

Subaru Telescope Safe Driving Guidelines

1. The purpose of the guidelines and the introduction

- 1.1. These guidelines have been made to help eliminate vehicle accidents caused by or related to Subaru Telescope's vehicles. Driving a vehicle is an important duty for most employees. Subaru Telescope relies on their safe driving for its operation. Traffic accidents could cause a loss of life, which is the most tragic thing: injury of the driver, the passengers, and the other people, and the damage to the properties of Subaru Telescope and others. One traffic accident may result in a huge impact on the continuation of the Subaru Telescope project.
- 1.2. Drivers must be aware of safe driving by following all traffic rules and Subaru Telescope's Vehicle Policy. Subaru Telescope must make sure to make employees drive a vehicle safely. Subaru Telescope must allow an employee to drive only when he/she is fully capable. If the employee is too tired, sick, or sleepy, or has a mental issue, Subaru Telescope must evaluate the employee's condition to determine if he or she can drive.
- 1.3. Before you drive Subaru observatory vehicles, you must pass a written examination and a driving skill examination whether you drive only in town or all the way to the Subaru Telescope summit facility (A written examination is exempted if you have Hawaii Driver License or had Hawaii Driver License in the past). This training is designed for those who passed a written examination or who are exempted from a written examination and who passed a driving skill examination. And the training covers the following items, which you should review as needed to refresh your memory even after training. The following instructions are only a guideline. Poor weather may require additional cautionary procedures. Every driver is required to practice safe driving based on this. You must take classroom training every two years to renew your status as a driver.
- 1.4. For details of the driver qualifications, refer to Subaru Telescope Vehicle Policy.
- 1.5. Vehicle manager is Safety Officer, Vehicle Assistant Manager(A) is Lead of Science Operation, and Vehicle Assistant Manager (B) is Lead of Operation.

2. At all times

- 2.1. Check the exterior of the vehicle BEFORE and AFTER driving. If you find damage, please notify the vehicle operation center (934-5000) or email vehicle@naoj.org immediately. If we find damage late, the vehicle would be repaired late, and that would cause inconvenience to many.
- 2.2. The driver and all passengers must wear seatbelts while in a Subaru's vehicle.
- 2.3. The driver may not use the cell phone when driving.
- 2.4. Follow all traffic rules and regulations.
- 2.5. Observe yellow traffic caution signs and posted speeds approaching curves. Control speed before entering a curve.
- 2.6. There are small green signs with mile marker numbers located on the side of the road. Mile markers can be useful if you need to report your location in case of a mechanical problem or an accident.
- 2.7. Be aware of oncoming traffic as well as traffic behind you.
- 2.8. Safe driving speed is not always the same. Vehicle location, vehicle load, weather, time of the day, road conditions, type of vehicle, visibility, driver's capability, and driver's condition may all require driving at a slower speed than the posted speed limits. Be aware of acceleration at downhill drive.

Especially on the Summit Access Road from HP and above, strictly drive the speed limit or below. CMS sends Subaru Safety Officer the report for speed measurement. Safety Officer will keep notifying the drivers whose vehicle was recorded over the limit. If the recorded speed is 5 mph above the limit, disciplinary action will be taken. Repeated speeding may be subject to severe disciplinary action.

