

INFORMATION PAPER

RDNS-D

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SUBJECT: US Marine Corps Anthropometric Survey (MC-ANSUR); Natick Soldier Research Development and Engineering Center (NSRDEC)

1. Purpose: To provide information concerning the US Marine Corps Anthropometric Survey (MC-ANSUR) project.

2. Facts:

a. The US Marine Corps (USMC) provides its Marines individual clothing, personal protective equipment and workstations that accommodate a wide range of body size variation present in the Marine Corps. Many elements go into accomplishing this task for the USMC. One of these is a fully representative anthropometric database that accurately reflects the body size and shape distributions of US Marines.

b. The last major comprehensive survey of Marines occurred in 1966. Since then, there have been significant changes in body size and shape across the USMC population. The USMC has most recently been using statistically matched Army anthropometric data for design, sizing and tariffing. However, current Army-Marine Corps differences in anthropometry have become so great that modeling Marines using Army data would result in inefficient sizing systems and inaccurate tariffs for USMC clothing and individual equipment systems. In addition, no three dimensional (3D) scan data exists on the USMC population for design and modeling applications. For these reasons, the USMC requires its own comprehensive anthropometric database.

c. On 30 Jan 2009, MARCORSSYSCOM (PM-Individual Clothing and Equipment (ICE)) sponsored and funded NSRDEC to conduct an anthropometric survey to develop a comprehensive USMC anthropometric database that can be used to support statistically optimized design, sizing, and tariffing of USMC clothing and equipment – the MC-ANSUR project. MC-ANSUR leverages the expertise of Army anthropologists in the conduct of anthropometric surveys and application of traditional and 3D scanning data to support the design and sizing of individual clothing and equipment as well as workstation and crewstation design.

d. As part of the MC-ANSUR study, NSRDEC will survey a statistically valid sample of the USMC population by physically measuring Active Duty and Reserve Marines.

- The measuring team will visit three USMC locations from May 2010 through September 2010.
- Whole units and elements of units will be screened twice daily and individuals will be randomly selected by age, sex and race to be measured.
- 3600 Marines from Active Duty and Reserve components will be measured.

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- Approximately 95 standardized direct body measurements and three 3D surface scans (whole body, head/face and foot) will be taken on each Marine.
- Data will be collected by a government research anthropologist and a contractor team of approximately 21 highly trained measurers working with MARCORSSYSCOM OIC and NCOIC liaisons.

e. The MC-ANSUR project is fully funded and integrated with a parallel Army effort. The Army effort, entitled Anthropometric Models to Optimize the Human Systems Interface (ANSUR II) has, as one of its primary tasks, the updating of the 1988 Anthropometric Database of US Army personnel. Both efforts are under the same technical and programmatic leadership. In addition, the study design for ANSUR II is identical in nearly every respect to the MC-ANSUR effort. Both efforts will use the same measuring team who will collect the same measurements on each population group using the same data collection protocols. The only differences with regard to study design are in areas related to the numbers of personnel measured, numbers of measurement sites and the addition of the National Guard component to the Army population to be measured. The MC-ANSUR data collection effort will be conducted first (May-September 2010) followed by ANSUR II data collection (October 2010-January 2012). The synchronization of the two data collection efforts will result in exceptional compatibility between the USMC and US Army anthropometric databases.

f. Deliverables of the MC-ANSUR project to PM ICE are: 1) Project Technical Reports to include a Measurement Handbook and USMC Summary Statistics; 2) an Anthropometric Database; and 3) a 3D Scan Archive with head/face, foot, and whole body scan images of survey participants.

g. Of course, simply having a comprehensive database does not automatically optimize the sizing, design, and integration of Marine Systems. Many elements contribute to the optimization of Marine systems, and realization of MC-ANSUR's potential to improve Marine sizing and design will require substantial post-survey modeling and analysis, among other things. Plans for problem-specific analysis, modeling, and transition of MC-ANSUR results to Marine systems are currently being formulated by MARCORSSYSCOM, and will be announced at a later date.

3. Contact: NATI-MC-ANSUR@conus.army.mil