

W7D Chasers Guide

(v2 – updated 6/1/2019)

The Goal:

The primary goal of the W7D expedition is to activate rare grid squares for chasers in pursuit of the Fred Fish Memorial Award on the Six Meter band. Secondary goals of W7D include activating the same squares on 2m EME, 2m Meteor Scatter, and AMSAT.

The Operators:

Wyatt, AC0RA, is the primary operator for W7D. He holds numerous VHF records both in the ARRL and CQWW contests and is the perennial Rover champion in whatever class he competes in. He is a veteran of many VHF roving trips and has handed out well in excess of 150 grids on VHF, Satellites, and EME.

Dave, KG5CCI, is the primary logistics planner for W7D. He assisted Wyatt on the AC0RA/R CQWW 2018 VHF contest that set a new world record score, as well as arranged numerous roves and backcountry radio expeditions. He is a SOTA veteran and has been camping all over the American west while handing out over 100 grids on VHF and Satellites to chasers.

The Equipment:

6m Stationary Setup will consist of an Icom 7300, Acom 1200S operating at 1KW, and an M2 6M5XHP Antenna at 40'.

6m In Motion Setup will consist of an Icom 7300, and a M2 6M3 Antenna at 13'

2m Stationary Setup will consist of an Icom 9700, Gemini 2 1.2K operating at 1KW, and a 12 Element Innoventanna LFA.

AMSAT Setup will be an Icom 9700 and a handheld Arrow Antenna.

Power will be provided by a 9500w Champion Gas Generator.

Non-Ham Communications equipment will include a Garmin Inreach Satellite Messengers.

Spare equipment will consist of an extra 7300 and 9700, backup 6m antenna, and backup mast.

Communications with the team:

Read This: Get on Slack (<http://vhf-chat.slack.com>) and hang out in the #W7D channel. You should see everything that is capable of being seen. To setup Slack go to this link: http://chat.n5tm.com/no_chat.html and follow the instructions.

Background: When internet is available either Dave or Wyatt (whoever isn't driving or operating) will be idling in the <http://vhf-chat.slack.com> chat room for #W7D. We'll hang out, shoot the shiz and announce our operating spots. This is a change from earlier plans, but since Slack is such a superior medium to all other web-based chat, the only place we're going to hang out is here.

We expect the vast majority of the operating sites will most likely not have any cellular internet. For this, Dave will be posting 1 way updates via the Iridium messenger to his Twitter account here: <https://twitter.com/KG5CCI> – You can view the updates directly on Twitter (even if you're not a Twitter user) if you're so inclined, OR more awesomely, you can just stay in the #W7D chat room and any time Dave sends out a tweet via the messenger, that tweet will get fed directly into the #W7D chat room so you'll see all the updates by staying in one place. Please note messages send from Iridium to Twitter are 1-way only, and the general public will not be able to reply. A few very select users will have a way to reply but since Iridium costs money on a per message basis, I need to keep it locked down a bit. If you have some piece of information you think we absolutely must know and we're off the grid, mention it in the #W7D Slack Channel, and someone will get the message to us.

We promise to do our absolute best to 'self-spot' using Slack/Twitter. We want you to know where we're at on the air and make contact with us. If you see us on the air somewhere other than where we've announced, please relay that message to the chat room and add your own spots on the various clusters. We want everyone to know where we're at and where we're operating.

Tracking the team's location:

Even though we have a fairly detailed schedule and map, things always change, therefore using the Iridium messenger we'll be tracking out movements here: <http://us0-share.inreach.garmin.com/KG5CCI> . This map will send updates every 10 minutes as to our position, and it will propagate thru the Iridium satellite network, making it possible to always see where we're at, even when we're off the grid.

We will NOT be using APRS – after a lot of back and forth we plan to just leave the iridium running the entire trip that way folks can always see where we're at, regardless of the cell coverage.

How Find us: Six Meters

The biggest thing to remember about 6m is that we will be using the most effective mode for the location, propagation, and time of day. That is, if E-Skip is jumping, we'll be on SSB or FT8. If there is no skip, we'll likely be on MSK144. As a rule, E-Skip is better in the evenings, and MSK is better in the mornings. We will self-spot via Twitter/Slack as often as we can.

FT8 50.313mhz – We will be on 1st Sequence Always, we will always be in NA VHF Contest Mode, and we will not be using fox/hound or any other advanced submodes. During the contest hours we will be signing and logging as W7D/R – as required by the rules.

