

Background Quality Report for the Armed Forces Continuous Attitude Survey (AFCAS)

July 2011

1 Introduction

1.1 Armed Forces Continuous Attitude Survey ([AFCAS](#)¹)

The annual Armed Forces Continuous Attitude Survey was first conducted in 2007. The Armed Forces Continuous Attitude Survey (AFCAS) is one of the main ways the Department gathers information on the views and experiences of our Armed Forces personnel. The information from this survey helps shape policies for training, support, and the terms and conditions of service.

1.2 Brief History

Prior to the introduction of AFCAS in 2007, the Naval Services (Royal Navy and Royal Marines), Army and Royal Air Force (RAF) had been conducting individual Continuous Attitude Surveys (CASs) for many years. These informed single Service Personnel policy development. However, the individual nature of each made it difficult to obtain a picture of Armed Forces wide issues and compare data across the Services and meant that each was published at different times. Following direction from the Under Secretary of State for Defence the requirement for a single attitude survey across the Armed Forces was defined. The Deputy Chief of Defence Staff (Personnel & Training) [DCDS(Pers & Trg)] was tasked with delivering this. The remit was to draw upon the expertise gathered in the single Services, but produce a single product. This was named the Armed Forces Continuous Attitude Survey (AFCAS).

AFCAS is designed and delivered, through the collaboration of MOD occupational psychologists, researchers and statisticians, to reflect policy user requirements from across the department. Defence Analytical Services and Advice (DASA) administer the AFCAS survey, collate responses and then provide analysis and tabulations for inclusion in the tri-Service AFCAS report which is published by DCDS(Pers & Trg). The single Service occupational psychologists and Centre occupational psychologists are responsible for consulting with their policy stakeholders and for deciding on the content of the AFCAS questionnaires to meet their policy user requirements.

The aim of the AFCAS is to assess and monitor the attitudes of Service Personnel across the Royal Navy (RN), Royal Marines (RM), Army and RAF on a variety of topics including pay, morale and organisational engagement (see Section 2 for a list of the topic areas). The data are used to identify where measures are needed to influence motivation and retention in the Armed Forces and to inform policy development and assessment. The continuous nature of the survey allows for attitudes to be tracked over time. The Service Chiefs and the Ministry of Defence (MOD) place a high value on the attitude data gathered from Service Personnel. They are a vital means of understanding how our Armed Forces personnel feel about key issues. The information is used to inform the Defence Board and the Armed Forces Pay Review Body (AFPRB), as well as many other individual policy areas. In 2009 AFCAS was given Official Statistics publication status.

In 2010 both steering and working groups expressed the desire to collect and publish data within the same calendar year whilst still meeting AFPRB timings. As such the AFCAS 2011 publication date moved from 31 March 2012 to 1 September 2011. To enable this, data was collected in a single wave from February 2011 to April 2011.

1.3 Documentation

The report format has evolved over the past four years with an aim to improve the clarity and timeliness of results. In 2008 and 2009 a headline report was published on 15 AFCAS questions. In 2010 the steering and working groups agreed to stop producing the headline report in the interest of improving the timeliness of the full tables of results.

The AFCAS 2010 report contains the following sections:

- Key findings – a summary of the main AFCAS findings
- Introduction – an outline of the background to the survey
- Methodology – details of the survey and analysis methodology
- Technical report – tables of results for each tri-Service question

The AFCAS questionnaires are published as annexes to the 2010 report.

Fig 1: Example of table of results (AFCAS 2010)

Table B1.1 How satisfied are you with the following? Your rate of basic pay (basic pay includes X-factor, but excludes Specialist Pay and any allowances). [A001]

