

# NASA RANGE SAFETY PROGRAM 2005 ANNUAL REPORT

## Range Commanders Council

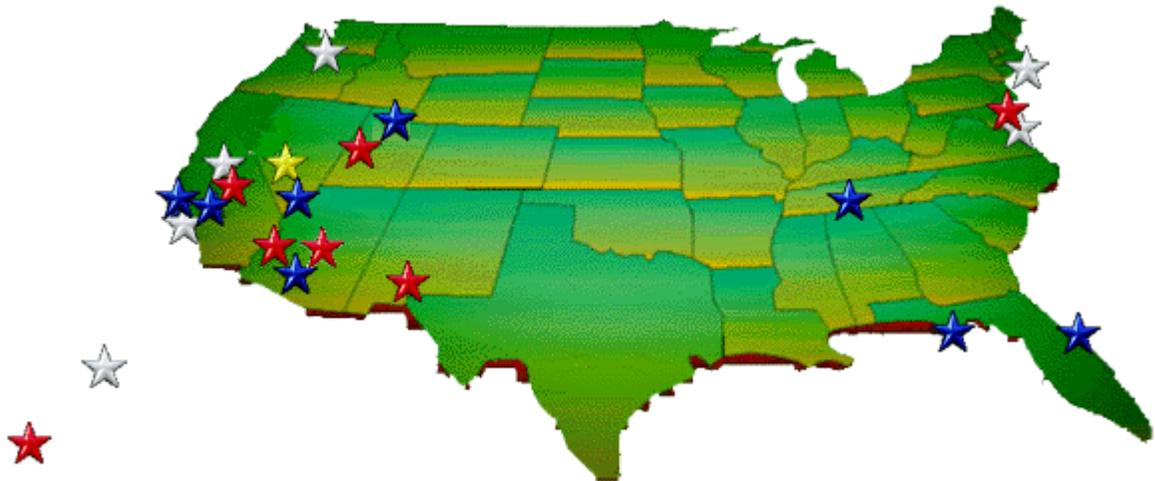
<http://jcte.ics.mil/rcc/index.htm>



Founded in 1951, the Range Commanders Council (RCC) is dedicated to serving the technical and operational needs of the United States test, training, and operational ranges. The council was organized to preserve and enhance the efficiency and effectiveness of member ranges, thereby increasing their research and development, operational test and evaluation, and training and readiness capabilities. Members include Army, Navy, Air Force, and Department of Energy (DOE) ranges.

## Member Ranges

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Army



Air Force



Navy



DOE



The RCC provides a framework wherein common needs are identified and common solutions are sought, technical standards are established and disseminated, joint procurement opportunities are explored, technical and equipment exchanges are facilitated and advanced concepts and technical innovations are assessed and their potential applications identified.

As an associate member, NASA maintains active participation in the RCC and many of its working groups, including the ones described below.

## **The Range Safety Group**

Through standardization, development, and continuous improvement, the Range Safety Group supports the safe conduct of hazardous operations on the test, training, and operational ranges and related facilities. Hazardous operations include, but are not limited to, ordnance and expendable releases, directed energy and laser operations, missile flight, space launch and entry, unmanned vehicle operation, gunfire, explosive use, and hazardous emissions.

***Range Safety Group Meeting.*** The 97th meeting of the Range Safety Group was hosted by the Air Armament Center at Eglin Air Force Base, Florida in October 2005. NASA provided range safety related training status reports and range reports to the group for KSC, Wallops Flight Facility, and Dryden Flight Research Center. NASA also participated in reviews of new range related technology such as the subminiature flight safety system described below.

***Subminiature Flight Safety System.*** The subminiature flight safety system is an Air Force led flight safety system being developed to meet all Range Commander Council 319-99, *Flight Termination Systems Commonality Standard*, and system safety requirements. The system is an integrated package consisting of two flight termination receivers, two flight termination controllers, and two safe and arm devices. The system uses Global Positioning System and telemetry data.

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The objectives of the subminiature flight safety system are (1) to improve costs through one development effort and increased quantity; (2) improve scheduling with a qualified, integrated safety package, certified by the Range Commanders Council, and (3) and improve performance through testing with warhead variants at operational thresholds.

The proposed capabilities of the subminiature flight safety system are described below.

- Support all types of weapons systems
  - Air-to-Ground
  - Air-to-Air
  - Surface-to-Air
  - Surface-to-Surface
- Meet Major Range Test Facility Base Range Safety specifications
  - Dual-redundant flight termination system
  - Time and Space Information System - provide weapon system position
  - Telemetry for providing system health and Time and Space Information System
  - High reliability (99.9 percent)
- Operate without tracking infrastructure
  - Water ranges
  - Long range weapons
- Be produced at a low cost (less than \$35,000)

Currently the subminiature flight safety system is a phase one Central Test and Evaluation Investment Program. The developers are working with industry, government agencies, weapon system developers, and weapon evaluation groups to resolve current issues and obtain fidelity and confidence in the subminiature flight safety system concept by coordinating service commitment to use the system, completing systems engineering analysis, and developing requirements documentation for the Central Test and Evaluation Investment Program.