MSK144 – We will call CQ on 50.260mhz, then QSY to another frequency for the QSO. On MSK144 we will always be 1st sequence, and we will always be in contest mode. During contest hours we will be signing and logging as W7D/R – as required by the rules.

SSB 50.185 – We'll be signing and logging as W7D/R during contest hours, W7D during non-contest.

How to Find us: Two Meter Terrestrial

MSK144 – We will call CQ on 144.150, then QSY to another frequency for the QSO. On MSK144 we will always be 1st sequence, we will always be in contest mode, and we will be always sending 'short' messages. During contest hours we will be signing and logging as W7D/R – as required by the rules. The /R suffix also works fine in MSK144, so this should be fine. Since 2m Scatter is trickier than 6m terrestrial, do your absolute best to get our attention by calling us. If we hear you, we'll point our beams at you and begin to try running. If we have internet, we'll be happy to try coordinating in Slack Chat.

FT8 – We will likely NOT be listening on 2m FT8, unless you've managed to get our attention somehow. There are only a few folks capable of working us terrestrially on FT8 in the area where we're at, so this will be as needed only. If we happen to get on 2m FT8 we will be on 144.174, 1st sequence, contest mode and signing as W7D/R if required during the contest.

How to Find us: Two Meter EME

JT65, Submode B, Somewhere between 144.130 thru 144.140. We will always be calling CQ on 1st sequence, in short mode. ****IMPORTANT NOTE**** - JT65b does not support the use of the /R suffix (It looks like it does in the software, but when actually sending the message the letters get cut off). Therefore, we will only operate as simply "W7D" on EME, and we will not be using the /R suffix on JT65b. If you work us during contest hours on EME we will not count those QSOs for our contest totals, however we will still submit all of those QSOs in a secondary log to the ARRL, so you will still get credit.

How to Find us: AMSAT

Watch Twitter / Slack for pass announcements. As a general rule we're going to favor high passes over the center of the country to get as many ops as we can. This will mean AO7, FO29, SO50 and the other higher birds, but be ready for any bird on both FM and Linear if the schedules work that way. AMSAT operations are tertiary to both 6m and 2m on this trip, so we will only work passes as our time and workload allows, but we'll try for at least a couple of passes from each of our camps.

Contest Specific Weirdness

In case you didn't know, the ARRL North American June VHF contest will be happening from 1800z on Saturday the 8th, until 0259z on Sunday the 9th. We will be competing in the contest from our remote locations. Since we're competing in a contest, using WSJT modes, sitting on gridlines and changing locations during contest hours, things are going to get really complicated and weird due to the specific rules we have to follow. If you plan to compete in the contest and work us, pay very close attention to this section. Sorry in advance, we know this is going to be hard to follow.

Contest Log Us in 1 Grid: Even though we'll be sitting on a gridline, the contest does not recognize gridline ops. When you submit your contest log, submit it with the lowest numbered grid we're in. On Saturday this will mean DN20 (even though we'll be on the DN20, DN21 line) and on Sunday this will mean DN10 (even though we'll be on the DN10, DN11 line). We will submit our Contest logs to match. However, when the LOTW QSLs go in, you will still get credit for working us in 2 grids, for your own chasing purposes, just not for the contest.

Rover Insanity and JT65: Since we'll be moving locations between Saturday and Sunday, Rule 3.5 states we must compete in the Rover class, which brings all sorts of more weirdness to things. Since we're a rover, rules 3.5.4 states we must sign "rover" on Phone, and use "/R" on CW and digital modes after our callsign. This is fine on voice, FT8 and MSK, however we run into a serious problem on JT65 (for EME). As noted on page 3 of this guide, JT65 does not support use of the "/R" suffix except in free text. This means anyone trying to decode us using the /R suffix would suffer a 6db decoding hit. Furthermore, JT65 cannot format and transmit a message including <YOURCALL> <W7D/R> <GRID> - as required by Rule 4 (try it in the software if you want to see) meaning it is straight up impossible to work JT65, as a rover, in a contest, and comply with all the rules. We don't say this lightly, and know this is a controversial statement, however this is what we've determined after weeks of testing and discussions with many folks way smarter than us when it comes to technology and the rules.

Therefore, we will operate during the contest in JT65 mode on EME only as simply W7D (without the /R) and that is how you should log us in the contest, and LOTW. We will submit a separate set of logs (allowed under rule 3.5.6) as a fixed station for EME contacts only so others get their credit for working us. We want to compete, but not if it means messing with others' logs. This is the only solution we could come up with where we can do EME effectively, stay in the spirit of the rules, and others won't be penalized.