- 2.9. Any speeding or traffic violations that occur when driving a Subaru vehicle are the driver's responsibility.
- 2.10. Be very careful if you pass a vehicle. Subaru Telescope strongly recommends not passing a vehicle. However, if you must pass a vehicle, make sure you still drive within the posted speed limit while passing, and make sure that no oncoming traffic is seen at a sufficient distance ahead. If there are two lanes for oncoming traffic, never cross the center line if you see oncoming traffic. Assume that oncoming traffic may change lanes at any time. Don't attempt to pass multiple vehicles at a time.
- 2.11. Many accidents have occurred due to high speed. Always maintain a safe driving speed and be alert always. If you are driving without any passengers and feel fatigued or tired in any way, find a safe place to pull over, take a break, and rest until you feel alert enough to operate the vehicle safely. Or, if you have a passenger who is not tired or sleepy and is authorized to operate a Subaru vehicle, ask him or her to drive.
- 2.12. Keep connecting a cellular phone to a charger and plugging the charger into a cigarette lighter. The main purpose of this cellular phone is for communication in case of an accident or car trouble.
- 2.13. If you ever have a flat tire or any mechanical problems when driving, stay calm and scan the road ahead to look for a safe flat area to signal and pull over as far from the road as possible. Call the vehicle operation center (934-5000) to report what has happened right away. You must park the vehicle and turn off the engine if you use the cell phone while in the vehicle.
- 2.14. A vehicle logbook is in the vehicle to keep records of destinations, departure/arrival times, names of drivers, and names of passengers, if any. Please complete the vehicle log when you arrive at the destination. Emergency network phone numbers, the phone number for the vehicle operation center, and other important phone numbers are also in the vehicle logbook.
- 2.15. If you change a flat tire, park the vehicle in a flat area as much as possible. Keep a flat tire on the highest ground. Excessive weight of the vehicle could collapse the jack if you attempt to elevate a tire that is located on a lower ground. Refer to the vehicle owner's manual for proper placement of the jack and instructions on how to remove the spare tire.
- 2.16. Drive recorders (cameras) are installed in vehicles for driver/passenger safety and to keep evidence of driving history. Drivers must make sure the recorder is working before starting to drive. Do not tamper with or turn off the recorder or move cameras in different directions without the authorization of the vehicle manager.
- 2.17. Be properly seated for airbag safety. This means all riders should be sitting upright with both feet on the ground, and both the lap belt and shoulder belt should be firmly and correctly placed. Placing feet on the dashboard is unsafe.
- 2.18. Eating and drinking are not restricted to all the Subaru's vehicles. However, using a non-spillable container is recommended. Wiping spills is requested if you spill in Subaru's vehicles.

3. In case of accident

- 3.1. In case of an accident that involves loss of life, injury, or damage to property/vehicle not belonging to Subaru Telescope.
 - 3.1.1. STOP IMMEDIATELY, but do not obstruct traffic. Warn oncoming cars.
 - 3.1.2. TURN IGNITION OFF, guard against fire.

- 3.1.3. ASSIST INJURED, then call 911.
- 3.1.4. SECURE LICENSE NUMBERS, makes, and models of other cars involved.
- 3.1.5. SECURE NAMES and addresses of other drivers, witnesses, and injured persons.
- 3.1.6. MAKE ROUGH DRAWING of the scene showing the position of cars and/or other details.
- 3.1.7. TAKE PICTURES of the scene and damage, if possible.
- 3.1.8. DON'T HASTILY ACCEPT CLAIM settlement at the scene of the accident.
- 3.1.9. NOTIFY OUR INSURANCE AGENT (Noguchi & Associates, Inc. at (808) 596-2700).
- 3.1.10. CALL Subaru Telescope Emergency Contact Team (ECT) at 934-5911.
- 3.1.11. FILE "SUBARU TELESCOPE SAFETY, HEALTH AND ENVIRONMENT REPORT" to the Safety Officer no later than 24 hours.
- 3.1.12. Supervisor must file "RCUH'S SUPERVISOR'S REPORT OF INDUSTRIAL INJURY" no later than 24 hours to Subaru's HR if an RCUH employee got injured.
- 3.2. In case of an accident that does not involve loss of life or injury but damage to property/vehicle belonging to Subaru Telescope.
 - 3.2.1. Make a rough drawing of the scene showing the position of cars and/or other details.
 - 3.2.2. Take pictures of the scene and damage, if possible.
 - 3.2.3. CALL the vehicle operation center (934-5000) during business hours. CALL Subaru Telescope Emergency Contact Team at 934-5911 during the off hours.
 - 3.2.4. If you feel uncomfortable with operating the vehicle, ask the vehicle operation center (934-5000) or an ECT member to request an arrangement for alternative transportation.
 - 3.2.5. FILE "SUBARU TELESCOPE SAFETY, HEALTH AND ENVIRONMENT REPORT" no later than 24 hours to the Safety Officer.

