

Ham Radio & Stage Rallies

Presentation to
South East Metro
Amateur Radio Club

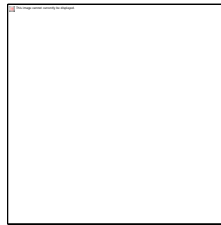
October 29, 2019

JOE HIBBERD
W3QLC



What is a stage rally?

- Motorsports competition against the clock
- Driver and Co-Driver (navigator)
- Int'l, National and Regional championships
- Day and/or night
- All seasons
- Two days with overnight stop, or one day
- Racing conducted on “stages”
- Stage roads closed to public
- Dirt, gravel, snow-covered in U.S.
- Stages connected by “transits”
- No practice, but “Recce”
- Timed to minutes and seconds
- Lowest cumulative time wins



Controls

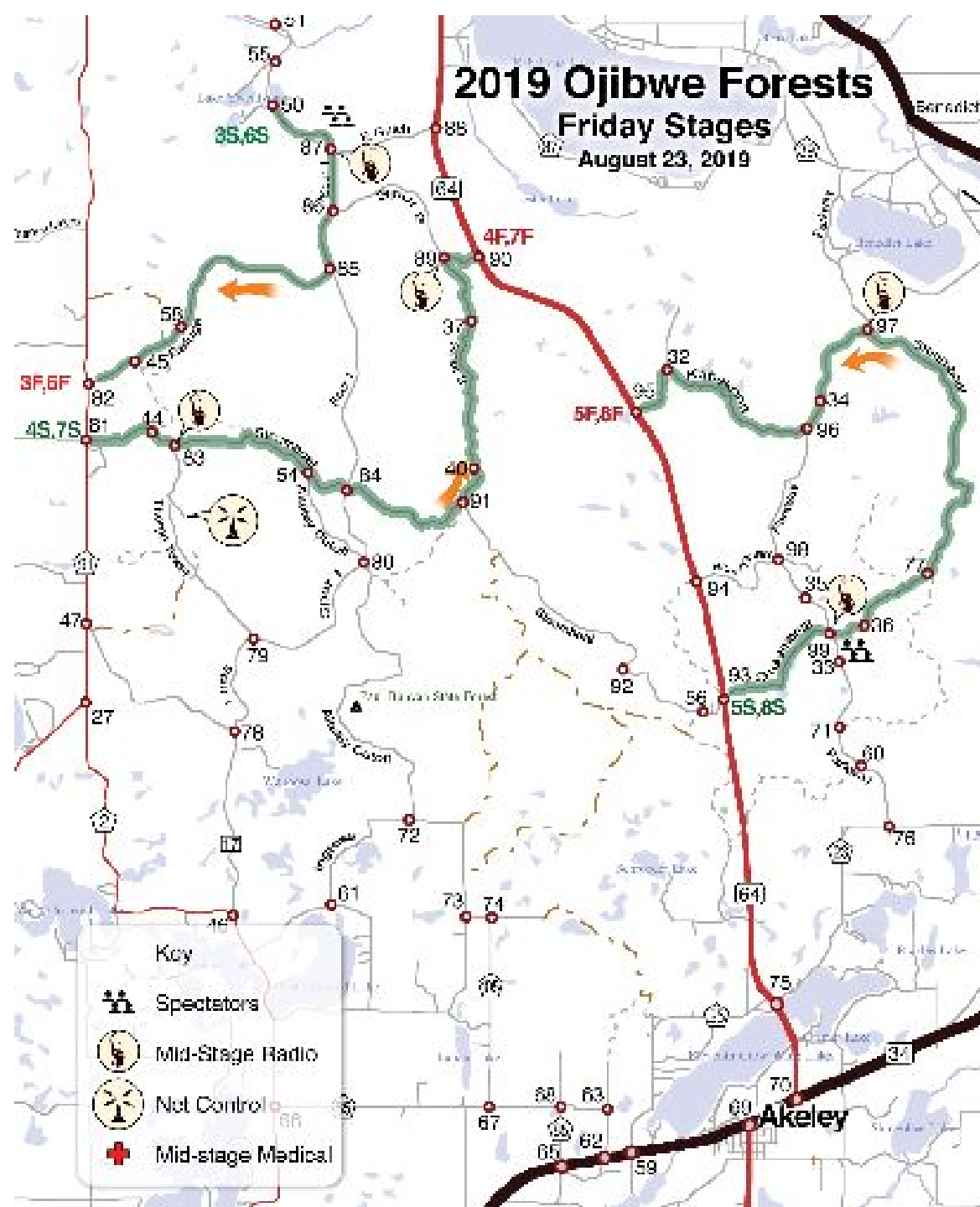
- All clocks synchronized to WWV
- Start Control
 - Car arrival time assigned
 - Stage start time 3 min. later
 - Cars leave at :00 seconds
 - Minimum 4 volunteers
- Finish Control
 - Flying finish
 - Arrival timed to 1 second
 - Cars stop at timing vehicle
 - Cars assigned “out” time
 - Minimum 4 volunteers