Digital Mode Weirdness

WSJT is an amazing tool, it allows QSOs to happen under conditions not otherwise possible, however it presents problems with gridline/grid corner operations. When working us on Digital modes, we will only be transmitting one grid – We'll typically aim to transmit the lowest numerical grid for our location. For Example, if we're on the DN10/DN11 line, we'll send "W1AW W7D DN10" – but when we log it to LOTW we'll make sure both DN10 and DN11 are in the QSL. Do not freak out if you see us on the air only sending one grid, if in doubt just watch our messages on Twitter and on Slack and you'll see our actual location.

General Tips on Working us:

Several roves thru rare grids country have taught us a few things.

1. **No Skeds.** Skeds just don't work, they tie us up for long periods of time when we could be working who we're hearing, so instead of asking for a sked...
2. **Call Us.** We're going to try very hard to make it known where we're listening. Point your beams at us, turn up the juice, and just start calling. This is especially true of 2m MSK which requires some fine tuning on beam bearings. If we hear you, we will respond, we promise.
3. **We will hear you probably better than you can hear us.** We're going to be operating from extremely low RF environments, out in the desert, up on top of mountains, with big beams and short runs of coax. We'll be running a KW amp, so hopefully we'll still be loud, but if you really want that grid, you need to focus as much as your efforts as you can on hearing us.
4. **Hone the WSJT.** Like it or not, digital modes are here to stay. We fully plan on using the benefits that WSJT gives us. Learn how to use MSK144, FT8, JT65 before we get there, and most importantly...
5. **Use the right mode for the Job.** If the E-Skip is really strong and voice contacts are possible, we're going to be on Voice. The QSO rate on voice is vastly superior to everything else. If there's weak E-Skip, plan to hear us on FT8. That's what the mode was built to do. If there's no E-Skip, plan to hear us on MSK144 doing Meteor Scatter, once again, that's what the mode was designed for. We will be wherever the best chance of us making QSOs is. Be ready to switch modes to get the job done.

Planned Operating Schedule:

Friday, June 7th

Travel Plans: Wyatt and Dave will depart Crescent, IA at 4:00AM CDT and head west on Interstate 80. Destination will be Elko, NV. Expected Arrival time will be 10:00PM PDT. We will operate in motion this day.

Operation Details: Expect to hear us operating in motion on MSK144, FT8 or SSB on 6m. No other operation is expected this day. We should have cellular internet the whole way, so we'll be live chatting in the #w7d Slack channel.

Saturday, June 8th

Travel Plans: We will travel to DN20/DN21 line from Elko, NV between the hours of 7AM and 9AM PDT. There will be no in motion ops this day.

Operations Details: Expect to hear us on the air from DN20/DN21 Line by 11AM PDT. We will be stationary at this location for roughly 24 hours. We will be operating 6m, 2m, and AMSAT from this location. EME operations will take place while the moon is up, as long as there is action.

Sunday, June 9th

Travel Plans: We will break camp at ~7:30AM PDT from DN20/21 Line and relocate to DN10/DN11 line between the hours of 8AM PDT and 1130AM PDT. There will be no in motion ops this day.

Operations Details: Expect to hear us on the air from the DN10/DN11 line by 12:30PM PDT. We will be stationary at this location for roughly 24 hours. We will be operating 6m, 2m, and AMSAT from this location. EME operations will take place while the moon is up, as long as there is action.

Monday, June 10th

Travel Plans: We will break camp at ~7:00AM PDT from DN10/DN11 and travel to the DM18/19/28/29 Grid Corner between 8:00AM PDT and 12:30PM PDT. There will be no in motion ops this day. This day will require the most backcountry travel and will be guided by weather and terrain conditions. If for some reason we can't reach the grid corner (ie a 40ft deep washout in the road) we have secondary locations scouted out on the DM28/29 line, and inside DM18 that are known to be good, where we will operate from instead.

Operations Details: Expect to hear us on the air from the DM18/19/28/29 Grid Corner by 1:30PM PDT. We will be operating 6m, 2m, and AMSAT from this location. EME operations will take place while the moon is up, as long as there is action.

Tuesday, June 11th

Travel Plans: We will break camp at 6:30AM PDT from the grid corners, and travel to the DM38/39 Line between 7:30AM PDT and 3:00PM MDT. This is the longest travel day we have during the grid ops, and we will be stopping for a shower and resupply on the way.

Operations Details: We will not operate in motion between camps. We expect to be on the air from the DM38/39 Grid Line by 3:15PM MDT. We will be operating 6m, 2m, and AMSAT from this location. EME operations will take place while the moon is up, as long as there is action.

