

Operation ON-TARGET!

2011 Radio Plan

Dear Amateur Radio Operator,

Thank you for accepting the opportunity to help the Varsity Scouts to participate in the annual On Target activity, where they will attempt to flash as many other mountaintops as they can. Your help can be crucial to their Team having success in this team building event.

Your Job

Your job will be to help them confirm the flashes to and from the other mountain peaks. You will help them talk to other radio operators on those peaks as the boys attempt to direct the sun's rays reflecting from their mirrors to those peaks. However, radio traffic may be heavy so don't let the Team stand around waiting for radio contact. They should continue to signal known peak locations from the list attempting to make contact!!

Wide area repeaters will be used to help provide the communications. The repeaters will help get the radio operators together. Then they will finish the confirmation talk on a simplex channel.

The Rim Link repeaters will be used again this year for the Tonto Basin. Mt. Ord is also linked to Flagstaff, Pinal and Greens Peak. When we talk on one of those repeaters, the other linked repeaters can hear it. The west side will use Smith Peak and the White Tanks Repeater, and in the southern areas we will utilize the Mt. Graham EAARS network. Since the Mt. Ord repeater will be the heaviest used repeater, we have cleared its use with the ARA. We thank them for their graciousness!! Also due to the heavy use the Mt Ord repeater at 147.36 Mhz will have a net control to coordinate traffic. Please defer to net control when using this repeater. In other areas of the state, and near the borders with New Mexico and California the other linked systems will be used. These are open systems and will not be dedicated to our use since we do not have the density of Teams on mountain peaks in these areas. So please be courteous and follow good repeater etiquette when using these repeaters. AZRepeaters.net has a good site on repeater etiquette for your reference.

The Simplex Frequencies

Simplex Frequencies For Coordination Between Peaks	
Frequency	Notes
146.48	
146.52	National Simplex Calling Frequency (Don't Use for On Target)
146.54	
146.56	
147.48	Assigned to Mt. Ord
147.52	
147.54	
147.56	



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The Repeaters

ARA Rim Link Repeaters (Net Control)				
Frequency	Location	Off-Set	PL-Tone	Notes
147.36	Mt Ord	+	162.2	Primary Hailing Frequency
147.14	Mt Elden	+	162.2	RIMLINK
147.20	Pinal Peak	+	162.2	RIMLINK
146.72	Greens Peak	+	162.2	RIMLINK
EAARS Repeaters				
145.21	Jacks Peak	+	141.3	EAARS
145.39	Guthrie Peak	+	141.3	EAARS
145.41	Pinal Peak	+	141.3	EAARS***
147.08	Mule Mtn	+	141.3	EAARS
147.16	Mt Lemmon	+	141.3	EAARS
147.28	Guthrie Peak	+	141.3	EAARS
146.94	Ft Thomas	+	141.3	EAARS
146.70	Greens Peak	+	141.3	EAARS
146.86	Heliograph Pk	+	141.3	EAARS
CALZONA Repeaters				
146.68	Smith Peak	+	162.2	Calzona
146.94	White Tanks	+	162.2	Calzona***
147.12	Black Mtn	+	103.5	ECRA
147.24	Monument Pk	+	103.5	ECRA

*** These repeaters have access into parts of Maricopa County

The Dedicated Simplex Frequencies

Responding to a suggestion, we have assigned dedicated simplex frequencies to the busiest location: Mt. Ord. Mt. Ord will use 147.48 as their communications frequency. Those peaks who would like to contact them will find them on that frequency and do not need to call on the repeater asking for them.

Tactical Callsigns

Tactical callsigns are used for Public Service events such as bike rides and marathons. They are also sometimes used on Emergency nets. In our case, they help to identify the location of the operator. Each operator will use his mountain peak name as his Tactical callsign. Thus we will hear Mt. Ord (or just Ord), Mt. Peeley, Colcord, Aztec, etc. **These Tactical callsigns will be used in lieu of your FCC assigned callsign for all initial calls and exchanges of traffic. You terminate an exchange with your Tactical callsign plus your FCC assigned callsign, as shown in this example: “Diamond Point... We are done for the day... AC7R Clear.” Your FCC callsign at the end indicates “I’m done talking.”**

What to Bring:

You will need at least one radio. A mobile radio can be used if you can get close to the boys with your car or haul the equipment and a battery to where the boys are. The power of the mobile is not needed, however, since



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we are on mountain tops and our handheld radios (HTs) usually do just fine. Some like to bring two HTs; one to talk to the repeater and one for Simplex operation.

Program the repeater (+ PL) and Simplex frequencies into the memory channels of your radios before the event, so that you can quickly switch to the assigned frequencies. Practice switching from the Memory to the VFO mode of your radios.

Other items to bring:

2nd charged battery for each radio

Alkaline pack with fresh batteries for each radio (I don't like to run out of power)

Peak list printed from the On Target website

Any special equipment needs, i.e. filter, yagi antenna

When does it happen?

The operational time is from 9:00 a.m. to 12:00 noon on Saturday, September 17, 2011. We would like to have a quick check-in on Friday the 16th at 8:30 PM on the Mt. Ord linked repeaters to check out our equipment. We realize not everyone will be able to check in at this time, as some units will be camping overnight in places that may not be able to hit the repeater. Please try from wherever you are so we can work out procedures. On Saturday morning we would like to establish communications with everyone on the repeater frequencies starting around 8:30 a.m. to allow time to work out any glitches that may arise and to make sure our radios are operable.

Proper repeater etiquette

The Net Control Operator (NCO) controls the operation of the net. This is a directed net, meaning that you don't transmit without permission. When you want to check in or you are called by NCO, respond by using your tactical callsign and proceed with your exchange, completing with your FCC callsign.