2019 Ojibwe Forests

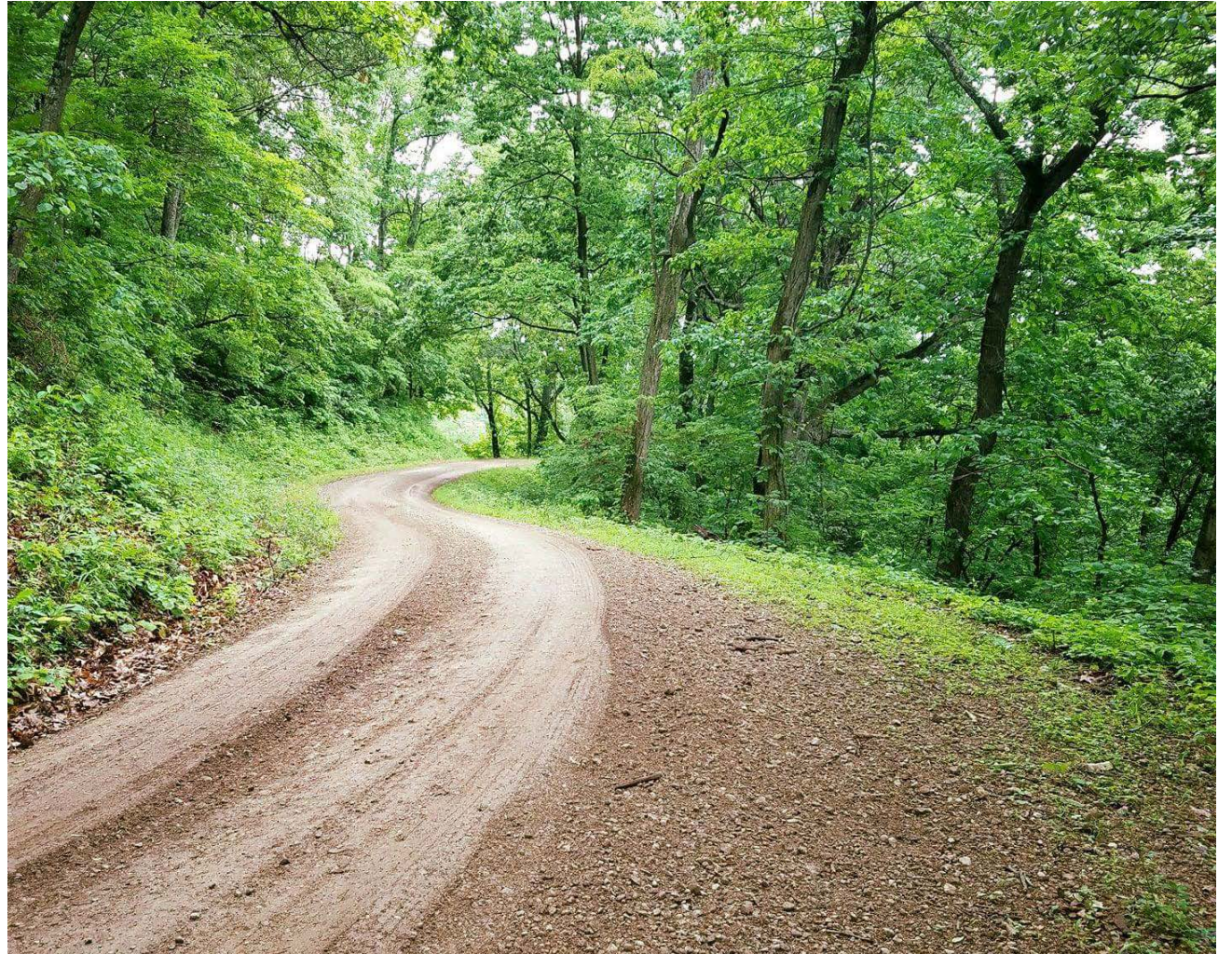
Friday Stages

August 23, 2019



Organization

- World Championship:
 - Federation Internationale de l'Automobile (FIA)
- National sanctioning body:
 - American Rally Association
 - Rules, Scoring, Publicity, Stewards
- Local organizing committee
 - Chair
 - Clerk of Course (Rallymaster)
 - Chief of Tech Inspection
 - Chief of Controls
 - Chief of Emergency Services
 - Chief of Volunteers
 - Chief of Communications



U.S. Championship Events

- Lower Peninsula, Michigan
- Missouri
- Duquette, Minnesota*
- Washington
- Oregon
- Colorado*
- Idaho*
- Maine
- Ohio
- Park Rapids area, Minnesota
- Pennsylvania
- Upper Peninsula, Michigan
- New York state*
- Duquette, Minnesota*

**Regional events*



Rally cars

- Production-based cars
- Classes for 4wd, 2wd, modified & stock
- Street legal
 - License, lights, horn, wipers, etc.
- Full roll cage
- Skid plate
- Racing seats
- 5-point seat belts & harness
- 1/100th mile odometer
- Safety equipment
 - Fire extinguishers
 - Triangles
 - First aid kit
 - Spill kit
- OK and “red cross” signs





Team Members

- Driver & co-driver
 - Must wear FIA-approved helmet, Nomex fire suits and head-and-neck support (HANS) device
 - Communicate via intercom
- Co-driver
 - Reads route instructions
 - Checks timing sheets
 - Keeps team on time
- Driver
 - Drives !
- Crew
 - Prepares car
 - Fuels car at service areas
 - Changes tires, repairs car





Ham Radio & Stage Rallies