Wednesday, June 12th

Travel Plans: We will break camp at 7:30AM MDT from the grid line, and travel to DM47 (or the DM47/DM48 line) between 8:30AM PDT and 12:30PM MDT.

Operations Details: We will not operate in motion between camps. We expect to be on the air from DM47 by 1:00 PM MDT. We will be operating 6m, 2m, and AMSAT from this location. EME operations will take place while the moon is up, as long as there is action.

This day is essentially a ‘bonus’ day if all the other plans work out. If something goes wrong, or we don’t make the QSOs from previous camps that we want, we will scrap the trip to DM47 and focus on the first 4 camps. We also have 2 spots picked out for this day, one solely is in DM47, the other is on the DM48/47 line. So, no idea exactly where we’ll end up – as always, watch our Twitter/Slack updates to see.

Thursday, June 13th

Travel Plans: We will break camp at 8:00AM MDT from DM47 and travel to Ft. Collins, CO for the night. We plan to take all day to make this trip, so ETA is TBD. This is also an ‘extra’ day that if we run into problems or propagation isn’t as good as we hoped, we might still be out in the desert operating.

Operation Details: Play this one by ear, we might still be at a camp, if we are – expect all bands all modes. If we’re driving back to Iowa, expect only 6m operations in motion.

Friday, June 14th

Travel Plans: We will travel from Ft. Collins, CO to Crescent, IA on Friday. Schedule will be TBD. Even if we’re behind schedule, we have to start going back east by today at the latest.

Operation Details: Expect to hear us operating in motion on FT8 or SSB on 6m. No other operation is expected this day.

Saturday, June 15th

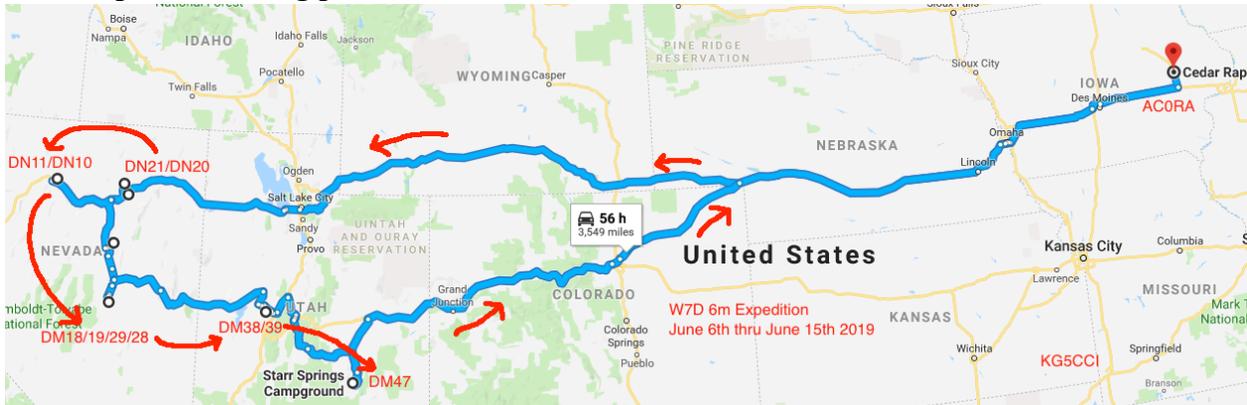
If the propagation is good and we make all the contact we want to make, we should be back in Iowa by this day. However, this may end up being a travel day across Nebraska if we decide to stay somewhere longer for some reason.