4. At the Hilo facility:

- 4.1. Reserve a Subaru vehicle from the Subaru vehicle reservation system on the NAOJ website.
- 4.2. Avoid driving alone. Arrange at least one passenger in your vehicle ahead of time. If you must drive alone, designate a monitoring person when you travel to the summit facility. You don't need to designate a monitoring person when you drive only in town or drive to another town, such as Waimea. The monitoring person may be one of our staff members or other adults who know the following procedures. Tell the monitoring person that you are leaving. When you arrive at the summit, call the monitoring person. If the monitoring person does not receive a call or cannot verify that the driver has arrived, the monitoring person should call the summit facility or other destination to make sure the driver has arrived. If the arrival cannot be verified, the monitoring person must call Emergency Contact Team (ECT: 934-5911).
- 4.3. Because the Subaru vehicle reservation system is used to keep track of the driving records, the name of the driver must be accurate. If your reservation is made under ". Day crew", "TED," or something that does not represent the driver's name, you must change it to your name before you start to drive.
- 4.4. Call MKSS Road Condition (935-6268) to check road conditions above Halepohaku if poor road condition is anticipated.
- 4.5. Grab a cellular phone and a vehicle key.
- 4.6. Enter the passenger's name(s) and click your departure time on the Subaru Vehicle Reservation System using the computer near the key box.
- 4.7. Before leaving the Subaru Base Facility, Do a visual check of the vehicle. Check tires, snow chains, and other vehicle accessories. Check the headlight switch location, directional signal switch location, window wiper switch location, and jack location before you start to drive. If there are any service

lights or warning lights on, such as the check engine light, low tire pressure light, or any vehicle problem, report to the vehicle team at vehicle@naoj.org, the vehicle operation center (934-5000), or the Vehicle Assistant Manager (B) right away.

- 4.8. Check the fuel level before leaving. If the fuel level in the fuel tank is less than half full, fill the tank up at the gas station. Subaru has an account at HELE gas station at 360 Kaumana Drive. A gas charge card is assigned to each Subaru's vehicle, and a pouch is attached to the vehicle log binder. All authorized drivers are given his/her own PIN number. The PIN number is the same as your four-digit extension phone number. A different PIN number is assigned to Staff members or Visitors who don't have an extension number. Please contact Accounting unit to obtain the PIN number. The vehicle refueling procedure at the HELE gasoline station is as follows.
 - 4.8.1. Use the payment panel at the pump outside.
 - 4.8.2. Wait for "Enter Loyalty #" sign comes out on the panel of pump and press "Arrow" mark.
 - 4.8.3. Enter Loyalty number which is taped on the gasoline card in the vehicle.
 - 4.8.4. Insert gasoline card.
 - 4.8.5. Enter vehicle number (i.e. "8" for J-8) for Odometer
 - 4.8.6. Enter your PIN number (your four-digit extension phone number) for Driver ID
 - 4.8.7. Enter "Yes" for printing a receipt (Only one receipt will be printed)
 - 4.8.8. Bring back the receipt to the Hilo office.
 - 4.8.9. Write your name and vehicle number on the receipt and drop it in "Gasoline Receipt" box by the vehicle key cabinet.

5. From Hilo Facility to Halepohaku:

- 5.1. The legal posted speed limits are 35, 40, 45, 55, and 60 mph for the Hilo side of Saddle Road or Daniel K. Inouye Highway. The posted speed limits on Mauna Kea Access Road are 30 and 40 mph.
- 5.2. Speeding is the cause of many accidents on the Saddle Road. Monitor the vehicle's speedometer frequently and always maintain a safe driving speed. Be aware of the weather and road conditions and know the conditions can change very quickly.
- 5.3. When approaching the VIS (Maunakea Visitor Information Station), reduce speed to 20 mph. Exercise caution for pedestrians and tourist vehicles entering and exiting the area. Note that MK Rangers conduct brake disc temperature inspections near the VIS, so watch for vehicles that may be slowing down or stopped.

6. At Halepohaku:

- 6.1. Park the vehicle in an available space in the parking lot.
- 6.2. There are whiteboards and computer display in the main lobby of the Halepohaku facility. Snow or ice, the weather forecast, and snow chain information will be shown there.
- 6.3. Click arrival/departure time on the vehicle reservation system using the computer located in the Subaru office. For altitude acclimation, you must rest at Halepohaku for at least half an hour before driving up to the Summit if you plan to stay at the Summit for eight hours or less.
- 6.4. A satellite phone (Country code: 8707, and then 7640-4784) is stored in Subaru's office in Halepohaku. This phone is for emergency use by night crew while driving between Halepohaku and the Summit. If you determined the road/weather condition is poor and you need to secure communication while driving, you may use it during the daytime. Make sure that the night crew will know that you have a phone.