FROM ATC 1 - STONY CROSSING			DIST	6.05 MI	PAGE	4
TO FTC 1 - STONY CROSSING			MPL	8 MIN	OF	92
	0.00	----		ATC 1- Stony Crossing		6.05
2	0.05	.05		SSS - Stage # 1 5.96 miles		6.00
3	2.17	2.12				3.88
4	2.51	.34				3.54
5	4.50	1.99				1.55
6	4.65	.15				1.40
7	5.26	.61				.79
miles to next instruction		.64	STPR '98		MICHELIN SCCA PRO Rally.	



Recce Notes

ATC 1 (THER)
START
L5/CR3 < > 4 + L4 LG D/C
INTO R5 SHOW CR6 150
CPONES
L4 - CR STY L L4 INTO R5 40
R6/CR ^{CR6} L5/CR INTO R5 -
R4 + 20 ^{CANTON} L3 - NC INTO
5 - LNK JMP L5 R6 L6
R5 INTO L4 + CR INTO R
INTO L5 INTO R5 INTO
INTO R5 SN CR 40 R6
L4 INTO R4 INTO L
INTO R5

Typical Schedule

9:15 – 10:15	Novice Drivers' Class
10:00	Volunteer Meeting
10:15	Stage Captain Meeting
10:30	Volunteers Leave for Stages
12:00	MTC 1 – Begin Day 1
12:00 – 13:30	Parc Exposé
13:15	Mandatory Drivers' Meeting
13:30	First Car Out
16:33	First Car In – Service
20:25	MTC2 – Finish Day 1



Volunteers

- Control Workers
- Marshals
- EMTs
- Sweep Vehicles
- Ham Radio Operators



Ham Radio & Stage Rallies

Rallying is a Dangerous Sport



Ham Radio

- **Ham radio provides the safety network**
- A directed net with a Net Control Station
- Uses tactical call signs to identify location or duty, e.g. “3 Start,” “Marshal 7,” “Service Area”
- Located at all start & finish controls, spectator areas, others
- Also used by rally chiefs, “0” cars, sweep vehicles
- Net Control Station coordinates all volunteer placement and vehicle movement