Sunday, June 16th

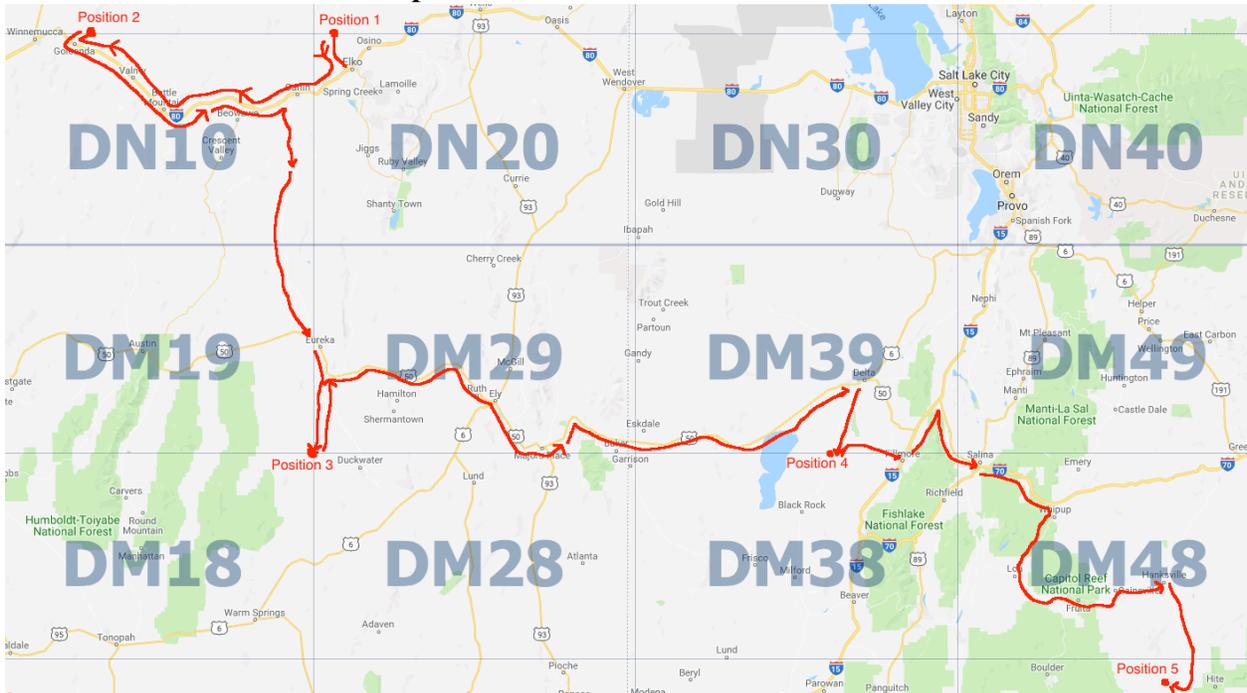
We had better be on our way back to our respective homes on this day, since we both have to work on Monday. If you hear us on the air today, something went horribly wrong (or horribly right! ☺).

Maps:

Total expected driving path:



The different Positions we'll operate fixed from:



QSL Route / LOTW Logging

LOTW: Our preferred route is going to be Logbook of the World (LOTW). It's simpler, faster and cheaper. Nothing is necessary to request an LOTW QSL, we'll upload every contact we make.

How to log us for a Match in LOTW: For all digital mode QSOs, we will be using QSO end/stop date and time, based on our WSJT clock. For example, if you begin a MSK144 QSO with us at 2355z on June 7th, but we don't send the RRR until 0005z on the 8th, log us at 0005z on the 8th to get the match.

Gridline/Grid Corner Matches: LOTW fully supports gridline/corner ops in the station location creation. You do not need to submit 2 contacts or anything like that to get credit for both grids. Simply upload the QSO with the proper date, time, mode and call – and we'll make sure the station creation is done accurately to get you credit from the line/corner.

Callsign: Make sure to log us however you hear us on the air. Since we'll be in the contest on Saturday and Sunday, for QSOs made during contest hours on SSB, FT8 or MSK144, log us as **W7D/R** in LOTW. For all JT65 Mode QSOs (see page 4) log us simply as **W7D**. For all QSOs made during the trip, outside of contest hours, regardless of the mode, simply log us as **W7D**.

Paper: If you want a paper card, please send your request to KG5CCI, with a Self-Addressed Stamped Envelope. We'll probably make up a single custom printer card with all your grids on one piece of paper to keep it nice and simple.

No Buro or eQSL. Sorry.

Donations / Support:

The trip is happening no matter what, but we plan to drive slightly over 3500 miles, and run a 9500w generator for 5 solid days. We're expecting roughly \$800 USD in fuel costs, plus food and lodging for a night. We have already received a large amount of donations from folks and we can't even begin to express our gratitude in your confidence in our plan. Thank you. If you haven't donated and still want to, we promise every single dollar will go towards this trip – or if there's more donations than we have expenditures, the extra will go towards the next trip somewhere awesome.

You can donate 1 of 2 ways: Easiest is to send a paypal donation to dave@druidnetworks.com – That's KG5CCI and he'll make sure the money gets divvied up between him and Wyatt. 2nd you can send some cash or check along with a card request in the mail. Once again send it to KG5CCI and it'll get handled.

THANK YOU!

We do this sort of thing because we love it. We hope you enjoy our trip and get a bunch of new grids filled in on your maps. 73!