

# MDRS 2009-2010 Field Season Personal Equipment List

Last Update – 10-01-2010

These lists are suggested equipment for each Mars Desert Research Station (MDRS) crewmember. Click on one of the four links above for specific details as to what you should consider bringing for your tour of duty.

The MDRS is located in the plateau country near Hanksville, Utah. The weather can range from pleasant to unpleasant, depending on the season. In the early spring and spring, temperatures may drop to below freezing (20°F or approx. -5°C, especially early in the morning) and rise to very pleasant levels (60°F or approx +15°C on some afternoons). The air is usually very dry, but it may snow, sleet or rain. Winds can peak to 50 kts and windchill is an important factor to consider. The area can be muddy in places during the rainy season (October through March). Late spring and summer are usually quite hot and dry (100°F or approx. 37°C), and afternoon thunderstorms are common in the highlands. Flash floods are a potential hazard, and field workers should familiarize themselves with basic desert safety.

- **ATV** = "All-Terrain Vehicle", i.e., 4-wheeled motorbikes or "quads"
- **EVA** = Extra-Vehicular Activity (field work in simulation)
- **Power** (110 V AC, 60 Hz) should be available at the MDRS at all times.
- **Food & Cooked Meals**, cooking utensils, dishes and eating utensils will be provided.

## LAN Information

If possible, bring your personal laptop. Beware, the environment is dusty and hardware will suffer (MDRS is not a airtight structure). Power to recharge laptops will be available to all, but batteries are highly recommended since the generator used for power-supply may cut out unexpectedly.

Connection to the MDRS LAN (local area network) is possible and, usually, straightforward. All computers **MUST** have anti-virus software installed.

*No machines without protection will be allowed on the network.* Computers to be networked must be equipped with a PCMCIA Ethernet card, 10/100 Base T is preferred.

From the hub on the wall above the desks there are RJ45 jacks to connect your laptop.

NOTE laptops use power and quite a bit of it, so do not keep them running if you do not need them. Power is scarce at the Hab!

## Batteries

All crewmembers should bring the batteries (rechargeable or not) they will need.

NOTE please remove them from the MDRS once the batteries are no longer to be used, and for disposing of the batteries in an environmentally sound way and in accordance with all applicable laws.

## Toilet

There is a normal flush toilet at the MDRS which uses recycled water from the GreenHab.

All other systems use fresh potable (drinkable) water.

The toilet waste line ends in the septic tank, use **ONLY** the toilet paper provided.

NO wet wipes in the toilet and certainly NO **SANITARY** bandages or NO **TAMPONS!** In the toilet.

***NOTE: NOTHING you bring can stay at the HAB!!  
Unless with item by item very explicit permission of the Mission Director!***

## Personal Clothing

In the list of items below:

**"Required"** designates equipment/gear that each field team member **MUST** bring along. In some cases, a spare is required.

"Required" equipment is considered bare-bones minimum. You should have this equipment in order to be properly prepared for your rotation at the MDRS.

**"Recommended"** designates equipment/gear that each field team member is strongly advised to bring along. These are items that are not required but are likely to make your life A LOT more pleasant.

**"Optional"** designates additional suggested equipment/gear. This is equipment that you should bring along if you think you will enjoy having it.

|                     |             |          |  |
|---------------------|-------------|----------|--|
| Clothing            | For 15-days | Required | Bring at least one change of warm clothing (heavy sweater, fleece, long pants, long/thermal underwear) as the Utah high-desert can be cool at night. Most people wear long pants & long-sleeve t-shirt in the EVA suits to keep them from chafing your skin. |
| Underclothing       | For 15-days | Optional | There are no laundry facilities at MDRS; but space is also limited so consider wearing underclothing for at least a couple of days   |
| Socks               | 15 pairs    | Required | If you want to wear a clean pair of socks daily. It gets dirty out here quickly. Bring at least one or two pairs of tall socks- the boots supplied with the space suits are rubber and may chafe.  |
|                     |             |          | The snoopy caps supplied at MDRS are in reality water polo caps. They keep your hair from getting in your eyes, which is necessary.  |
| Baseball cap or hat | 1           | Optional | Great for keeping your head out of the sun when outside off Sim.   |
| Hiking Boots        | 1 Pair      | Strongly | Sturdy, leather types recommended. The supplied boots come in limited sizes  |

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|                                  |        | recommended          | (Men's sizes 7 to 12). You may need to wear your personal boots on EVA             |
| Waterproof jacket or windbreaker | 1      | Recommended          | Important for night-time activity in the high-desert                               |
| Slippers/birks/sandals           | 1 Pair | Strongly recommended | To reduce dust, outdoor footwear is not worn in the living space (level 2) of MDRS |