- 6.5. You may fill gas at the station at Halepohaku. Take a key with a clipboard located on the front desk of the main lobby. The station is located at the upper level of the Halepohaku main building. Turn the knob for the meter to reset to zero, unlock the gas dispenser with the key, turn the handle at the dispenser socket toward you, then start filling. Record your name, vehicle name, registration number, meter reading, and gallons taken legibly in the log. After filling, raise the bar, return the dispenser, lock it, and return the key with the clipboard to the front desk.
- 6.6. When the road is closed to the public but open to MKO's if you have a contractor or a vendor going up to make a delivery or provide a service, the contracting organization must provide escort to and from the summit and notify the rangers of the visit.

7. From Halepohaku to the Summit:

- 7.1. Use 4WD on the dirt road above Halepohaku. (4WD high range or 4WD low range)
- 7.2. To shift into and out of 4WD low range, the vehicle must be stopped and in neutral with the brake on. To shift from 2WD to 4WD high range, the vehicle does not need to stop. Use 4WD for both uphill and downhill on the unpaved road. Follow instructions in the vehicle owner's manual on how to engage and disengage the 4WD system.
- 7.3. 4WD is recommended on unpaved roads or on paved but icy or wet and slippery roads to prevent wheel spin during starts and acceleration. Always switch to 2WD on paved and dry roads. 4WD is an acceleration aid and does not help in the stopping of a vehicle. During icy or slippery conditions, tire chains and slow, careful driving should be utilized. Braking performance is not affected by the drive system; therefore, it is important to maintain sufficient following distance and apply brakes early. Make a conscious effort to decelerate adequately on straight sections whenever possible. To effectively utilize engine braking, it is recommended to use 1st gear in 2H and 4H modes, and 3rd gear or lower in 4L mode. When downshifting (e.g., from 3rd to 2nd gear), it is advisable to keep the brake pedal depressed until the shift operation is complete.
- 7.4. The posted speed limit is 25 mph for the Summit Road and dirt road. The posted speed limit is 5 mph on the Subaru access road by the Submillimeter Array. Follow posted speed limits.
- 7.5. Driving is very difficult right after sunrise when heading east, as the sun is directly in your line of sight. A similar situation occurs before sunset when driving west. A clean windshield is essential for clear visibility. Oncoming vehicles do not face this problem. Exercise caution and reduce speed accordingly.
- 7.6. "KEEP RIGHT" means to stay on the right side of the road. Keep right all the time. Also, be aware that the road grader has the right of way. Be cautious, the operator may not see you.
- 7.7. Monitor the vehicle's engine temperature gauge and engine tachometer as well as your speed when driving up or downhill in low gear. Prolonged high engine RPMs can result in engine overheating and possible engine damage.
- 7.8. Be very careful if you pass another vehicle on Summit Road. Your driving may be recognized as too aggressive by another driver even if you don't feel it. A complaint from another driver is normally reported from MKSS to our director. The complaint will be subject to our investigation, and the driver is subject to disciplinary action. You may pass another vehicle only if directed by the driver of the vehicle ahead of yours.
- 7.9. Low-beam headlights must be used while driving in the summit area during the evening.
- 7.10. Do not double-park (Do not park in front of/behind another vehicle) in the parking lot of the summit facility. Double parking may make a quick evacuation difficult in case of emergency.