Net Control



Ham Radio & Stage Rallies

Radio Operator Duties

- Same as any emergency radio net
 - e.g., Skywarn, ARES, Twin Cities Marathon
 - Stay alert
 - Listen to net for situational awareness
- Log car numbers
- Report to Net Control any:
 - “0” car arrivals
 - First and last car arrivals
 - Reports of incidents or red cross
- Pass messages to Net Control and crews
- Notify Net Control of no. of cars or missing cars upon request
- End traffic with FCC call sign



Radios

- Use 2 meters
- Simplex preferred
- Repeaters if necessary and available
- Control locations selected by Clerk of the Course with radio coverage in mind
- Scanners used by crews, volunteers, spectators
- Family Radio Service (FRS) within controls

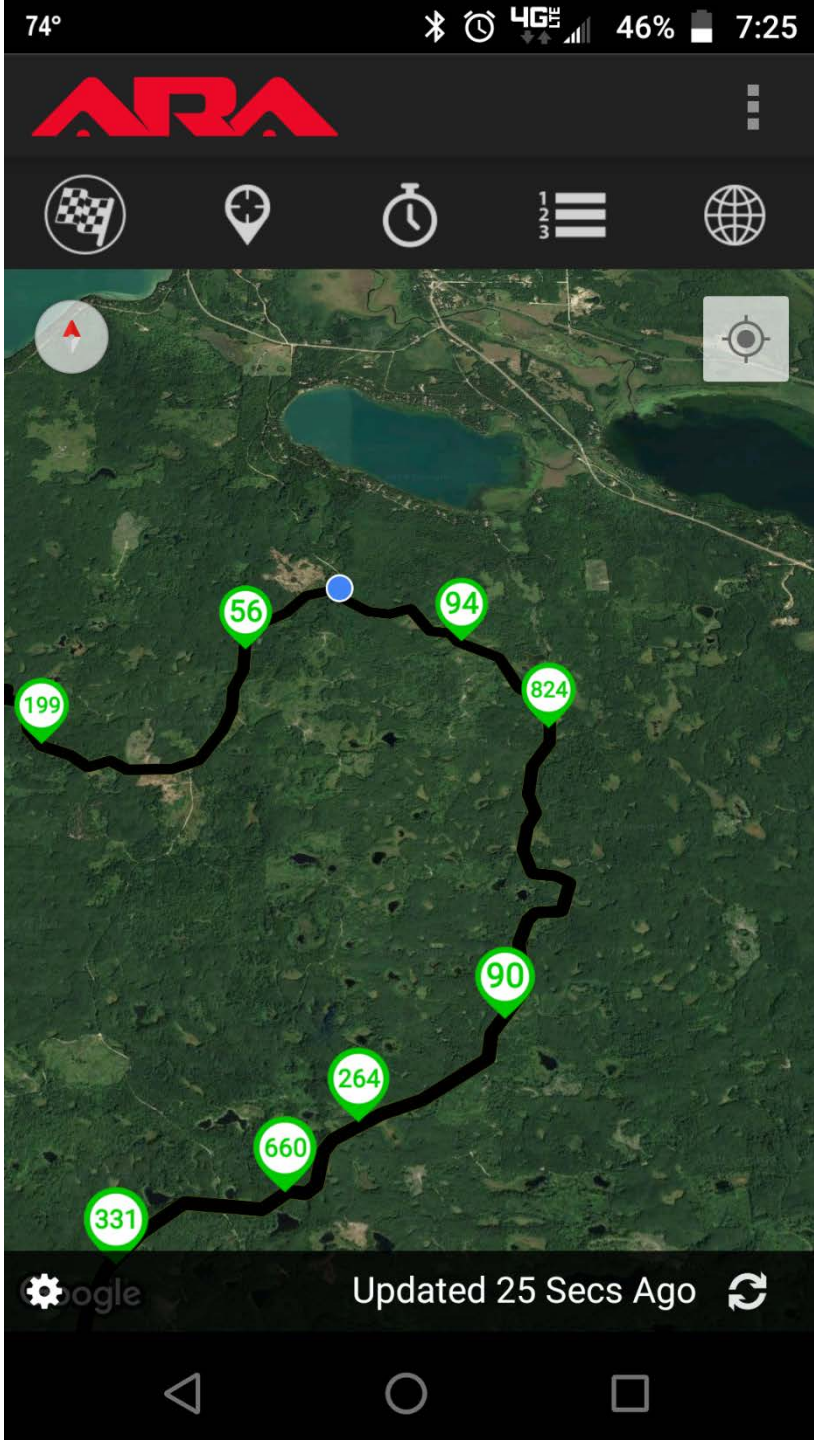


EZ Trak Vehicle Tracking System

- Privately-owned company
- Similar to APRS
- Uses cellular & Internet links
- Provided by ARA for each event
- Tracked by ARA officials and Net Control
- Warning alert for stopped car on stage
- Visible during an event to anyone with ARA app