		Officers					Other ranks					Total				
		Proportion (%)	Standard Error (%)	sig change			Proportion (%)	Standard Error (%)	sig change			Proportion (%)	Standard Error (%)	sig change		
				2009	2008	2007			2009	2008	2007			2009	2008	2007
Tri-Service	Satisfied	71	0.8	11%	13%		49	0.6	3%	12%	12%	52	0.6	3%	12%	12%
	Neutral	15	0.6	-5%	-6%		25	0.6				23	0.5			
	Dissatisfied	14	0.6	-6%	-7%		26	0.6	-4%	-12%	-11%	24	0.5	-4%	-11%	-10%
	<i>Total unweighted count (n)</i>	<i>3,495</i>					<i>9,022</i>					<i>12,517</i>				
Royal Navy	Satisfied	73	1.3	8%	12%		51	1.0	5%	9%	15%	55	0.8	4%	9%	14%
	Neutral	15	1.0		-5%		23	0.8	-3%			22	0.7	-3%		-3%
	Dissatisfied	12	0.9	-4%	-7%		26	0.9		-9%	-12%	23	0.7		-8%	-11%
	<i>Total unweighted count (n)</i>	<i>983</i>					<i>2,363</i>					<i>3,346</i>				
Royal Marines	Satisfied	66	2.1	12%	16%		28	0.8			7%	32	0.8		5%	8%
	Neutral	17	1.7				22	0.8		7%		21	0.7		6%	
	Dissatisfied	17	1.6	-9%	-17%		51	0.9	-10%	-7%		47	0.8		-10%	-8%
	<i>Total unweighted count (n)</i>	<i>290</i>					<i>1,934</i>					<i>2,224</i>				
Army	Satisfied	69	1.3	13%	14%		50	1.0		15%	16%	53	0.9	4%	15%	15%
	Neutral	15	1.0	-7%	-7%		27	0.9				25	0.8			
	Dissatisfied	16	1.1	-6%	-6%		23	0.9	-7%	-16%	-14%	22	0.7	-6%	-15%	-13%
	<i>Total unweighted count (n)</i>	<i>1,101</i>					<i>2,652</i>					<i>3,753</i>				
RAF	Satisfied	71	1.3	11%	12%		48	1.1		6%		53	0.9		7%	6%
	Neutral	16	1.0		-6%		22	1.0				21	0.8			
	Dissatisfied	13	0.9	-8%	-7%		30	1.1		-5%		26	0.9		-6%	-4%
	<i>Total unweighted count (n)</i>	<i>1,121</i>					<i>2,073</i>					<i>3,194</i>				

The tabulated results, as shown in the example in Fig 1, provide the proportion per response option together with their associated standard error. Any statistically significant differences to previous AFCAS results are presented. Results are reported separately for Officers & Other Ranks within each Service to reflect the often considerable differences between their roles, experiences and Terms & Conditions of Service.

1.4 Summary Production Process

There are nine stages in the AFCAS process. Each of these stages is briefly described below.

Stage 1: Questionnaire design

Steering and working groups, comprised of staff from the centre and each of the single Services, meet with DASA staff to agree the questionnaire. There are four separate questionnaires, one for each Service. About 80% of the content is tri-Service with the remainder focusing on single Service issues. (See Section 2 for further detail on this part of the process).

Stage 2: Sample design, selection and cleaning

A stratified random sample of approximately 28,000 trained Regular Service personnel are selected for the AFCAS. DASA designs and selects the sample with support from single Service Psychologists on sample cleaning. (See Section 3 for further detail on this part of the process).

Stage 3: Survey distribution and communications

A bi-modal approach has been used for AFCAS 2011. Personnel in the sample were all sent a postal paper questionnaire but were also invited to complete the survey online. Paper questionnaires are printed, packed and distributed by an external contractor. Online questionnaires are produced and administered internally by DASA. Centre and single Service Psychologists support on communications through the chain of command.

Stage 4: Data input

Online survey responses are held securely on DASA servers. These responses can be downloaded at any time in the process. Paper survey responses are inputted by the external contractors using a 100% verification technique.

Stage 5: Data cleaning

One week after the survey closing date DASA receive four separate single Service Excel data sets from the external contractor. These are then combined with the electronic responses to the online survey. All four Services are then combined into a single data set. Any invalid responses (e.g. those without any identifier or complete blank responses) are removed.

Each respondent is identifiable by their Service number and this is used to link respondents with demographic data held on the Joint Personnel Administration (JPA) system. Many questions are then recoded to simplify the output. For example, all 5 point Likert scale responses are recoded into a 3 point positive, neutral, negative scale. Responses are weighted by NATO rank and Service. This accounts for bias caused by disproportionate stratified sampling and differing levels of response. Finally the data is transferred into SPSS.

Stage 6: Production of tables of results

Tables of results are produced in SPSS using Complex Samples to ensure estimates and their corresponding standard errors are correctly weighted. Where year on year comparisons are possible, 1% level Z-tests are carried out.

Stage 7: Production of key findings

The tables of results for each section are analysed and a summary of the key points and figures are noted in a single key findings table.

Stage 8: Checking

There are several stages of both automated and manual validation built into the data cleaning process. A copy of the single Service SPSS data set is provided to each of the single Service psychologists for checking and to allow them to conduct their own ad-hoc analysis for release after the publication of the AFCAS report.

Each section of tables undergoes several layers of scrutiny. These include cross checking by at least two other DASA staff as well as checking carried out by centre and single Service psychologists.