- 7.11. The Safety Board recommends all drivers park their vehicles backward at the summit parking lot. Parking the vehicle backward has the following advantages.
 - 7.11.1. There is less chance of an accident if you reverse the vehicle while it is bright and while you have full of attention than you do after it gets dark and while you are tired.
 - 7.11.2. Parking backward helps quick evacuation from the summit facility.
- 7.12. Click your arrival time on the vehicle reservation system in the staff room in the Control Building upon your arrival. Drop a key in a bin by the computer for the vehicle reservation. If you drove alone, inform your monitor that you arrived at the Summit facility safely.
- 7.13. Avoid driving alone. Driving alone could cause drowsiness and could delay of notification in case of an accident. For night operations, operators, support astronomers, and observers should coordinate and have at least one passenger in each vehicle.
- 7.14. Night crew (operators and support astronomers) should use at least two vehicles to trip to the summit facility and use a buddy system of vehicles to ensure safety.
- 7.15. 7.13 and 7.14 may conflict with each other if the total number of night crew and visitors is less than four. In such a case, use two vehicles. And use a buddy system of vehicles to ensure safety. With a buddy system, a driver of one vehicle can watch for another vehicle.
- 7.16. Exception is permissible as long as driver and passenger safety are assured and an operator approves it. The operator is in charge of safety for night operation. Here is an example how a lone driver can assure his/her safety. Before a lone driver leaves the summit, tell a night crew who stay at the summit or at HP that you will call him/her when the driver arrives at HP. If the driver does not call the night crew within reasonable time to travel to HP (say, 40 minutes or so), the crew will start a search mission by calling the driver or destination. If the arrival cannot be verified, the night crew should contact the Emergency Contact Team (ECT: 934-5911).

8. From the Summit Facility to the Hilo facility:

- 8.1. When you depart from the Summit Facility, click your departure time on the vehicle reservation system in the staff room in the control building. Follow posted speed limits.
- 8.2. Low-beam headlights must be used while driving in the summit area during the evening.
- 8.3. Use 4WD with low gears on the dirt road down to Halepohaku to avoid over-using the brakes. If using 4H, use 1st gear. If using 4L, use 3rd gear or lower. Adjust your gear so you don't exceed 25 mph.
- 8.4. Use 2WD low gear to drive down on the paved road below Halepohaku with up to 17% grade. To avoid brake failure caused by the overheating of the brake rotors and pads, apply the engine brake by shifting to a lower gear.
- 8.5. Driving down Saddle Road is more dangerous than driving up. While driving down Saddle Road, other vehicles may tailgate. Do not increase your speed. Maintain a safe driving speed. If many vehicles are behind you and you feel a need to let them pass you, scan the road ahead for a safe place to signal and then pull over.
- 8.6. As a courtesy to the other drivers of Subaru vehicles, please refuel the vehicle if the fuel level is below half tank when returning to the Subaru Hilo facility.
- 8.7. When you return to Hilo facility, remove your personal belongings and cell phone from the vehicle. Fill in the necessary information in the vehicle logbook and turn off the headlights, and lock the doors. Place the vehicle keys in the key box and the cell phone to the charger. Click the arrival time on the vehicle reservation system.

9. Winter Driving

- 9.1. Maunakea Road closures are common during winter due to ice, snow, and high winds. Before heading to the summit, be sure to check the latest information from the Maunakea Road Condition and Rangers.
- 9.2. Please wait at Halepohaku until the MKSS utility completes snow removal work around Subaru summit facility. Snow removal conditions vary depending on the Maunakea summit area, so not all roads may be safe to pass.
- 9.3. You must complete tire chain installation training to drive a vehicle on the Summit Access Road.
- 9.4. Do not be overconfident in your driving skills during poor road conditions. Decisions about using tire chains or canceling a summit trip should be made early enough that you are not forced into a situation where these options are no longer available.
- 9.5. Drivers must put tire chains if studded tires are not installed and
 - 9.5.1. If at any point during the day or night, the humidity at the summit (VLBA or higher in elevation) was greater than 90% while the summit temperature (VLBA or higher) was less than -1 deg. C.
 - 9.5.2. or If the ranger recommends tire chains.
- 9.6. When you come down from the Summit before sunrise with snow and ice on the paved road, snow chains are required when studded tires are not installed. If there is a strong chance of snow and ice at the Summit, it is wise to install the snow chains at Halepohaku before driving up to the Summit.
- 9.7. If you receive a report from somebody (Ranger, Subaru, or other observatory staff, etc.) that the road is dry, then there is no need to put on chains unless the temperature and humidity exceed the above thresholds afterward.
- 9.8. Even if the parking lot at the summit is dry, black ice can form on the road surface during descents. Slip accidents occur frequently in winter, but it is difficult to judge road conditions along the route based on the weather at the departure point. Therefore, even on paved roads, if the driver thinks that road conditions may be slippery, it is recommended to use 4WD High in 1st gear (or 3rd gear or lower if in 4WD Low). However, in 4WD mode (both 4H and 4L), the vehicle's tendency to go straight is stronger compared to 2WD (2H), making it difficult to change direction in corners. For this reason, it is important to decelerate sufficiently on straight sections.
- 9.9. To increase traction, drivers may install tire chains on studded tires for additional safety.
- 9.10. Consult with the vehicle owner's manual regarding which wheels and tire chains should be worn. For example, owner's manual of 4Runner instructs to put tire chains only on rear wheels.
- 9.11. Driver of each vehicle is responsible for the decision to install tire chains if studded tires are not installed. All vehicles in the convoy should install tire chains if studded tires are not installed and if any one of the drivers decides to do so.
- 9.12. Spray cans that would increase the traction of tires against ice, called a Tyre-grip, are stored in flammable cabinets located on the first floor of the control building and against the wall of the machine/vehicle shop of Halepohaku. Do not be overconfident in the performance of the spray. If you are not sure about the performance, use tire chains instead. Do not leave spray cans in the vehicle during the daytime. Spray cans may explode with excess heat.
- 9.13. During the winter season (normally September to March), we assign two vehicles for night crew. The assigned vehicles will stay at Halepohaku without returning to Hilo until the next regular vehicle maintenance and will have studded tires installed all the time while they are in use. Night crew travels between Hilo and Halepohaku with a car with regular tires.

