

Preparing for Operation On-Target
(see: <http://www.bsaontarget.org/> for more resources)

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===== OUTLINE =====

Preparing for Operation On-Target

[I] Picking your peak:

- [A] Option 1: Pick a "proven peak" that has been used in prior years
- [B] Option 2: Breaking new ground (or learning more about a "proven peak")

[II] Preparing once you've selected your peak

- [A] Determine route, expected duration, emergency precautions, as on any hike.
- [B] Determine the compass bearings (+elevations) to your target peaks. Options:
- [C] Determine the "target picture" of your target peaks - options:
- [D] Make sure you are in shape
- [E] Compass training

[III] Select your HAM:

- [A] Amateur Radio:
- [B] Cell phone: Checking cell phone coverage:
- [C] Other options:

[IV] Preparing and training with your mirrors

- [A] Making an Operation On-Target mirror
- [B] Using a signal mirror
- [C] More realistic mirror training
- [D] Fancier mirror rigs

[V] On the day

- [A] Plan to arrive early - you may be delayed
- [B] Make sure the other teams know where you will be and how to contact you (bearings, etc.)
- [C] What to do if there is no sun

[VI] Sharing your experiences

- [A] Videos: <http://tinyurl.com/OTvideos>
- [B] Photos:
- [C] Blogs: Examples: /
- [D] Facebook: <https://www.facebook.com/varsityontarget>
- [E] Oral presentations
- [F] Media Coverage

=== Preparing for Operation On-Target: Detailed Outline ===

[I] Picking your peak:

- [A] Option 1: Pick a "proven peak" that has been used in prior years
 - ask your organizer for "After-Action Reports" from prior years
 - on Google Maps Operation On-Target peak list: <http://tinyurl.com/hyc7l8y>
(click on a peak marker for more information about the peak)
- [B] Option 2: Breaking new ground (or learning more about a "proven peak")
 - (1) Find the latitude and longitude of your candidate peak. Some options:
 - (a) using a topographic map
 - (b) using an online map such as Acme Mapper, Bing Maps, Google Maps
(enter rough lat/lon at <https://tools.wmflabs.org/geohack/> for choices)

- (c) entering your peak name at <http://www.peakfinder.org>
- (2) Determine what other signed-up peaks you can flash. Some options:
 - (a) enter your peak name or latitude/longitude at <http://www.peakfinder.org> to see what is visible
 - (b) use <http://www.heywhatsthat.com> - if peak is not on the autogenerated list, click on it to check line of sight
 - (c) http://www.udeutschle.selfhost.pro/panoramas/makepanoramas_en.htm
- (3) Determine accessibility, permissions required, restrictions, and route
 - (a) Check hiker's reports online, like those at <http://www.summitpost.org>
Good Southern CA site: Sierra Club: <http://thistrail.com/in/?p=94>
 - (b) Call the forest ranger, if applicable
 - (c) Ask your local hiking club for tips

[II] Preparing once you've selected your peak

- [A] Determine route, expected duration, emergency precautions, as on any hike.
 - Take High Adventure Training or the like, if you have not already
- [B] Determine the compass bearings (+elevations) to your target peaks. Options:
 - (a) Use www.heywhatsthat.com to create a panorama for your peak
{ This will provide both magnetic bearings and elevations }
 - (b) Determine the absolute bearings, then add magnetic deviation.
 - (i) Options for the absolute bearings
 - (a) Use your signaling and target latitude/longitude in this formula:
<http://mathforum.org/library/drmath/view/55417.html>
 - (b) Use your signaling latitude/longitude and those of the targets, with this online calculator:
<http://www.movable-type.co.uk/scripts/latlong.html>
 - (c) Use www.heywhatsthat.com
 - (d) Use www.peakfinder.org
 - (ii) Finding the magnetic deviation
 - (a) Use a map (rough - deviation changes with time)
 - (b) Use the US Govt National Geophysical Data Center:
<http://www.ngdc.noaa.gov/geomag-web/#declination>
- [C] Determine the "target picture" of your target peaks - options:
 - (a) Use posted photographs of flashes taken by prior teams on your peak
 - (b) Use photos taken from your peak found on Web, mark targets using:
 - (i) <http://www.peakfinder.org>
 - (ii) http://www.udeutschle.selfhost.pro/panoramas/makepanoramas_en.htm
 - (c) Print synthetic views of your target peaks from yours using one of:
 - (i) <http://www.peakfinder.org>
 - (ii) http://www.udeutschle.selfhost.pro/panoramas/makepanoramas_en.htm
- [D] Make sure you are in shape
 - (a) Training hikes for youth and leaders

[III] Select your HAM:

- [A] Amateur Radio [RECOMMENDED] - some options:
 - (i) Find an amateur radio operator in the troop/council willing to help
 - (ii) approach the local amateur radio club
(see <http://www.arrl.org/find-a-club>)
 - (iii) Get your own amateur radio license
(<http://www.arrl.org/getting-licensed>)
- [B] Cell phone: Checking cell phone coverage:
 - All 4 carriers: <https://www.t-mobile.com/coverage/lte-comparison-map>
 - Verizon: <http://vzwmap.verizonwireless.com/dotcom/coveragelocator/>