When the NCO calls a station and while talking to him, all other stations should standby. When the NCO has completed with this station, he will call for any more checkins. Between calls, if you have important information to share with the NCO, you call by saying, "Info".

Typical etiquette is to wait for an opening to insert your desire to call NCO and ask for an assignment to a new simplex frequency. Just remember a Scout is Courteous and this includes on the radio.

We are "borrowing" these repeaters from the ARA and need to be mindful that any emergency traffic will take priority at any time. We usually get a question or two from other radio operators who want to know what is going on. NCO typically responds to these questions from outside persons.

Repeater example:

NCO: On Target Net Control, K7WZX [NCO is now available to take new calls]

Operator 1: "Greens Peak" [net control will wait a little bit for any other stations]

Operator 2: " Milk Ranch"

NCO: "Greens Peak - Net Control - go ahead"

Operator 1: Would like to contact Aztec Peak

NCO: "Aztec currently on 146.42"

Operator 1: "146.42, KD7QVM" [Operator 1 gave his call sign, indicating he is done. Note that Operator 2 is still waiting]

NCO: "Milk Ranch - Net Control - go ahead"

Operator 2: "Milk Ranch would like to contact Peeley"



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NCO: "Peeley from Net Control" [all wait for Peeley to respond]
 Operator 3: "Peeley"
 NCO: "Milk Ranch and Peeley, use 146.46"
 Operator 2: "KE7MMP" [Milk Ranch understood, and will comply]
 Operator 3: "Peeley, please say again frequency" [Peeley didn't hear the frequency - what to do if you didn't hear]
 NCO: "Peeley, use 1 4 6 <decimal> 4 6 " [NCO reads back more slowly as required]
 Operator 3: "N7RPL" [Peeley got it this time, end of communication]
 NCO: "Net Control - K7WZX" [NCO ready for more check-ins / call now!]

The Process of Confirming a Flash

As we have done in years past, for this activity we will begin on a common "hailing" frequency to establish our initial contacts with the other mountaintop ham operators and their associated Varsity Teams. The Net control operator on the Mt. Ord repeater will monitor the repeater frequency to control the net. His responsibility will be to coordinate the contacts, try to keep order to our communication, and relay any information between stations that may not be in range to make contact directly. Remember to use your Tactical callsign as described above.

Once you have established radio contact with another operator on the repeater and want to try to establish mirror contact, you will be directed to one of the simplex frequencies shown above.

After you have confirmed the mirror flash with the other mountain peak, then QSY back to the repeater frequency for your next radio contact. Then repeat the process again.

Some Thoughts on Safety

Aside from the usual safety precautions of a Scout outing, be especially conscious of thunderstorms.

Flash/Bang. By referencing the time in seconds from seeing the lightning (the FLASH, or "F") to hearing the accompanying thunder (the BANG, or "B"), we can range lightning's distance. A "F" to "B" of five seconds equals lightning distance being one mile away. A "F" to "B" of ten = two miles; a "F" to "B" of twenty = four miles; a "F" to "B" of thirty = six miles; etc.

Taking immediate defensive actions is recommended when lightning is indicated within 6-8 miles. The next strike could be close enough to be an immediate and severe threat.

Standard lightning defenses. A substantial building (not a tent or Adirondack) or fully enclosed metal vehicles are the recommended shelters. However, lightning in remote terrain creates dangerous conditions.

AVOID: Avoid water. Avoid all metallic objects. Avoid the high ground. Avoid solitary tall trees. Avoid close contact with others - spread out 15-20 ft. apart. Avoid contact with dissimilar objects (water & land; boat & land; rock & ground; tree & ground). Avoid open spaces.

SEEK: Seek clumps of shrubs or trees of uniform height. Seek ditches, trenches or the low ground. Seek a low, crouching position with feet together with hands on ears to minimize acoustic shock from thunder.

KEEP: Keep a high level of safety awareness for thirty minutes after the last observed lightning or thunder.

NOTES AND TIPS

1. Mt. Ord, being in the middle of the Tonto Basin, is always a very busy mountaintop. It is recommended that at least 2 radio operators be at this site to handle all of the communications and flash coordination.



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- One could at least monitor the net frequency while the other is on the assigned simplex.
2. As you can see from the Peak list, there are several teams that do not have a ham radio operator. If you know of anyone that would be willing to participate, please call or email Mike Heaton or Gary Goetz. Their contact information is below.
 3. Every team has a different skill level in the use of the mirrors. So, the radio coordination will be extremely important, especially for some of the longer distances. Your help is appreciated to help each team make as many successful contacts as possible.
 4. ***Don't forget that the repeater and simplex frequencies are open to the ham community and are NOT dedicated to our exclusive use. Please be kind and considerate to other traffic, especially on the repeaters.***
 5. When using the Mt. Ord repeater or one of the other linked repeaters, key up for 1-2 seconds before talking, so that those at the far end of the link will hear all that you say.
 6. When the boys are finished flashing, let NCO know that your peak is going 'Off the Air.' Or, if you will be off the air for a short period, advise NCO that you will be gone for a short period. Then be sure to check back in when you are back.
 7. Involve the boys by letting them handle the radio as well. You are the control operator, but you can let them do the speaking. There may be a future ham radio operator in the team.
 8. This is an annual event. We really appreciate your participation and hope that you will be available next year. This is a great activity and is getting bigger and better every year, thanks to you.

<p>Mike Heaton KD7YIE OT Coordinator 480-969-5318 mikeheaton@cox.net</p>	<p>We would like to thank Gary Hinton AC7R for all his hard work done in the past for Operation On Target. Gary has moved to take a job out of State, we miss him.....</p>	<p>Gary Goetz OT Net Control (NCO) 480-279-1934 k7wzx@juno.com</p>
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