- 9.14. If renting a vehicle for transportation between Hilo facility and Halepohaku, the drivers authorized to operate it may be limited. Check with the Operations Center before driving. Always follow instructions from the Operations division and vehicle team for the operation and allocation of rental vehicles.

10. Transportation of load

- 10.1. The driver is responsible for secure transportation of the load on a vehicle unless the driver is explicitly prohibited to enter and watch the loading and securing the load. The driver is responsible for safe handling and security of the load until someone else takes over driving, until someone else starts unloading, or until someone else takes over handling and security of the load. If the driver leaves the vehicle with the load that he/she drove, the driver still bears the responsibility for safekeeping and for the security of the load until one of the above conditions is met.
- 10.2. Drivers must be aware of vehicle or truck contents unless disclosure is clearly prohibited. For hazardous materials, consult the Safety Manager regarding Department of Transportation rules and emergency response procedures.
- 10.3. Transporting large quantities of hazardous material so that posting a placard is required by the Department of Transportation is prohibited.
- 10.4. Large amounts of compressed gas and cryogen in a vessel or a cylinder with a pressure-release valve must be transported with a truck and must be loaded on a truck bed. Storing them in the passenger compartment will cause oxygen deficiency and is prohibited.
- 10.5. Transporting hazardous waste is prohibited unless someone takes responsibility for all requirements, such as documenting manifests related to the transportation. We will call a professional disposal company for the collection of hazardous waste. Contact the accounting unit or the Safety Officer for details.
- 10.6. Only authorized drivers taking special training are allowed to operate J-8.

11. Drive Recorder

- 11.1. All vehicles are equipped with a rearview mirror-integrated dash camera. The purpose of the dash camera is to record activities of people around the vehicle and interactions with the driver/passengers. Before departure, confirm that the dash camera is operating properly. Do not turn it off without authorization. Do not move the camera position, unplug the charging cord, or change the settings. If you discover any abnormality or problem with the dash camera, report it to vehicle@naoj.org.
- 11.2. You may move the camera position. But once the scene is done, please return the camera to the original position.
- 11.3. Please note that this drive recorder records your voice. Advise passengers that the drive recorder records voice. Video and audio data recorded on the card may be retrieved for investigations only if necessary. In most cases, data on the card will be automatically deleted if the card becomes full to make room for new data.

ACKNOWLEDGEMENT OF SUBARU TELESCOPE SAFETY DRIVER TRAINING

I understand my instructor's directions and have read and understood the safe driving guidelines. I also understand Hawaii State traffic laws and the Subaru Telescope Vehicle Policy.

.Guidelines used were the version of 12/04/2025

Trainee Print Name _____

Signature _____ Date _____

Safety Manager Print Name _____

Signature _____ Date _____