Stage 9: Publication

AFCAS is an Official Statistic and is produced and published in line with the [Official Statistics Code of Practice](#)². The publication date is pre-announced on the [UK Statistics Authority official statistics release calendar](#)³. 24hr pre-release access is given to those listed on the published AFCAS [pre-release access list](#)⁴. AFCAS is published on DASA's external webpage (www.dasa.mod.uk).

2 Relevance

2.1 The principal users of the AFCAS publication are DCDS(Pers & Trg) and centre and single Service policy makers. The statistical information is used to inform and measure Service personnel strategy and policy so it is important that stakeholder requirements are represented.

The AFCAS steering group sets out the broad research aims for AFCAS. This is then further developed by the AFCAS working group. The working group is led by DCDS(Pers & Trg) and is attended by DASA staff and single Service psychologists. This group works closely with policy staff to ensure the AFCAS questionnaire continues to meet their requirements. For example this process led to the addition of new AFCAS 2011 questions on Service personnel's perceptions of change management and the level of information on the Strategic Defence and Security Review (SDSR).

AFCAS 2011 captured information on the following topic areas:

- Pay, allowances and JPA
- Aspects of working in the Service – including job satisfaction, morale and perceptions of workload and equipment.
- Deployments and separation
- Fairness and leadership
- Career and development
- Accommodation
- Personal and family life
- Leave
- Health, wellbeing and fitness
- Working with Reserves
- Organisational engagement

The information is used to inform the Defence Board and the Armed Forces Pay Review Body, as well as many other individual policy areas such as the Future Accommodation Project (FAP) team, the New Employment Model (NEM) team and the diversity team. The information can also be used to answer parliamentary questions and Freedom of Information requests.

3 Accuracy & Reliability

3.1 AFCAS collects mainly attitudinal data from a stratified random sample of approximately 28,000 trained Regular Armed Forces personnel. The sample is stratified by Service (RN, RM, Army & RAF) and Rank group:

Rank group	NATO Rank ⁵
Senior Officers	OF7-OF10
Officers	OF1-OF6
Senior Ranks	OR6-OR9
Junior Ranks	OR1-OR4

Survey estimates are published by Officers & Other Ranks for each of the four Services. The survey is designed to achieve a margin of error of within 3 percentage points for each of these estimates.

In some cases due to small population sizes this is not possible. For this reason a census is taken of RM personnel. In addition several questions are only asked of a subset of respondents. For example satisfaction of Service Accommodation is only asked of those living in Service Accommodation. Such questions may have a larger margin of error.

The AFCAS raw data is passed through a range of automatic and manual validation and editing routines. The data sets from each of the four paper and electronic surveys are combined into a single data set. AFCAS respondent data is linked to demographic information held on JPA using Service number. This reduces the amount of demographic information asked directly of the respondent and therefore reduces the respondent burden. To ensure results are representative of the Armed Forces DASA weight responses to correct for any bias introduced by the stratified sample design and differing levels of response. The responses are weighted broadly by NATO rank & Service. Full details are provided in the methodology section of each report.

DASA analyse the data using SPSS Complex Samples. This software produces weighted estimates and corresponding standard errors. Many aspects of the AFCAS data analysis has been automated, and where possible existing source code is used, this helps to minimise the risk of error and improves timeliness. Where year on year comparisons are possible, 1% level Z-tests are carried out. This level is used to minimise the possibility of finding false positive differences that can be expected when performing a large number of significance tests.

All statistical tables are checked by at least two DASA staff following a clear checking process. Each section is further checked by one of the psychologists on the working group. DASA do not show any statistics where the responding group size is less than 30. This is to prevent the publication of unreliable statistical information and to prevent disclosure of information about individuals.

3.2 Data Revisions

Revisions have been made to the AFCAS 2009 publications. The effected statistical tables and the reasons for the revisions are provided in the relevant AFCAS 2009 publications found here [AFCAS 2009](#)⁶ on the DASA website.

4 Timeliness and Punctuality

4.1 Timeline

The AFCAS takes approximately 8-9 months from agreeing the questionnaires to publishing the AFCAS report.

This includes approximately:

4 weeks to print paper questionnaires

4 weeks to pack and distribute paper questionnaires

10-13 weeks infield

1 week to obtain data sets from contractor

3 weeks data preparation

5 weeks analysis and producing statistical tables

2 weeks report writing incl key points section

4-5 weeks checking datasets, statistical tables, key points and written report

4.2 Punctuality

All publication deadlines have been met.