AT&T: <http://www.att.com/maps/wireless-coverage.html>
T-mobile: <http://www.t-mobile.com/coverage.html>
Sprint: <http://coverage.sprint.com>
<http://www.uscellular.com/coverage-map/coverage-indicator.html>

[C] Other options:

- (a) Texting
 - (i) can work with cell signals too weak for a cell phone
 - (ii) two-way satellite texting is possible (e.g., InReach)
- (b) Pagers
 - (i) Text pager
 - (ii) Numeric pager with prearranged codes
- (c) FRS radios
 - Very short range

(c) Tips:

- check batteries, frequencies, equipment 2 days before
(to allow for fix, retest cycle)
- On antenna-festooned peaks, your ham radio may not receive,
but will transmit just fine.

[IV] Preparing and training with your mirrors

[A] Making an Operation On-Target mirror

- (a) Retroreflective-aimer mirror tutorial videos
<https://www.youtube.com/watch?v=ITy-o5Ci4-k>
<https://youtu.be/wh5MkBnsnfE>
- (b) Double-sided mirrors
<https://youtu.be/b4D3SzSZqoA>
- (c) Post sight mirrors
- (d) Heliographs for Morse Code

[B] Using a signal mirror

- (a) Retroreflective aimer
 - Videos: see the videos in [III][A](a)
 - Instruction sheet for using retroreflective aimer for signal mirror:
<https://flic.kr/p/nsrjRG>
 - Download page for retroreflective aimer instruction sheet:
<https://www.flickr.com/photos/signalmirror/14082662258/sizes/l>
 - Background info:
<https://tinyurl.com/yxegutdb>
 - Photos of small signal mirrors with retroreflective aimers
(including Varsity-Scout homemade pattern)
<https://tinyurl.com/y4aarnmh>
- (b) Double-sided aimer
 - Instruction sheet for using double-sided signal mirror aimer
<https://tinyurl.com/h7s8jaa>
 - instruction sheet download: (public domain - US Govt publication)
<https://www.flickr.com/photos/signalmirror/8419515894/sizes/l>

[C] More realistic mirror training

- (o) Safety - make "training mirrors" with most of mirror masked off (paper, tape, etc.)
- (a) Using targets
 - (i) Premanufactured targets:
 - Avoiding vehicular & pedestrian traffic:
parked car license plates, road safety signs
 - (ii) Homemade targets: bicycle reflectors, retroreflective tape, etc.
 - (iii) Use bathroom 2x convex mirror as target
 - (iv) Surveyors corner cube prism as target - good for 2+ miles
- (b) Splitting into two groups as a "mini-On-Target" at distance

- Using video/flash count as object measure of proficiency
- Practice signaling with sun in front, beside, and behind you

(c) Double-flash signaling with two mirrors

[D] Fancier mirror rigs

(a) Classic four-mirror Operation On-Target mirror

- Varsity Team Program Volume 2: Operation On-Target
<https://tinyurl.com/VarsityPgmV2>

(b) Crosshairs Aimer from Signaling Merit Badge

- Summary: (text below photo)
<https://www.flickr.com/photos/signalmirror/7990753048/>
- Photo gallery: <http://tinyurl.com/HeliotropeCrosshairs>

[V] On the day

[A] Plan to arrive early - you may be delayed

[B] Make sure the other teams know where you will be and how to contact you (bearings, etc.)

[C] What to do if there is no sun

- non-Operation On-Target activities (hiking, geocaching, orienteering, etc.)
- photograph/video flashes from teams that have sun
- act as radio relay between distant teams
- document peak for future teams (peak photos, GPS trail file, writeup)
- try high-powered lantern signaling

[VI] Sharing your experiences

[A] Videos: <http://tinyurl.com/OTvideos>

[B] Photos: 499 from AZ: <http://tinyurl.com/AZOTpix1>
 Keller Peak, CA: <https://tinyurl.com/KellerPeak>

[C] Blogs: Examples:

San Diego 2010 Iron Mountain: <https://tinyurl.com/OTironMTN>

12 reports from GD Palmer: <http://www.gdpalmer.com/blog/tag/operation-on-target/>

[D] Facebook: <https://www.facebook.com/varsityontarget>

[E] Oral Presentations

[F] Media Coverage

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Utah Scouts pages for Operation On-Target

<http://blog.utahscouts.org/venturing/time-to-get-ready-for-ot/>

<http://blog.utahscouts.org/varsity-scout-program-feature/operation-on-target/>

<http://blog.utahscouts.org/camping-2/operation-target-july-19th-2014/>

<http://blog.utahscouts.org/camping-2/target-mountain-top-memories/>

<http://blog.utahscouts.org/varsity-scout-program-feature/2015-operation-on-target-just-one-week-away/>

Advancement

Photography merit badge

Cinematography merit badge

Personal fitness merit badge