ARA app



Is Ham Radio Legal for Stage Rallies?

- FCC section 97.1 discusses pecuniary interest and commercial enterprises.
- ARRL has stated "Communications for business entities by *volunteers* – that is, by licensed Amateurs who receive no direct or indirect compensation and who have no pecuniary interest in the communications – are legal as long as they are not conducted on a regular basis and otherwise comply with the FCC rules."*
- The ham operators are all volunteers, who, by definition, are not getting paid.
- The ARRL concluded "If public safety is the principal beneficiary, then §97.1 is being fulfilled."*
- The safety of the participants, volunteers, spectators, and the general public in the area is the primary reason to have ham radio at stage rallies.

* "Commercialization of Amateur Radio: The Rules, The Risks, The Issues," ARRL, Newington, CT, September 2009

Source: www.nasarallysport.com

QST article, July 2002

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PUBLIC SERVICE

SCCA Pro-Rally—Northwest Style

By Lee Chambers, K17SS,
ARRL State Government Liaison,
Northwestern Division

Unlike most forms of auto racing, Sports Car Club of America (SCCA) "Pro-Rallies" are timed automobile races on real roads, not race courses, with real cars, not custom race machines. Contestants—there is a driver and navigator in each car—drive an unfamiliar route either at precise but legal speeds (the cops are looking), or a closed-to-the-public roadway as fast as possible. Route directions detailing sharp corners, off-camber turns, bumps where a car might get airborne, and other hazards are read to the driver by the navigator as they blast along. For most contestants, the event will be the first time they've been on the road, and at 130+ mph these northwest dirt "logging road" "stages" won't give them time to sightsee! A full-speed stage may be short, only a mile or so, or up to 30 miles in length, and there will be six to ten stages in a day. Typically, a rally is a two-day affair. This is a real test of man and machine.

In a day, each rally car will go over two hundred miles — half at full speed, half at ordinary, legal speeds with ordinary traffic. Rally cars have to be street-legal: the headlights, brakes, and mufflers must work! For the contestants, the switch between all-out racing and high-way cruising is a difficult psychological test and it's common to see the team soaked in sweat at the end of a stage. Navigators who try to read the route book and odometer and keep an eye on physical locations at the same time, get carsick—an occupational hazard! Disaster can come quickly if the driver or navigator loses concentration even for a second on these rough and twisty roads. Tires and suspension, engine and drive train are truly tested as the cars careen where you and I might drive at twenty miles per hour, tops.

In the northwest, serious mountains may be in the path between the start and finish lines of a stage. These are usually miles apart. Overall the event may stretch over sixty miles of uninhabited woods, hills and valleys. Clearly, there needs to be a way to keep track of the contestants as a mishap may put a car out of action, alone, miles from aid—and possibly in

immediate need of it. Cell phones, by the way, don't work in the woods!

Ham Radio Watches for Safety

Enter Amateur Radio. A typical event, and we have four or more a year here in the Olympia, Washington, area, will have 35 or more radio amateurs to help provide communications. The plans are sent to each ham along with maps and additional instructions just before each event. Getting 35 hams to commit to helping often means calling two hundred during the

weeks before an event, but northwest hams have a reputation for supportive action! It's not as hard as it looks!

From a hilltop location, one radio operator called "Mountaintop" keeps tabs on hams at the "start" and "finish" of each stage, at dangerous intersections, and additional support crews. Mountaintop's job is to resolve problems by acting as not control, by relaying messages if necessary, by calling for emergency medical technicians (EMTs) or an ambulance, wrecker, fire truck or service crew if



With back to the camera, Diane Duran, K07AJQ, and Tiffany Bradford, K03KHE (right) talk with race participants.