5 Accessibility and Clarity

5.1 Access to publications

All AFCAS publications dating back to 2007 are available free of charge in pdf format from [DASA's website](#) (www.dasa.mod.uk), and are located by:

- a) A search of "[AFCAS](#)" on the DASA web site will bring up links to all publications from 2007 onwards.
- b) For users of the [UK National Statistics Publication Hub](#)⁷ an appropriate search of Defence will bring up a link to all [AFCAS](#)s dating back to 2007.

[AFCAS](#) is published in the Official Statistics section of the DASA web site.

The number of web hits for accessing the [AFCAS](#) 2010 report during the first quarter since publication (31st March 2011 to 30th June 2011) is given in Fig 2 below. The high number of web hits indicates that the publications are accessible both internally and externally. It also indicates that there are many users of the AFCAS report.

Fig 2: Web hits for AFCAS 2010 between 31 March 2010 and 30 June 2010

	Number of Web hits ¹ within one quarter of publication	Number of unique (IP address ²) hits within one quarter of publication
AFCAS		
Internal to MoD	1036	344
External to MoD	138	107
Total	1174	451

¹ The number of hits are based on people accessing the AFCAS report webpage.

² The number of unique (IP address) hits external to the MoD may understate the number of unique individuals accessing the publication. For instance, business offices often share an IP address and so multiple individuals accessing the statistic within the same business will count as just one unique hit.

5.2 Clarity

In addition to this Quality Report, the AFCAS report contains a key points section that summarises the main AFCAS findings, an introduction section that provides a brief background to AFCAS and definitions of terms used in the report, a methodology section that provides users with details of the methodology including target population, information on the sample, respondents, weighting, statistical tests used, and notations and definitions used.

An example table is shown at Fig 1 on page 2 of this document. Relevant foot notes are shown below tables to indicate any filters that have been applied to the data or any issues with the data or time series comparisons.

6 Coherence and Comparability

6.1 Coherence

AFCAS is the definitive source of attitudinal data about Service personnel's own experiences and perceptions of working and living in the Armed Forces. There are no other tri-Service data sources that collect the same attitudinal information with which to ensure coherence.

Each of the single Services has recently commissioned its own pulse survey of their military personnel. Although these do each contain some AFCAS questions, neither the content nor the methodology is harmonised. As such tri-Service results will not be possible and direct comparisons with AFCAS results, even at the single Service level are not advisable.

6.2 Comparability over Time

AFCAS surveys are considered to be broadly comparable over time. However there have been several changes to the content of the questionnaires since 2007 to reflect changing policy user requirements and to refine the questions to increase validity, reliability or readability. This can impact on the comparability of results to particular questions over time. Where the comparability of responses over time may be impacted significance tests are not carried out. A footnote explaining the issue(s) is included beneath the relevant statistical tables in the published report.

Methodological changes may also impact on comparability. For example, in AFCAS 2011 an electronic questionnaire was introduced in addition to the paper questionnaire. DASA tested results from paper and online respondents and in most cases there were no significant differences. However there were differences between results for a small number of questions relating to access to Information Technology, JPA or communications. For these questions time series comparisons are not made.

7 Trade-offs between Output Quality Components

7.1 Timeliness versus Quality

The main trade-off is between timeliness and quality. The AFCAS report consists mainly of statistical tables as shown in Fig 1. While the report has a key points section, there is little contextual/or explanatory text to accompany the statistical tables. The tables do not provide any other demographic breakdowns of questions (such as by male or female or age groups etc) or cross-tabulations of AFCAS questions by each other. This is so that the basic statistical information can be made available to policy users and the public as soon as possible in a clear accessible format. Additional analysis for policy users is available on request and external requests for further information would be considered under the usual FOI rules.

8 Assessment of User Needs and Perceptions

8.1 Description and Classification of Users

DASA work closely with the main customer and survey sponsor, DCDS(Pers & Trg), and other occupational psychologists and researchers from across the department so that the AFCAS reflects policy user requirements. DCDS(Pers & Trg) lead steering and working groups to agree their policy user requirements and questionnaire content. A large internal review of the 2011 questionnaire involved many single Service and Centre policy users and resulted in some substantial changes to the questionnaire.

8.2 Obtaining Information on User Needs

There have been a number of ad-hoc enquires relating to AFCAS by internal policy staff. These enquires have related to more detailed breakdowns of the statistics on such things as accommodation, personal status, retention factors and areas relating to equality and diversity. None of the enquiries have led to a change in the way in which [AFCAS](#) is produced and presented but they have helped inform the content of the questionnaire. The AFCAS research team continues to work with policy users to identify their ongoing information requirements.

