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Table 1: Gauge visits during the fall 2011. Comments: DD=gauge data download, MN=general gauge maintenance (cleaning, bounce sheet, re-level), CV= clear vegetation, TR = T/R sensor data download, and OT = other.

Date	Gauges Visited	Technicians	Comments
13 Nov 2011	1, 3	Ashley, Doug	DD, MN, CV
18 Nov 2011	2, 5, 8, 106	Aaron, Ashley	DD, MN, CV
12 Nov 2011	4, 10, 110	Chris, Doug	DD, MN, CV
21 Oct 2011	104	Doug, ATMS 111 students	DD, MN, CV
22 Oct 2011	101	Anna	DD, MN, CV
9 Dec 2011	111, 112, 311	Jeremy, Doug	DD, MN, CV
9 Nov 2011	102, 103, 105	Doug	DD, MN, CV
5 Nov 2011	108	Thomas, Aaron	DD, MN, CV
23 Oct 2011	305, 309, 310	Ashley, Jeremy	DD, MN, CV
6 Nov 2011	100, 100T, 105, 107, 109	Michael, Robert	DD, MN, CV
11 Dec 2011	303, 306	Daniel, Robert	DD, MN, CV
19 Nov 2011	300, 308	Robert, Chris	DD, MN, CV
4 Nov 2011	301, 302	Daniel, Jeremy	DD, MN, CV
29 Oct 2011	304, 307	Thomas, Doug	DD, MN, CV

Gauge visitation in support of the Great Smoky Mountain Rain Gauge Network (GSMRGN) during the fall 2011 occurred over 14 days spanning a period of over seven weeks in the October – December 2011 period. The primary purpose of the visits was [1] to perform maintenance, [2] to download gauge observations that were made since the previous gauge visits in the summer 2011, and [3] clear vegetation. Eleven technicians and volunteers (listed on the front page) made the visits and performed the required work. It is important to note that the volunteers were NOT directly involved in any of the gauge visit tasks, but were volunteering to assist with personal safety should someone get injured during a particular series of gauge visits.

The general tasks completed at **every** gauge visit consisted of (1) gauge data download from the data loggers [DD in Table 1], (2) general gauge maintenance [MN in Table 1], and (3) clearing of vegetation from the gauge site [CV in Table 1]. Specialized tasks were to download data from the new T/RH sensors for those remaining in the Great Smoky Mountain National park. Task (1) merely required a serial port link between the field study laptop and the gauge data logger and consisted of pulling the data (often in files having two different formats) onto a desktop folder on the laptop, checking for completeness of the data, and comparing the data logger time to the actual time, making corrections to the data logger clock if necessary. The standard that has been chosen for this study is to maintain the clocks on Eastern Daylight Time, since most of the “warm” precipitation will be occurring during the season when EDT is in effect. Because of concerns regarding accuracy of the time on the ML1 data loggers, a new standard was followed whereby the time from the Garmin GPS locators was used as guidance for accurate time since the GPS time (and each GPS satellite) is synched with the atomic clock of the U.S. Naval Observatory. Most ML1 data logger times were adjusted during the fall 2011 gauge visits to coincide with the EDT given by the GPS locators and a test of the logger time accuracy can be assessed during the spring 2012 gauge visits. Task (2) required the cleaning of debris from the funnel filter, cleaning the tipping buckets of debris (if necessary), cleaning the gauge drain ports, removal of the old “Bounce” fabric softener sheet inside the case of the gauge, and re-leveling the gauge if it has come unlevelled. Task (3) is required to insure that none of the surrounding vegetation overgrows the funnel top during the growing season, thereby reducing the catchment of the gauge.

The challenges encountered during some of the gauge visits in the fall 2011 were related to the dwindling daylight and winter weather conditions. Several trips had to be broken down to multiple daytime visits due to the remoteness of the gauges and the dwindling daylight hours (e.g. g#300, 306, 308, 301, 302, 303, 311). One of the repeat visits (g# 105) was due to a needed time correction to change the ML1 logger to EDT from EST. The Sunup Knob gauge (g#306) was again discovered to have been pushed over by a bear. This was a repeat of what was discovered during the summer 2011 visit. The Sunup Knob gauge was brought back to UNC Asheville as a new gauge installing procedure is contemplated during the winter months. One of the gauges installed in the summer 2007 was found to be tipped over (Lickstone Bald, g#002) and has been re-installed with greater reinforcement of the base unit. The gauge at Beaty Spring Gap (g#010) was not found to have been tipped over and continues to be found at its original install location.

Details of every gauge visit along with each gauge precipitation and calibration data record can be found in folder "GAUGE-DATA-PMM" which contains sub-folders for each gauge that consists of the individual data files (often having at least two different formats) and a "history" MS Word document that mirrors exactly the notes made in the field journal during each gauge visit. A MS Word document "field_log_entries_fall2011" contains the notes made in the field journal during the gauge visits in the fall 2011.

Plans for the spring months of 2012

Table 2: Planned gauge visits during the spring 2012. Comments: DD=gauge data download, MN=general gauge maintenance (cleaning, bounce sheet, re-level), and CV= clear vegetation.

Date	Gauges Visited	Technicians	Comments
7 Apr 2012	1, 3	TBD	DD, MN, CV
8 Apr 2012	2, 5, 8, 106	TBD	DD, MN, CV
14 Apr 2012	4, 10, 104	TBD	DD, MN, CV
15 Apr 2012	111, 112	TBD	DD, MN, CV
21 Apr 2012	101, 102, 103, 108, 110	TBD	DD, MN, CV
22 Apr 2012	100, 105, 107, 109	TBD	DD, MN, CV
28 Apr 2012	305, 309, 310	TBD	DD, MN, CV
29 Apr 2012	303, 306, 311	TBD	DD, MN, CV
5 May 2012	304, 307	TBD	DD, MN, CV
6 May 2012	300, 301, 302, 308	TBD	DD, MN, CV

Gauge visitation in support of the GSMRGN during the spring 2012 will occur over at least 10 days spanning a period of nearly six weeks in April/May 2012. The primary purpose of the visits will be to perform maintenance and to download precipitation observations that were made since the previous gauge visits in October - December 2011. A primary maintenance issue will be to clear each gauge funnel of typical early-spring debris (buds, pollination debris), to keep the “field-of-view” of the gauges clear of vegetation overgrowth, and to place fresh “Bounce” fabric softener sheets inside the gauges to discourage insect or spider habitation. The higher elevation gauges during the April/May period will be visited last as the leaves on high elevation trees open later in the spring season. Also, the necessary access roads near the Great Smoky Mountain National Park open rather late in the spring.

The general tasks completed at every gauge visit will consist of (1) gauge data download from the data loggers [DD in Table 2], (2) general gauge maintenance [MN in Table 2], and (3) clearing of vegetation from the gauge site [CV in Table 2].

Details of every gauge visit along with each gauge precipitation data record will be updated in folder “GAUGE-DATA-PMM” which contains sub-folders for each gauge that consists of the individual data files (often having at least two different formats) and a “history” MS Word document that mirrors exactly the notes made in the field journal during each gauge visit.

It is anticipated that a new undergraduate research student at UNC Asheville will be added to the technician team in time for the spring 2012 gauge visits to eventually help replace students Christopher Zarzar and Aaron Woodward.

A new round of rain gauge calibration visits will take place in mid- to late-May 2012, but the exact details of the methodology behind these visits will be determined over the winter months.