Amateur Radio Operations Planner Lee Chambers, K17SS, is in contact with "Mountaintop," the station that serves as net control.

Steve Ewald, WV1X ♦ Public Service Specialist ♦ sewald@arrl.org

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(L-R) ARRL Pacific Division Director Jim Maxwell, W6CF; Sacramento Valley Section Emergency Coordinator Dave Thorne, K6SOJ; Sacramento Valley Section Manager Jerry Boyd, K6BZ; and Steve Ewald, WV1X, from ARRL HQ.



Special event station W6E operated from EMCOMM 2002 April 20-21.

needed. Mountaintop may not ever see the cars, but he or she has a controlling influence on the whole rally.

Most hams are much closer to the action. Hams are positioned at the start and finish and at "spectator" locations at each stage. If a car is missing, the "Start" ham asks the next car leaving to look for it. If it's not found, a ham-equipped search crew with a medic aboard, called "Sweep," is sent to find it.

"Advance" and "Pace" crews assure that the course is properly "hazmat-guarded" with obstructions and warnings posted. Hams with these crews help coordinate the stage's readiness and quickly find whatever support is needed. "Spectator" hams are assigned locations where the public is expected or could inadvertently get onto the course. Spectator locations are often intersections and the drivers, distracted by the sudden appear-

ance of a couple hundred people by the roadside, often put on quite a show as they broadside around the turn.

An SCCA road rally is a two-day effort. The "Wild West" event, in September 2001, started with 61 cars on a Friday night (night racing is unique—the drivers go faster because they can't see the dangers!) and finished with 43 still running on Saturday. Other events are true weekends—Saturday and Sunday.

These events are great communications skill-builders. From the ham-strategists who plan the events, working with spreadsheets and maps and simplex frequency lists, to the hams on the course, our communications skills and understandings are tested and polished. It's a delight to listen to brand-new hams on a stage for the first time, and literally hear them acquire confidence and expertise with every transmission. That's what this

is all about—providing public service communications, acquiring communications expertise, and having fun with radios.

EMCOMM 2002 A SUCCESS

By Jerry Boyd, K6BZ, ARRL Section Manager, Sacramento Valley

EMCOMM 2002 was held at Bishop Quinn High School near Redding, California on April 20 and 21. While in its third year as a conference focused on Amateur Radio emergency communications (EMCOMM), this year (for the first time), EMCOMM was a sanctioned ARRL convention. As such, it was privileged to have ARRL Headquarters Staff member Steve Ewald, WV1X, in attendance. Also in attendance was Pacific Division Director Jan Maxwell, W6CF.

EMCOMM has grown each year it has been presented. It is one of the premier Amateur Radio emergency communications training conferences in the United States. This year nearly 150 amateurs, a number of non-amateurs and local/state government officials at-



Mac McCutley, WEMAC, had the best of show in the individual category for EMCOMM's competition.



EMCOMM 2002 sponsored a competition for best-equipped Amateur Radio emergency communications vehicle. The Humboldt Amateur Radio Club (California) won the trophy in the group/club category.

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Join the fun

- RALLIES NEED HAMS!
- 2m mobile radio, 25 or 50 watts
- You're never turned away
- No fees
- Best location to spectate
- Among the first to know
- Free T-shirt and swag
- Commune with nature
- Free parking (in the woods)
- Free food at Awards Banquet
- [Ojibwe Forests Rally](#) (MN) and [Lake Superior Performance Rally](#) (UP) always need volunteers, especially hams
- Contact W3QLC for info





Ojibwe Forests Rally
Detroit Lakes/Park Rapids, MN

Lake Superior Performance Rally, Houghton, MI



Links

- FIA World Rally Championship (WRC)
 - <https://www.wrc.com/en/>
- American Rally Association
 - <https://www.americanrallyassociation.org/>
- Ojibwe Forests Rally
 - <http://ojibweforests rally.com/>
 - <https://www.facebook.com/OjibweForestsRally/>
- Lake Superior Performance Rally
 - <http://www.lsprorally.com/>
- ARRL Statement on the Commercialization of Ham Radio
 - <http://www.arrl.org/files/media/News/ARRL%20appropriate%20use%20guidelines.pdf>

Questions?



Ham Radio & Stage Rallies

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