## Personal Items

|  |                                 |                      |  |
|--|---------------------------------|----------------------|--|
| Duffel Bag   | 37258                           | Required             | There is limited storage space in the Hab for personal gear. All of your own gear will be stowed in your own stateroom, which averages a size of 11ft long x 4 ft wide.  |
| Laundry Bag  | 1                               | Optional             | <i>No detergents are allowed</i> , washing is not really possible.   |
| Ziplock Bags   | 1-2 Boxes, pint and Gallon size | Recommended          | These are great for collecting and protecting samples as well as protecting personal gear (i.e. cameras) free from dust in the field. Consider easy lock zipper bags as gloves impair manual dexterity on EVA. |
| Sleeping Bag (winter rated)  | 1                               | Required             | Stateroom bunks contain no bedding. Spring temperatures in the Utah desert can drop below 0° C at night, and you must be prepared for potential loss of power in the Hab.                                      |
| Thermarest Pad/Sleeping pad  | 1                               | Required             | Padding for stateroom bunk. Full body length padding is recommended.   |
| Pillow   | 1                               | Optional             | No pillows are provided, bring one if you need it for a good night's sleep.  |
| Flashlight/headlamp  | 1                               | Recommended          | Power conservation is essential- a personal flashlight is useful   |
| HEADLAMP   | 1                               | Required             | When you are one of the engineers you need this lamp!  |
| Water bottle   | 1                               | Required             | To keep hydrated in the MDRS.  |
| Personal Cup   | 1                               | Strongly recommended | Using a personal cup makes it easy to identify your drink- it also reduces the need to do lots of dishes (saves water!)  |
| Hydrating cream, body lotion, lipcare (Chapstick, Blistex or Carmex) | 1                               | Recommended          | The high-desert is an extremely dry environment  |
| Hydrating eye/nose drops   | 1                               | Optional             | The high-desert is both dry and dusty  |
| NO personal soaps or shampoos are allowed                            |                                 | required             | The water is recycled through the Living Machine in the GreenHab, so only OASIS can be used (provided)   |
| Sponge/washcloth/towel   | 1                               | Required             | most crews only shower about every 2-3 days, with sponge baths between.  |
| Wet-wipes/baby wipes   | 1                               | Recommended          | For water-less personal hygiene; 2 to 4 wipes per day  |
| Sunscreen  | 1                               | Recommended          | Desert sun can be intense; EVA suit helmets provide only partial protection from UV  |
| Sunglasses   | 1                               | Recommended          | For UV protection. Spare pair recommended.   |
| Personal first-aid kit   | 1                               | Optional             | For small cuts, etc. MDRS has a well-stocked first aid kit, and a doctor on call at all times.   |
| Ear plugs  | As needed                       | Optional             | If you are bothered by small noises while sleeping   |
| Watch  | 1                               | Required             | Necessary for EVA operations   |

## Personal Field Gear

|   |   |                      |  |
|---|---|----------------------|--|
| Utility knife (like a Victorinox "Swiss Army"), Leatherman or Gerber tool | 1 | Strongly recommended | Very handy for doing Hab repairs and field work  |
| Rock Hammer   | 1 | Optional             | Rocks in area are mostly "soft" so a standard sedimentary pick/hammer ("mason's tool") should suffice; the Hab has one sledge hammer |
| Handlens  | 1 | Recommended          | 10X, for close examination of hand-specimens in the lab. The hab has 2 handlenses.   |
| Brunton   | 1 | Optional             | For the level and clinometer functions   |
| Personal GPS  | 1 | Recommended          | If you have it, bring it. MDRS data recorded in UTM Zone 12 North  |

|                           |           |                      |   |
|---------------------------|-----------|----------------------|---|
|                           |           |                      | Northings/Eastings; Know how to use the GPS; bring spare batteries. The hab has 2 GPS units.  |
| Field Book, pens          | 1         | Recommended          | Waterproof recommended. Fisher, the maker of the space pen, is an official sponsor of the Mars Society. Space pens are excellent for field work   |
| Topographic Maps          | As needed | Optional             | MDRS has one or two copies of local (Skyline Rim Quad) Topo maps at 1:24,000. Detailed mapping may require additional maps at better scales; check on-line with the USGS for information. The maps in the hab are getting beaten and old.   |
| Camera/Digital camera     | 1         | Recommended          | If you have it, bring it. Digital images can be downloaded to the MDRS computer- bring cables or diskettes as needed. Bring film, spare/rechargeable batteries, charger, a good case and lens care kit (recommended). It is very difficult to take pictures with a regular camera through the helmet of the space suits. The hab has 2 digital cameras. |
| Canned Air                | 37258     | Optional             | This is great for cleaning cameras and other personal equipment in the field and in the Hab.  |
| Camcorder                 | 1         | Optional             | Those allowing digital stills are very useful. Be sure to bring enough tape, batteries/charger, cables.   |
| Tripod                    | 1         | Optional             | Bring a sturdy tripod for field work- the desert can be windy.  |
| Photo scale               | 1         | Optional             | Handy for taking field photos   |
| Bungie Cords              | 1         | Optional             | For securing items on ATVs. MDRS has a limited supply.  |
| Foam padding/ bubble wrap | As needed | Optional             | If you need to transport delicate equipment on ATVs, be sure to bring adequate padding for the ATV baggage rack. Unpadded equipment and gear take severe beatings on rides.   |
| Personal Laptop Computer  | 1         | Strongly Recommended | Strongly recommended. MDRS has one computer, and one laptop. Bring all necessary peripherals (cables, mouse, AC power adapter, power-strip w/internal circuit breaker, etc.). Bring addition network cable. staterooms have network and internet access.  |

## Other Personal Gear

|                     |                      |          |  |
|---------------------|----------------------|----------|--|
| Reading materials   | As needed            | Optional | Books, magazines, etc. Textbooks related to your field of work are a good idea   |
| Movies              | As needed            | Optional | Traditionally, each crewmember brings a DVD or two to leave.<br>NOTE: MDRS doesn't have a DVD player- DVDs are usually watched from a crew's laptop                  |
| Other fun stuff     | As needed            | Optional | Crewmembers should consider bringing something they might like to do as a hobby in their spare time at MDRS, However, spare time is not very likely going to happen. |
| Specialty Foods     | Needs permission     |          | ASK permission of Kim Binsted, as it might interfere with the ongoing food study   |
| Alcoholic beverages | <b>Not permitted</b> |          |  |