have been used to assist with modelling the potential impact of any changes.

3. Accuracy

Data is received on a weekly basis from ARCC Kinloss which undergoes a thorough validation process. Inconsistent data or data missing key variables is returned to ARCC Kinloss and queried. The most common type of queries relate to:
i.   location, particularly between sea and coastal classifications;
ii.   type of assistance; and
iii. inconsistent timings for events in a callout.

Approximate proportion of records queried	15%

For the 2013 calendar year, 284 out of the 1918 callouts were queried with ARCC Kinloss. For 2012, 584 out of the 1865 callouts were queried. The majority of these queries resulted in changes being made to the original data. The reduction in the number of queries indicates that data quality has improved over the last year (for example, there have been fewer missing fields in the data).

Because of the thorough data validation process, it is usually rare for SAR statistics to be revised. However, in 2013 minor revisions were made to the April and June monthly reports, and further revisions to previous figures were made in the 2013 annual report. The April revision was due to late data being received for one Mountain Rescue Team callout, and the other revisions were due to late data being received for overseas callouts.

The revisions to overseas data occurred because the way that Defence Economics receives SAR data for Cyprus and the Falkland Islands has changed. Previously, Defence Economics received overseas data from ARCC Kinloss by email or fax on an adhoc basis. During 2013, overseas data began to be uploaded onto the MOD intranet by ARCC Kinloss (which could then accessed by Defence Economics before SAR reports were completed). It became apparent that some of the overseas data was incomplete for several of the months covering the 2012 and 2013 periods. Defence Economics liaised with ARCC Kinloss, and also directly with the SAR units in Cyprus and the Falklands, to ensure that all missing overseas records were updated and re-sent for inclusion within the SAR reports. Additional checks have now been included in the monthly processing of overseas data to prevent similar revisions in future. Although the number of revisions has been fairly high, the scale and impact of the changes has been minimal, because overseas callouts make up only about 2% of the SAR data.

The data provided by ARCC Kinloss is checked for consistency within each record and where applicable between records. However, it may be that the data provided is incorrect but without any obvious inconsistency or error. In this case the error in the record may not be identified. This could potentially introduce non-sampling errors into the reports.

The MCA data presented in the Military SAR reports is considered to be provisional, because it is not subject to the same quality assurance processes as the military SAR data. The MCA data presented in Defence Economics reports is therefore outside the scope of National Statistics. The data is provided for the benefit of

our customers and to provide context. The data presented in the quarterly report may be revised prior to publication of the annual report.

4. Timeliness and Punctuality

Data is received and validated from ARCC Kinloss on a weekly basis. Production of the monthly, quarterly and annual reports commences once all the queries on the data for the period covered by the report have been cleared, typically one week after the final extract for the period has been received.

Publication dates for the reports are agreed up to 12 months in advance and are published on the Release Calendar [1] of MOD Statistics web page [2] and on the National Statistics Publication Hub [3]. Reports are published within 25 working days of the end of the period to which the report refers.

5. Accessibility and Clarity

The reports are published on MOD Publications page [4] and are available as pdfs. The monthly, quarterly and annual National Statistics can be found under the ''Activities'' section of the webpage. Older SAR reports can be found in the "List of Publications" section of the webpage.

Excel datasets providing details of each individual callout are also available on the website for 2011, 2012 and 2013. These datasets include information on incident date, time, latitude and longitude, unit name, assistance type and the number of persons moved. In 2011 and 2012 they were produced in response to Freedom of Information requests, but from 2013 onwards they will be published at the same time as the annual report.

The publications identify the key points from the data, including significant changes from previous publications, trends and callouts of particular interest. They also provide clear definitions and explanations of the technical terms used. The information is presented as a series of tables and graphs, with maps used to present the distribution of the callout locations.

6. Coherence and Comparability

The Search and Rescue publications report all Search and Rescue activities undertaken by the UK Armed Forces in the UK, Cyprus and Falklands. Due to the varying nature of Search and Rescue responsibilities between different countries, it is not possible to directly compare the UK SAR statistics with others internationally.

In the UK, the Maritime and Coastguard Agency (MCA) also provide search and rescue services. The annual and quarterly SAR reports present the number of incidents attended by MCA for each of their four SAR helicopter units.

The statistics are generally comparable across time, although in 2007 additional categories of callouts were introduced, to identify those callouts which included a search element. To make comparisons across this change, the five additional categories (all pre-fixed with "Search") need to be combined with their parent category. For instance, Search-Medrescue should be combined with Medrescue, and so on. The changes were made in conjunction with ARCC Kinloss, and the new definitions were explained fully in all subsequent reports. A number of monthly reports were reissued to reflect the new definitions.

During July 2012, the MRT unit based at RAF Kinloss moved to RAF Lossiemouth. This was the transfer of an existing team, and as such the reports reflect MRT Lossiemouth having the same history as the previous MRT Kinloss.

7. Trade-offs between Output Quality Components

The main trade-off is accuracy versus timeliness and respondent burden. The validation process identifies queries on around one third of SAR callouts, though some of these are rectified using internal editing

processes rather than querying the data with ARCC Kinloss. Accuracy could be improved by checking all of these data edits with the suppliers, but this would increase the burden on the data suppliers and adversely impact the timeliness of the statistics.

8. Assessment of User Needs and Perceptions

Defence Economics statisticians are in weekly contact with ARCC Kinloss, the primary data supplier and one of the principal customers, and are in regular contact with other data suppliers. Defence Economics uses these communication channels to assess user needs and to get feedback on the statistics. We also request feedback on the monthly, quarterly and annual reports and National Statistics.

The user consultation carried out between 3 November 2011 and 27 January 2012 showed the users were happy with Defence Economics SAR publications. No suggestions were received for any alteration to the proposed reports.

Defence Economics holds an annual consultation meeting for internal and external users to discuss Defence Economics statistical outputs, including SAR. The most recent of these consultation meetings was in May 2013, and there was no specific feedback on the SAR statistics.

9. Performance, Cost and Respondent Burden

The outputs are produced from the administrative data collected from the Search and Rescue function. The benefit of statisticians in Defence Economics producing the outputs is that the administrative data are stored centrally, validated and edited, and a set of trusted statistics are produced to inform policy and decision making. The additional burden that this places on suppliers is considered to be worthwhile as the cost of maintaining the database and producing the statistics would otherwise fall to the SAR function (data suppliers).

10. Confidentiality, Transparency and Security

All MOD, Civil Service and data protection regulations are adhered to throughout the SAR statistics production process. All data is stored, accessed and analysed using the MOD's restricted network and IT systems.

We adhere to the principles and protocols laid out in the Code of Practice for Official Statistics[5] and comply with pre-release access arrangements. The Pre-Release Access lists [6] are available on the Ministry of Defence website. Since 29 January 2009 there has not been any pre-release access to SAR statistics.

11. References

	Reference	Website Location
1	Release Calendar	http://www.dasa.mod.uk/index.php//release-calendar/upcoming-releases
2	MOD Statistics Webpage	http://www.dasa.mod.uk/index.php/
3	National Statistics Publication Hub	http://www.statistics.gov.uk/hub/index.html
4	MOD Publication's Page	http://www.dasa.mod.uk/index.php//publications
5	Code of Practice for Official Statistics	http://www.statisticsauthority.gov.uk/assessment/code-of-practice/code-of-practice-for-official-statistics.pdf
6	MOD Pre-Release Access lists	http://www.dasa.mod.uk/policy_and_processes/pre-release-access-list/2014-01-17.pdf