9 Performance, Cost and Respondent Burden

9.1 Performance and Cost Effectiveness

The estimated cost of producing the AFCAS 2010 report is approximately £197K. This comprises both DASA staff costs and external contractor costs. The DASA staff costs include the production and running of an online survey, the production of a paper questionnaire, data cleaning and analysis and the production of the report. External contractor costs include printing, packing, distributing, postage and data processing the paper AFCAS questionnaires. Costs are closely monitored and DASA and the working group strive to balance quality and timeliness against costs. The sample size is calculated to be the most efficient in order to meet the levels of precision outlined in Section 3. The survey questions are scrutinised each year to make sure that they remain relevant to policy users whilst ensuring year on year costs do not escalate. AFCAS 2011 included several additional questions that led to an increase in costs such as printing. This was offset against savings made through the online survey. About half of responses were made via the online survey, these did not require any manual data input and hence led to a considerable saving.

9.2 Burdens

Response to AFCAS is voluntary. Participant information is provided within the questionnaire to encourage informed consent. The AFCAS questionnaire is currently estimated to take about 30 minutes for respondents to complete. For AFCAS 2010 we received just over 12,500 valid responses. The cost of this level of response is estimated to be around £170K.

Respondent burden is minimised by obtaining demographic information about respondents from the Joint Personnel Administration (JPA) database rather than asking respondents these questions in the questionnaire. This also helps to minimise costs.

10 Confidentiality, Transparency and Security

10.1 Security

All staff involved in the AFCAS production process adhere to the MOD and Civil Service data protection regulations. In addition all members of the working group have to follow the relevant codes of practice for their professional groups; the Government Statistical Service (GSS) and the Government Social Research (GSR) Service. All data is stored, accessed and analysed using the MOD's restricted network and IT system.

10.2 Confidentiality

The [DASA Disclosure and Confidentiality Policy - Identifiable Survey Data](#)⁸ is followed. AFCAS is a confidential survey rather than anonymous. The paper survey contains a unique barcode that can only be linked to Service number by the DASA(Surveys) AFCAS team and the external contractor responsible for data input. The online survey is run on internal MoD servers and all responses are held on secure DASA systems. The online survey is accessed by a unique link e-mailed to the respondent or by respondents inputting their Service number on an internal web site. In this way only those included in the survey sample can respond to the survey.

Service number is used to link responses to JPA data. Single Service psychologists receive a copy of the SPSS data for their Service to allow them to carry out their own further analysis. Data access agreements are in place with each of the single Service research areas. These explicitly state exactly which researchers can have access to the data for statistical purposes only. This ensures that no person from any respondents' chain of command is able to access individual level data. Only aggregated results are provided to anyone not directly involved with the analysis. These results are only presented for groups containing at least 30 respondents.

10.3 Transparency

The production process is considered to be transparent. Each questionnaire is distributed with a participant information sheet to ensure that respondents make an informed decision before completing. The AFCAS report is published with details of the methodology and footnotes beneath statistical tables alerting readers to potential issues. This quality report informs users of the method, production process and quality of the output. Any significant errors identified after publication will result in revisions along with explanations as to the cause of the revisions.

11 References

	Title of Reference	Website Location
1	AFCAS	http://www.dasa.mod.uk/index.php?pub=AFCAS-MAIN
2	Official Statistics Code of Practice	http://www.statisticsauthority.gov.uk/assessment/code-of-practice/code-of-practice-for-official-statistics.pdf
3	UK Statistics Authority Release Calendar	http://www.statistics.gov.uk/hub/release-calendar/index.html?newquery=*&lday=&lmonth=&lyear=&uday=&umonth=&uyear=&theme=&source-agency=Defence&pagetype=calendar-entry
4	AFCAS pre-release access list	http://www.dasa.mod.uk/applications/newWeb/www/index.php?page=48&pubType=4&thiscontent=810&PublishTime=09:30:00&date=2011-07-14&disText=14%20July%202011&from=listing&topDate=2011-07-14
5	NATO Rank codes and UK Service ranks	http://www.dasa.mod.uk/modintranet/UKDS/UKDS2010/c2/table224.php
6	AFCAS 2009 Main Report	http://www.dasa.mod.uk/applications/newWeb/www/index.php?page=67&pubType=0&thiscontent=700&date=2011-03-31
7	UK National Statistics Publication Hub	http://www.statistics.gov.uk/hub/index.html
8	DASA Disclosure and Confidentiality Policy - Identifiable Survey Data	http://www.dasa.mod.uk/applications/newWeb/www/index.php?page=48&pubType=4&thiscontent=870&PublishTime=09:30:00&date=2011-05-19&disText=Single%20Report&from=listing&topDate=2011-05-19

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