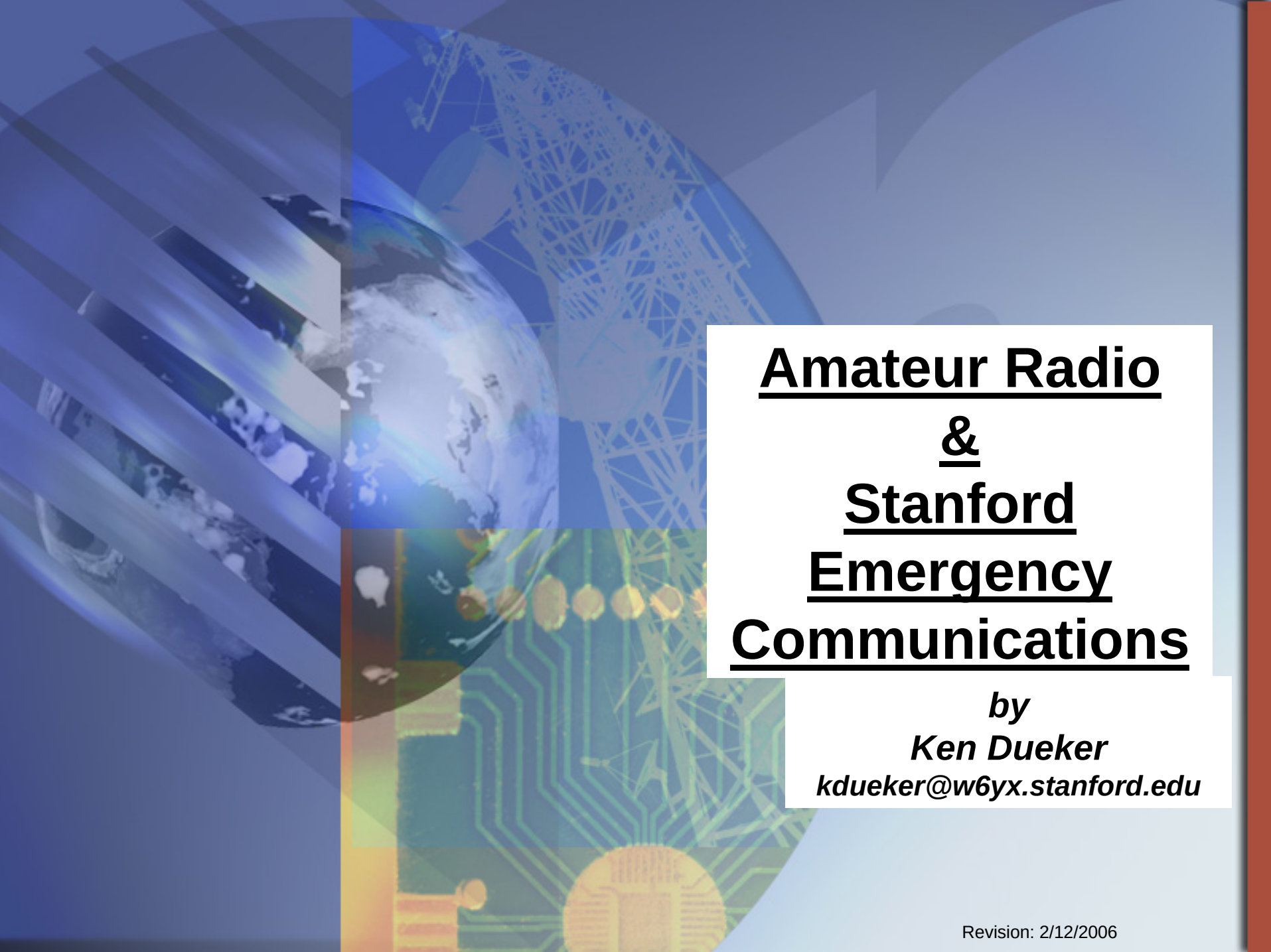

Amateur Radio & Stanford Emergency Communications

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Amateur Radio Defined

Federal Communications Commission Definition

Emergency Communications: One of the key purposes of Amateur Radio is to provide a group of volunteers with skills to assist public safety agencies in the event of a disaster or other incident. These activities are an integral part of the purpose of Amateur Radio as defined by the Federal Communications Commission (FCC § 97.1(a); § 97.401(a)).

Improving Technology: Innovation is a key purpose of the Amateur Radio Service. Radio amateurs have pioneered many of the improvements we see today, such as cellular telephones and RF data transmission technology.

International Relations: Because Amateur Radio shortwave frequencies, unlike regular AM/FM broadcast frequencies, travel throughout the ionosphere, hams have the ability to form friendships throughout the world.

A Hobby with a Purpose

Amateur Radio is a disaster communications resource.

Stanford Amateur Radio Mission

Education

- In supplement to formal teaching and research, the Stanford Amateur Radio Club (W6YX) has built upon its long-standing tradition of providing a forum and location for experimentation and learning in electronics, physics, communications, and computer science. From Professor Oswald Villard's invention of an entire voice mode (SSB) to today's pioneering experimentation with digital communications and satellites, the Stanford Amateur Radio Club has been at the forefront of telecommunications research.

Emergency Preparedness

- Amateur Radio is an integral part of the Stanford Emergency Plan. The W6YX station provides the University with a resilient back-up communications system (on campus and off) as well as a team of trained volunteers to assist in disaster recovery and business resumption.

Community

- Since the days of Professor Terman, the Stanford Amateur Radio Club has served as a unique and valuable organization for students, faculty, staff, and alumni to interact. The interdisciplinary nature of the Club brings together diverse interests ranging from electrical engineering to international relations (e.g., since certain shortwave frequencies allow global communication).

Amateur Radio's Pioneering Role

Impact on Silicon Valley

- **Early Radio and Electronics Pioneers … Stanford Amateur Radio Club founded in early 1920s**
- **Stanford Professor Frederick Terman … and his students, Bill Hewlett and Dave Packard**

Interest in Amateur Radio around the World

EAOJC Juan Carlos, King of Spain

F05GJ Marlon Brando, actor

JY1 King Hussein of Jordan (SK)

JYINH Queen Norr of Jordan

JY2HT King Hassan of Jordan

K7TA Clifford Stoll, author & scientist (Silicon Valley Snake Oil, etc.)

K7UGA Senator Barry Goldwater (SK)

KA6UXR Dr. Alexander Comfort, Author (The Joy of Sex)

KB2GSD Walter Cronkite, news anchor

KA7EVD Donny Osmond, entertainer

KD4WUJ Patty Loveless, alias Patty L. Ramey, country singer

KD6OY Garry Shandling, comedian

N6YOS Priscilla Presley aka Lou Lou Beaulieu, actress

VU2RG Rajiv Gandhi, Prime Minister of India (SK)

W4LAA Paul Kangas, host of "Nightly Business Report" (PBS)

W5LFL Owen Garriot, astronaut

W6EZV General Curtis LeMay, U.S.A.F. Strategic Air Command (SK)

W6FZZ Samuel F.B. Morse III (great-great grandson of the inventor of Morse code)

W6JKV James Treybig, CEO of Tandem (Stanford MBA '68)

W6QYI Cardinal Roger Mahony of Los Angeles

W6ZH Herbert Hoover Jr., grandson of US President

WA4CZD Chet Atkins, guitar player

WA4SIR Ron Parise, astronaut

WB4KCG Ronnie Milsap, singer

N6FUP Stu Cook, bass player for CCR (Credence Clearwater Revival)

HS1A Bhumiphol Adulayadej, King of Thailand

Emergency Communications

Back-Up Emergency Communications: Most public service communications today are heavily reliant upon land-line telephone, cellular telephone, and fax systems to conduct routine operations. In disasters such as earthquakes (or even power-outages), these systems fail. Subsequently, police, fire, and other public service radio channels become rapidly saturated. ARES Emergency Responders are capable of providing such agencies with a complete back-up radio communications system with many additional channels. Furthermore, ARES/RACES is capable of using radio frequencies instead of phone lines to transmit computer data (through radio modems, a.k.a. "packet radio").

Inter-Agency Communications: Most agencies have dedicated frequencies and radios that operate only on those frequencies. ARES/RACES members can be assigned to "shadow" key people at different agencies' operations centers and in the field to allow inter-agency communication when the agencies are not able to communicate through normal channels. Furthermore, because of the special frequency and power-output privileges Amateur Radio Operators have, direct links can be established to locations out of range of normal public safety radios (such as California State OES in Sacramento or FEMA in Washington, D.C.).

Health and Welfare Information: ARES/RACES members can collect and transmit health and welfare messages to the Red Cross and out-of-area family members on behalf of emergency workers and people in the community, freeing personnel to concentrate on priority matters.

Simulated Emergency Tests: To maintain operator skill and to develop working relationships with the agencies they serve, ARES/RACES Emergency Responders participate in various disaster drills, exercises, and related activities. Such activities include weekly local "nets" (on the air meetings), county communications exercises, and the famous June Field Day.

Community Events: In non-emergencies, ARES/RACES volunteers may assist local authorities by providing supplemental communications for various local events such as parades. ARES Emergency Responders also volunteer for special duty to supplement local agency operations. For example, the Redwood City Police Department uses ARES/RACES personnel every New Year's Eve as a part of their "Operation Silent Night" program.

Amateur Radio & Public Agencies

- Amateur Radio is part of the Standardized Emergency Management System (SEMS) (Cal. Code § 8607)
- Radio Operators are registered as Disaster Service Workers (DSW)
- Amateur Radio frequencies cover both short-range (VHF/UHF) and long distance (DX, HF)

Resources at Stanford

Personnel

- **Over 75 students, faculty, staff, and alumni/affiliates are currently registered with the Stanford University Amateur Radio Emergency Service**

Equipment

- **Amateur Radio equipment is located at key locations, including Stanford DPS/Police, Facilities/Operations, Stanford Hospital, SLAC, and the Stanford Amateur Radio Club (W6YX) station located in the Field Sites (near the Big Dish).**

Capabilities

- **Equipment is capable of local, national, and international communication**
- **Some systems have back-up (generator/battery) power**
- **We are working with Stanford DPS/Police and other groups to improve back-up communications systems and capabilities**

Field Deployment Is Key Resource

- Back-up communications when all else fails

How to Become a Ham

Entry Level License

Technician Class

- **35 multiple-choice questions**
- **No Morse Code**
- **You can use VHF/UHF frequencies for local communications**

- **American Radio Relay League:**
  www.arrl.org

- **Stanford Amateur Radio Club:**
  www-w6yx.stanford.edu

For Further Information

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